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NATIONAL LABORATORY

Analysis of Air-Purifying Respirator (APR) and Powered Air-Purifying Respirator (PAPR) Cartridge Performance Testing on Hanford Tanks BY-108 and BY-110

Volume 2 – Raw Analytical Data

August 2020

SK Nune
CL Bottenus
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U.S. DEPARTMENT OF ENERGY

Prepared for the U.S. Department of Energy
under Contract DE-AC05-76RL01830

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Richland, Washington 99352

Acronyms and Abbreviations

APR	air-purifying respirator
COPC	Chemicals of Potential Concern
DL	detection limit
OSHA	Occupational Safety and Health Administration
PAPR	powered air-purifying respirator
RL	reporting limit
TIC	Tentatively Identified Compounds
WRPS	Washington River Protection Solutions

Contents

1.0 Introduction/Project Description

As the Tank Operations Contractor for U.S. Department of Energy operations at the Hanford site in Washington State, Washington River Protection Solutions (WRPS) is responsible for managing highly radioactive wastes stored in tanks at Hanford. WRPS identified the need to tests air-purifying respirator (APR) and powered air-purifying respirator (PAPR) chemical cartridges commonly used by workers at Hanford Tank Farms. The tests were conducted to determine the period of time that the cartridges would provide adequate performance for APRs and PAPRs used to protect workers when exposed to a mixture of Chemicals of Potential Concern (COPC) from any vapors exiting headspaces in the storage tanks. The Occupational Safety and Health Administration (OSHA) Standard promulgated in Title 29 of the Code of the Federal Regulations (CFR) 1910.134(d)(3)(iii)(b)(2) specifies that for protection against gases and vapors, employers shall implement a schedule for cartridges to ensure that change-outs occur before the end of service life.[1-4] The change schedule can be based on objective information or data that ensures cartridge change-outs occur before the end of their service life.[2-5] The primary function of the WRPS Cartridge Test Program is to obtain objective data to determine service lives for the APR and PAPR cartridges used at Hanford Tank Farms. WRPS contracted with Pacific Northwest National Laboratory to analyze the test data and offer an independent analysis and
any recommendations. This report summarizes data analysis of APR and PAPR cartridge testing on BY-110 and BY-108 headspace vapors, respectively. Two different APR cartridges from SCOTT Safety (Monroe, North Carolina) were assessed for the BY-110 headspace vapors, and two different PAPR cartridges—one from MSA Safety Inc. (Pittsburgh, Pennsylvania) and another from 3M (Maplewood, Minnesota)—were assessed for the BY-108 headspace vapors.

Volume 1 of this report documents the testing, data analysis, results, conclusions, and recommendations resulting from the cartridge testing of vapors from the BY-110 and BY-108 headspaces. Volume 2 provides an introduction to the raw data, including analytical laboratory analysis results that supported the analysis and conclusions documented in Volume 1.

2.0 References

1. OSHA 29 CFR 1910.134, https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=12716.
2. OSHA Respirator Change Schedules – Decision Logic Flowcharts, https://www.osha.gov/SLTC/etools/respiratory/decisionlogic/flowcharti.html.
3. OSHA Respirator Change Schedules Mathematical Modeling, and Factors that Influence Cartridge Service Life, https://www.osha.gov/SLTC/etools/respiratory/change_schedule.html.
4. OSHA Standard Respirator Testing Procedures, http://www.cdc.gov/niosh/npptl/stps/aprespcbrn.html.
5. Wood GO. 1994. "Estimating Service Lives of Organic Vapor Cartridges." *American Industrial Hygiene Association Journal* 55:11−15. DOI: 10.1202/0002-8894(1994)055<0011:ESLOOV>2.0.CO;2.

Appendix C

Raw Analytical Data

Appendix C

Raw Analytical Data

In previously published cartridge reports, raw data for all contaminants analyzed during testing were provided in Appendix C to the document. However, the extensive amount of data (over 900 pages for this report) resulted in unwieldy document file sizes. To solve this problem, raw data are provided in a separate Volume 2. Appendix C of Volume 1 provides introductory information regarding the content of Volume 2, but the complete raw data set is provided only in this Volume 2.

C.1 Description

This appendix includes raw data of flow rate, temperature, pressure, as well as humidity, and analytical data for the BY-108 and the BY-110 tank headspaces. Calculations using these data are given in Appendix D.

Raw analytical data are included only in Volume 2. Washington River Protection Solutions (WRPS) converted the data into Excel data spreadsheets that were transmitted to Pacific Northwest National Laboratory. Comments on that conversion are provided below.

The analytical measurements listed in Results spreadsheet columns were transferred from entries labeled 'result' in the raw analytical .pdf files. Where a results entry was given as 'ND' in the .pdf, a '<' symbol was used. Where a detection limit (DL)/reporting limit (RL) was listed as 'n/a,' the result entry in the spreadsheet was set at the DL or RL.

The use of the RL or a DL varied among analytical laboratories. The term RL (equivalent to a limit of quantification) was used instead of a DL by ALS Environmental Salt Lake City, Columbia Basin Analytical Laboratory, and 222S–Wastren Hanford Laboratory (see Tables F.1 and F.2 in Appendix F of Volume 1 for a complete correlation of which Chemicals of Potential Concern used an RL or a DL). The WRPS laboratory provided a DL rather an RL. Neither RLs nor DLs were provided for Tentatively Identified Compounds (TIC).

Chain of custody information is provided clearly in the raw analytical data .pdf files, including analyte name, sample numbers, and laboratory-assigned numbers. Chemical Abstract Service numbers were provided by the respective analytical laboratory.

The nomenclature of the sample identification (ID) is the same for every set of chemicals. It is generally composed of a survey number, tank farm ID, test location, sample line, and tube bundle ID. Descriptions of these nomenclatures follows

'BL' means blank measurements obtained from sorbent tubes that have not had any vapor stream passed through them. 'BA' with either 'IN' or 'EF' means measurements obtained for ambient air (i.e. fresh air rather than tank vapor) running through the test system from the inlet (IN) or effluent (EF) locations before initiation of tank vapor testing.

'SD1' designations correspond to testing with the SCOTT 7422-SD1 respirator cartridge, 'SC1' designations correspond to testing with the SCOTT 7422-SC1 respirator cartridge, 'TL1' designations correspond to testing with the MSA Optifilter TL respirator cartridge, and 'TL2' designations correspond to testing with the 3M FR-57 respirator cartridge. The unique survey number also is assigned, identifying the year and a five-digit ID for each of the cartridges tested. For the tank BY-108 headspace, the survey

IDs included 18-01496 for TL1 and 18-01497 for TL2. For tank BY-110 headspace, the survey IDs included 18-01494 for SD1 and 18-01495 for SC1.

Position designations 'IN' with '1' and 'EF' with '1' correspond to the respirator cartridge inlet and outlet measurements, respectively, at 0- to 2-hour time intervals. Position designations '2' through '8' correspond to the subsequent 2-hour measurements for inlet (IN) and outlet (EF): '2' (2 to 4 hours), '3' (4 to 6 hours), '4' (6 to 8 hours), '5' (8 to 10 hours), '6' (10 to 12 hours), '7' (12 to 14 hours), and '8' (14 to 16 hours).

The sample IDs embed the information given above. For example, sample ID 18-01497-8-TL2-IN-1 corresponds to a particular cartridge survey (18-01497) identified as the 3M FR-57 cartridge with the (TL2), sample media line 8, influent (IN) sample bundle, and the first (0 to 2 hours) sample (1).

The target flow rate passing through the respirator cartridge was 30 L/min for the APR tests, and 95 L/min for the PAPR tests. The target sampling flow rates through the sorption tubes ranged between 30 and 2000 mL/min for different chemicals that were being collected. WRPS provided these flow rates as Excel files according to Table C.1.

Table C.1. Filenames of Sample Media Volumes Provided by WRPS

Tank	Cartridge	Filename
BY-110 Headspace	SCOTT 7422-SC1	BY 110 SC-1 2_24_18.xlsx
BY-110 Headspace	SCOTT 7422-SD1	BY 110 SD-1 2_23_18.xlsx
BY-108 Headspace	MSA-TL (TL1)	BY 108 TL 2_23_18.xlsx
BY-108 Headspace	3M FR-57 (TL2)	BY 108 3M FR-57 2_24_18.xlsx

WRPS provided the temperature and humidity information in files listed in Table C.2. The information is shown in the Section C.3. Several terms used in the DRI files are described below.

- Pre' and 'Post' indicate the general time signature when the direct read instrument measurements were taken. 'Pre' refers to the beginning of the 2-hour sample duration, and 'Post' refers to the end of the 2-hour sample duration.
- 'Influent' and 'Effluent' indicate the location of the measurement within the test system. 'Influent' measurements are taken at the inlet of the system upstream of the respirator cartridge. 'Effluent' measurements are taken downstream of the respirator cartridge. The pressure, temperature, and humidity effluent sensors are located at the end of the test system near the vacuum pump, whereas the DRI measurements for ammonia and volatile organic compounds (VOC) are taken from a sampling location between the respirator cartridge and the effluent sorbent tube samples.
- The DRI measurements for ammonia and VOCs could not be taken while the test system sample pumps were operational. 'After Sample Taken' refers to the time signature for these direct read results (e.g., Sample A DRI measurements were taken immediately after the Sample A sorbent tubes were taken and replaced with Sample B sorbent tubes).

Table C.2. Files Containing Temperature, Pressure, Relative Humidity, and DRI Data

Tank	Cartridge	Filename
BY-110 Headspace	SCOTT 7422-SC1	BY-110 SC1 2-24-18.xlsx
BY-110 Headspace	SCOTT 7422-SD1	BY-110 SD1 2-23-18.xlsx
BY-108 Headspace	MSA-TL (TL1)	BY-108 TL1 GME 2-23-18.xlsx
BY-108 Headspace	3M FR-57 (TL2)	BY-108 TL2 FR57 2-24-18.xlsx

The raw analytical data for chemicals in each analyte category are summarized in Section C.4. Some analytes are measured using more than one method (primary and secondary). A crosswalk of COPC to analyte category, media, and analytical method for both primary and secondary methods is provided in

Table C.3. In general, the primary method was used for cartridge performance analysis except in cases for which the secondary method provides improved quantitation for the specific COPC and its concentration range during a specific test.

Table C.3. Crosswalk of COPCs with Primary and Secondary Analyte Category, Media, and Analytical Method

COPC#	Analyte Name	Primary Analysis Method (Analyte Category | Media | Method)	Secondary Analysis Method (Analyte Category | Media | Method)
1	Ammonia	Ammonia | Anasorb 747 | OSHA-ID-188	
2	Nitrous Oxide	Not Measured	
3	Mercury	Mercury | Anasorb C300 | NIOSH-6009	
4	1,3-Butadiene	1,3-butadiene | Charcoal | NIOSH 1024	
5	Benzene	VOC | Carbotrap 300 | EPA TO-17 Mod	
6	Biphenyl	SVOC | Carbotrap 150 | EPA TO-17 Mod	
7	1-Butanol	VOC | Carbotrap 300 | EPA TO-17 Mod	
8	Methanol	Methanol | Silica Gel | NIOSH 2000	
9	2-Hexanone	VOC | Carbotrap 300 | EPA TO-17 Mod	
10	3-Methyl-3-butene-2-one	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
11	4-Methyl-2-hexanone	VOC | Carbotrap 300 | EPA TO-17 Mod	
12	6-Methyl-2-heptanone	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
13	3-Buten-2-one	VOC | Carbotrap 300 | EPA TO-17 Mod	
14	Formaldehyde	Aldehyde | DNPH Treated Silica Gel | EPA TO-11A	
15	Acetaldehyde	Aldehyde | DNPH Treated Silica Gel | EPA TO-11A	
16	Butanal/Butyraldehyde	VOC | Carbotrap 300 | EPA TO-17 Mod	Aldehyde | DNPH Treated Silica Gel | EPA TO-11A
17	2-Methyl-2-butenal	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
18	2-Ethyl-hex-2-enal	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
New	2-Propenal/Acrolein	Aldehyde | DNPH Treated Silica Gel | EPA TO-11A	
19	Furan[b]	VOC | Carbotrap 300| EPA TO-17 Mod	Furans | Tenax TA | EPA TO-17 Mod
20	2,3-Dihydrofuran	Furans | Tenax TA | EPA TO-17 Mod	
21	2,5-Dihydrofuran[b]	VOC | Carbotrap 300| EPA TO-17 Mod	Furans | Tenax TA | EPA TO-17 Mod
22	2-Methylfuran[b]	VOC | Carbotrap 300| EPA TO-17 Mod	Furans | Tenax TA | EPA TO-17 Mod
23	2,5-Dimethylfuran	Furans | Tenax TA | EPA TO-17 Mod	
24	2-Ethyl-5-methylfuran	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
25	4-(1-Methylpropyl)-2,3-dihydrofuran	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
26	3-(1,1-Dimethylethyl)-2,3-dihydrofuran	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
27	2-Pentylfuran	Furans | Tenax TA | EPA TO-17 Mod	
28	2-Heptylfuran	Furans | Tenax TA | EPA TO-17 Mod	
29	2-Propylfuran	Furans | Tenax TA | EPA TO-17 Mod	
30	2-Octylfuran	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
31	2-(3-Oxo-3-phenylprop-1-enyl)furan	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
32	2-(2-Methyl-6-oxoheptyl) furan	VOCTIC[a] | Carbotrap 300 | EPA TO-17 Mod	
33	Diethylphthalate	SVOC | Carbotrap 150 | EPA TO-17 Mod	
34	Acetonitrile	VOC | Carbotrap 300 | EPA TO-17 Mod	Acetonitrile | Charcoal | NIOSH 1606
35	Propanenitrile	VOC | Carbotrap 300 | EPA TO-17 Mod	
36	Butanenitrile	VOC | Carbotrap 300 | EPA TO-17 Mod	
37	Pentanenitrile	VOC | Carbotrap 300 | EPA TO-17 Mod	
38	Hexanenitrile	VOC | Carbotrap 300 | EPA TO-17 Mod	

COPC#	Analyte Name	Primary Analysis Method (Analyte Category ǀ Media ǀ Method)	Secondary Analysis Method (Analyte Category ǀ Media ǀ Method)
39	Heptanenitrile	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
40	2-Methylene butanenitrile	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
41	2,4-Pentadienenitrile	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
42	Ethylamine	Ethylamine ǀ XAD-7 ǀ OSHA-ID-34,36,40,41	
43	N-Nitrosodimethylamine	Nitrosamines ǀ Thermasorb/N ǀ NIOSH-2522 Mod	
44	N-Nitrosodiethylamine	Nitrosamines ǀ Thermasorb/N ǀ NIOSH-2522 Mod	
45	N-Nitrosomethylethylamine	Nitrosamines ǀ Thermasorb/N ǀ NIOSH-2522 Mod	
46	N-Nitrosomorpholine	Nitrosamines ǀ Thermasorb/N ǀ NIOSH-2522 Mod	
47	Tributyl phosphate	SVOC ǀ Carbotrap 150 ǀ EPA TO-17 Mod	
48	Dibutyl butylphosphonate	SVOC ǀ Carbotrap 150 ǀ EPA TO-17 Mod	
49	Chlorinated Biphenyls	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
50	2-Fluoropropene	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
51	Pyridine	VOC ǀ Carbotrap 300 ǀ EPA TO-17 Mod	Pyridines ǀ Coconut Shell Charcoal ǀ NIOSH-1613
52	2,4-Dimethylpyridine	VOC ǀ Carbotrap 300 ǀ EPA TO-17 Mod	Pyridines ǀ Coconut Shell Charcoal ǀ NIOSH-1613
53	Methyl nitrite	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
54	Butyl nitrite	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
55	Butyl nitrate	VOC ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
56	1,4-Butanediol, dinitrate	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
57	2-Nitro-2-methylpropane	VOCTIC ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
58	1,2,3-Propanetriol, 1,3-dinitrate	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
59	Methyl Isocyanate	VOCTIC[a] ǀ Carbotrap 300 ǀ EPA TO-17 Mod	
New	Dimethyl Mercury	Not Measured	

[a] A Tentatively Identified Compound (TIC) indicates that a mass spectrometry "peak" not associated with calibrated compounds has been tentatively assigned to a compound based on an adequate match to the analytical methods reference library. Reference standards for the compound are not available to accurately quantify, assign an analytical DL, or definitively confirm the identity of the TIC. TICs are reported when the peak area is sufficiently large, estimated as ≥5 nanograms of TIC mass, and other analytical criteria are met. For the respirator cartridge testing, this mass of TIC represents an approximate concentration of <1.0 ppb, based on the average of all TICs in the COPC list. TIC compounds are measured through both the Carbotrap 300: EPA TO-17 and Carbotrap 150: EPA TO-17 modified methods. A few compounds are measured in the TIC analysis and another analytical technique. In these cases, the TIC analysis results were not retained because they are qualitative only and inferior to the other calibrated method.

[b] Furan, 2,5-dihydrofuran, and 2-methylfuran are quantified using the secondary method, as the primary method was determined to perform inadequately for these lower-boiling point furan compounds.

C.2 Miscellaneous Notes

All analytical flags assigned by each analytical laboratory are provided in Appendix D. Sample lines occasionally experienced flow control issues, and these instances are documented in Appendix D with a quality flag of 'S*' associated with the impacted data point.

Methanol was measured in the PAPR test rig only. A thirteenth sample media line was added to the new rig so methanol could be measured using a dedicated sorption tube.

A swap of influent and effluent sorbent tubes was identified and documented in the following email exchange.

From: Way, Zachary K
To: Brouns, Thomas M; Bottenus, Courtney L
Subject: RE: BY-108/110 Cartridge Data
Date: Thursday, September 06, 2018 9:56:45 AM
Attachments: image004.png

Courtney and Tom,

After reviewing the data and reviewing with my IH technician lead, we have both concluded that the most likely cause would be an IHT swapping the effluent 6 hour and influent 8 hour sample tubes. As a result, I request that you swap the results for the 3M FR-57 cartridge for the previously specified time interval.

Thank you,

Zack

From: Brouns, Thomas M <tom.brouns@pnnl.gov>
Sent: Friday, August 31, 2018 10:50 AM
To: Bottenus, Courtney L <courtney.bottenus@pnnl.gov>; Way, Zachary K <Zachary_K_Way@rl.gov>
Subject: RE: BY-108/110 Cartridge Data

Zack – if this actually happened, we surmised that that the labels/tubes for 8-hour outlet and 6-hour inlet got swapped (put in the wrong boxes). Don't know if this is likely or not.

For us to make a change in how we present the data, we need something in writing from you that states you believe this occurred and request that we present the data correctly (i.e., modified from the way it came across). Alternately, we can present the data as is and reflect that the results appear questionable, and may be a result of a tube swap, but there is no evidence to confirm or refute this.

Tom

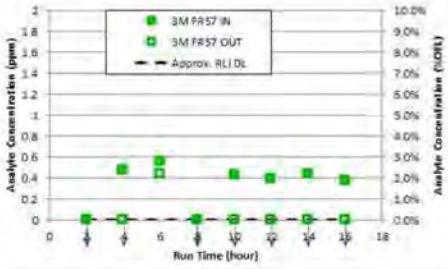
From: Bottenus, Courtney L
Sent: Friday, August 31, 2018 10:33 AM
To: Way, Zachary K (WRPS) <Zachary_K_Way@rl.gov>; Brouns, Thomas M <tom.brouns@pnnl.gov>
Subject: BY-108/110 Cartridge Data

Zack,
We are observing an odd trend in the BY-108 (PAPR) dataset from the 3M FR57 VOA tube. Specifically, there is a noticeable spike in outlet concentrations at hour 6, for all species we use VOA method.

The group was pondering if there was a swap of the 6 hr outlet tube and the 8hr inlet tube. I realize this type of swap hasn't happened. Below I have collected a few plots and tables to demonstrate what we are seeing. I have highlighted in the tables the two values that we are interested in. I would appreciate if you could further interrogate from your side to track down if there was some type of tube swap effecting the results.

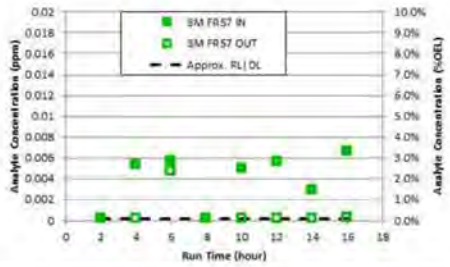
Thank you,
Courtney

1-Butanol:



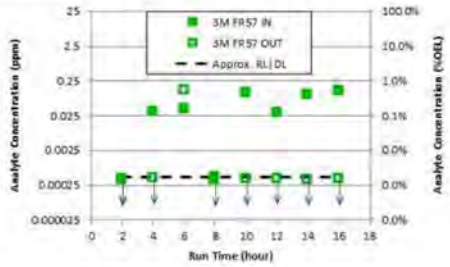
T1,2 (ppmv)															
IN								EFF							
A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
0	2	4	6	8	10	12	14	0	2	4	6	8	10	12	14
0.0000	0.4764	0.5584	0.0886	0.4284	0.3907	0.4329	0.3753	0.0006	0.0007	0.4465	0.0000	0.0000	0.0007	0.0006	0.0006

3-Buten-2-one:



TL2 (ppmv)															
IN								EFF							
A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
0	2	4	6	8	10	12	14	0	2	4	6	8	10	12	14
0.00016	0.00530	0.00573	0.00018	0.00495	0.00562	0.00288	0.00964	0.00020	0.00014	0.00475	0.00018	0.00018	0.00017	0.00019	0.00023

Butanal:

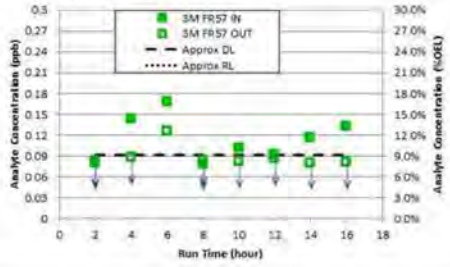


TL2 (ppmv)															
IN								EFF							
A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
0	2	4	6	8	10	12	14	0	2	4	6	8	10	12	14
0.000371	0.032646	0.040005	0.000354	0.114167	0.050521	0.098870	0.125807	0.000361	0.000386	0.133117	0.000416	0.000372	0.000389	0.000360	0.000366

Furan:

TL2 (ppmv)															
IN								EFF							
A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
0	2	4	6	8	10	12	14	0	2	4	6	8	10	12	14
0.00013	0.00191	0.00267	0.00012	0.00112	0.00136	0.00101	0.00320	0.00012	0.00013	0.00423	0.00015	0.00013	0.00013	0.00012	0.00012

2-Methyl-furan:



TL2 (ppmv)															
IN								EFF							
A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
0	2	4	6	8	10	12	14	0	2	4	6	8	10	12	14
0.000082	0.000113	0.000168	0.000078	0.000100	0.000092	0.000116	0.000133	0.000079	0.000087	0.000123	0.000081	0.000082	0.000085	0.000079	0.000080

Courtney L. H. Bottenus, PhD

C.3 Experimental Parameters

C.3.1 Flow Rates

SCOTT 7422-SD1 Cartridge (2/23/18) BY-110

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	0	0	3.69	4.01	3.68	4.09	3.80	4.00	3.82	4.04	3.72	3.99	3.65	3.97	3.65	4.04	3.88	3.99
VOC	B	0	0	3.74	3.93	3.89	4.01	4.02	3.71	3.89	3.68	3.91	4.13	4.00	4.25	4.28	4.01	3.76	3.75
Furans	C	0	0	6.08	6.17	6.22	5.81	5.87	6.25	5.86	6.03	5.63	5.77	6.24	5.84	6.08	6.12	5.54	5.78
Ethylamine	D	0	0	11.8	12.5	11.8	12.6	11.6	12.6	11.7	12.3	11.9	12.2	0	12.1	12.9	12.4	11.6	12.4
Acetonitrile	E	0	0	12.0	12.1	12.1	12.1	11.9	11.9	12.3	11.8	10.9	11.6	12.8	11.5	12.7	11.8	12.4	11.8
Mercury	F	0	0	30.6	29.4	30.2	30.2	30.0	29.8	29.8	29.3	29.6	28.7	29.6	29.6	29.9	30.3	29.9	30.2
Ammonia	G	0	0	23.9	24.7	23.9	25.0	23.5	24.5	27.3	24.8	25.6	24.1	23.1	24.3	25.0	25.1	30.1	25.1
Aldehyde	H	0	0	24.6	25.0	24.4	24.6	24.3	24.5	24.1	24.1	23.6	23.6	23.2	23.4	27.3	24.2	23.8	24.2
1, 3-Butadiene	I	0	0	25.3	24.5	25.1	24.4	24.9	24.3	24.6	24.5	24.1	23.8	24.0	23.5	24.3	23.8	24.5	23.7
Pyridine	J	0	0	116	127	117	121	118	122	114	122	117	125	116	124	114	121	113	123
Nitrosamines	K	0	0	241	243	241	244	239	239	237	240	239	242	238	232	240	241	239	241

Flow Rates (ml/min)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	0	0	30.8	33.4	30.7	34.1	31.7	33.4	31.9	33.7	31.0	33.3	30.5	33.1	30.4	33.7	32.4	33.3
VOC	B	0	0	31.2	32.8	32.4	33.5	33.5	30.9	32.4	30.7	32.6	34.5	33.4	35.4	35.7	33.4	31.4	31.3
Furans	C	0	0	50.6	51.4	51.9	48.4	48.9	52.1	48.8	50.3	47.0	48.1	52.0	48.7	50.7	51.0	46.2	48.2
Ethylamine	D	0	0	98.3	104	98.4	105	96.7	105	97.2	103	99.4	102	0	101	108	103	97.0	103
Acetonitrile	E	0	0	100	101	101	101	99.0	99.0	103	98.1	91.1	96.5	107	95.7	106	98.4	103	98.1
Mercury	F	0	0	255	245	251	252	250	248	248	244	247	239	246	246	249	253	249	252
Ammonia	G	0	0	200	206	199	208	196	204	227	207	214	201	193	203	208	209	251	209
Aldehyde	H	0	0	205	209	204	205	202	205	201	201	196	196	193	195	228	201	198	202
1, 3-Butadiene	I	0	0	210	204	210	204	207	203	205	204	201	198	200	196	203	199	204	198
Pyridine	J	0	0	965	1058	975	1005	981	1020	950	1015	978	1045	969	1035	949	1010	944	1025
Nitrosamines	K	0	0	2010	2024	2010	2035	1995	1990	1975	2000	1990	2015	1985	1935	2000	2010	1995	2005

SCOTT 7422-SC1 Cartridge (2/24/18) BY-110

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	3.54	3.39	3.92	3.67	3.73	4.23	4.02	4.30	4.42	3.89	3.77	4.00	3.90	4.01	4.01	3.76	3.71	3.97
VOC	B	4.01	4.00	4.44	4.09	3.94	4.22	3.91	3.89	3.73	3.94	3.86	3.88	3.85	3.91	3.85	3.74	4.00	3.92
Furans	C	5.73	5.65	6.52	5.40	5.36	5.99	5.73	5.94	5.45	5.95	6.22	5.87	5.59	5.75	6.02	5.80	5.61	5.75
Ethylamine	D	12.0	11.8	11.6	11.3	10.9	13.5	11.1	11.6	11.5	11.5	12.2	12.0	11.9	11.9	11.3	11.5	11.4	11.4
Acetonitrile	E	12.1	10.7	12.8	11.1	12.6	11.4	11.4	11.5	11.6	11.7	12.5	12.3	11.5	12.2	11.5	12.0	11.7	11.8
Mercury	F	29.1	30.0	31.7	30.5	29.2	31.7	29.2	31.5	29.0	31.0	28.4	30.7	29.0	29.1	29.5	28.8	24.7	29.8
Ammonia	G	23.7	23.5	23.1	24.4	22.2	25.7	23.1	25.2	23.2	24.6	24.5	24.6	24.1	24.4	22.5	23.6	22.8	22.9
Aldehyde	H	23.4	23.5	23.1	22.8	23.8	23.7	23.8	23.2	23.3	23.0	23.1	24.4	23.0	24.8	22.7	24.1	22.5	24.1
1, 3-Butadiene	I	23.4	23.2	23.2	24.3	23.8	25.3	23.8	25.0	23.6	25.0	23.1	24.4	23.1	24.0	23.9	23.4	23.6	23.2
Pyridine	J	115	114	108	108	108	112	109	110	112	116	121	120	120	118	117	123	117	121
Nitrosamines	K	240	239	235	232	241	232	236	229	233	230	235	232	234	236	233	232	229	233

Flow Rates (ml/min)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	29.5	28.3	32.7	30.6	31.1	35.3	33.5	35.8	36.9	32.4	31.4	33.3	32.5	33.4	33.4	31.4	31.0	33.1
VOC	B	33.5	33.3	37.0	34.1	32.8	35.2	32.6	32.4	31.1	32.8	32.2	32.4	32.1	32.6	32.1	31.2	33.4	32.7
Furans	C	47.7	47.1	54.4	45.0	44.7	49.9	47.8	49.5	45.4	49.6	51.8	48.9	46.6	48.0	50.2	48.4	46.8	47.9
Ethylamine	D	99.8	98.3	96.8	94.5	91.2	112.2	92.9	96.6	95.9	95.9	101	99.8	99.0	98.9	94.5	95.5	94.7	95.2
Acetonitrile	E	101	88.8	107	92.1	104.7	95.2	95.4	95.6	96.8	97.8	104	103	95.6	102	95.5	99.8	97.3	98.0
Mercury	F	242	250	264	254	243	264	243	262	242	259	237	256	241	242	246	240	206	248
Ammonia	G	197	196	193	203	185	214	193	210	194	205	205	205	201	203	187	197	190	191
Aldehyde	H	195	195	193	190	198	198	198	193	195	191	193	204	192	207	189	201	187	200
1, 3-Butadiene	I	195	193	193	203	198	211	198	208	197	208	192	203	192	200	199	195	197	193
Pyridine	J	961	952	896	904	900	930	906	913	935	969	1007	1002	1000	984	979	1025	977	1010
Nitrosamines	K	2003	1994	1960	1935	2005	1935	1970	1910	1940	1920	1955	1930	1950	1965	1945	1935	1910	1940

MSA Optifilter TL Cartridge (2/23/18) BY-108

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	3.66	3.71	3.88	3.98	3.79	4.07	3.76	3.88	3.60	3.69	3.93	3.97	3.93	4.06	4.42	4.27	3.87	3.91
VOC	B	3.78	3.96	3.95	3.91	4.15	3.90	3.94	3.73	3.66	3.58	3.97	3.58	4.19	3.93	4.26	4.07	3.94	3.97
Methonol	C	4.38	4.14	4.17	4.01	4.22	4.38	3.97	4.04	3.68	3.88	3.62	3.97	4.00	3.91	4.33	4.29	3.78	4.16
Furans	D	6.02	6.48	5.85	6.23	6.35	6.49	5.76	6.14	6.05	5.77	5.97	5.85	6.00	7.07	6.26	6.83	6.64	6.41
Ethylamine	E	12.7	12.3	12.4	11.4	12.1	11.5	11.7	11.2	11.4	12.0	11.7	11.9	11.9	12.0	11.9	12.7	11.7	12.0
Acetonitrile	F	12.9	12.1	12.5	11.7	12.7	12.4	12.3	11.7	11.8	11.9	11.5	11.5	11.9	11.2	12.9	12.6	11.9	12.0
Mercury	G	30.4	30.0	29.5	30.2	29.9	29.8	29.8	29.5	29.8	29.3	29.3	29.6	30.2	31.5	31.4	31.4	29.0	31.6
Ammonia	H	24.2	23.9	23.3	24.9	23.7	25.5	23.2	24.9	23.8	24.7	23.4	24.7	23.6	25.0	24.7	25.3	23.3	23.8
Aldehyde	I	23.3	25.1	25.1	24.9	25.1	24.7	25.1	24.3	25.1	23.5	25.0	22.8	25.1	23.1	25.6	24.5	24.8	25.2
1, 3-Butadiene	J	24.6	23.1	23.4	23.1	23.7	22.9	23.6	24.5	23.5	24.7	23.4	25.0	23.5	24.4	24.6	24.8	23.8	25.0
Pyridine	K	119	125	115	112	115	121	120	124	120	124	120	118	119	119	120	118	126	121
Nitrosamines	L	243	228	232	245	233	232	235	238	235	240	232	236	233	251	242	241	247	247

AVG Flow Rate (ml/min)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	30.5	30.9	32.3	33.2	31.6	34.0	31.3	32.4	30.0	30.7	32.8	33.1	32.7	33.9	36.2	35.0	32.2	32.6
VOC	B	31.5	33.0	32.9	32.6	34.6	32.5	32.8	31.1	30.5	29.8	33.1	29.9	34.9	32.7	35.0	33.3	32.9	33.1
Methonol	C	36.5	34.5	34.8	33.5	35.2	36.5	33.1	33.7	30.7	32.3	30.2	33.1	33.3	32.5	35.5	35.1	31.5	34.7
Furans	D	50.2	54.0	48.8	51.9	52.9	54.1	48.0	51.2	50.4	48.1	49.8	48.8	50.0	58.9	51.3	56.0	55.3	53.4
Ethylamine	E	106	102	104	94.9	100	95.8	97.5	93.5	95.3	100	97.8	98.9	99.2	99.6	97.9	104	97.2	100
Acetonitrile	F	107	101	104	97.9	106	103	103	97.2	98.4	98.9	96.1	96.1	99.1	93.4	105	103	99.5	100
Mercury	G	254	250	246	251	249	248	248	245	249	244	244	247	251	263	257	257	241	264
Ammonia	H	202	199	194	208	198	213	194	207	199	206	195	206	197	208	202	208	194	199
Aldehyde	I	194	209	209	208	209	206	210	202	209	196	209	190	209	192	210	201	206	210
1, 3-Butadiene	J	205	192	195	192	197	191	197	204	196	206	195	208	196	203	201	203	198	208
Pyridine	K	995	1040	956	932	962	1010	1000	1030	1000	1035	998	986	992	993	983	967	1049	1010
Nitrosamines	L	2025	1900	1935	2040	1945	1930	1960	1985	1955	2000	1930	1970	1945	2095	1984	1976	2060	2060

3M FR57 Cartridge (2/24/18) BY-108

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	4.31	3.93	4.54	4.21	4.12	4.06	3.95	4.32	4.09	3.98	4.18	4.14	3.87	3.97	3.91	3.78	3.81	3.64
VOC	B	4.08	3.63	3.99	4.14	3.95	3.77	3.90	3.82	4.22	3.91	4.16	4.01	4.22	3.84	4.12	4.14	4.04	4.08
Methonol	C	4.46	3.92	4.39	4.27	4.21	4.25	3.87	4.36	4.16	4.17	4.08	4.30	3.90	4.03	3.97	3.91	3.89	3.84
Furans	D	5.96	5.82	6.74	6.72	5.83	6.46	5.84	6.58	5.63	5.71	5.80	6.67	5.74	6.06	5.67	5.83	6.31	5.72
Ethylamine	E	12.7	12.3	13.2	12.0	12.2	12.1	11.8	12.0	12.8	11.9	12.8	12.0	12.4	12.1	12.3	11.9	12.2	11.8
Acetonitrile	F	11.7	13.0	12.0	13.5	12.4	12.6	12.4	12.0	12.3	12.5	12.3	12.9	12.4	12.9	12.2	13.0	12.0	12.9
Mercury	G	31.4	29.9	30.5	29.6	30.8	29.8	29.6	29.9	30.0	29.8	29.6	29.3	29.1	29.4	29.0	28.9	29.8	30.7
Ammonia	H	24.0	23.1	23.8	23.8	23.9	23.8	24.0	24.2	22.8	24.2	24.8	24.1	25.0	24.4	24.5	24.3	23.8	24.2
Aldehyde	I	23.3	23.9	24.0	23.1	24.5	22.2	24.9	23.9	24.6	23.9	24.2	24.2	24.2	24.1	24.6	24.0	24.5	23.9
1, 3-Butadiene	J	26.2	22.4	25.6	22.3	25.6	21.9	25.7	23.9	25.7	23.6	25.1	23.6	24.7	23.4	24.4	23.7	24.2	23.7
Pyridine	K	117	118	117	107	115	113	117	124	117	130	118	121	119	125	114	125	113	131
Nitrosamines	L	239	235	227	224	229	226	232	236	231	242	242	230	235	247	235	242	239	238

AVG Flow Rate (ml/min)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	35.9	32.7	37.9	35.0	34.3	33.8	32.9	36.0	34.1	33.2	34.8	34.5	32.2	33.1	32.6	31.5	31.8	30.4
VOC	B	34.0	30.3	33.2	34.5	32.9	31.4	32.5	31.8	35.2	32.6	34.7	33.5	35.2	32.0	34.3	34.5	33.7	34.0
Methonol	C	37.1	32.7	36.5	35.6	35.1	35.4	32.3	36.3	34.7	34.8	34.0	35.8	32.5	33.6	33.1	32.6	32.4	32.0
Furans	D	49.7	48.5	56.2	56.0	48.6	53.8	48.6	54.9	46.9	47.6	48.3	55.6	47.9	50.5	47.3	48.6	52.6	47.7
Ethylamine	E	106	103	110	100	102	101	98.6	100	107	99.2	106	100	103	101	103	99.4	102	98.5
Acetonitrile	F	97.2	108	99.9	112	104	105	104	99.8	102	105	103	107	103	108	102	109	100	107
Mercury	G	262	249	254	247	257	248	246	249	250	248	247	244	242	245	241	241	248	256
Ammonia	H	200	193	199	199	199	199	200	202	190	201	207	201	208	203	204	202	198	201
Aldehyde	I	194	199	200	192	204	185	208	199	205	199	201	202	202	201	205	200	204	199
1, 3-Butadiene	J	218	187	213	186	214	183	214	199	214	197	209	197	206	195	203	197	202	197
Pyridine	K	975	982	972	888	960	939	975	1035	979	1085	985	1010	990	1040	950	1040	945	1095
Nitrosamines	L	1990	1955	1890	1865	1905	1880	1930	1965	1922	2020	2015	1920	1960	2055	1955	2015	1990	1980

C.3.2 Temperature, Pressure, and Relative Humidity

SCOTT 7422-SD1 Cartridge (2/23/18) BY-110

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		73.3	65.4		67.2	73.9			
Temperature	F		45.4	50.7		43.7	36.8			
Pressure	Torr		739.8	739.5		739.1	735.7			
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%				68.3		77.7	75.9	74.0	78.5
Temperature	F				43.9		35.2	35.9	39.0	35.4
Pressure	Torr				737.9		734.4	732.5	730.9	728.4
NH3	ppm									
VOC	ppm									

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		29.4	27.7		31.2	31.4			
Temperature	F		54.3	57.2		50.6	45.9			
Pressure	Torr		438.0	434.2		433.9	428.0			
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%				33.6		34.6	30.7	31.7	32.8
Temperature	F				50.1		44.0	49.3	52.5	46.4
Pressure	Torr				442.6		436.6	436.8	436.1	433.0
NH3	ppm			12						
VOC	ppm		0.25	0.6						

Source: Scott SD-1.pdf pg. 4/6 pg. 8* Pg. 12* Pg. 16 Pg. 20 Pg. 26 Pg. 28 Pg. 32 Pg. 36

* includes additional 15 min. increment readings available in source file (field notes) for RH, T, and P between Pre and Post readings for influent and exhaust.

SCOTT 7422-SC1 Cartridge (2/24/18) BY-110

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	65.9	63.9	62.2	67.4	77.9	69.9	68.2	77.6	76.8
Temperature	F	46.2	50.4	59.5	57.0	52.7	49.7	53.0	51.9	51.1
Pressure	Torr	733.8	720.9	721.4	723.9	723.1	722.6	720.9	717.3	716.4
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	63.6	64.1	72.4	71.5					84.6
Temperature	F	50.7	56.8	55.5	52.2					46.3
Pressure	Torr	742.8	719.7	721.0	722.0					714.9
NH3	ppm		>99							
VOC	ppm		4							

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	32.3	32.6	30.8	31.3	33.5	31.7	30.1	34.2	35.0
Temperature	F	49.6	55.3	66.1	65.4	59.1	58.1	63.9	57.8	56.9
Pressure	Torr	436.1	447.3	435.9	452.6	453.1	452.8	458.2	453.8	454.7
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	45.3	32.1	32.3	48.2					38.2
Temperature	F	53.1	66.2	65.4	66.5					52.5
Pressure	Torr	742.6	456.8	458.4	462.2					459.5
NH3	ppm		>99							
VOC	ppm		4							

Source: Scott SC-1.pdf pg. 4 pg. 8* Pg. 12* Pg. 16 Pg. 20 Pg. 24 Pg. 28 Pg. 32 Pg. 36

* includes additional 15 min. increment readings available in source file (field notes) for RH, T, and P between Pre and Post readings for influent and exhaust.

MSA Optifilter TL Cartridge (2/23/18) BY-108

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	48.0	69.0	81.1		67.6	68.0			80.1
Temperature	F	44.3	44.3	48.8		44.0	36.1			42.6
Pressure	Torr	733.1	709.3	708.4		706.6	704.6			698.4
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%			83.1			73.6	66.4		87.7
Temperature	F			45.6			35.9	38.0		37.5
Pressure	Torr			708.1			701.8	700.9		696.7
NH3	ppm									
VOC	ppm									

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	48.6	47.5	54.0		57.3	60.2			66.6
Temperature	F	42.6	49.9	57.0		49.3	41.2			47.3
Pressure	Torr	730.6	706.6	705.7		704.1	702.0			695.8
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%			55.7			65.2	64.3		79.2
Temperature	F			54.7			39.5	40.8		43.1
Pressure	Torr			705.4			699.2	698.3		694.0
NH3	ppm		0	5	5					
VOC	ppm		0	1.250	1.440					

Source: MSA TL.pdf pg. 4 pg. 8* Pg. 12* Pg. 16 Pg. 20 Pg. 24/26 Pg. 28 Pg. 32 Pg. 36

* includes additional 15 min. increment readings available in source file (field notes) for RH, T, and P between Pre and Post readings for influent and exhaust.

3M FR57 Cartridge (2/24/18) BY-108

Influent- Pre		After Sample Taken								
Reading	**UOM**	**Baseline**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Relative Humidty	%	60.7	72.4	77.5	88.1	77.2	75.8	72.0	77.9	72.9
Temperature	F	48.2	53.6	55.1	53.5	55.8	50.5	53.3	51.3	53.4
Pressure	Torr	697.8	681.4	680.6	679.0	682.0	682.2	682.4	681.0	679.7
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	**UOM**	**Baseline**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Relative Humidty	%		80.7	88.1	80.8	75.8	72.0	77.9	72.9	81.4
Temperature	F		55.0	53.5	55.7	50.5	53.3	51.3	53.4	50.4
Pressure	Torr		681.2	679.3	682.0	682.2	682.4	681.0	679.7	676.8
NH3	ppm									
VOC	ppm									

Effluent - Pre		After Sample Taken								
Reading	**UOM**	**Baseline**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Relative Humidty	%	51.7	53.4	59.1	64.8	67.6	69.7	68.4	66.4	68.4
Temperature	F	49.9	57.9	62.0	61.1	59.7	53.5	55.4	55.7	55.9
Pressure	Torr	693.4	677.1	676.4	675.0	677.8	678.0	678.2	676.8	675.5
NH3	ppm			>100						
VOC	ppm			16.2						

Effluent- Post		After Sample Taken								
Reading	**UOM**	**Baseline**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Relative Humidty	%		60.1	64.8	68.2	69.7	68.4	66.4	68.4	70.5
Temperature	F		62.1	61.1	60.4	53.5	55.4	55.7	55.9	54.7
Pressure	Torr		676.9	675.1	677.8	678	678.2	676.8	675.5	672.8
NH3	ppm									
VOC	ppm									

Source: FR-57.pdf pg. 4 pg. 8* Pg. 12* Pg. 16 Pg. 20 Pg. 26 Pg. 28 Pg. 32 Pg. 36

* includes additional 15 min. increment readings available in source file (field notes) for RH, T, and P between Pre and Post readings for influent and exhaust.

Files: BY-110 SD1 2-23-18.xls; BY-110 SC1 2-24-18.xls; BY-108 TL1 GME 2-23-18; BY-108 TL2 FR57 2-24-18

Purpose: Summarize DRI readings from field notes/logs including Temp, % humidity, pressure, and any ammonia or VOC DRI readings recorded. These data files are typically prepared by the lead WRPS industrial hygienist for the testing, but were not prepared directly. PNNL generated the table using the source data provided.

Source Files: Field Notes - Scott SD-1.pdf; Scott SC-1.pdf; MSA TL.pdf; FR57.pdf - located at: \\pnl\projects\cartridge_test\03 Test Data and Calculations \BY-108_BY-110 (2018)\Raw Data - Locked\Field Notes ..\Raw Data - Locked\Field Notes\Scott SD-1.pdf

Preparation: Tom Brouns, 08/24/18.
Review: Zack Way, 9/06/18 - see confirmation email below.

From: Way, Zachary K
To: Brouns, Thomas M
Cc: Bottenus, Courtney L
Subject: RE: DRI including T, RH%, Pressure
Date: Thursday, September 6, 2018 10:23:15 AM

Courtney and Tom,

I have gone through the temperature and RH excel files you have sent me and they are consistent with my field logs. I appreciate you folks generating this excel spreadsheet.

With regards to the volumetric flow of the machines themselves, I believe we answered these questions yesterday. For the Scott SC-1 test we pre'd the machine to 30.2 L/min and posted the machine at 27.23 L/min. Assuming an average change in machine flow that would give us 28.72 L/min. The SD-1 test presents a potential issue, however, with a pre flow of 30.223 L/min and post of 13.702 L/min. With the same assumption we would get an average of 21.963 L/min. I am not sure how we typically handle these data... if knowing this information is mission critical or is it more of a talking point in the report?

I am also working on inputting the AP Exhauster flows into excel. Yesterday, I mentioned I was roughly a quarter or a third of the way through it... I should have the complete data package for the AP test packaged and sent to you by close of business Monday or early Tuesday. Can you send me a transfer link? If I use google chrome the transfer client works just fine and I would prefer to use this for data transfer.

I hope this helps,

-Zack

From: Brouns, Thomas M <tom.brouns@pnnl.gov>
Sent: Tuesday, September 4, 2018 1:21 PM
To: Way, Zachary K <Zachary_K_Way@rl.gov>
Cc: Bottenus, Courtney L <courtney.bottenus@pnnl.gov>
Subject: DRI including T, RH%, Pressure

Zack,
We didn't find the standard DRI excel files in the BY108-110 test data you provided (i.e., humidity, temp, and pressure), so we generated the attached summaries from the field notes, using the general template from the prior tests.

Could you double check and make sure we captured the raw notes correctly?

These tables go in the raw data volume of the report, and we will use some of the T and RH data when we apply service life calculators. Since we don't usually generate these files, it would be good if you could verify they are correct.

Note that we didn't capture the 15 min interval data in these tables since that wasn't done before. We may add that data later, since we do it use it for service life calcs.

Also – I wasn't sure where to locate the exact volumetric flow through the respirator that is usually identified on the first row of each file. I flagged these in yellow to make sure they get checked.

Tom

C.4 Raw Data

C.4.1 SVOC and SVOCTIC

30 - Apr - 2018 14:15:50
DSRHardcopyWOLimits 3.0.13a
DSR.Jar v. 3.0.14

Page: 1

2018 Cartridge Evaluation
Data Summary of All Results

Dan Hanson 4-30-18

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-1
Customer Sample ID: 18-01494-1-SD1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007529			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007529			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007529			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007529			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007529			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007529			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007529			112-40-3	Dodecane	NGS	96	<1.5	5.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007529			544-76-3	Hexadecane	NGS	89	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007529			629-59-4	Tetradecane	NGS	88	<1.4	5.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007529			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007529			629-50-5	Tridecane	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007529			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007529			629-62-9	Pentadecane	NGS	90	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

J - Estimated
T - Tentatively Identified Compound
U - Less Than Detection Limit
NA = Not Analyzed, ND = Not Detected
N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-2
Customer Sample ID: 18-01494-1-SD1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007530			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007530			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007530			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007530			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007530			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007530			84-66-2	Diethylphthalate	NGS	84	<2.0	3.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007530			112-40-3	Dodecane	NGS	96	<1.5	4.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007530			544-76-3	Hexadecane	NGS	89	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007530			629-59-4	Tetradecane	NGS	88	<1.4	5.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007530			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007530			629-50-5	Tridecane	NGS	99	<1.9	6.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007530			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007530			629-62-9	Pentadecane	NGS	90	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-8
Customer Sample ID: 18-01496-1-TL1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007546				Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	35	BJNT
S18T007546				Undecane	1120-21-4	5.74	NGS	11	JNT
S18T007546				Undecane, 2-methyl-	7045-71-8	7.19	NGS	8.9	JNT
S18T007546			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-IN-8
Customer Sample ID: 18-01496-1-TL1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007548				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	42	BJNT
S18T007548				Undecane	1120-21-4	5.74	NGS	15	JNT
S18T007548				Undecane, 2-methyl-	7045-71-8	7.18	NGS	9.7	JNT
S18T007548				Undecane, 3,7-dimethyl-	17301-29-0	7.54	NGS	7.2	JNT
S18T007548			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

Daniel Hanson
Daniel P Hanson
5-29-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-1
Customer Sample ID: 18-01497-1-TL2-EF-1

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007560		3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007560		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007560		108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007560		92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007560		78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007560		84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007560		112-40-3	Dodecane	NGS	100	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007560		544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007560		629-59-4	Tetradecane	NGS	110	<1.4	4.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007560		126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007560		629-50-5	Tridecane	NGS	110	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007560		629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007560		629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC J - Estimated T - Tentatively Identified Compound NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-2
Customer Sample ID: 18-01497-1-TL2-EF-2

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007561		3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007561		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007561		108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007561		92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007561		78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007561		84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007561		112-40-3	Dodecane	NGS	100	<1.5	14	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007561		544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007561		629-59-4	Tetradecane	NGS	110	<1.4	2.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007561		126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007561		629-50-5	Tridecane	NGS	110	<1.9	3.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007561		629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007561		629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC J - Estimated T - Tentatively Identified Compound NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-3
Customer Sample ID: 18-01497-1-TL2-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007562			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	3.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007562			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007562			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007562			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007562			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007562			84-66-2	Diethylphthalate	NGS	97	<2.0	3.1	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007562			112-40-3	Dodecane	NGS	100	<1.5	8.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007562			544-76-3	Hexadecane	NGS	96	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007562			629-59-4	Tetradecane	NGS	110	<1.4	8.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007562			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007562			629-50-5	Tridecane	NGS	110	<1.9	3.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007562			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007562			629-62-9	Pentadecane	NGS	100	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

N - Named TIC J - Estimated T - Tentatively Identified Compound NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-4
Customer Sample ID: 18-01497-1-TL2-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007563			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007563			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007563			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007563			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007563			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007563			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007563			112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007563			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007563			629-59-4	Tetradecane	NGS	110	<1.4	1.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007563			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007563			629-50-5	Tridecane	NGS	110	<1.9	2.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007563			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007563			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC J - Estimated T - Tentatively Identified Compound NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-5
Customer Sample ID: 18-01497-1-TL2-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007564			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007564			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007564			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007564			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007564			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007564			84-66-2	Diethylphthalate	NGS	97	<2.0	2.8	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007564			112-40-3	Dodecane	NGS	100	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007564			544-76-3	Hexadecane	NGS	96	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007564			629-59-4	Tetradecane	NGS	110	<1.4	5.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007564			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007564			629-50-5	Tridecane	NGS	110	<1.9	3.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007564			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007564			629-62-9	Pentadecane	NGS	100	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

N - Named TIC J - Estimated T - Tentatively Identified Compound NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-6
Customer Sample ID: 18-01497-1-TL2-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007566			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007566			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007566			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007566			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007566			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007566			84-66-2	Diethylphthalate	NGS	97	<2.0	2.6	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007566			112-40-3	Dodecane	NGS	100	<1.5	13	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007566			544-76-3	Hexadecane	NGS	96	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007566			629-59-4	Tetradecane	NGS	110	<1.4	3.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007566			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007566			629-50-5	Tridecane	NGS	110	<1.9	3.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007566			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007566			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC J - Estimated T - Tentatively Identified Compound NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-7
Customer Sample ID: 18-01497-1-TL2-EF-7

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007568		3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007568		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007568		108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007568		92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007568		78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007568		84-66-2	Diethylphthalate	NGS	97	<2.0	2.7	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007568		112-40-3	Dodecane	NGS	100	<1.5	3.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007568		544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007568		629-59-4	Tetradecane	NGS	110	<1.4	4.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007568		126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007568		629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007568		629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007568		629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-8
Customer Sample ID: 18-01497-1-TL2-EF-8

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007569		3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007569		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007569		108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007569		92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007569		78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007569		84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007569		112-40-3	Dodecane	NGS	100	<1.5	8.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007569		544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007569		629-59-4	Tetradecane	NGS	110	<1.4	2.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007569		126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007569		629-50-5	Tridecane	NGS	110	<1.9	2.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007569		629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007569		629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-1
Customer Sample ID: 18-01497-1-TL2-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007570			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007570			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007570			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007570			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007570			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007570			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007570			112-40-3	Dodecane	NGS	100	<1.5	5.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007570			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007570			629-59-4	Tetradecane	NGS	110	<1.4	6.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007570			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007570			629-50-5	Tridecane	NGS	110	<1.9	7.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007570			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007570			629-62-9	Pentadecane	NGS	100	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-8
Customer Sample ID: 18-01497-1-TL2-IN-8

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007571		3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007571		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007571		108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007571		92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007571		78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007571		84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007571		112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007571		544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007571		629-59-4	Tetradecane	NGS	110	<1.4	2.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007571		126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007571		629-50-5	Tridecane	NGS	110	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007571		629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007571		629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-1
Customer Sample ID: 18-01497-1-TL2-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007560				2,2,7,7-Tetramethyloctane	1071-31-4	4.77	NGS	27	JNT
S18T007560				Hexane, 3,3-dimethyl-	563-16-6	5.17	NGS	28	JNT
S18T007560				Undecane	1120-21-4	5.74	NGS	17	JNT
S18T007560				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	39	JNT
S18T007560				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	14	JNT
S18T007560				Decane, 2,4,6-trimethyl-	62108-27-4	7.55	NGS	10	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-2
Customer Sample ID: 18-01497-1-TL2-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007561				2,2,7,7-Tetramethyloctane	1071-31-4	4.77	NGS	58	JNT
S18T007561				Decane, 2,2-dimethyl-	17302-37-3	5.05	NGS	34	JNT
S18T007561				2,2,4,4-Tetramethyloctane	62183-79-3	5.12	NGS	37	JNT
S18T007561				Hexane, 3,3-dimethyl-	563-16-6	5.17	NGS	71	JNT
S18T007561				Octane, 2,2-dimethyl-	15869-87-1	5.44	NGS	59	JNT
S18T007561				4,4-Dipropylheptane	17312-72-0	5.54	NGS	32	JNT
S18T007561				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.63	NGS	13	JNT
S18T007561				Undecane	1120-21-4	5.74	NGS	21	JNT
S18T007561				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	36	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-3
Customer Sample ID: 18-01497-1-TL2-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007562				Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	30	JNT
S18T007562				2,2,7,7-Tetramethyloctane	1071-31-4	4.78	NGS	32	JNT
S18T007562				Undecane	1120-21-4	5.74	NGS	5.6	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-4
Customer Sample ID: 18-01497-1-TL2-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007563				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	33	JNT
S18T007563				Undecane	1120-21-4	5.74	NGS	15	JNT
S18T007563				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	32	JNT
S18T007563				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	9.2	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-5
Customer Sample ID: 18-01497-1-TL2-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007564				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	27	JNT
S18T007564				Undecane	1120-21-4	5.74	NGS	7.4	JNT
S18T007564				Undecane, 3,7-dimethyl-	17301-29-0	7.55	NGS	8.5	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-6
Customer Sample ID: 18-01497-1-TL2-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007566				Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	28	JNT
S18T007566				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	36	JNT
S18T007566				2,2,7,7-Tetramethyloctane	1071-31-4	4.78	NGS	60	JNT
S18T007566				Heptane, 4-ethyl-2,2,6,6-tetramethyl-	62108-31-0	5.06	NGS	35	JNT
S18T007566				2,2,4,4,5,5,7,7-Octamethyloctane	5171-85-7	5.13	NGS	38	JNT
S18T007566				Hexane, 3,3-dimethyl-	563-16-6	5.18	NGS	82	JNT
S18T007566				Heptane, 5-ethyl-2,2,3-trimethyl-	62199-06-8	5.44	NGS	62	JNT
S18T007566				Decane, 2,3,4-trimethyl-	62238-15-7	5.54	NGS	37	JNT
S18T007566				Undecane, 3,7-dimethyl-	17301-29-0	5.64	NGS	11	JNT
S18T007566				Decane, 3,7-dimethyl-	17312-54-8	5.75	NGS	27	JNT
S18T007566				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	34	JNT
S18T007566				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	12	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-7
Customer Sample ID: 18-01497-1-TL2-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007568				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	33	JNT
S18T007568				Heptane, 2,2,4,6,6-pentamethyl-	13475-82-6	4.78	NGS	79	JNT
S18T007568				Pentane, 2,2,4,4-tetramethyl-	1070-87-7	5.13	NGS	25	JNT
S18T007568				Undecane, 3,8-dimethyl-	17301-30-3	5.18	NGS	66	JNT
S18T007568				2,2,7,7-Tetramethyloctane	1071-31-4	5.44	NGS	34	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-EF-8
Customer Sample ID: 18-01497-1-TL2-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007569				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	30	JNT
S18T007569				Decane, 2,2-dimethyl-	17302-37-3	4.78	NGS	39	JNT
S18T007569				Nonane, 3,7-dimethyl-	17302-32-8	5.17	NGS	31	JNT
S18T007569				Undecane	1120-21-4	5.74	NGS	6.7	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-1
Customer Sample ID: 18-01497-1-TL2-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007570				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	40	JNT
S18T007570				2-Heptanone	110-43-0	3.81	NGS	82	JNT
S18T007570				3-Hexanol, 5-methyl-	623-55-2	3.90	NGS	32	JNT
S18T007570				2-Heptanone, 6-methyl-	928-68-7	4.42	NGS	53	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180628
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-8
Customer Sample ID: 18-01497-1-TL2-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007571				2,2,7,7-Tetramethyloctane	1071-31-4	4.77	NGS	65	JNT
S18T007571				2,2,4,4-Tetramethyloctane	62183-79-3	5.12	NGS	26	JNT
S18T007571				Nonane, 3,7-dimethyl-	17302-32-8	5.17	NGS	60	JNT
S18T007571				Undecane, 2,8-dimethyl-	17301-23-4	5.36	NGS	13	JNT
S18T007571				Undecane, 3,6-dimethyl-	17301-28-9	5.43	NGS	32	JNT
S18T007571				Undecane	1120-21-4	5.74	NGS	25	JNT
S18T007571				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	31	JNT
S18T007571				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	13	JNT

NA = Not Analyzed, ND = Not Detected

Daniel Hansen
Daniel Hansen
5-29-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-BA-EF
Customer Sample ID: 18-01497-1-TL2-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007599			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007599			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007599			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007599			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007599			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007599			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007599			112-40-3	Dodecane	NGS	100	<1.5	7.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007599			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007599			629-59-4	Tetradecane	NGS	110	<1.4	3.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007599			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007599			629-50-5	Tridecane	NGS	110	<1.9	2.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007599			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007599			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-BA-IN
Customer Sample ID: 18-01497-1-TL2-BA-IN

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007600		3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007600		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007600		108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007600		92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007600		78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007600		84-66-2	Diethylphthalate	NGS	97	<2.0	2.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007600		112-40-3	Dodecane	NGS	100	<1.5	16	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007600		544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007600		629-59-4	Tetradecane	NGS	110	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007600		126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007600		629-50-5	Tridecane	NGS	110	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007600		629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007600		629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-BL-EF
Customer Sample ID: 18-01497-1-TL2-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007601			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007601			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007601			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007601			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007601			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007601			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007601			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007601			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007601			629-59-4	Tetradecane	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007601			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007601			629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007601			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007601			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-BL-IN
Customer Sample ID: 18-01497-1-TL2-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007602			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007602			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007602			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007602			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007602			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007602			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007602			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007602			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007602			629-59-4	Tetradecane	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007602			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007602			629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007602			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007602			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-2
Customer Sample ID: 18-01497-1-TL2-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007603			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007603			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007603			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007603			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007603			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007603			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007603			112-40-3	Dodecane	NGS	100	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007603			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007603			629-59-4	Tetradecane	NGS	110	<1.4	4.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007603			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007603			629-50-5	Tridecane	NGS	110	<1.9	5.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007603			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007603			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-3
Customer Sample ID: 18-01497-1-TL2-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007604			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007604			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007604			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007604			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007604			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007604			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007604			112-40-3	Dodecane	NGS	100	<1.5	20	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007604			544-76-3	Hexadecane	NGS	96	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007604			629-59-4	Tetradecane	NGS	110	<1.4	4.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007604			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007604			629-50-5	Tridecane	NGS	110	<1.9	4.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007604			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007604			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-4
Customer Sample ID: 18-01497-1-TL2-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007605			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007605			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007605			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007605			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007605			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007605			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007605			112-40-3	Dodecane	NGS	100	<1.5	16	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007605			544-76-3	Hexadecane	NGS	96	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007605			629-59-4	Tetradecane	NGS	110	<1.4	4.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007605			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007605			629-50-5	Tridecane	NGS	110	<1.9	4.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007605			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007605			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-5
Customer Sample ID: 18-01497-1-TL2-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007606			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	2.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007606			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007606			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007606			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007606			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007606			84-66-2	Diethylphthalate	NGS	97	<2.0	2.8	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007606			112-40-3	Dodecane	NGS	100	<1.5	15	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007606			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007606			629-59-4	Tetradecane	NGS	110	<1.4	4.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007606			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007606			629-50-5	Tridecane	NGS	110	<1.9	4.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007606			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007606			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-6
Customer Sample ID: 18-01497-1-TL2-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007607			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007607			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007607			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007607			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007607			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007607			84-66-2	Diethylphthalate	NGS	97	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007607			112-40-3	Dodecane	NGS	100	<1.5	16	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007607			544-76-3	Hexadecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007607			629-59-4	Tetradecane	NGS	110	<1.4	1.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007607			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007607			629-50-5	Tridecane	NGS	110	<1.9	3.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007607			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007607			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC J - Estimated T - Tentatively Identified Compound NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180629
Customer Group or SDG Number:
Customer Sample ID: 18-01497-1-TL2-IN-7
Customer Sample ID: 18-01497-1-TL2-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007608			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.2	3.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007608			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007608			108-39-4M	Cresol (m & p)	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007608			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007608			78-46-6	Dibutyl butylphosphonate	NGS	95	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007608			84-66-2	Diethylphthalate	NGS	97	<2.0	3.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007608			112-40-3	Dodecane	NGS	100	<1.5	6.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007608			544-76-3	Hexadecane	NGS	96	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007608			629-59-4	Tetradecane	NGS	110	<1.4	4.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007608			126-73-8	Tributyl phosphate	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007608			629-50-5	Tridecane	NGS	110	<1.9	2.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007608			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007608			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

O.K. for Main MS Review 5/15/18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-BA-EF
Customer Sample ID: 18-01496-1-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007639			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007639			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007639			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007639			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007639			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007639			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007639			112-40-3	Dodecane	NGS	100	<1.5	5.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007639			544-76-3	Hexadecane	NGS	88	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007639			629-59-4	Tetradecane	NGS	87	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007639			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007639			629-50-5	Tridecane	NGS	100	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007639			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007639			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630

Customer Group or SDG Number:

Customer Sample ID: 18-01496-1-TL1-BL-EF

Customer Sample ID: 18-01496-1-TL1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007641			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007641			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007641			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007641			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007641			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007641			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007641			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007641			544-76-3	Hexadecane	NGS	86	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007641			629-59-4	Tetradecane	NGS	87	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007641			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007641			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007641			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007641			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-BL-IN
Customer Sample ID: 18-01496-1-TL1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007642			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007642			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007642			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007642			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007642			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007642			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007642			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007642			544-76-3	Hexadecane	NGS	86	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007642			629-59-4	Tetradecane	NGS	87	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007642			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007642			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007642			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007642			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-BA-IN
Customer Sample ID: 18-01496-1-TL1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007640			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007640			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007640			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007640			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007640			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007640			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007640			112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007640			544-76-3	Hexadecane	NGS	86	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007640			629-59-4	Tetradecane	NGS	87	<1.4	1.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007640			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007640			629-50-5	Tridecane	NGS	100	<1.9	2.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007640			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007640			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-IN-2
Customer Sample ID: 18-01496-1-TL1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007643			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007643			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007643			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007643			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007643			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007643			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007643			112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007643			544-76-3	Hexadecane	NGS	86	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007643			629-59-4	Tetradecane	NGS	87	<1.4	2.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007643			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007643			629-50-5	Tridecane	NGS	100	<1.9	4.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007643			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007643			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-IN-3
Customer Sample ID: 18-01496-1-TL1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007644			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007644			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007644			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007644			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007644			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007644			84-66-2	Diethylphthalate	NGS	84	<2.0	2.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007644			112-40-3	Dodecane	NGS	100	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007644			544-76-3	Hexadecane	NGS	86	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007644			629-59-4	Tetradecane	NGS	87	<1.4	2.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007644			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007644			629-50-5	Tridecane	NGS	100	<1.9	2.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007644			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007644			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-IN-5
Customer Sample ID: 18-01496-1-TL1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007645			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007645			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007645			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007645			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007645			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007645			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007645			112-40-3	Dodecane	NGS	100	<1.5	7.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007645			544-76-3	Hexadecane	NGS	86	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007645			629-59-4	Tetradecane	NGS	87	<1.4	2.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007645			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007645			629-50-5	Tridecane	NGS	100	<1.9	3.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007645			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007645			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-IN-6
Customer Sample ID: 18-01496-1-TL1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007646			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007646			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007646			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007646			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007646			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007646			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007646			112-40-3	Dodecane	NGS	100	<1.5	7.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007646			544-76-3	Hexadecane	NGS	86	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007646			629-59-4	Tetradecane	NGS	87	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007646			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007646			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007646			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007646			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180630
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-IN-7
Customer Sample ID: 18-01496-1-TL1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007647			3891-98-3	2,6,10-Trimethyldodecane	NGS	87	<1.2	2.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007647			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007647			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007647			92-52-4	Biphenyl	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007647			78-46-6	Dibutyl butylphosphonate	NGS	84	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007647			84-66-2	Diethylphthalate	NGS	84	<2.0	2.1	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007647			112-40-3	Dodecane	NGS	100	<1.5	4.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007647			544-76-3	Hexadecane	NGS	86	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007647			629-59-4	Tetradecane	NGS	87	<1.4	2.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007647			126-73-8	Tributyl phosphate	NGS	85	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007647			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007647			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007647			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-3
Customer Sample ID: 18-01494-1-SD1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007531			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007531			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007531			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007531			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007531			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007531			84-66-2	Diethylphthalate	NGS	84	<2.0	3.6	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007531			112-40-3	Dodecane	NGS	96	<1.5	4.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007531			544-76-3	Hexadecane	NGS	89	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007531			629-59-4	Tetradecane	NGS	88	<1.4	6.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007531			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007531			629-50-5	Tridecane	NGS	99	<1.9	4.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007531			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007531			629-62-9	Pentadecane	NGS	90	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-5
Customer Sample ID: 18-01494-1-SD1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007533			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007533			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007533			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007533			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007533			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007533			84-66-2	Diethylphthalate	NGS	84	<2.0	3.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007533			112-40-3	Dodecane	NGS	96	<1.5	3.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007533			544-76-3	Hexadecane	NGS	89	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007533			629-59-4	Tetradecane	NGS	88	<1.4	2.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007533			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007533			629-50-5	Tridecane	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007533			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007533			629-62-9	Pentadecane	NGS	90	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-6
Customer Sample ID: 18-01494-1-SD1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007534			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	3.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007534			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007534			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007534			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007534			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007534			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007534			112-40-3	Dodecane	NGS	96	<1.5	4.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007534			544-76-3	Hexadecane	NGS	89	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007534			629-59-4	Tetradecane	NGS	88	<1.4	10	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007534			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007534			629-50-5	Tridecane	NGS	99	<1.9	10	n/a	n/a	n/a	n/a	1.9	n/a	
S18T007534			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007534			629-62-9	Pentadecane	NGS	90	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-7
Customer Sample ID: 18-01494-1-SD1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007535			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007535			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007535			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007535			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007535			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007535			84-66-2	Diethylphthalate	NGS	84	<2.0	2.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007535			112-40-3	Dodecane	NGS	96	<1.5	4.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007535			544-76-3	Hexadecane	NGS	89	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007535			629-59-4	Tetradecane	NGS	88	<1.4	5.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007535			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007535			629-50-5	Tridecane	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007535			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007535			629-62-9	Pentadecane	NGS	90	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-8
Customer Sample ID: 18-01494-1-SD1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007536			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007536			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007536			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007536			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007536			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007536			84-66-2	Diethylphthalate	NGS	84	<2.0	2.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007536			112-40-3	Dodecane	NGS	96	<1.5	4.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007536			544-76-3	Hexadecane	NGS	89	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007536			629-59-4	Tetradecane	NGS	88	<1.4	3.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007536			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007536			629-50-5	Tridecane	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007536			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007536			629-62-9	Pentadecane	NGS	90	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-1
Customer Sample ID: 18-01494-1-SD1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007537			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	1.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007537			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007537			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007537			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007537			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007537			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007537			112-40-3	Dodecane	NGS	96	<1.5	4.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007537			544-76-3	Hexadecane	NGS	89	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007537			629-59-4	Tetradecane	NGS	88	<1.4	5.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007537			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007537			629-50-5	Tridecane	NGS	99	<1.9	5.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007537			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007537			629-62-9	Pentadecane	NGS	90	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-8
Customer Sample ID: 18-01494-1-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007538			3891-98-3	2,6,10-Trimethyldodecane	NGS	88	<1.2	2.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007538			95-48-7	2-Methylphenol	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007538			108-39-4M	Cresol (m & p)	NGS	96	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007538			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007538			78-46-6	Dibutyl butylphosphonate	NGS	87	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007538			84-66-2	Diethylphthalate	NGS	84	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007538			112-40-3	Dodecane	NGS	96	<1.5	4.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007538			544-76-3	Hexadecane	NGS	89	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007538			629-59-4	Tetradecane	NGS	88	<1.4	6.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007538			126-73-8	Tributyl phosphate	NGS	78	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007538			629-50-5	Tridecane	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007538			629-78-7	Heptadecane	NGS	85	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007538			629-62-9	Pentadecane	NGS	90	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-1
Customer Sample ID: 18-01494-1-SD1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007529				Cyclotrisiloxane, hexamethyl-	541-05-9	3.11	NGS	26	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-2
Customer Sample ID: 18-01494-1-SD1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007530				Decane, 2,2-dimethyl-	17302-37-3	4.78	NGS	45	JNT
S18T007530				2,2,4,4,5,5,7,7-Octamethyloctane	5171-85-7	5.13	NGS	25	JNT
S18T007530				Decane, 2,3,8-trimethyl-	62238-14-6	5.18	NGS	55	JNT
S18T007530				Heptane, 5-ethyl-2,2,3-trimethyl-	62199-06-8	5.44	NGS	35	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-3
Customer Sample ID: 18-01494-1-SD1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007531				Cyclotrisiloxane, hexamethyl-	541-05-9	3.11	NGS	31	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-5
Customer Sample ID: 18-01494-1-SD1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007533				Cyclotrisiloxane, hexamethyl-	541-05-9	3.11	NGS	26	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-EF-7
Customer Sample ID: 18-01494-1-SD1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007535				Cyclotrisiloxane, hexamethyl-	541-05-9	3.11	NGS	30	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-1
Customer Sample ID: 18-01494-1-SD1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007537				Cyclotrisiloxane, hexamethyl-	541-05-9	3.11	NGS	34	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180623
SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-8
Customer Sample ID: 18-01494-1-SD1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007538				Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	30	JNT
S18T007538				Hexanal, 2-methyl-	925-54-2	3.82	NGS	42	JNT
S18T007538				Undecane	1120-21-4	7.40	NGS	6.7	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

OK. Jennie McKinney 5/15/18

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-1
Customer Sample ID: 18-01495-1-SC1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007549			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007549			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007549			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007549			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007549			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007549			84-66-2	Diethylphthalate	NGS	81	<2.0	6.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007549			112-40-3	Dodecane	NGS	97	<1.5	7.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007549			544-76-3	Hexadecane	NGS	85	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007549			629-59-4	Tetradecane	NGS	90	<1.4	5.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007549			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007549			629-50-5	Tridecane	NGS	96	<1.9	5.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007549			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007549			629-62-9	Pentadecane	NGS	87	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-2
Customer Sample ID: 18-01495-1-SC1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007550			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007550			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007550			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007550			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007550			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007550			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007550			112-40-3	Dodecane	NGS	97	<1.5	8.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007550			544-76-3	Hexadecane	NGS	85	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007550			629-59-4	Tetradecane	NGS	90	<1.4	8.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007550			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007550			629-50-5	Tridecane	NGS	96	<1.9	6.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007550			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007550			629-62-9	Pentadecane	NGS	87	<1.1	2.5	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-3
Customer Sample ID: 18-01495-1-SC1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007551			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	3.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007551			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007551			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007551			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007551			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007551			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007551			112-40-3	Dodecane	NGS	97	<1.5	8.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007551			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007551			629-59-4	Tetradecane	NGS	90	<1.4	10	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007551			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007551			629-50-5	Tridecane	NGS	96	<1.9	8.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007551			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007551			629-62-9	Pentadecane	NGS	87	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-4
Customer Sample ID: 18-01495-1-SC1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007552			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007552			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007552			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007552			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007552			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007552			84-66-2	Diethylphthalate	NGS	81	<2.0	4.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007552			112-40-3	Dodecane	NGS	97	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007552			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007552			629-59-4	Tetradecane	NGS	90	<1.4	8.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007552			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007552			629-50-5	Tridecane	NGS	96	<1.9	8.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007552			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007552			629-62-9	Pentadecane	NGS	87	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-5
Customer Sample ID: 18-01495-1-SC1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007553			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007553			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007553			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007553			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007553			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007553			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007553			112-40-3	Dodecane	NGS	97	<1.5	7.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007553			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007553			629-59-4	Tetradecane	NGS	90	<1.4	3.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007553			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007553			629-50-5	Tridecane	NGS	96	<1.9	4.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007553			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007553			629-62-9	Pentadecane	NGS	87	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-6
Customer Sample ID: 18-01495-1-SC1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007554			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	6.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007554			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007554			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007554			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007554			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007554			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007554			112-40-3	Dodecane	NGS	97	<1.5	7.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007554			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007554			629-59-4	Tetradecane	NGS	90	<1.4	17	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007554			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007554			629-50-5	Tridecane	NGS	96	<1.9	18	n/a	n/a	n/a	n/a	1.9	n/a	
S18T007554			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007554			629-62-9	Pentadecane	NGS	87	<1.1	3.6	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-7
Customer Sample ID: 18-01495-1-SC1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007555			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007555			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007555			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007555			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007555			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007555			84-66-2	Diethylphthalate	NGS	81	<2.0	3.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007555			112-40-3	Dodecane	NGS	97	<1.5	6.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007555			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007555			629-59-4	Tetradecane	NGS	90	<1.4	8.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007555			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007555			629-50-5	Tridecane	NGS	96	<1.9	7.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007555			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007555			629-62-9	Pentadecane	NGS	87	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-8
Customer Sample ID: 18-01495-1-SC1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007556			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007556			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007556			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007556			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007556			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007556			84-66-2	Diethylphthalate	NGS	81	<2.0	3.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007556			112-40-3	Dodecane	NGS	97	<1.5	6.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007556			544-76-3	Hexadecane	NGS	85	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007556			629-59-4	Tetradecane	NGS	90	<1.4	4.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007556			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007556			629-50-5	Tridecane	NGS	96	<1.9	5.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007556			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007556			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-1
Customer Sample ID: 18-01495-1-SC1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007557			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007557			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007557			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007557			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007557			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007557			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007557			112-40-3	Dodecane	NGS	97	<1.5	20	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007557			544-76-3	Hexadecane	NGS	85	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007557			629-59-4	Tetradecane	NGS	90	<1.4	4.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007557			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007557			629-50-5	Tridecane	NGS	96	<1.9	6.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007557			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007557			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-8
Customer Sample ID: 18-01495-1-SC1-IN-8

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007558		3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007558		95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007558		108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007558		92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007558		78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007558		84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007558		112-40-3	Dodecane	NGS	97	<1.5	4.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007558		544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007558		629-59-4	Tetradecane	NGS	90	<1.4	6.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007558		126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007558		629-50-5	Tridecane	NGS	96	<1.9	9.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007558		629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007558		629-62-9	Pentadecane	NGS	87	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

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2018 Cartridge Evaluation
Data Summary of All Results

OK. JMcMillan 5/15/18

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-2
Customer Sample ID: 18-01495-1-SC1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007550				Undecane	1120-21-4	4.84	NGS	5.8	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-4
Customer Sample ID: 18-01495-1-SC1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007552				Cyclotrisiloxane, hexamethyl-	541-05-9	3.07	NGS	28	JNT
S18T007552				Undecane	1120-21-4	5.73	NGS	11	JNT
S18T007552				Cyclopentasiloxane, decamethyl-	541-02-6	5.98	NGS	30	JNT
S18T007552				Undecane, 3,7-dimethyl-	17301-29-0	7.54	NGS	8.4	JNT

NA = Not Analyzed, ND = Not Detected

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-5
Customer Sample ID: 18-01495-1-SC1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007553				Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	29	JNT
S18T007553				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.18	NGS	8.5	JNT
S18T007553				Undecane, 3,7-dimethyl-	17301-29-0	7.54	NGS	6.4	JNT

NA = Not Analyzed, ND = Not Detected

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-6
Customer Sample ID: 18-01495-1-SC1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007554				Cyclotrisiloxane, hexamethyl-	541-05-9	3.07	NGS	30	JNT
S18T007554				Heptane, 2,2,4,6,6-pentamethyl-	13475-82-6	4.76	NGS	30	JNT
S18T007554				Undecane, 3,7-dimethyl-	17301-29-0	7.54	NGS	8.4	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-7
Customer Sample ID: 18-01495-1-SC1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007555				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	27	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-EF-8
Customer Sample ID: 18-01495-1-SC1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007556				Undecane	1120-21-4	7.54	NGS	5.7	JNT

NA = Not Analyzed, ND = Not Detected

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-1
Customer Sample ID: 18-01495-1-SC1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007557				Cyclotrisiloxane, hexamethyl-	541-05-9	3.06	NGS	35	JNT
S18T007557				Cyclotetrasiloxane, octamethyl-	556-67-2	4.62	NGS	27	JNT
S18T007557				Undecane	1120-21-4	5.73	NGS	31	JNT
S18T007557				Cyclopentasiloxane, decamethyl-	541-02-6	5.98	NGS	52	JNT
S18T007557				Decane, 2,4,6-trimethyl-	62108-27-4	7.54	NGS	13	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180624
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-8
Customer Sample ID: 18-01495-1-SC1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007558				Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	44	JNT
S18T007558				Pentanal, 2-methyl-	123-15-9	3.80	NGS	52	JNT
S18T007558				2-Heptanone, 6-methyl-	928-68-7	4.41	NGS	40	JNT
S18T007558				Undecane, 2,6-dimethyl-	17301-23-4	4.83	NGS	6.7	JNT

NA = Not Analyzed, ND = Not Detected

OK. Jermaine McKenney 5/15/18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-BA-EF
Customer Sample ID: 18-01495-1-SC1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007582			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007582			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007582			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007582			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007582			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007582			84-66-2	Diethylphthalate	NGS	81	<2.0	2.8	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007582			112-40-3	Dodecane	NGS	97	<1.5	4.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007582			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007582			629-59-4	Tetradecane	NGS	90	<1.4	5.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007582			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007582			629-50-5	Tridecane	NGS	96	<1.9	6.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007582			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007582			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-BA-IN
Customer Sample ID: 18-01495-1-SC1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007583			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	1.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007583			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007583			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007583			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007583			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007583			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007583			112-40-3	Dodecane	NGS	97	<1.5	3.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007583			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007583			629-59-4	Tetradecane	NGS	90	<1.4	2.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007583			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007583			629-50-5	Tridecane	NGS	96	<1.9	4.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007583			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007583			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-BL-EF
Customer Sample ID: 18-01495-1-SC1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007584			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007584			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007584			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007584			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007584			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007584			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007584			112-40-3	Dodecane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007584			544-76-3	Hexadecane	NGS	85	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007584			629-59-4	Tetradecane	NGS	90	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007584			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007584			629-50-5	Tridecane	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007584			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007584			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-BL-IN
Customer Sample ID: 18-01495-1-SC1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007585			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007585			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007585			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007585			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007585			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007585			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007585			112-40-3	Dodecane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007585			544-76-3	Hexadecane	NGS	85	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007585			629-59-4	Tetradecane	NGS	90	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007585			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007585			629-50-5	Tridecane	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007585			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007585			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-2
Customer Sample ID: 18-01495-1-SC1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007593			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007593			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007593			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007593			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007593			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007593			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007593			112-40-3	Dodecane	NGS	97	<1.5	7.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007593			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007593			629-59-4	Tetradecane	NGS	90	<1.4	9.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007593			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007593			629-50-5	Tridecane	NGS	96	<1.9	11	n/a	n/a	n/a	n/a	1.9	n/a	
S18T007593			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007593			629-62-9	Pentadecane	NGS	87	<1.1	2.8	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-3
Customer Sample ID: 18-01495-1-SC1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007594			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	3.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007594			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007594			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007594			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007594			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007594			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007594			112-40-3	Dodecane	NGS	97	<1.5	6.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007594			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007594			629-59-4	Tetradecane	NGS	90	<1.4	8.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007594			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007594			629-50-5	Tridecane	NGS	96	<1.9	10	n/a	n/a	n/a	n/a	1.9	n/a	
S18T007594			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007594			629-62-9	Pentadecane	NGS	87	<1.1	2.2	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-4
Customer Sample ID: 18-01495-1-SC1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007595			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	1.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007595			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007595			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007595			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007595			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007595			84-66-2	Diethylphthalate	NGS	81	<2.0	2.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007595			112-40-3	Dodecane	NGS	97	<1.5	4.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007595			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007595			629-59-4	Tetradecane	NGS	90	<1.4	5.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007595			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007595			629-50-5	Tridecane	NGS	96	<1.9	4.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007595			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007595			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-5
Customer Sample ID: 18-01495-1-SC1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007596			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007596			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007596			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007596			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007596			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007596			84-66-2	Diethylphthalate	NGS	81	<2.0	2.7	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007596			112-40-3	Dodecane	NGS	97	<1.5	3.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007596			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007596			629-59-4	Tetradecane	NGS	90	<1.4	6.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007596			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007596			629-50-5	Tridecane	NGS	96	<1.9	4.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007596			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007596			629-62-9	Pentadecane	NGS	87	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-6
Customer Sample ID: 18-01495-1-SC1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007597			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007597			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007597			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007597			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007597			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007597			84-66-2	Diethylphthalate	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007597			112-40-3	Dodecane	NGS	97	<1.5	5.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007597			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007597			629-59-4	Tetradecane	NGS	90	<1.4	5.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007597			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007597			629-50-5	Tridecane	NGS	96	<1.9	5.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007597			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007597			629-62-9	Pentadecane	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180625
Customer Group or SDG Number:
Customer Sample ID: 18-01495-1-SC1-IN-7
Customer Sample ID: 18-01495-1-SC1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007598			3891-98-3	2,6,10-Trimethyldodecane	NGS	90	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007598			95-48-7	2-Methylphenol	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007598			108-39-4M	Cresol (m & p)	NGS	88	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007598			92-52-4	Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007598			78-46-6	Dibutyl butylphosphonate	NGS	82	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007598			84-66-2	Diethylphthalate	NGS	81	<2.0	2.6	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007598			112-40-3	Dodecane	NGS	97	<1.5	3.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007598			544-76-3	Hexadecane	NGS	85	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007598			629-59-4	Tetradecane	NGS	90	<1.4	6.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007598			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007598			629-50-5	Tridecane	NGS	96	<1.9	8.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007598			629-78-7	Heptadecane	NGS	94	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007598			629-62-9	Pentadecane	NGS	87	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

N - Named TIC J - Estimated T - Tentatively Identified Compound U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Daniel R Hansen 5-17-18
Daniel R Hansen

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-BA-EF
Customer Sample ID: 18-01494-1-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007620			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007620			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007620			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007620			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007620			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007620			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007620			112-40-3	Dodecane	NGS	96	<1.5	3.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007620			544-76-3	Hexadecane	NGS	85	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007620			629-59-4	Tetradecane	NGS	86	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007620			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007620			629-50-5	Tridecane	NGS	95	<1.9	3.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007620			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007620			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-BA-IN
Customer Sample ID: 18-01494-1-SD1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007621			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	2.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007621			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007621			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007621			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007621			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007621			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007621			112-40-3	Dodecane	NGS	96	<1.5	4.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007621			544-76-3	Hexadecane	NGS	85	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007621			629-59-4	Tetradecane	NGS	86	<1.4	3.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007621			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007621			629-50-5	Tridecane	NGS	95	<1.9	5.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007621			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007621			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-BL-EF
Customer Sample ID: 18-01494-1-SD1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007623			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007623			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007623			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007623			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007623			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007623			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007623			112-40-3	Dodecane	NGS	96	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007623			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007623			629-59-4	Tetradecane	NGS	86	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007623			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007623			629-50-5	Tridecane	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007623			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007623			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-BL-IN
Customer Sample ID: 18-01494-1-SD1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007624			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007624			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007624			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007624			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007624			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007624			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007624			112-40-3	Dodecane	NGS	96	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007624			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007624			629-59-4	Tetradecane	NGS	86	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007624			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007624			629-50-5	Tridecane	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007624			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007624			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-2
Customer Sample ID: 18-01494-1-SD1-IN-2

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007625		3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007625		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007625		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007625		92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007625		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007625		84-66-2	Diethylphthalate	NGS	87	<2.0	3.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007625		112-40-3	Dodecane	NGS	96	<1.5	4.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007625		544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007625		629-59-4	Tetradecane	NGS	86	<1.4	6.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007625		126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007625		629-50-5	Tridecane	NGS	95	<1.9	3.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007625		629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007625		629-62-9	Pentadecane	NGS	85	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-3
Customer Sample ID: 18-01494-1-SD1-IN-3

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007626		3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007626		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007626		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007626		92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007626		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007626		84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007626		112-40-3	Dodecane	NGS	96	<1.5	3.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007626		544-76-3	Hexadecane	NGS	85	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007626		629-59-4	Tetradecane	NGS	86	<1.4	4.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007626		126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007626		629-50-5	Tridecane	NGS	95	<1.9	5.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007626		629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007626		629-62-9	Pentadecane	NGS	85	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-4
Customer Sample ID: 18-01494-1-SD1-IN-4

Sample#	R.	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007635			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007635			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007635			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007635			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007635			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007635			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007635			112-40-3	Dodecane	NGS	96	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007635			544-76-3	Hexadecane	NGS	85	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007635			629-59-4	Tetradecane	NGS	86	<1.4	3.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007635			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007635			629-50-5	Tridecane	NGS	95	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007635			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007635			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-5
Customer Sample ID: 18-01494-1-SD1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007636			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007636			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007636			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007636			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007636			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007636			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007636			112-40-3	Dodecane	NGS	96	<1.5	2.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007636			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007636			629-59-4	Tetradecane	NGS	86	<1.4	3.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007636			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007636			629-50-5	Tridecane	NGS	95	<1.9	2.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007636			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007636			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-6
Customer Sample ID: 18-01494-1-SD1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007637			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007637			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007637			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007637			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007637			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007637			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007637			112-40-3	Dodecane	NGS	96	<1.5	3.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007637			544-76-3	Hexadecane	NGS	85	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007637			629-59-4	Tetradecane	NGS	86	<1.4	2.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007637			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007637			629-50-5	Tridecane	NGS	95	<1.9	3.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007637			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007637			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180626
Customer Group or SDG Number:
Customer Sample ID: 18-01494-1-SD1-IN-7
Customer Sample ID: 18-01494-1-SD1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007638			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007638			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007638			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007638			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007638			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007638			84-66-2	Diethylphthalate	NGS	87	<2.0	2.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007638			112-40-3	Dodecane	NGS	96	<1.5	2.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007638			544-76-3	Hexadecane	NGS	85	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007638			629-59-4	Tetradecane	NGS	86	<1.4	4.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007638			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007638			629-50-5	Tridecane	NGS	95	<1.9	5.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007638			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007638			629-62-9	Pentadecane	NGS	85	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

Daniel R Hansen
Daniel R Hansen 5-17-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-1
Customer Sample ID: 18-01496-1-TL1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007539			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007539			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007539			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007539			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007539			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007539			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007539			112-40-3	Dodecane	NGS	96	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007539			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007539			629-59-4	Tetradecane	NGS	86	<1.4	3.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007539			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007539			629-50-5	Tridecane	NGS	95	<1.9	6.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007539			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007539			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC
B - Blank Contamination

T - Tentatively Identified Compound

J - Estimated

NA = Not Analyzed, ND = Not Detected
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-2
Customer Sample ID: 18-01496-1-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007540			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007540			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007540			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007540			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007540			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007540			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007540			112-40-3	Dodecane	NGS	96	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007540			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007540			629-59-4	Tetradecane	NGS	86	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007540			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007540			629-50-5	Tridecane	NGS	95	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007540			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007540			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC
B - Blank Contamination

T - Tentatively Identified Compound

J - Estimated

NA = Not Analyzed, ND = Not Detected
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-3
Customer Sample ID: 18-01496-1-TL1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007541			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007541			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007541			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007541			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007541			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007541			84-66-2	Diethylphthalate	NGS	87	<2.0	2.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007541			112-40-3	Dodecane	NGS	96	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007541			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007541			629-59-4	Tetradecane	NGS	86	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007541			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007541			629-50-5	Tridecane	NGS	95	<1.9	2.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007541			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007541			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC
B - Blank Contamination
T - Tentatively Identified Compound
J - Estimated
NA = Not Analyzed, ND = Not Detected
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-4
Customer Sample ID: 18-01496-1-TL1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007542			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007542			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007542			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007542			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007542			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007542			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007542			112-40-3	Dodecane	NGS	96	<1.5	6.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007542			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007542			629-59-4	Tetradecane	NGS	86	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007542			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007542			629-50-5	Tridecane	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007542			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007542			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC
B - Blank Contamination

T - Tentatively Identified Compound

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-5
Customer Sample ID: 18-01496-1-TL1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007543			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007543			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007543			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007543			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007543			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007543			84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007543			112-40-3	Dodecane	NGS	96	<1.5	5.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007543			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007543			629-59-4	Tetradecane	NGS	86	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007543			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007543			629-50-5	Tridecane	NGS	95	<1.9	3.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007543			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007543			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC
T - Tentatively Identified Compound
J - Estimated
U - Less Than Detection Limit
B - Blank Contamination

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-6
Customer Sample ID: 18-01496-1-TL1-EF-6

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007544		3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007544		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007544		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007544		92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007544		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007544		84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007544		112-40-3	Dodecane	NGS	96	<1.5	8.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007544		544-76-3	Hexadecane	NGS	85	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007544		629-59-4	Tetradecane	NGS	86	<1.4	1.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007544		126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007544		629-50-5	Tridecane	NGS	95	<1.9	3.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007544		629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007544		629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

N - Named TIC
T - Tentatively Identified Compound
J - Estimated
U - Less Than Detection Limit
B - Blank Contamination

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-7
Customer Sample ID: 18-01496-1-TL1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007545			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007545			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007545			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007545			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007545			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007545			84-66-2	Diethylphthalate	NGS	87	<2.0	2.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007545			112-40-3	Dodecane	NGS	96	<1.5	3.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007545			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007545			629-59-4	Tetradecane	NGS	86	<1.4	3.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007545			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007545			629-50-5	Tridecane	NGS	95	<1.9	2.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007545			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007545			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

N - Named TIC
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J - Estimated

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-8
Customer Sample ID: 18-01496-1-TL1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T007546			3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007546			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007546			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007546			92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007546			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007546			84-66-2	Diethylphthalate	NGS	87	<2.0	2.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T007546			112-40-3	Dodecane	NGS	96	<1.5	7.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007546			544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007546			629-59-4	Tetradecane	NGS	86	<1.4	2.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007546			126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007546			629-50-5	Tridecane	NGS	95	<1.9	3.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007546			629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007546			629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-IN-8
Customer Sample ID: 18-01496-1-TL1-IN-8

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T007548		3891-98-3	2,6,10-Trimethyldodecane	NGS	84	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007548		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007548		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T007548		92-52-4	Biphenyl	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007548		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T007548		84-66-2	Diethylphthalate	NGS	87	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T007548		112-40-3	Dodecane	NGS	96	<1.5	9.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007548		544-76-3	Hexadecane	NGS	85	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007548		629-59-4	Tetradecane	NGS	86	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007548		126-73-8	Tributyl phosphate	NGS	92	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T007548		629-50-5	Tridecane	NGS	95	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T007548		629-78-7	Heptadecane	NGS	90	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T007548		629-62-9	Pentadecane	NGS	85	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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J - Estimated
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U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-1
Customer Sample ID: 18-01496-1-TL1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007539				Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	32	BJNT
S18T007539				Cyclotetrasiloxane, octamethyl-	556-67-2	4.63	NGS	27	JNT
S18T007539				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	36	JNT
S18T007539				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.18	NGS	11	JNT
S18T007539				Undecane	1120-21-4	7.54	NGS	7.9	JNT
S18T007539			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-2
Customer Sample ID: 18-01496-1-TL1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007540				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	29	BJNT
S18T007540				Undecane	1120-21-4	5.74	NGS	14	JNT
S18T007540				Undecane, 2-methyl-	7045-71-8	7.18	NGS	10	JNT
S18T007540			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-3
Customer Sample ID: 18-01496-1-TL1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007541				Trimethyl[4-(1,1,3,3,-tetramethylbutyl)phenoxy]silane	78721-87-6	3.09	NGS	31	JNT
S18T007541				Undecane	1120-21-4	5.74	NGS	12	JNT
S18T007541				Undecane, 2-methyl-	7045-71-8	7.18	NGS	9.0	JNT
S18T007541				Undecane, 3,7-dimethyl-	17301-29-0	7.54	NGS	7.1	JNT
S18T007541			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-4
Customer Sample ID: 18-01496-1-TL1-EF-4

Sample#	R	Adj	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007542				Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	32	BJNT
S18T007542				Undecane	1120-21-4	5.74	NGS	8.7	JNT
S18T007542			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627
Customer Group or SDG Number:
Customer Sample ID: 18-01496-1-TL1-EF-5
Customer Sample ID: 18-01496-1-TL1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007543				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	33	BJNT
S18T007543			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627

Customer Group or SDG Number:

Customer Sample ID: 18-01496-1-TL1-EF-6

Customer Sample ID: 18-01496-1-TL1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007544				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	40	BJNT
S18T007544				Cyclotetrasiloxane, octamethyl-	556-67-2	4.63	NGS	37	JNT
S18T007544				Undecane	1120-21-4	5.74	NGS	12	JNT
S18T007544				Undecane, 2-methyl-	7045-71-8	7.18	NGS	8.8	JNT
S18T007544				Undecane, 3,7-dimethyl-	17301-29-0	7.54	NGS	6.1	JNT
S18T007544			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180627

Customer Group or SDG Number:

Customer Sample ID: 18-01496-1-TL1-EF-7

Customer Sample ID: 18-01496-1-TL1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T007545				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	40	BJNT
S18T007545			BLNK	Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	26	BJNT

NA = Not Analyzed, ND = Not Detected

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Daniel Hansen
Daniel Hansen
5-30-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-1
Customer Sample ID: 18-01494-2-SD1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007137			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007137			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007137			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007137			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	L
S18T007137			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007137			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007137			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	5.0	n/a	n/a	n/a	n/a	2.5	n/a	J
S18T007137			78-93-3	2-Butanone	NGS	120	<0.98	2.5	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007137			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007137			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			78-94-4	3-Buten-2-one	NGS	120	<1.5	1.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007137			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007137			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007137			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007137			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137			67-64-1	Acetone	NGS	120	<4.8	33	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007137			75-05-8	Acetonitrile	NGS	110	<1.2	8.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007137			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007137			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007137			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007137			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007137			71-43-2	Benzene	NGS	110	<1.3	4.6	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-1
Customer Sample ID: 18-01494-2-SD1-EF-1

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007137		100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007137		123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007137		109-74-0	Butanenitrile	NGS	120	<0.99	5.8	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007137		56-23-5	Carbon tetrachloride	NGS	110	<1.1	2.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007137		108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007137		75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007137		67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007137		110-82-7	Cyclohexane	NGS	110	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007137		124-18-5	Decane	NGS	120	<1.1	3.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007137		64-17-5	Ethanol	NGS	110	<8.5	15	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007137		141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007137		100-41-4	Ethylbenzene	NGS	110	<1.0	1.9	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007137		110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007137		110-54-3	Hexane	NGS	110	1.6	4.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007137		628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007137		126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137		75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007137		91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007137		98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137		110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007137		107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007137		110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007137		100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007137		127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137		108-88-3	Toluene	NGS	110	<1.0	11	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007137		79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007137		75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.4	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007137		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007137		123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-1
Customer Sample ID: 18-01494-2-SD1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007137			142-82-5	n-Heptane	NGS	110	<0.93	2.6	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007137			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-2
Customer Sample ID: 18-01494-2-SD1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007140			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	3.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007140			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007140			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007140			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007140			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007140			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007140			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007140			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007140			78-93-3	2-Butanone	NGS	120	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007140			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007140			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			78-94-4	3-Buten-2-one	NGS	120	<1.5	1.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007140			106-35-4	3-Heptanone	NGS	120	<1.2	3.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007140			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007140			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007140			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			67-64-1	Acetone	NGS	120	<4.8	19	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007140			75-05-8	Acetonitrile	NGS	110	<1.2	60	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007140			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007140			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007140			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007140			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007140			71-43-2	Benzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-2
Customer Sample ID: 18-01494-2-SD1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007140			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007140			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007140			109-74-0	Butanenitrile	NGS	120	<0.99	1.4	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007140			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007140			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007140			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007140			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007140			124-18-5	Decane	NGS	120	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007140			64-17-5	Ethanol	NGS	110	<8.5	29	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007140			141-78-6	Ethyl acetate	NGS	120	<1.6	1.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T007140			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007140			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007140			110-54-3	Hexane	NGS	110	1.6	1.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007140			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007140			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			75-09-2	Methylene Chloride	NGS	110	<4.9	5.5	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007140			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007140			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007140			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007140			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007140			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007140			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			108-88-3	Toluene	NGS	110	<1.0	2.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007140			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007140			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007140			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007140			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-2
Customer Sample ID: 18-01494-2-SD1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007140			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007140			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-3
Customer Sample ID: 18-01494-2-SD1-EF-3

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007143		79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007143		123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143		71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007143		111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007143		71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007143		108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007143		1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007143		78-93-3	2-Butanone	NGS	120	<0.98	1.6	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007143		110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143		591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		78-94-4	3-Buten-2-one	NGS	120	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007143		106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143		106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007143		105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007143		108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143		67-64-1	Acetone	NGS	120	<4.8	13	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007143		75-05-8	Acetonitrile	NGS	110	<1.2	7.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007143		98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007143		107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007143		107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007143		107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007143		71-43-2	Benzene	NGS	110	<1.3	2.7	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-3
Customer Sample ID: 18-01494-2-SD1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007143			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007143			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007143			109-74-0	Butanenitrile	NGS	120	<0.99	4.1	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007143			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007143			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007143			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143			124-18-5	Decane	NGS	120	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007143			64-17-5	Ethanol	NGS	110	<8.5	19	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007143			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007143			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007143			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007143			110-54-3	Hexane	NGS	110	1.6	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007143			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007143			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007143			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007143			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007143			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007143			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007143			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143			108-88-3	Toluene	NGS	110	<1.0	2.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007143			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007143			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.7	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007143			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007143			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-3
Customer Sample ID: 18-01494-2-SD1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007143			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007143			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-4
Customer Sample ID: 18-01494-2-SD1-EF-4

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007144		79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007144		123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144		71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007144		111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007144		71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007144		108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007144		1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007144		78-93-3	2-Butanone	NGS	120	<0.98	1.3	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007144		110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144		591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007144		106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144		106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007144		105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007144		108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144		67-64-1	Acetone	NGS	120	<4.8	7.1	n/a	n/a	n/a	n/a	4.8	n/a	J
S18T007144		75-05-8	Acetonitrile	NGS	110	<1.2	5.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007144		98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007144		107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007144		107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007144		107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007144		71-43-2	Benzene	NGS	110	<1.3	1.9	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-4
Customer Sample ID: 18-01494-2-SD1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007144			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007144			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007144			109-74-0	Butanenitrile	NGS	120	<0.99	2.8	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007144			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007144			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144			64-17-5	Ethanol	NGS	110	<8.5	<8.5	n/a	n/a	n/a	n/a	8.5	n/a	U
S18T007144			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007144			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007144			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007144			110-54-3	Hexane	NGS	110	1.6	2.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007144			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007144			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007144			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007144			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007144			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007144			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007144			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144			108-88-3	Toluene	NGS	110	<1.0	1.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007144			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007144			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007144			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007144			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-4
Customer Sample ID: 18-01494-2-SD1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007144			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007144			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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a - LCS Outside Range

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-5
Customer Sample ID: 18-01494-2-SD1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007145			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007145			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007145			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007145			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007145			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007145			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007145			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007145			78-93-3	2-Butanone	NGS	120	<0.98	2.0	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007145			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007145			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			78-94-4	3-Buten-2-one	NGS	120	<1.5	1.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007145			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007145			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007145			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007145			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			67-64-1	Acetone	NGS	120	<4.8	12	n/a	n/a	n/a	n/a	4.8	n/a	J
S18T007145			75-05-8	Acetonitrile	NGS	110	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007145			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007145			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007145			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007145			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007145			71-43-2	Benzene	NGS	110	<1.3	10	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-5
Customer Sample ID: 18-01494-2-SD1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007145			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007145			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007145			109-74-0	Butanenitrile	NGS	120	<0.99	3.8	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007145			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007145			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007145			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007145			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007145			110-82-7	Cyclohexane	NGS	110	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007145			124-18-5	Decane	NGS	120	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007145			64-17-5	Ethanol	NGS	110	<8.5	37	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007145			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007145			100-41-4	Ethylbenzene	NGS	110	<1.0	1.1	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007145			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007145			110-54-3	Hexane	NGS	110	1.6	8.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007145			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007145			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007145			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007145			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007145			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007145			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007145			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007145			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			108-88-3	Toluene	NGS	110	<1.0	13	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007145			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007145			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	2.7	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007145			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007145			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-5
Customer Sample ID: 18-01494-2-SD1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007145			142-82-5	n-Heptane	NGS	110	<0.93	3.7	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007145			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-6
Customer Sample ID: 18-01494-2-SD1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007146			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007146			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007146			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007146			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007146			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007146			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007146			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007146			78-93-3	2-Butanone	NGS	120	<0.98	2.6	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007146			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007146			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007146			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007146			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007146			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007146			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146			67-64-1	Acetone	NGS	120	<4.8	14	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007146			75-05-8	Acetonitrile	NGS	110	<1.2	17	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007146			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007146			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007146			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007146			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007146			71-43-2	Benzene	NGS	110	<1.3	8.6	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-6
Customer Sample ID: 18-01494-2-SD1-EF-6

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007146		100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007146		123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007146		109-74-0	Butanenitrile	NGS	120	<0.99	3.8	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007146		56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007146		108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007146		75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007146		67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007146		110-82-7	Cyclohexane	NGS	110	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007146		124-18-5	Decane	NGS	120	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007146		64-17-5	Ethanol	NGS	110	<8.5	21	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007146		141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007146		100-41-4	Ethylbenzene	NGS	110	<1.0	1.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007146		110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007146		110-54-3	Hexane	NGS	110	1.6	5.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007146		628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007146		126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146		75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007146		91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007146		98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146		110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007146		107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007146		110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007146		100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007146		127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146		108-88-3	Toluene	NGS	110	<1.0	13	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007146		79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007146		75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.1	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007146		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007146		123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-6
Customer Sample ID: 18-01494-2-SD1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007146			142-82-5	n-Heptane	NGS	110	<0.93	2.9	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007146			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
N - Named TIC
L - LLS Outside Range

T - Tentatively Identified Compound
Y - Comment
E - Outside Calibration Range

Q - Qualitative
a - LCS Outside Range

c - RPD Outside Range
J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-7
Customer Sample ID: 18-01494-2-SD1-EF-7

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007147		79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007147		123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007147		71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007147		111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007147		71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007147		108-47-4	2,4-Dimethylpyridine	NGS	120	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	U
S18T007147		1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	4.9	n/a	n/a	n/a	n/a	2.5	n/a	J
S18T007147		78-93-3	2-Butanone	NGS	120	<0.98	2.8	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007147		110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007147		591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		78-94-4	3-Buten-2-one	NGS	120	<1.5	2.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007147		106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007147		106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007147		105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007147		108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147		67-64-1	Acetone	NGS	120	<4.8	23	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007147		75-05-8	Acetonitrile	NGS	110	<1.2	19	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007147		98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007147		107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007147		107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007147		107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007147		71-43-2	Benzene	NGS	110	<1.3	6.8	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-7
Customer Sample ID: 18-01494-2-SD1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007147			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007147			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007147			109-74-0	Butanenitrile	NGS	120	<0.99	3.6	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007147			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007147			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007147			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007147			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007147			110-82-7	Cyclohexane	NGS	110	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007147			124-18-5	Decane	NGS	120	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007147			64-17-5	Ethanol	NGS	110	<8.5	34	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007147			141-78-6	Ethyl acetate	NGS	120	<1.6	1.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T007147			100-41-4	Ethylbenzene	NGS	110	<1.0	1.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007147			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007147			110-54-3	Hexane	NGS	110	1.6	5.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007147			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007147			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147			75-09-2	Methylene Chloride	NGS	110	<4.9	6.2	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007147			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007147			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007147			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007147			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007147			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007147			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147			108-88-3	Toluene	NGS	110	<1.0	13	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007147			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007147			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.6	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007147			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007147			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-7
Customer Sample ID: 18-01494-2-SD1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007147			142-82-5	n-Heptane	NGS	110	<0.93	2.6	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007147			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-8
Customer Sample ID: 18-01494-2-SD1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007148			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007148			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007148			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007148			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007148			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007148			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007148			78-93-3	2-Butanone	NGS	120	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007148			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007148			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007148			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007148			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			67-64-1	Acetone	NGS	120	<4.8	6.7	n/a	n/a	n/a	n/a	4.8	n/a	J
S18T007148			75-05-8	Acetonitrile	NGS	110	<1.2	5.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007148			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007148			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007148			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007148			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007148			71-43-2	Benzene	NGS	110	<1.3	2.3	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-8
Customer Sample ID: 18-01494-2-SD1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007148			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007148			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007148			109-74-0	Butanenitrile	NGS	120	<0.99	2.2	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007148			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007148			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			64-17-5	Ethanol	NGS	110	<8.5	9.4	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007148			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007148			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007148			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007148			110-54-3	Hexane	NGS	110	1.6	2.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007148			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007148			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007148			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007148			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007148			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007148			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007148			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			108-88-3	Toluene	NGS	110	<1.0	2.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007148			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007148			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007148			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007148			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-8
Customer Sample ID: 18-01494-2-SD1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007148			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007148			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-1
Customer Sample ID: 18-01494-2-SD1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007149			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007149			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007149			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007149			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007149			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007149			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007149			78-93-3	2-Butanone	NGS	120	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007149			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007149			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007149			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007149			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			67-64-1	Acetone	NGS	120	<4.8	9.5	n/a	n/a	n/a	n/a	4.8	n/a	J
S18T007149			75-05-8	Acetonitrile	NGS	110	<1.2	14	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007149			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007149			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007149			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007149			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007149			71-43-2	Benzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-1
Customer Sample ID: 18-01494-2-SD1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007149			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007149			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007149			109-74-0	Butanenitrile	NGS	120	<0.99	1.3	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007149			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007149			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			64-17-5	Ethanol	NGS	110	<8.5	27	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007149			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007149			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007149			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007149			110-54-3	Hexane	NGS	110	1.6	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007149			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007149			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007149			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007149			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007149			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007149			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007149			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			108-88-3	Toluene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007149			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007149			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007149			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007149			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-1
Customer Sample ID: 18-01494-2-SD1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007149			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007149			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-8
Customer Sample ID: 18-01494-2-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007150			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007150			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007150			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007150			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007150			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007150			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007150			78-93-3	2-Butanone	NGS	120	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007150			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007150			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007150			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007150			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			67-64-1	Acetone	NGS	120	<4.8	6.2	n/a	n/a	n/a	n/a	4.8	n/a	J
S18T007150			75-05-8	Acetonitrile	NGS	110	<1.2	13	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007150			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007150			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007150			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007150			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007150			71-43-2	Benzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-8
Customer Sample ID: 18-01494-2-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007150			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007150			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007150			109-74-0	Butanenitrile	NGS	120	<0.99	1.2	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007150			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007150			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			64-17-5	Ethanol	NGS	110	<8.5	16	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007150			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007150			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007150			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007150			110-54-3	Hexane	NGS	110	1.6	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007150			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007150			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007150			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007150			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007150			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007150			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007150			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			108-88-3	Toluene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007150			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007150			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007150			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007150			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-8
Customer Sample ID: 18-01494-2-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007150			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007150			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-1
Customer Sample ID: 18-01496-2-TL1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007151			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007151			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007151			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007151			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007151			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007151			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007151			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007151			78-93-3	2-Butanone	NGS	120	<0.98	1.7	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007151			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007151			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007151			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007151			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007151			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007151			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			67-64-1	Acetone	NGS	120	<4.8	24	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007151			75-05-8	Acetonitrile	NGS	110	<1.2	2.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007151			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007151			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007151			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007151			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007151			71-43-2	Benzene	NGS	110	<1.3	5.3	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-1
Customer Sample ID: 18-01496-2-TL1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007151			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007151			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007151			109-74-0	Butanenitrile	NGS	120	<0.99	8.9	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007151			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007151			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	Q
S18T007151			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007151			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007151			110-82-7	Cyclohexane	NGS	110	<1.2	3.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007151			124-18-5	Decane	NGS	120	<1.1	2.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007151			64-17-5	Ethanol	NGS	110	<8.5	43	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007151			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007151			100-41-4	Ethylbenzene	NGS	110	<1.0	1.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007151			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007151			110-54-3	Hexane	NGS	110	1.6	9.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007151			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007151			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007151			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007151			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007151			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007151			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007151			100-42-5	Styrene	NGS	110	<1.3	1.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T007151			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			108-88-3	Toluene	NGS	110	<1.0	19	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007151			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007151			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	4.0	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007151			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007151			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-1
Customer Sample ID: 18-01496-2-TL1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007151			142-82-5	n-Heptane	NGS	110	<0.93	4.7	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007151			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-2
Customer Sample ID: 18-01496-2-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007152			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007152			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007152			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007152			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007152			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007152			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007152			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007152			78-93-3	2-Butanone	NGS	120	<0.98	3.3	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007152			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007152			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007152			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007152			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007152			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007152			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			67-64-1	Acetone	NGS	120	<4.8	18	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007152			75-05-8	Acetonitrile	NGS	110	<1.2	8.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007152			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007152			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007152			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007152			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007152			71-43-2	Benzene	NGS	110	<1.3	6.3	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-2
Customer Sample ID: 18-01496-2-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007152			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007152			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007152			109-74-0	Butanenitrile	NGS	120	<0.99	6.5	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007152			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007152			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007152			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007152			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007152			110-82-7	Cyclohexane	NGS	110	<1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007152			124-18-5	Decane	NGS	120	<1.1	2.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007152			64-17-5	Ethanol	NGS	110	<8.5	48	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007152			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007152			100-41-4	Ethylbenzene	NGS	110	<1.0	1.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007152			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007152			110-54-3	Hexane	NGS	110	1.6	5.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007152			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007152			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007152			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007152			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007152			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007152			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007152			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007152			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			108-88-3	Toluene	NGS	110	<1.0	9.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007152			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007152			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.3	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007152			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007152			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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Y - Comment
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a - LCS Outside Range

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-2
Customer Sample ID: 18-01496-2-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007152			142-82-5	n-Heptane	NGS	110	<0.93	2.4	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007152			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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NA = Not Analyzed, ND = Not Detected
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J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-3
Customer Sample ID: 18-01496-2-TL1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007153			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007153			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007153			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007153			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007153			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007153			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007153			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007153			78-93-3	2-Butanone	NGS	120	<0.98	2.1	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007153			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	Q
S18T007153			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	Q
S18T007153			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	Q
S18T007153			78-94-4	3-Buten-2-one	NGS	120	<1.5	2.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007153			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	Q
S18T007153			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007153			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007153			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			67-64-1	Acetone	NGS	120	<4.8	32	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007153			75-05-8	Acetonitrile	NGS	110	<1.2	7.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007153			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007153			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007153			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007153			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007153			71-43-2	Benzene	NGS	110	<1.3	2.3	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-3
Customer Sample ID: 18-01496-2-TL1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007153			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007153			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007153			109-74-0	Butanenitrile	NGS	120	<0.99	6.1	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007153			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007153			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007153			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007153			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007153			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007153			124-18-5	Decane	NGS	120	<1.1	3.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007153			64-17-5	Ethanol	NGS	110	<8.5	39	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007153			141-78-6	Ethyl acetate	NGS	120	<1.6	1.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T007153			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007153			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007153			110-54-3	Hexane	NGS	110	1.6	2.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007153			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007153			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			75-09-2	Methylene Chloride	NGS	110	<4.9	6.0	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007153			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007153			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007153			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007153			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007153			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007153			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			108-88-3	Toluene	NGS	110	<1.0	5.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007153			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007153			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.7	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007153			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007153			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-3
Customer Sample ID: 18-01496-2-TL1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007153			142-82-5	n-Heptane	NGS	110	<0.93	0.97	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007153			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-4
Customer Sample ID: 18-01496-2-TL1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007154			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007154			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007154			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007154			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007154			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007154			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007154			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007154			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007154			78-93-3	2-Butanone	NGS	120	<0.98	3.1	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007154			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	Q
S18T007154			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	Q
S18T007154			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	Q
S18T007154			78-94-4	3-Buten-2-one	NGS	120	<1.5	3.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007154			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007154			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007154			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007154			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			67-64-1	Acetone	NGS	120	<4.8	22	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007154			75-05-8	Acetonitrile	NGS	110	<1.2	920	n/a	n/a	n/a	n/a	1.2	n/a	E
S18T007154			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	Q
S18T007154			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007154			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007154			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007154			71-43-2	Benzene	NGS	110	<1.3	5.9	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-4
Customer Sample ID: 18-01496-2-TL1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007154			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007154			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007154			109-74-0	Butanenitrile	NGS	120	<0.99	8.0	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007154			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007154			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	Q
S18T007154			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007154			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007154			110-82-7	Cyclohexane	NGS	110	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007154			124-18-5	Decane	NGS	120	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007154			64-17-5	Ethanol	NGS	110	<8.5	50	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007154			141-78-6	Ethyl acetate	NGS	120	<1.6	2.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T007154			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007154			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007154			110-54-3	Hexane	NGS	110	1.6	6.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007154			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007154			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			75-09-2	Methylene Chloride	NGS	110	<4.9	9.2	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007154			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007154			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007154			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007154			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007154			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007154			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			108-88-3	Toluene	NGS	110	<1.0	7.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007154			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007154			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.6	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007154			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007154			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-4
Customer Sample ID: 18-01496-2-TL1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007154			142-82-5	n-Heptane	NGS	110	<0.93	2.1	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007154			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-5
Customer Sample ID: 18-01496-2-TL1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007156			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007156			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007156			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007156			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007156			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007156			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007156			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007156			78-93-3	2-Butanone	NGS	120	<0.98	2.4	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007156			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007156			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			78-94-4	3-Buten-2-one	NGS	120	<1.5	2.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007156			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007156			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007156			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007156			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			67-64-1	Acetone	NGS	120	<4.8	17	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007156			75-05-8	Acetonitrile	NGS	110	<1.2	4.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007156			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007156			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007156			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007156			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007156			71-43-2	Benzene	NGS	110	<1.3	14	n/a	n/a	n/a	n/a	1.3	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-5
Customer Sample ID: 18-01496-2-TL1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007156			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007156			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007156			109-74-0	Butanenitrile	NGS	120	<0.99	5.3	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007156			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007156			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007156			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007156			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007156			110-82-7	Cyclohexane	NGS	110	<1.2	4.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007156			124-18-5	Decane	NGS	120	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007156			64-17-5	Ethanol	NGS	110	<8.5	44	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007156			141-78-6	Ethyl acetate	NGS	120	<1.6	1.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T007156			100-41-4	Ethylbenzene	NGS	110	<1.0	1.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007156			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007156			110-54-3	Hexane	NGS	110	1.6	14	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007156			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007156			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			75-09-2	Methylene Chloride	NGS	110	<4.9	5.3	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007156			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007156			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007156			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007156			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007156			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007156			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			108-88-3	Toluene	NGS	110	<1.0	18	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007156			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007156			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	4.3	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007156			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007156			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-5
Customer Sample ID: 18-01496-2-TL1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007156			142-82-5	n-Heptane	NGS	110	<0.93	5.1	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007156			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-6
Customer Sample ID: 18-01496-2-TL1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007157			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007157			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007157			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007157			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007157			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007157			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007157			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007157			78-93-3	2-Butanone	NGS	120	<0.98	2.5	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007157			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007157			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			78-94-4	3-Buten-2-one	NGS	120	<1.5	2.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007157			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007157			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007157			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007157			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157			67-64-1	Acetone	NGS	120	<4.8	15	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007157			75-05-8	Acetonitrile	NGS	110	<1.2	7.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007157			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007157			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007157			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007157			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007157			71-43-2	Benzene	NGS	110	<1.3	11	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-6
Customer Sample ID: 18-01496-2-TL1-EF-6

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007157		100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007157		123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007157		109-74-0	Butanenitrile	NGS	120	<0.99	5.3	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007157		56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007157		108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007157		75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007157		67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007157		110-82-7	Cyclohexane	NGS	110	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007157		124-18-5	Decane	NGS	120	<1.1	3.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007157		64-17-5	Ethanol	NGS	110	<8.5	28	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007157		141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007157		100-41-4	Ethylbenzene	NGS	110	<1.0	1.9	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007157		110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007157		110-54-3	Hexane	NGS	110	1.6	11	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007157		628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007157		126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157		75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007157		91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007157		98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157		110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007157		107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007157		110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007157		100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007157		127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157		108-88-3	Toluene	NGS	110	<1.0	15	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007157		79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007157		75-69-4	Trichlorofluoromethane	NGS	110	<1.8	4.2	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007157		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007157		123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-6
Customer Sample ID: 18-01496-2-TL1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007157			142-82-5	n-Heptane	NGS	110	<0.93	3.5	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007157			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-7
Customer Sample ID: 18-01496-2-TL1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007158			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007158			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007158			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007158			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007158			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007158			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007158			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007158			78-93-3	2-Butanone	NGS	120	<0.98	2.6	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007158			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007158			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			78-94-4	3-Buten-2-one	NGS	120	<1.5	1.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007158			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007158			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007158			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007158			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			67-64-1	Acetone	NGS	120	<4.8	20	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007158			75-05-8	Acetonitrile	NGS	110	<1.2	6.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007158			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007158			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007158			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007158			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007158			71-43-2	Benzene	NGS	110	<1.3	8.0	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-7
Customer Sample ID: 18-01496-2-TL1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007158			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007158			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007158			109-74-0	Butanenitrile	NGS	120	<0.99	4.5	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007158			56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007158			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007158			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007158			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007158			110-82-7	Cyclohexane	NGS	110	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007158			124-18-5	Decane	NGS	120	<1.1	2.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007158			64-17-5	Ethanol	NGS	110	<8.5	38	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007158			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007158			100-41-4	Ethylbenzene	NGS	110	<1.0	2.1	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007158			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007158			110-54-3	Hexane	NGS	110	1.6	8.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007158			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007158			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			75-09-2	Methylene Chloride	NGS	110	<4.9	6.2	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007158			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007158			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			110-59-8	Pentanenitrile	NGS	120	<1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007158			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007158			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007158			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007158			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			108-88-3	Toluene	NGS	110	<1.0	17	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007158			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007158			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	3.1	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007158			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007158			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-7
Customer Sample ID: 18-01496-2-TL1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007158			142-82-5	n-Heptane	NGS	110	<0.93	3.7	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007158			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-8
Customer Sample ID: 18-01496-2-TL1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007160			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007160			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007160			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007160			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007160			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007160			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007160			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007160			78-93-3	2-Butanone	NGS	120	<0.98	2.5	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007160			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007160			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007160			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007160			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007160			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007160			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160			67-64-1	Acetone	NGS	120	<4.8	14	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007160			75-05-8	Acetonitrile	NGS	110	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007160			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007160			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007160			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007160			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007160			71-43-2	Benzene	NGS	110	<1.3	10	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-8
Customer Sample ID: 18-01496-2-TL1-EF-8

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007160		100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007160		123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007160		109-74-0	Butanenitrile	NGS	120	<0.99	5.0	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007160		56-23-5	Carbon tetrachloride	NGS	110	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007160		108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007160		75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007160		67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007160		110-82-7	Cyclohexane	NGS	110	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007160		124-18-5	Decane	NGS	120	<1.1	3.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007160		64-17-5	Ethanol	NGS	110	<8.5	38	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007160		141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007160		100-41-4	Ethylbenzene	NGS	110	<1.0	1.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007160		110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007160		110-54-3	Hexane	NGS	110	1.6	13	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007160		628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007160		126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160		75-09-2	Methylene Chloride	NGS	110	<4.9	5.4	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007160		91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007160		98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160		110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007160		107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007160		110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007160		100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007160		127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160		108-88-3	Toluene	NGS	110	<1.0	15	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007160		79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007160		75-69-4	Trichlorofluoromethane	NGS	110	<1.8	4.5	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007160		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007160		123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-8
Customer Sample ID: 18-01496-2-TL1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007160			142-82-5	n-Heptane	NGS	110	<0.93	3.8	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007160			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-1
Customer Sample ID: 18-01496-2-TL1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007162			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007162			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007162			71-36-3	1-Butanol	NGS	50	<7.7	5.0E+03	n/a	n/a	n/a	n/a	7.7	n/a	ELQYac
S18T007162			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007162			71-23-8	1-Propanol	NGS	91	<4.3	570	n/a	n/a	n/a	n/a	4.3	n/a	
S18T007162			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007162			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007162			78-93-3	2-Butanone	NGS	120	<0.98	220	n/a	n/a	n/a	n/a	0.98	n/a	
S18T007162			110-43-0	2-Heptanone	NGS	110	<1.2	7.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007162			591-78-6	2-Hexanone	NGS	110	<1.1	75	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007162			534-22-5	2-Methylfuran	NGS	110	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007162			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007162			106-35-4	3-Heptanone	NGS	120	<1.2	5.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007162			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007162			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	5.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007162			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	52	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007162			67-64-1	Acetone	NGS	120	<4.8	4.8E+03	n/a	n/a	n/a	n/a	4.8	n/a	EY
S18T007162			75-05-8	Acetonitrile	NGS	110	<1.2	260	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007162			98-86-2	Acetophenone	NGS	120	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007162			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007162			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007162			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007162			71-43-2	Benzene	NGS	110	<1.3	20	n/a	n/a	n/a	n/a	1.3	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-1
Customer Sample ID: 18-01496-2-TL1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007162			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007162			123-72-8	Butanal	NGS	120	<4.4	280	n/a	n/a	n/a	n/a	4.4	n/a	LQY
S18T007162			109-74-0	Butanenitrile	NGS	120	<0.99	74	n/a	n/a	n/a	n/a	0.99	n/a	
S18T007162			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007162			75-00-3	Chloroethane	NGS	120	<1.2	12	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007162			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007162			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007162			124-18-5	Decane	NGS	120	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007162			64-17-5	Ethanol	NGS	110	<8.5	1.9E+03	n/a	n/a	n/a	n/a	8.5	n/a	E
S18T007162			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007162			100-41-4	Ethylbenzene	NGS	110	<1.0	1.2	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007162			110-00-9	Furan	NGS	110	<1.4	36	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007162			110-54-3	Hexane	NGS	110	1.6	1.5E+03	n/a	n/a	n/a	n/a	1.5	n/a	E
S18T007162			628-73-9	Hexanenitrile	NGS	120	<1.0	2.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007162			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			75-09-2	Methylene Chloride	NGS	110	<4.9	5.7	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007162			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007162			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			110-59-8	Pentanenitrile	NGS	120	<1.2	15	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007162			107-12-0	Propanenitrile	NGS	110	<1.3	29	n/a	n/a	n/a	n/a	1.3	n/a	
S18T007162			110-86-1	Pyridine	NGS	120	<0.89	11	n/a	n/a	n/a	n/a	0.89	n/a	J
S18T007162			100-42-5	Styrene	NGS	110	<1.3	1.9	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T007162			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			108-88-3	Toluene	NGS	110	<1.0	36	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007162			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007162			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	170	n/a	n/a	n/a	n/a	1.8	n/a	
S18T007162			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007162			123-86-4	n-Butyl acetate	NGS	120	<1.1	3.4	n/a	n/a	n/a	n/a	1.1	n/a	J

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Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-1
Customer Sample ID: 18-01496-2-TL1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007162			142-82-5	n-Heptane	NGS	110	<0.93	600	n/a	n/a	n/a	n/a	0.93	n/a	E
S18T007162			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
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a - LCS Outside Range
c - RPD Outside Range
J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-8
Customer Sample ID: 18-01496-2-TL1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007163			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007163			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007163			71-36-3	1-Butanol	NGS	50	<7.7	4.3E+03	n/a	n/a	n/a	n/a	7.7	n/a	ELQYac
S18T007163			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007163			71-23-8	1-Propanol	NGS	91	<4.3	480	n/a	n/a	n/a	n/a	4.3	n/a	
S18T007163			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	1.3	n/a	n/a	n/a	n/a	0.80	n/a	J
S18T007163			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007163			78-93-3	2-Butanone	NGS	120	<0.98	140	n/a	n/a	n/a	n/a	0.98	n/a	
S18T007163			110-43-0	2-Heptanone	NGS	110	<1.2	67	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007163			591-78-6	2-Hexanone	NGS	110	<1.1	110	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007163			534-22-5	2-Methylfuran	NGS	110	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007163			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007163			106-35-4	3-Heptanone	NGS	120	<1.2	47	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007163			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007163			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	12	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007163			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	55	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007163			67-64-1	Acetone	NGS	120	<4.8	4.0E+03	n/a	n/a	n/a	n/a	4.8	n/a	EY
S18T007163			75-05-8	Acetonitrile	NGS	110	<1.2	650	n/a	n/a	n/a	n/a	1.2	n/a	E
S18T007163			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007163			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007163			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007163			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007163			71-43-2	Benzene	NGS	110	<1.3	19	n/a	n/a	n/a	n/a	1.3	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-8
Customer Sample ID: 18-01496-2-TL1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007163			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007163			123-72-8	Butanal	NGS	120	<4.4	1000	n/a	n/a	n/a	n/a	4.4	n/a	ELQY
S18T007163			109-74-0	Butanenitrile	NGS	120	<0.99	140	n/a	n/a	n/a	n/a	0.99	n/a	
S18T007163			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007163			75-00-3	Chloroethane	NGS	120	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007163			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007163			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007163			124-18-5	Decane	NGS	120	<1.1	2.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007163			64-17-5	Ethanol	NGS	110	<8.5	1.2E+03	n/a	n/a	n/a	n/a	8.5	n/a	E
S18T007163			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007163			100-41-4	Ethylbenzene	NGS	110	<1.0	2.1	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007163			110-00-9	Furan	NGS	110	<1.4	64	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007163			110-54-3	Hexane	NGS	110	1.6	1.5E+03	n/a	n/a	n/a	n/a	1.5	n/a	E
S18T007163			628-73-9	Hexanenitrile	NGS	120	<1.0	12	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007163			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			75-09-2	Methylene Chloride	NGS	110	<4.9	8.5	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007163			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007163			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			110-59-8	Pentanenitrile	NGS	120	<1.2	21	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007163			107-12-0	Propanenitrile	NGS	110	<1.3	41	n/a	n/a	n/a	n/a	1.3	n/a	
S18T007163			110-86-1	Pyridine	NGS	120	<0.89	15	n/a	n/a	n/a	n/a	0.89	n/a	
S18T007163			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007163			127-18-4	Tetrachloroethene	NGS	120	<1.1	2.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007163			108-88-3	Toluene	NGS	110	<1.0	48	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007163			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007163			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	200	n/a	n/a	n/a	n/a	1.8	n/a	
S18T007163			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007163			123-86-4	n-Butyl acetate	NGS	120	<1.1	13	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-8
Customer Sample ID: 18-01496-2-TL1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007163			142-82-5	n-Heptane	NGS	110	<0.93	700	n/a	n/a	n/a	n/a	0.93	n/a	E
S18T007163			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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c - RPD Outside Range
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DSRComment 3.0.13
DSR.Jar v. 3.0.14

2018 Cartridge Evaluation
30-may-2018 10:28:28

Verification QC Analysis Comments
Analysis: S1803060081-000 Method: VAPOR-TDU VOA #2
Matrix: VAPOR Replicate: 0
Y= Allyl alcohol failed method validation study
MS 5/22/18

Verification QC Sample Comments
Sample: S1803060082
Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

2018 Cartridge Evaluation
30-may-2018 10:28:28

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

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%D
MS 5/29/2018

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MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

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MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

2018 Cartridge Evaluation
30-may-2018 10:28:28

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Verification Sample Comments
Sample: S18T007162 Group: 20180601
Y=Detector saturation Acetone and 1-Butanol
MS 5/22/18
Sample: S18T007163 Group: 20180601
Y= Detector saturation Acetone and 1-Butanol
MS 5/22/18

2018 Cartridge Evaluation
30-may-2018 10:28:28

Verification Sample Group Comments
Group:20180601
Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

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DSR.Jar v. 3.0.14

2018 Cartridge Evaluation
Data Summary of All Results

Daniel Hansen
Daniel D Hansen
5-30-18

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-1
Customer Sample ID: 18-01494-2-SD1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007137				Unknown		24.73	NGS	46	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-2
Customer Sample ID: 18-01494-2-SD1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007140				Heptane, 2,2,4,6,6-pentamethyl-	13475-82-6	22.21	NGS	82	JNT
S18T007140				2,2,7,7-Tetramethyloctane	1071-31-4	22.71	NGS	44	JNT
S18T007140				Nonane, 3,7-dimethyl-	17302-32-8	23.25	NGS	68	JNT
S18T007140				Heptane, 5-ethyl-2,2,3-trimethyl-	62199-06-8	23.64	NGS	110	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-5
Customer Sample ID: 18-01494-2-SD1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007145				Methyl formate	107-31-3	5.90	NGS	29	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-EF-7
Customer Sample ID: 18-01494-2-SD1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007147				Unknown		29.81	NGS	59	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601

Customer Group or SDG Number:

Customer Sample ID: 18-01496-2-TL1-EF-3

Customer Sample ID: 18-01496-2-TL1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007153				Unknown		24.75	NGS	28	JT
S18T007153				Diethyl Phthalate	84-66-2	29.81	NGS	81	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-1
Customer Sample ID: 18-01496-2-TL1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007151				Unknown		24.75	NGS	50	JT
S18T007151				Undecane, 2,6-dimethyl-	17301-23-4	25.77	NGS	15	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-2
Customer Sample ID: 18-01496-2-TL1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007152				Unknown		24.75	NGS	38	JT
S18T007152				Dodecane	112-40-3	25.77	NGS	16	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-4
Customer Sample ID: 18-01496-2-TL1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007154				Unknown		24.75	NGS	53	JT
S18T007154				Diethyl Phthalate	84-66-2	29.81	NGS	42	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-6
Customer Sample ID: 18-01496-2-TL1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007157				Methyl formate	107-31-3	5.91	NGS	42	JNT
S18T007157				Pentane	109-66-0	6.08	NGS	26	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-EF-8
Customer Sample ID: 18-01496-2-TL1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007160				Pentane	109-66-0	6.05	NGS	32	JNT
S18T007160				Pentane, 2-methyl-	107-83-5	8.18	NGS	28	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-1
Customer Sample ID: 18-01496-2-TL1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007162				2-Butene, 2-methyl-	513-35-9	5.89	NGS	82	JNT
S18T007162				1-Pentene	109-67-1	6.02	NGS	280	JNT
S18T007162				Pentane	109-66-0	6.06	NGS	1.2E+03	JNT
S18T007162				2-Methyl-1-butene	563-46-2	6.20	NGS	66	JNT
S18T007162				2-Pentene, (E)-	646-04-8	6.38	NGS	58	JNT
S18T007162				Cyclopentane	287-92-3	6.69	NGS	31	JNT
S18T007162				Cyclobutane, methyl-	598-61-8	6.73	NGS	79	JNT
S18T007162				Carbon disulfide	75-15-0	7.35	NGS	31	JNT
S18T007162				1-Pentene, 4-methyl-	691-37-2	8.03	NGS	230	JNT
S18T007162				Pentane, 2-methyl-	107-83-5	8.19	NGS	1.4E+03	JNT
S18T007162				Isopropyl Alcohol	67-63-0	8.60	NGS	350	JNT
S18T007162				2-Propanol, 2-methyl-	75-65-0	9.76	NGS	95	JNT
S18T007162				2-Hexene	592-43-8	9.90	NGS	40	JNT
S18T007162				1-Hexene	592-41-6	10.69	NGS	52	JNT
S18T007162				Butane, 1-methoxy-	628-28-4	11.96	NGS	35	JNT
S18T007162				1-Hexene, 3-methyl-	3404-61-3	12.24	NGS	35	JNT
S18T007162				Hexane, 2-methyl-	591-76-4	12.62	NGS	300	JNT
S18T007162				1-Hexene, 4-methyl-	3769-23-1	12.87	NGS	76	JNT
S18T007162				Hexane, 3-methyl-	589-34-4	12.99	NGS	350	JNT
S18T007162				Furan, tetrahydro-	109-99-9	13.08	NGS	290	JNT
S18T007162				Cyclopentane, 1,3-dimethyl-	2453-00-1	13.53	NGS	29	JNT
S18T007162				Cyclopentane, 1,2-dimethyl-, cis-	1192-18-3	13.64	NGS	52	JNT
S18T007162				Amylene Hydrate	75-85-4	14.42	NGS	44	JNT
S18T007162				Cyclohexane, methyl-	108-87-2	14.82	NGS	120	JNT
S18T007162				Heptane, 2-methyl-	592-27-8	15.87	NGS	230	JNT
S18T007162				Heptane, 4-methyl-	589-53-7	15.93	NGS	50	JNT
S18T007162				Hexane, 2,4-dimethyl-	589-43-5	16.10	NGS	53	JNT
S18T007162				2-Pentanone	107-87-9	16.23	NGS	290	JNT
S18T007162				1-Ethylcyclopropanol	57872-31-8	16.32	NGS	29	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-1
Customer Sample ID: 18-01496-2-TL1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007162				Octane	111-65-9	16.75	NGS	150	JNT
S18T007162				3-Hexanol, 4-methyl-	615-29-2	17.00	NGS	27	JNT
S18T007162				Unknown		24.74	NGS	56	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-8
Customer Sample ID: 18-01496-2-TL1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007163				2-Butene, 2-methyl-	513-35-9	5.88	NGS	66	JNT
S18T007163				1-Pentene	109-67-1	6.01	NGS	120	JNT
S18T007163				Pentane	109-66-0	6.05	NGS	1000	JNT
S18T007163				2-Methyl-1-butene	563-46-2	6.20	NGS	52	JNT
S18T007163				2-Pentene, (E)-	646-04-8	6.38	NGS	46	JNT
S18T007163				Cyclobutane, methyl-	598-61-8	6.73	NGS	80	JNT
S18T007163				1-Pentene, 4-methyl-	691-37-2	8.03	NGS	190	JNT
S18T007163				Pentane, 2-methyl-	107-83-5	8.19	NGS	1.3E+03	JNT
S18T007163				Isopropyl Alcohol	67-63-0	8.60	NGS	340	JNT
S18T007163				2-Propanol, 2-methyl-	75-65-0	9.76	NGS	31	JNT
S18T007163				2-Hexene	592-43-8	9.91	NGS	32	JNT
S18T007163				1-Hexene	592-41-6	10.69	NGS	47	JNT
S18T007163				Butane, 1-methoxy-	628-28-4	11.95	NGS	33	JNT
S18T007163				1-Hexene, 3-methyl-	3404-61-3	12.24	NGS	33	JNT
S18T007163				Hexane, 2-methyl-	591-76-4	12.62	NGS	290	JNT
S18T007163				1-Hexene, 4-methyl-	3769-23-1	12.87	NGS	89	JNT
S18T007163				Hexane, 3-methyl-	589-34-4	12.99	NGS	380	JNT
S18T007163				Furan, tetrahydro-	109-99-9	13.08	NGS	240	JNT
S18T007163				Cyclopentane, 1,2-dimethyl-, cis-	1192-18-3	13.53	NGS	32	JNT
S18T007163				Cyclopentane, 1,2-dimethyl-	2452-99-5	13.64	NGS	61	JNT
S18T007163				Amylene Hydrate	75-85-4	14.42	NGS	41	JNT
S18T007163				Cyclohexane, methyl-	108-87-2	14.82	NGS	150	JNT
S18T007163				Cyclopentane, ethyl-	1640-89-7	15.12	NGS	28	JNT
S18T007163				Heptane, 2-methyl-	592-27-8	15.87	NGS	410	JNT
S18T007163				Heptane, 4-methyl-	589-53-7	15.93	NGS	99	JNT
S18T007163				Hexane, 2,4-dimethyl-	589-43-5	16.10	NGS	82	JNT
S18T007163				2-Pentanone	107-87-9	16.22	NGS	220	JNT
S18T007163				Cyclohexane, 1,4-dimethyl-	589-90-2	16.44	NGS	31	JNT
S18T007163				Formic acid, butyl ester	592-84-7	16.56	NGS	27	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180601
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-8
Customer Sample ID: 18-01496-2-TL1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T007163				Octane	111-65-9	16.75	NGS	300	JNT
S18T007163				Octane, 2-methyl-	3221-61-2	17.58	NGS	26	JNT
S18T007163				Cyclohexane, ethyl-	1678-91-7	17.98	NGS	32	JNT
S18T007163				Cyclooctane, butyl-	16538-93-5	18.15	NGS	47	JNT
S18T007163				Heptane, 3-ethyl-	15869-80-4	18.64	NGS	48	JNT
S18T007163				Nonane	111-84-2	19.27	NGS	36	JNT
S18T007163				2-Hexanone, 5-methyl-	110-12-3	20.83	NGS	26	JNT
S18T007163				2,2,7,7-Tetramethyloctane	1071-31-4	22.21	NGS	27	JNT
S18T007163				2-Heptanone, 6-methyl-	928-68-7	23.29	NGS	36	JNT
S18T007163				Unknown		24.76	NGS	37	JT

NA = Not Analyzed, ND = Not Detected

DSRComment 3.0.13
DSR.Jar v. 3.0.14

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Verification QC Analysis Comments
    Analysis: S1803060081-000  Method: VAPOR-TDU VOA #2
      Matrix: VAPOR  Replicate: 0
        Y= Allyl alcohol failed method validation study
        MS 5/22/18
    Analysis: S1803120198-000  Method: VAPOR-TDU VOA #2
      Matrix: VAPOR  Replicate: 0
        Y = Allyl alcohol failed the method validation % recovery (low).  1-Butanol
and
        heptanol failed the CCV (low).  Butanal failed the CCV (high).
    Analysis: S1803120199-000  Method: VAPOR-TDU VOA #2
      Matrix: VAPOR  Replicate: 0
        Y = Allyl alcohol failed the method validation % recovery (low).  1-Butanol
and
        heptanol failed the CCV (low).  Butanal failed the CCV (high).

Verification QC Sample Comments
    Sample: S1803060082
        Y1= Allyl alcohol failed method validation study
        Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5
        %D
        MS 5/29/2018

        Y1= Allyl alcohol failed method validation study
        Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5
        %D
        MS 5/29/2018

        Y1= Allyl alcohol failed method validation study
        Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5
        %D
        MS 5/29/2018

        Y1= Allyl alcohol failed method validation study
        Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5
        %D
        MS 5/29/2018

        Y1= Allyl alcohol failed method validation study
        Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5
        %D
        MS 5/29/2018

        Y1= Allyl alcohol failed method validation study
        Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5
        %D
        MS 5/29/2018
```

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Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

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Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

2018 Cartridge Evaluation
30-may-2018 10:42:32

Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5

%D
MS 5/29/2018

Verification Sample Comments
Sample: S18T007294 Group: 20180604
Allyl alcohol failed % recovery (low) for method validation. 1-Butanol and heptanol failed CCV (low). Butanal failed CCV (high).
Sample: S18T007295 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high).
Sample: S18T007296 Group: 20180604
Allyl alcohol failed % recovery (low) for method validation. 1-Butanol and heptanol failed CCV (low). Butanal failed CCV (high).
Sample: S18T007297 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high).
Sample: S18T007298 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high).
Sample: S18T007299 Group: 20180604
Allyl alcohol failed % recovery (low) for method validation. 1-Butanol and heptanol failed CCV (low). Butanal failed CCV (high).
Sample: S18T007300 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high).
Sample: S18T007301 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high).
Sample: S18T007302 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high).
Sample: S18T007303 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high). 1-Butanol is saturated.
Sample: S18T007304 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high). 1-Butanol, acetone, ethanol, and hexane are saturated.
Sample: S18T007305 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high). 1-Butanol and acetone are saturated.
Sample: S18T007306 Group: 20180604

%DSRComment 3.0.13
DSR.Jar v. 3.0.14

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Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high). 1-Butanol and acetone are saturated.

Sample: S18T007307 Group: 20180604
Y = Allyl alcohol failed the method validation % recovery (low). 1-Butanol and heptanol failed the CCV (low). Butanal failed the CCV (high). 1-Butanol and acetone are saturated.

Verification Sample Group Comments
Group:20180604
Y1= Allyl alcohol failed method validation study
Y2= 1-butanol has low CCV recovery with -61.3%D and butanal is high with 67.5 %D
MS 5/29/2018

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DSR.Jar v. 3.0.14

Daniel Hansen
5-30-18
5-30-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BA-EF
Customer Sample ID: 18-01494-2-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007289			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007289			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007289			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007289			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007289			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007289			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007289			78-93-3	2-Butanone	NGS	120	<0.98	1.2	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007289			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			78-94-4	3-Buten-2-one	NGS	120	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007289			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007289			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007289			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			67-64-1	Acetone	NGS	120	<4.8	27	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007289			75-05-8	Acetonitrile	NGS	110	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007289			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007289			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007289			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007289			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007289			71-43-2	Benzene	NGS	110	<1.3	3.0	n/a	n/a	n/a	n/a	1.3	n/a	J

NA = Not Analyzed, ND = Not Detected

T - Tentatively Identified Compound
c - RPD Outside Range
L - LLS Outside Range
U - Less Than Detection Limit
J - Estimated
E - Outside Calibration Range
N - Named TIC
Y - Comment
Q - Qualitative
a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BA-EF
Customer Sample ID: 18-01494-2-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007289			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007289			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007289			109-74-0	Butanenitrile	NGS	120	<0.99	1.8	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007289			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007289			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			64-17-5	Ethanol	NGS	110	<8.5	11	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007289			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007289			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007289			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007289			110-54-3	Hexane	NGS	110	1.6	5.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007289			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007289			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007289			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007289			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007289			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007289			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007289			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			108-88-3	Toluene	NGS	110	<1.0	2.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007289			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007289			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007289			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007289			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BA-EF
Customer Sample ID: 18-01494-2-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007289			142-82-5	n-Heptane	NGS	110	<0.93	1.4	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007289			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BA-IN
Customer Sample ID: 18-01494-2-SD1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007290			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007290			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007290			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007290			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007290			111-70-6	1-Heptanol	NGS	72	<4.3	34	n/a	n/a	n/a	n/a	4.3	n/a	L
S18T007290			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007290			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007290			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007290			78-93-3	2-Butanone	NGS	120	<0.98	0.98	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007290			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007290			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			78-94-4	3-Buten-2-one	NGS	120	<1.5	1.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007290			106-35-4	3-Heptanone	NGS	120	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007290			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007290			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007290			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			67-64-1	Acetone	NGS	120	<4.8	21	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007290			75-05-8	Acetonitrile	NGS	110	<1.2	11	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007290			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007290			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007290			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007290			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007290			71-43-2	Benzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BA-IN
Customer Sample ID: 18-01494-2-SD1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007290			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007290			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007290			109-74-0	Butanenitrile	NGS	120	<0.99	1.5	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007290			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007290			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007290			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007290			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007290			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			64-17-5	Ethanol	NGS	110	<8.5	24	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007290			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007290			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007290			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007290			110-54-3	Hexane	NGS	110	1.6	3.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007290			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007290			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			75-09-2	Methylene Chloride	NGS	110	<4.9	5.0	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007290			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007290			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007290			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007290			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007290			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007290			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			108-88-3	Toluene	NGS	110	<1.0	1.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007290			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007290			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007290			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007290			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BA-IN
Customer Sample ID: 18-01494-2-SD1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007290			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007290			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BL-EF
Customer Sample ID: 18-01494-2-SD1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007291			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007291			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007291			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007291			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007291			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007291			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007291			78-93-3	2-Butanone	NGS	120	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007291			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007291			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			106-68-3	3-Octanone	NGS	110	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T007291			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007291			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			67-64-1	Acetone	NGS	120	<4.8	7.4	n/a	n/a	n/a	n/a	4.8	n/a	J
S18T007291			75-05-8	Acetonitrile	NGS	110	<1.2	7.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007291			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007291			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007291			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007291			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007291			71-43-2	Benzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BL-EF
Customer Sample ID: 18-01494-2-SD1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007291			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007291			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007291			109-74-0	Butanenitrile	NGS	120	<0.99	1.5	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007291			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007291			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			64-17-5	Ethanol	NGS	110	<8.5	11	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007291			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007291			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007291			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007291			110-54-3	Hexane	NGS	110	1.6	2.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007291			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007291			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007291			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007291			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007291			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007291			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007291			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			108-88-3	Toluene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007291			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007291			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007291			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007291			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BL-EF
Customer Sample ID: 18-01494-2-SD1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007291			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007291			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BL-IN
Customer Sample ID: 18-01494-2-SD1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007292			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007292			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007292			111-70-6	1-Heptanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LU
S18T007292			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007292			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007292			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007292			78-93-3	2-Butanone	NGS	120	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007292			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			78-94-4	3-Buten-2-one	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007292			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			106-68-3	3-Octanone	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007292			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007292			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			67-64-1	Acetone	NGS	120	<4.8	5.6	n/a	n/a	n/a	n/a	4.8	n/a	J
S18T007292			75-05-8	Acetonitrile	NGS	110	<1.2	6.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007292			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007292			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007292			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007292			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007292			71-43-2	Benzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BL-IN
Customer Sample ID: 18-01494-2-SD1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007292			100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007292			123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007292			109-74-0	Butanenitrile	NGS	120	<0.99	1.0	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007292			56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007292			75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			124-18-5	Decane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			64-17-5	Ethanol	NGS	110	<8.5	15	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007292			141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007292			100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007292			110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007292			110-54-3	Hexane	NGS	110	1.6	1.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007292			628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007292			126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			75-09-2	Methylene Chloride	NGS	110	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007292			91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007292			98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007292			110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007292			100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007292			127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			108-88-3	Toluene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007292			79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007292			75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007292			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007292			123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-BL-IN
Customer Sample ID: 18-01494-2-SD1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007292			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007292			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-2
Customer Sample ID: 18-01494-2-SD1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007293			79-34-5	1,1,2,2-Tetrachloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			79-00-5	1,1,2-Trichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			75-34-3	1,1-Dichloroethane	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			107-06-2	1,2-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			542-75-6	1,3-Dichloropropene (Total)	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			106-46-7	1,4-Dichlorobenzene	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007293			123-91-1	1,4-Dioxane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293			71-36-3	1-Butanol	NGS	50	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYac
S18T007293			111-70-6	1-Heptanol	NGS	72	<4.3	4.3	n/a	n/a	n/a	n/a	4.3	n/a	JL
S18T007293			71-23-8	1-Propanol	NGS	91	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007293			108-47-4	2,4-Dimethylpyridine	NGS	120	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007293			1708-29-8	2,5-Dihydrofuran	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007293			78-93-3	2-Butanone	NGS	120	<0.98	1.1	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007293			110-43-0	2-Heptanone	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293			591-78-6	2-Hexanone	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			534-22-5	2-Methylfuran	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			78-94-4	3-Buten-2-one	NGS	120	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007293			106-35-4	3-Heptanone	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293			106-68-3	3-Octanone	NGS	110	<1.3	2.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T007293			105-42-0	4-Methyl-2-hexanone	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007293			108-10-1	4-Methyl-2-Pentanone	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293			67-64-1	Acetone	NGS	120	<4.8	18	n/a	n/a	n/a	n/a	4.8	n/a	
S18T007293			75-05-8	Acetonitrile	NGS	110	<1.2	190	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007293			98-86-2	Acetophenone	NGS	120	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007293			107-13-1	Acrylonitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007293			107-18-6	Allyl Alcohol	NGS	94	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007293			107-05-1	Allyl Chloride	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007293			71-43-2	Benzene	NGS	110	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-2
Customer Sample ID: 18-01494-2-SD1-IN-2

Sample# R.	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T007293		100-47-0	Benzonitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007293		123-72-8	Butanal	NGS	120	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	LQUY
S18T007293		109-74-0	Butanenitrile	NGS	120	<0.99	2.9	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007293		56-23-5	Carbon tetrachloride	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293		108-90-7	Chlorobenzene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007293		75-00-3	Chloroethane	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293		67-66-3	Chloroform	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293		110-82-7	Cyclohexane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293		124-18-5	Decane	NGS	120	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007293		64-17-5	Ethanol	NGS	110	<8.5	27	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007293		141-78-6	Ethyl acetate	NGS	120	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007293		100-41-4	Ethylbenzene	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007293		110-00-9	Furan	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007293		110-54-3	Hexane	NGS	110	1.6	2.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007293		628-73-9	Hexanenitrile	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007293		126-98-7	Methacrylonitrile	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293		75-09-2	Methylene Chloride	NGS	110	<4.9	7.4	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007293		91-20-3	Naphthalene	NGS	120	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007293		98-95-3	Nitrobenzene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293		110-59-8	Pentanenitrile	NGS	120	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293		107-12-0	Propanenitrile	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007293		110-86-1	Pyridine	NGS	120	<0.89	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007293		100-42-5	Styrene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007293		127-18-4	Tetrachloroethene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293		108-88-3	Toluene	NGS	110	<1.0	1.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007293		79-01-6	Trichloroethene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007293		75-69-4	Trichlorofluoromethane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007293		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007293		123-86-4	n-Butyl acetate	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-2
Customer Sample ID: 18-01494-2-SD1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007293			142-82-5	n-Heptane	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007293			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-3
Customer Sample ID: 18-01494-2-SD1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007294			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007294			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007294			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007294			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007294			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007294			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007294			78-93-3	2-Butanone	NGS	100	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007294			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007294			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007294			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007294			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			67-64-1	Acetone	NGS	100	<4.8	15	n/a	n/a	n/a	n/a	4.8	n/a	L
S18T007294			75-05-8	Acetonitrile	NGS	100	<1.2	44	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007294			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007294			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007294			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007294			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007294			71-43-2	Benzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-3
Customer Sample ID: 18-01494-2-SD1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007294			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007294			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007294			109-74-0	Butanenitrile	NGS	110	<0.99	<0.99	n/a	n/a	n/a	n/a	0.99	n/a	U
S18T007294			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007294			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			110-82-7	Cyclohexane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			64-17-5	Ethanol	NGS	93	<8.5	31	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007294			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007294			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007294			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007294			110-54-3	Hexane	NGS	100	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007294			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007294			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			75-09-2	Methylene Chloride	NGS	100	<4.9	5.4	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007294			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007294			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007294			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007294			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007294			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			108-88-3	Toluene	NGS	100	<1.0	1.4	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007294			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007294			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007294			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007294			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-3
Customer Sample ID: 18-01494-2-SD1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007294			142-82-5	n-Heptane	NGS	100	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007294			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-4
Customer Sample ID: 18-01494-2-SD1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007295			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007295			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007295			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007295			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007295			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007295			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007295			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007295			78-93-3	2-Butanone	NGS	100	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007295			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007295			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007295			106-35-4	3-Heptanone	NGS	100	<1.2	2.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007295			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007295			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007295			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			67-64-1	Acetone	NGS	100	<4.8	17	n/a	n/a	n/a	n/a	4.8	n/a	L
S18T007295			75-05-8	Acetonitrile	NGS	100	<1.2	66	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007295			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007295			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007295			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007295			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007295			71-43-2	Benzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-4
Customer Sample ID: 18-01494-2-SD1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007295			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007295			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007295			109-74-0	Butanenitrile	NGS	110	<0.99	<0.99	n/a	n/a	n/a	n/a	0.99	n/a	U
S18T007295			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007295			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007295			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007295			110-82-7	Cyclohexane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007295			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			64-17-5	Ethanol	NGS	93	<8.5	55	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007295			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007295			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007295			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007295			110-54-3	Hexane	NGS	100	<1.5	2.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007295			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007295			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			75-09-2	Methylene Chloride	NGS	100	<4.9	11	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007295			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007295			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007295			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007295			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007295			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007295			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			108-88-3	Toluene	NGS	100	<1.0	2.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007295			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007295			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007295			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007295			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-4
Customer Sample ID: 18-01494-2-SD1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007295			142-82-5	n-Heptane	NGS	100	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007295			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-5
Customer Sample ID: 18-01494-2-SD1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007296			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007296			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007296			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007296			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007296			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007296			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007296			78-93-3	2-Butanone	NGS	100	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007296			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007296			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007296			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007296			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			67-64-1	Acetone	NGS	100	<4.8	6.4	n/a	n/a	n/a	n/a	4.8	n/a	JL
S18T007296			75-05-8	Acetonitrile	NGS	100	<1.2	5.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007296			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007296			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007296			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007296			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007296			71-43-2	Benzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-5
Customer Sample ID: 18-01494-2-SD1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007296			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007296			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007296			109-74-0	Butanenitrile	NGS	110	<0.99	<0.99	n/a	n/a	n/a	n/a	0.99	n/a	U
S18T007296			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007296			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			110-82-7	Cyclohexane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			64-17-5	Ethanol	NGS	93	<8.5	<8.5	n/a	n/a	n/a	n/a	8.5	n/a	U
S18T007296			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007296			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007296			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007296			110-54-3	Hexane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007296			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007296			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007296			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007296			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007296			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007296			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007296			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			108-88-3	Toluene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007296			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007296			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007296			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007296			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-5
Customer Sample ID: 18-01494-2-SD1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007296			142-82-5	n-Heptane	NGS	100	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007296			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

NA = Not Analyzed, ND = Not Detected

T - Tentatively Identified Compound
c - RPD Outside Range
L - LLS Outside Range

U - Less Than Detection Limit
J - Estimated
E - Outside Calibration Range

N - Named TIC
Y - Comment

Q - Qualitative
a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-6
Customer Sample ID: 18-01494-2-SD1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007297			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007297			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007297			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007297			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007297			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007297			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007297			78-93-3	2-Butanone	NGS	100	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007297			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007297			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007297			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007297			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			67-64-1	Acetone	NGS	100	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S18T007297			75-05-8	Acetonitrile	NGS	100	<1.2	8.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007297			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007297			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007297			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007297			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007297			71-43-2	Benzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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Y - Comment
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a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-6
Customer Sample ID: 18-01494-2-SD1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007297			100-47-0	Benzonitrile	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007297			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007297			109-74-0	Butanenitrile	NGS	110	<0.99	<0.99	n/a	n/a	n/a	n/a	0.99	n/a	U
S18T007297			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007297			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			110-82-7	Cyclohexane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			64-17-5	Ethanol	NGS	93	<8.5	<8.5	n/a	n/a	n/a	n/a	8.5	n/a	U
S18T007297			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007297			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007297			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007297			110-54-3	Hexane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007297			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007297			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007297			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007297			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007297			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007297			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007297			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			108-88-3	Toluene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007297			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007297			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007297			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007297			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-6
Customer Sample ID: 18-01494-2-SD1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007297			142-82-5	n-Heptane	NGS	100	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007297			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-7
Customer Sample ID: 18-01494-2-SD1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007298			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007298			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007298			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007298			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007298			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007298			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007298			78-93-3	2-Butanone	NGS	100	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007298			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007298			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007298			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007298			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			67-64-1	Acetone	NGS	100	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S18T007298			75-05-8	Acetonitrile	NGS	100	<1.2	6.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007298			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007298			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007298			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007298			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007298			71-43-2	Benzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-7
Customer Sample ID: 18-01494-2-SD1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007298			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007298			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007298			109-74-0	Butanenitrile	NGS	110	<0.99	1.5	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007298			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007298			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			110-82-7	Cyclohexane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			64-17-5	Ethanol	NGS	93	<8.5	17	n/a	n/a	n/a	n/a	8.5	n/a	J
S18T007298			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007298			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007298			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007298			110-54-3	Hexane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007298			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007298			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007298			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007298			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007298			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007298			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007298			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			108-88-3	Toluene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007298			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007298			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007298			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007298			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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Y - Comment
Q - Qualitative
a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01494-2-SD1-IN-7
Customer Sample ID: 18-01494-2-SD1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007298			142-82-5	n-Heptane	NGS	100	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007298			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BA-EF
Customer Sample ID: 18-01496-2-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007299			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007299			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007299			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007299			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007299			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007299			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007299			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007299			78-93-3	2-Butanone	NGS	100	<0.98	8.4	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007299			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007299			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007299			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007299			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007299			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007299			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			67-64-1	Acetone	NGS	100	<4.8	19	n/a	n/a	n/a	n/a	4.8	n/a	L
S18T007299			75-05-8	Acetonitrile	NGS	100	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007299			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007299			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007299			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007299			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007299			71-43-2	Benzene	NGS	99	<1.3	6.0	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BA-EF
Customer Sample ID: 18-01496-2-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007299			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007299			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007299			109-74-0	Butanenitrile	NGS	110	<0.99	8.8	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007299			56-23-5	Carbon tetrachloride	NGS	100	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007299			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007299			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007299			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007299			110-82-7	Cyclohexane	NGS	99	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007299			124-18-5	Decane	NGS	100	<1.1	2.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007299			64-17-5	Ethanol	NGS	93	<8.5	29	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007299			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007299			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007299			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007299			110-54-3	Hexane	NGS	100	<1.5	8.2	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007299			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007299			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007299			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007299			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007299			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007299			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007299			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007299			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			108-88-3	Toluene	NGS	100	<1.0	16	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007299			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007299			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	4.3	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007299			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007299			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BA-EF
Customer Sample ID: 18-01496-2-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007299			142-82-5	n-Heptane	NGS	100	<0.93	3.4	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007299			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BA-IN
Customer Sample ID: 18-01496-2-TL1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007300			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007300			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007300			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007300			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007300			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007300			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007300			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007300			78-93-3	2-Butanone	NGS	100	<0.98	8.9	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007300			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007300			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007300			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007300			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007300			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007300			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			67-64-1	Acetone	NGS	100	<4.8	32	n/a	n/a	n/a	n/a	4.8	n/a	L
S18T007300			75-05-8	Acetonitrile	NGS	100	<1.2	110	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007300			98-86-2	Acetophenone	NGS	97	<1.5	1.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007300			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007300			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007300			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007300			71-43-2	Benzene	NGS	99	<1.3	5.5	n/a	n/a	n/a	n/a	1.3	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BA-IN
Customer Sample ID: 18-01496-2-TL1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007300			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007300			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007300			109-74-0	Butanenitrile	NGS	110	<0.99	10	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007300			56-23-5	Carbon tetrachloride	NGS	100	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007300			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007300			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007300			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007300			110-82-7	Cyclohexane	NGS	99	<1.2	3.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007300			124-18-5	Decane	NGS	100	<1.1	2.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007300			64-17-5	Ethanol	NGS	93	<8.5	42	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007300			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007300			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007300			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007300			110-54-3	Hexane	NGS	100	<1.5	7.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007300			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007300			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007300			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007300			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007300			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007300			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007300			100-42-5	Styrene	NGS	98	<1.3	2.1	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T007300			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			108-88-3	Toluene	NGS	100	<1.0	9.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007300			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007300			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	4.9	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T007300			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007300			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BA-IN
Customer Sample ID: 18-01496-2-TL1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007300			142-82-5	n-Heptane	NGS	100	<0.93	2.7	n/a	n/a	n/a	n/a	0.93	n/a	J
S18T007300			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BL-EF
Customer Sample ID: 18-01496-2-TL1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007301			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007301			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007301			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007301			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007301			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007301			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007301			78-93-3	2-Butanone	NGS	100	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T007301			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007301			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007301			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007301			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			67-64-1	Acetone	NGS	100	<4.6	5.9	n/a	n/a	n/a	n/a	4.6	n/a	JL
S18T007301			75-05-8	Acetonitrile	NGS	100	<1.2	13	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007301			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007301			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007301			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007301			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007301			71-43-2	Benzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BL-EF
Customer Sample ID: 18-01496-2-TL1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007301			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007301			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007301			109-74-0	Butanenitrile	NGS	110	<0.99	<0.99	n/a	n/a	n/a	n/a	0.99	n/a	U
S18T007301			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007301			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			110-82-7	Cyclohexane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			64-17-5	Ethanol	NGS	93	<8.5	<8.5	n/a	n/a	n/a	n/a	8.5	n/a	U
S18T007301			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007301			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007301			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007301			110-54-3	Hexane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007301			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007301			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007301			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007301			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007301			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007301			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007301			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			108-88-3	Toluene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007301			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007301			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007301			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007301			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BL-EF
Customer Sample ID: 18-01496-2-TL1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007301			142-82-5	n-Heptane	NGS	100	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007301			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BL-IN
Customer Sample ID: 18-01496-2-TL1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007302			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007302			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			71-36-3	1-Butanol	NGS	43	<7.7	<7.7	n/a	n/a	n/a	n/a	7.7	n/a	LQUYa
S18T007302			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007302			71-23-8	1-Propanol	NGS	72	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	U
S18T007302			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007302			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007302			78-93-3	2-Butanone	NGS	100	<0.98	1.4	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T007302			110-43-0	2-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			591-78-6	2-Hexanone	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			78-94-4	3-Buten-2-one	NGS	110	<1.5	1.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007302			106-35-4	3-Heptanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007302			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007302			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			67-64-1	Acetone	NGS	100	<4.8	20	n/a	n/a	n/a	n/a	4.8	n/a	L
S18T007302			75-05-8	Acetonitrile	NGS	100	<1.2	25	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007302			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007302			107-13-1	Acrylonitrile	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007302			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007302			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007302			71-43-2	Benzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BL-IN
Customer Sample ID: 18-01496-2-TL1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007302			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007302			123-72-8	Butanal	NGS	69	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	QUY
S18T007302			109-74-0	Butanenitrile	NGS	110	<0.99	1.6	n/a	n/a	n/a	n/a	0.99	n/a	J
S18T007302			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007302			75-00-3	Chloroethane	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			110-82-7	Cyclohexane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			64-17-5	Ethanol	NGS	93	<8.5	35	n/a	n/a	n/a	n/a	8.5	n/a	
S18T007302			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007302			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007302			110-00-9	Furan	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007302			110-54-3	Hexane	NGS	100	<1.5	4.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T007302			628-73-9	Hexanenitrile	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007302			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			75-09-2	Methylene Chloride	NGS	100	<4.9	5.8	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007302			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007302			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			110-59-8	Pentanenitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			107-12-0	Propanenitrile	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007302			110-86-1	Pyridine	NGS	110	1.4	<0.89	n/a	n/a	n/a	n/a	0.89	n/a	U
S18T007302			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007302			127-18-4	Tetrachloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			108-88-3	Toluene	NGS	100	<1.0	2.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007302			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007302			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T007302			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007302			123-86-4	n-Butyl acetate	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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c - RPD Outside Range
L - LLS Outside Range
U - Less Than Detection Limit
J - Estimated
E - Outside Calibration Range
N - Named TIC
Y - Comment
Q - Qualitative
a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-BL-IN
Customer Sample ID: 18-01496-2-TL1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007302			142-82-5	n-Heptane	NGS	100	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S18T007302			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-2
Customer Sample ID: 18-01496-2-TL1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007303			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007303			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007303			71-36-3	1-Butanol	NGS	43	<7.7	4.7E+03	n/a	n/a	n/a	n/a	7.7	n/a	ELQYa
S18T007303			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007303			71-23-8	1-Propanol	NGS	72	<4.3	260	n/a	n/a	n/a	n/a	4.3	n/a	
S18T007303			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007303			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007303			78-93-3	2-Butanone	NGS	100	<0.98	80	n/a	n/a	n/a	n/a	0.98	n/a	
S18T007303			110-43-0	2-Heptanone	NGS	100	<1.2	22	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007303			591-78-6	2-Hexanone	NGS	99	<1.1	100	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007303			534-22-5	2-Methylfuran	NGS	97	<1.1	1.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007303			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007303			106-35-4	3-Heptanone	NGS	100	<1.2	15	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007303			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007303			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	8.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T007303			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	65	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007303			67-64-1	Acetone	NGS	100	<4.8	1.8E+03	n/a	n/a	n/a	n/a	4.8	n/a	EL
S18T007303			75-05-8	Acetonitrile	NGS	100	<1.2	340	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007303			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007303			107-13-1	Acrylonitrile	NGS	100	<1.0	8.2	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007303			107-18-6	Allyl Alcohol	NGS	78	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S18T007303			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007303			71-43-2	Benzene	NGS	99	<1.3	21	n/a	n/a	n/a	n/a	1.3	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-2
Customer Sample ID: 18-01496-2-TL1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007303			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007303			123-72-8	Butanal	NGS	69	<4.4	180	n/a	n/a	n/a	n/a	4.4	n/a	QY
S18T007303			109-74-0	Butanenitrile	NGS	110	<0.99	96	n/a	n/a	n/a	n/a	0.99	n/a	
S18T007303			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007303			75-00-3	Chloroethane	NGS	110	<1.2	2.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007303			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007303			110-82-7	Cyclohexane	NGS	99	<1.2	67	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007303			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			64-17-5	Ethanol	NGS	93	<8.5	1.0E+03	n/a	n/a	n/a	n/a	8.5	n/a	E
S18T007303			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007303			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007303			110-00-9	Furan	NGS	100	<1.4	57	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007303			110-54-3	Hexane	NGS	100	<1.5	1.5E+03	n/a	n/a	n/a	n/a	1.5	n/a	E
S18T007303			628-73-9	Hexanenitrile	NGS	110	<1.0	5.7	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007303			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007303			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007303			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			110-59-8	Pentanenitrile	NGS	110	<1.2	20	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007303			107-12-0	Propanenitrile	NGS	100	<1.3	23	n/a	n/a	n/a	n/a	1.3	n/a	
S18T007303			110-86-1	Pyridine	NGS	110	1.4	14	n/a	n/a	n/a	n/a	0.89	n/a	
S18T007303			100-42-5	Styrene	NGS	98	<1.3	2.1	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T007303			127-18-4	Tetrachloroethene	NGS	100	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007303			108-88-3	Toluene	NGS	100	<1.0	40	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007303			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007303			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	120	n/a	n/a	n/a	n/a	1.8	n/a	
S18T007303			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007303			123-86-4	n-Butyl acetate	NGS	100	<1.1	3.1	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-2
Customer Sample ID: 18-01496-2-TL1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007303			142-82-5	n-Heptane	NGS	100	<0.93	690	n/a	n/a	n/a	n/a	0.93	n/a	E
S18T007303			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-3
Customer Sample ID: 18-01496-2-TL1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007304			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007304			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007304			71-36-3	1-Butanol	NGS	43	<7.7	5.4E+03	n/a	n/a	n/a	n/a	7.7	n/a	ELQYa
S18T007304			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007304			71-23-8	1-Propanol	NGS	72	<4.3	1.0E+03	n/a	n/a	n/a	n/a	4.3	n/a	E
S18T007304			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	0.94	n/a	n/a	n/a	n/a	0.80	n/a	J
S18T007304			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007304			78-93-3	2-Butanone	NGS	100	<0.98	460	n/a	n/a	n/a	n/a	0.98	n/a	E
S18T007304			110-43-0	2-Heptanone	NGS	100	<1.2	44	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007304			591-78-6	2-Hexanone	NGS	99	<1.1	170	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007304			534-22-5	2-Methylfuran	NGS	97	<1.1	2.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007304			78-94-4	3-Buten-2-one	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007304			106-35-4	3-Heptanone	NGS	100	<1.2	30	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007304			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007304			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	14	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007304			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	86	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007304			67-64-1	Acetone	NGS	100	<4.8	6.1E+03	n/a	n/a	n/a	n/a	4.8	n/a	ELY
S18T007304			75-05-8	Acetonitrile	NGS	100	<1.2	560	n/a	n/a	n/a	n/a	1.2	n/a	E
S18T007304			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007304			107-13-1	Acrylonitrile	NGS	100	<1.0	12	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007304			107-18-6	Allyl Alcohol	NGS	78	<3.9	28	n/a	n/a	n/a	n/a	3.9	n/a	Y
S18T007304			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007304			71-43-2	Benzene	NGS	99	<1.3	28	n/a	n/a	n/a	n/a	1.3	n/a	

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a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-3
Customer Sample ID: 18-01496-2-TL1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007304			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007304			123-72-8	Butanal	NGS	69	<4.4	380	n/a	n/a	n/a	n/a	4.4	n/a	QY
S18T007304			109-74-0	Butanenitrile	NGS	110	<0.99	170	n/a	n/a	n/a	n/a	0.99	n/a	
S18T007304			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007304			75-00-3	Chloroethane	NGS	110	<1.2	14	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007304			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007304			110-82-7	Cyclohexane	NGS	99	<1.2	130	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007304			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			64-17-5	Ethanol	NGS	93	<8.5	1.8E+03	n/a	n/a	n/a	n/a	8.5	n/a	EY
S18T007304			141-78-6	Ethyl acetate	NGS	100	<1.6	34	n/a	n/a	n/a	n/a	1.6	n/a	
S18T007304			100-41-4	Ethylbenzene	NGS	98	<1.0	1.9	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007304			110-00-9	Furan	NGS	100	<1.4	55	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007304			110-54-3	Hexane	NGS	100	<1.5	1.8E+03	n/a	n/a	n/a	n/a	1.5	n/a	EY
S18T007304			628-73-9	Hexanenitrile	NGS	110	<1.0	9.4	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007304			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			75-09-2	Methylene Chloride	NGS	100	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	U
S18T007304			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007304			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			110-59-8	Pentanenitrile	NGS	110	<1.2	32	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007304			107-12-0	Propanenitrile	NGS	100	<1.3	72	n/a	n/a	n/a	n/a	1.3	n/a	
S18T007304			110-86-1	Pyridine	NGS	110	1.4	21	n/a	n/a	n/a	n/a	0.89	n/a	
S18T007304			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007304			127-18-4	Tetrachloroethene	NGS	100	<1.1	2.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007304			108-88-3	Toluene	NGS	100	<1.0	56	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007304			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007304			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	320	n/a	n/a	n/a	n/a	1.8	n/a	
S18T007304			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007304			123-86-4	n-Butyl acetate	NGS	100	<1.1	12	n/a	n/a	n/a	n/a	1.1	n/a	J

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s - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-3
Customer Sample ID: 18-01496-2-TL1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007304			142-82-5	n-Heptane	NGS	100	<0.93	890	n/a	n/a	n/a	n/a	0.93	n/a	E
S18T007304			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-4
Customer Sample ID: 18-01496-2-TL1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007305			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007305			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007305			71-36-3	1-Butanol	NGS	43	<7.7	5.4E+03	n/a	n/a	n/a	n/a	7.7	n/a	ELQYa
S18T007305			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007305			71-23-8	1-Propanol	NGS	72	<4.3	830	n/a	n/a	n/a	n/a	4.3	n/a	E
S18T007305			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T007305			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007305			78-93-3	2-Butanone	NGS	100	<0.98	440	n/a	n/a	n/a	n/a	0.98	n/a	E
S18T007305			110-43-0	2-Heptanone	NGS	100	<1.2	46	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007305			591-78-6	2-Hexanone	NGS	99	<1.1	160	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007305			534-22-5	2-Methylfuran	NGS	97	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007305			78-94-4	3-Buten-2-one	NGS	110	<1.5	66	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007305			106-35-4	3-Heptanone	NGS	100	<1.2	31	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007305			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007305			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	13	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007305			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	84	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007305			67-64-1	Acetone	NGS	100	<4.8	6.1E+03	n/a	n/a	n/a	n/a	4.8	n/a	ELY
S18T007305			75-05-8	Acetonitrile	NGS	100	<1.2	580	n/a	n/a	n/a	n/a	1.2	n/a	E
S18T007305			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007305			107-13-1	Acrylonitrile	NGS	100	<1.0	11	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007305			107-18-6	Allyl Alcohol	NGS	78	<3.9	22	n/a	n/a	n/a	n/a	3.9	n/a	Y
S18T007305			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007305			71-43-2	Benzene	NGS	99	<1.3	26	n/a	n/a	n/a	n/a	1.3	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-4
Customer Sample ID: 18-01496-2-TL1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007305			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007305			123-72-8	Butanal	NGS	69	<4.4	380	n/a	n/a	n/a	n/a	4.4	n/a	QY
S18T007305			109-74-0	Butanenitrile	NGS	110	<0.99	160	n/a	n/a	n/a	n/a	0.99	n/a	
S18T007305			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007305			75-00-3	Chloroethane	NGS	110	<1.2	2.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007305			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007305			110-82-7	Cyclohexane	NGS	99	<1.2	110	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007305			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			64-17-5	Ethanol	NGS	93	<8.5	1.5E+03	n/a	n/a	n/a	n/a	8.5	n/a	E
S18T007305			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007305			100-41-4	Ethylbenzene	NGS	98	<1.0	1.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007305			110-00-9	Furan	NGS	100	<1.4	51	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007305			110-54-3	Hexane	NGS	100	<1.5	1.8E+03	n/a	n/a	n/a	n/a	1.5	n/a	E
S18T007305			628-73-9	Hexanenitrile	NGS	110	<1.0	9.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007305			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			75-09-2	Methylene Chloride	NGS	100	<4.9	17	n/a	n/a	n/a	n/a	4.9	n/a	
S18T007305			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007305			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			110-59-8	Pentanenitrile	NGS	110	<1.2	28	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007305			107-12-0	Propanenitrile	NGS	100	<1.3	60	n/a	n/a	n/a	n/a	1.3	n/a	
S18T007305			110-86-1	Pyridine	NGS	110	1.4	19	n/a	n/a	n/a	n/a	0.89	n/a	
S18T007305			100-42-5	Styrene	NGS	98	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T007305			127-18-4	Tetrachloroethene	NGS	100	<1.1	2.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007305			108-88-3	Toluene	NGS	100	<1.0	54	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007305			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007305			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	260	n/a	n/a	n/a	n/a	1.8	n/a	
S18T007305			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007305			123-86-4	n-Butyl acetate	NGS	100	<1.1	5.5	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-4
Customer Sample ID: 18-01496-2-TL1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007305			142-82-5	n-Heptane	NGS	100	<0.93	850	n/a	n/a	n/a	n/a	0.93	n/a	E
S18T007305			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-6
Customer Sample ID: 18-01496-2-TL1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007306			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007306			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007306			71-36-3	1-Butanol	NGS	43	<7.7	5.7E+03	n/a	n/a	n/a	n/a	7.7	n/a	ELQYa
S18T007306			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007306			71-23-8	1-Propanol	NGS	72	<4.3	910	n/a	n/a	n/a	n/a	4.3	n/a	E
S18T007306			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	2.3	n/a	n/a	n/a	n/a	0.80	n/a	J
S18T007306			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007306			78-93-3	2-Butanone	NGS	100	<0.98	710	n/a	n/a	n/a	n/a	0.98	n/a	E
S18T007306			110-43-0	2-Heptanone	NGS	100	<1.2	120	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007306			591-78-6	2-Hexanone	NGS	99	<1.1	220	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007306			534-22-5	2-Methylfuran	NGS	97	<1.1	2.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007306			78-94-4	3-Buten-2-one	NGS	110	<1.5	88	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007306			106-35-4	3-Heptanone	NGS	100	<1.2	85	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007306			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007306			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	21	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007306			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	95	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007306			67-64-1	Acetone	NGS	100	<4.8	6.9E+03	n/a	n/a	n/a	n/a	4.8	n/a	ELY
S18T007306			75-05-8	Acetonitrile	NGS	100	<1.2	630	n/a	n/a	n/a	n/a	1.2	n/a	E
S18T007306			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007306			107-13-1	Acrylonitrile	NGS	100	<1.0	14	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007306			107-18-6	Allyl Alcohol	NGS	78	<3.9	27	n/a	n/a	n/a	n/a	3.9	n/a	Y
S18T007306			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007306			71-43-2	Benzene	NGS	99	<1.3	32	n/a	n/a	n/a	n/a	1.3	n/a	

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Y - Comment
Q - Qualitative
a - LCS Outside Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-6
Customer Sample ID: 18-01496-2-TL1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007306			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007306			123-72-8	Butanal	NGS	69	<4.4	470	n/a	n/a	n/a	n/a	4.4	n/a	EQY
S18T007306			109-74-0	Butanenitrile	NGS	110	<0.99	230	n/a	n/a	n/a	n/a	0.99	n/a	
S18T007306			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007306			75-00-3	Chloroethane	NGS	110	<1.2	2.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007306			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007306			110-82-7	Cyclohexane	NGS	99	<1.2	140	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007306			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			64-17-5	Ethanol	NGS	93	<8.5	1.6E+03	n/a	n/a	n/a	n/a	8.5	n/a	E
S18T007306			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007306			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007306			110-00-9	Furan	NGS	100	<1.4	26	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007306			110-54-3	Hexane	NGS	100	<1.5	1.8E+03	n/a	n/a	n/a	n/a	1.5	n/a	E
S18T007306			628-73-9	Hexanenitrile	NGS	110	<1.0	21	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007306			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			75-09-2	Methylene Chloride	NGS	100	<4.9	13	n/a	n/a	n/a	n/a	4.9	n/a	
S18T007306			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007306			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			110-59-8	Pentanenitrile	NGS	110	<1.2	34	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007306			107-12-0	Propanenitrile	NGS	100	<1.3	48	n/a	n/a	n/a	n/a	1.3	n/a	
S18T007306			110-86-1	Pyridine	NGS	110	1.4	23	n/a	n/a	n/a	n/a	0.89	n/a	
S18T007306			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007306			127-18-4	Tetrachloroethene	NGS	100	<1.1	3.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007306			108-88-3	Toluene	NGS	100	<1.0	78	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007306			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007306			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	270	n/a	n/a	n/a	n/a	1.8	n/a	
S18T007306			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007306			123-86-4	n-Butyl acetate	NGS	100	<1.1	6.7	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-6
Customer Sample ID: 18-01496-2-TL1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007306			142-82-5	n-Heptane	NGS	100	<0.93	930	n/a	n/a	n/a	n/a	0.93	n/a	E
S18T007306			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-7
Customer Sample ID: 18-01496-2-TL1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007307			100-47-0	Benzonitrile	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007307			123-72-8	Butanal	NGS	69	<4.4	270	n/a	n/a	n/a	n/a	4.4	n/a	QY
S18T007307			109-74-0	Butanenitrile	NGS	110	<0.99	200	n/a	n/a	n/a	n/a	0.99	n/a	
S18T007307			56-23-5	Carbon tetrachloride	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			108-90-7	Chlorobenzene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007307			75-00-3	Chloroethane	NGS	110	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T007307			67-66-3	Chloroform	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007307			110-82-7	Cyclohexane	NGS	99	<1.2	120	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007307			124-18-5	Decane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			64-17-5	Ethanol	NGS	93	<8.5	1.2E+03	n/a	n/a	n/a	n/a	8.5	n/a	E
S18T007307			141-78-6	Ethyl acetate	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T007307			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T007307			110-00-9	Furan	NGS	100	<1.4	25	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007307			110-54-3	Hexane	NGS	100	<1.5	1.5E+03	n/a	n/a	n/a	n/a	1.5	n/a	E
S18T007307			628-73-9	Hexanenitrile	NGS	110	<1.0	20	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007307			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			75-09-2	Methylene Chloride	NGS	100	<4.9	8.4	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T007307			91-20-3	Naphthalene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T007307			98-95-3	Nitrobenzene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			110-59-8	Pentanenitrile	NGS	110	<1.2	29	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007307			107-12-0	Propanenitrile	NGS	100	<1.3	43	n/a	n/a	n/a	n/a	1.3	n/a	
S18T007307			110-86-1	Pyridine	NGS	110	1.4	18	n/a	n/a	n/a	n/a	0.89	n/a	
S18T007307			100-42-5	Styrene	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007307			127-18-4	Tetrachloroethene	NGS	100	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007307			108-88-3	Toluene	NGS	100	<1.0	53	n/a	n/a	n/a	n/a	1.0	n/a	
S18T007307			79-01-6	Trichloroethene	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007307			75-69-4	Trichlorofluoromethane	NGS	100	<1.8	220	n/a	n/a	n/a	n/a	1.8	n/a	
S18T007307			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			123-86-4	n-Butyl acetate	NGS	100	<1.1	7.7	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-7
Customer Sample ID: 18-01496-2-TL1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007307			142-82-5	n-Heptane	NGS	100	<0.93	780	n/a	n/a	n/a	n/a	0.93	n/a	E
S18T007307			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180604
Customer Group or SDG Number:
Customer Sample ID: 18-01496-2-TL1-IN-7
Customer Sample ID: 18-01496-2-TL1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T007307			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			75-34-3	1,1-Dichloroethane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			75-35-4	1,1-Dichloroethene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			107-06-2	1,2-Dichloroethane	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007307			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007307			123-91-1	1,4-Dioxane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T007307			71-36-3	1-Butanol	NGS	43	<7.7	4.5E+03	n/a	n/a	n/a	n/a	7.7	n/a	ELQYa
S18T007307			111-70-6	1-Heptanol	NGS	45	<4.3	<4.3	n/a	n/a	n/a	n/a	4.3	n/a	LQUYa
S18T007307			71-23-8	1-Propanol	NGS	72	<4.3	700	n/a	n/a	n/a	n/a	4.3	n/a	
S18T007307			108-47-4	2,4-Dimethylpyridine	NGS	100	1.4	1.8	n/a	n/a	n/a	n/a	0.80	n/a	J
S18T007307			1708-29-8	2,5-Dihydrofuran	NGS	98	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T007307			78-93-3	2-Butanone	NGS	100	<0.98	520	n/a	n/a	n/a	n/a	0.98	n/a	E
S18T007307			110-43-0	2-Heptanone	NGS	100	<1.2	110	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007307			591-78-6	2-Hexanone	NGS	99	<1.1	170	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007307			534-22-5	2-Methylfuran	NGS	97	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T007307			78-94-4	3-Buten-2-one	NGS	110	<1.5	47	n/a	n/a	n/a	n/a	1.5	n/a	
S18T007307			106-35-4	3-Heptanone	NGS	100	<1.2	76	n/a	n/a	n/a	n/a	1.2	n/a	
S18T007307			106-68-3	3-Octanone	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T007307			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.4	17	n/a	n/a	n/a	n/a	1.4	n/a	
S18T007307			108-10-1	4-Methyl-2-Pentanone	NGS	100	<1.1	68	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007307			67-64-1	Acetone	NGS	100	<4.8	4.8E+03	n/a	n/a	n/a	n/a	4.8	n/a	ELY
S18T007307			75-05-8	Acetonitrile	NGS	100	<1.2	530	n/a	n/a	n/a	n/a	1.2	n/a	E
S18T007307			98-86-2	Acetophenone	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T007307			107-13-1	Acrylonitrile	NGS	100	<1.0	12	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T007307			107-18-6	Allyl Alcohol	NGS	78	<3.9	20	n/a	n/a	n/a	n/a	3.9	n/a	Y
S18T007307			107-05-1	Allyl Chloride	NGS	94	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T007307			71-43-2	Benzene	NGS	99	<1.3	26	n/a	n/a	n/a	n/a	1.3	n/a	

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C.4.3 Methanol

ANALYTICAL REPORT

Report Date: March 13, 2018

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Workorder: 34-1806046
Client Project ID: 20180594
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S18T007023				Collected: 02/23/2018
Lab ID: 1806046001	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: Air Volume Not Provided			Analyzed: 03/09/2018 (209682)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: S18T007024				Collected: 02/23/2018
Lab ID: 1806046002	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: Air Volume Not Provided			Analyzed: 03/09/2018 (209682)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: S18T007025				Collected: 02/23/2018
Lab ID: 1806046003	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: Air Volume Not Provided			Analyzed: 03/09/2018 (209682)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806046**
Client Project ID: 20180594
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007026**				Collected: 02/23/2018
Lab ID: 1806046004	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007027**				Collected: 02/23/2018
Lab ID: 1806046005	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007028**				Collected: 02/23/2018
Lab ID: 1806046006	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007029**				Collected: 02/23/2018
Lab ID: 1806046007	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007030**				Collected: 02/23/2018
Lab ID: 1806046008	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806046**
Client Project ID: 20180594
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007031**				Collected: 02/23/2018
Lab ID: 1806046009	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007032**				Collected: 02/23/2018
Lab ID: 1806046010	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007033**				Collected: 02/23/2018
Lab ID: 1806046011	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007034**				Collected: 02/23/2018
Lab ID: 1806046012	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0023**	NA	NA	0.0020

Sample ID: **S18T007035**				Collected: 02/23/2018
Lab ID: 1806046013	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0029**	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806046**
Client Project ID: 20180594
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007036**				Collected: 02/23/2018
Lab ID: 1806046014	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0026**	NA	NA	0.0020

Sample ID: **S18T007037**				Collected: 02/23/2018
Lab ID: 1806046015	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0061**	NA	NA	0.0020

Sample ID: **S18T007038**				Collected: 02/23/2018
Lab ID: 1806046016	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0023**	NA	NA	0.0020

Sample ID: **S18T007039**				Collected: 02/23/2018
Lab ID: 1806046017	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0027**	NA	NA	0.0020

Sample ID: **S18T007040**				Collected: 02/23/2018
Lab ID: 1806046018	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0036**	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806046**
Client Project ID: 20180594
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007041**				Collected: 02/23/2018
Lab ID: 1806046019	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007042**				Collected: 02/23/2018
Lab ID: 1806046020	Sampling Location: 2018 FEB CARTRIDGE E			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0023**	NA	NA	0.0020

Comments

Workorder: 1806046

QC/QD pair 590693/590694 relate to samples 1806046001-020

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 2000	/S/ Fred Rejali 03/12/2018 02:48	/S/ Thomas J. Masoian 03/13/2018 08:31

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: **34-1806046**
Client Project ID: 20180594
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/saa/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806046

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9351 (HBN: 209682)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 589779
Analyzed: 03/09/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

MB: 590692
Analyzed: 03/09/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589780
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 589781
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.121	0.119	102	84.1	109.1	0.120	101	0.997	0.0	20.0

LCS: 590693
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590694
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.117	0.119	98.7	84.1	109.1	0.108	91.3	7.80	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
03/12/2018 02:48	03/13/2018 08:29

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806046

1806046

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler N/A		C.O.C. No. 20180594	Page 1 of 2
Collector WAY	Contact/Requestor ROBERT COMPTON	Telephone No. 373-6932	MSIN T6-05 FAX N/A
SAF No. N/A	Sample Origin 2018 FEB CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 FEB CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis (776-5)	Preservative
1	S18T007023	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-BA-EF	N/A
2	S18T007024	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-BA-IN	N/A
3	S18T007025	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-BL-EF	N/A
4	S18T007026	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-BL-IN	N/A
5	S18T007027	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-1	N/A
6	S18T007028	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-2	N/A
7	S18T007029	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-3	N/A
8	S18T007030	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-4	N/A
9	S18T007031	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-5	N/A
10	S18T007032	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ◯ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	2/28/18 0930	KE Rogers	2/28/18 0930
KE Rogers	2/28/18 1400	FEDEX	
FedEx		Tamika Jessel Tami Vartessel	3-1-18 0950

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rafal — Date/Time: 03/09/18 0400

*All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180594
Page 2 of 2

Assembler: N/A	
Collector: WAY	Contact/Requestor: ROBERT COMPTON
SAF No.: N/A	Sample Origin: 2018 FEB CARTRIDGE EVALUATION
Project Title: 2018 FEB CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A
Shipped To (Lab): ALS	Method of Shipment:
Protocol: N/A	Data Turnaround: 10 DAYS

Telephone No. 373-6932	MSIN T6-05 FAX N/A
Purchase Order/Charge Code 203006/CB20	
Ice Chest No. wts-033	Temp. on Ice
Bill of Lading/Air Bill No. 7716 4087 2261	
Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T007033	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-7	N/A
12	S18T007034	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-EF-8	N/A
13	S18T007035	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-1	N/A
14	S18T007036	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-2	N/A
15	S18T007037	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-3	N/A
16	S18T007038	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-4	N/A
17	S18T007039	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-5	N/A
18	S18T007040	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-6	N/A
19	S18T007041	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-7	N/A
20	S18T007042	VA	2/23/18		CHARCOAL TUBE	Methanol 18-01496-3-TL1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS
Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Stanbov [signature]	2-28-18 0930	[signature] [signature]	2/28/18 0930
[signature]	2/28/18 1700	FEDEX	
fedex		Tami Van Tassell	03-01-18 9:50

Matrix*
S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solids
DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
VA = Vapor
X = Other

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rejali 03/09/18 — Date/Time: 0400

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 13, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806042**
Client Project ID: 20180595
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007043**				Collected: 02/24/2018
Lab ID: 1806042001	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007044**				Collected: 02/24/2018
Lab ID: 1806042002	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007045**				Collected: 02/24/2018
Lab ID: 1806042003	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806042**
Client Project ID: 20180595
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007046**				Collected: 02/24/2018
Lab ID: 1806042004	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0026**	NA	NA	0.0020

Sample ID: **S18T007047**				Collected: 02/24/2018
Lab ID: 1806042005	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0020**	NA	NA	0.0020

Sample ID: **S18T007048**				Collected: 02/24/2018
Lab ID: 1806042006	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007049**				Collected: 02/24/2018
Lab ID: 1806042007	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007050**				Collected: 02/24/2018
Lab ID: 1806042008	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806042**
Client Project ID: 20180595
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007051**				Collected: 02/24/2018
Lab ID: 1806042009	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0036**	NA	NA	0.0020

Sample ID: **S18T007052**				Collected: 02/24/2018
Lab ID: 1806042010	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007053**				Collected: 02/24/2018
Lab ID: 1806042011	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007054**				Collected: 02/24/2018
Lab ID: 1806042012	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007055**				Collected: 02/24/2018
Lab ID: 1806042013	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0020**	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806042**
Client Project ID: 20180595
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007056**				Collected: 02/24/2018
Lab ID: 1806042014	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0035**	NA	NA	0.0020

Sample ID: **S18T007057**				Collected: 02/24/2018
Lab ID: 1806042015	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0020**	NA	NA	0.0020

Sample ID: **S18T007058**				Collected: 02/24/2018
Lab ID: 1806042016	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007059**				Collected: 02/24/2018
Lab ID: 1806042017	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T007060**				Collected: 02/24/2018
Lab ID: 1806042018	Sampling Location: 2018 FEB CARTRIDGE			Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg			Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/09/2018 (209682)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806042**
Client Project ID: 20180595
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007061**			Collected: 02/24/2018
Lab ID: 1806042019	Sampling Location: 2018 FEB CARTRIDGE		Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg		Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/09/2018 (209682)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	**0.0031**	NA	NA	0.0020

Sample ID: **S18T007062**			Collected: 02/24/2018
Lab ID: 1806042020	Sampling Location: 2018 FEB CARTRIDGE		Received: 03/01/2018
Method: **NIOSH 2000**	Media: SKC 226-51, Silica Gel Tube 50/100mg		Instrument: GCI38
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/09/2018 (209682)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Comments

Workorder: 1806042

QC/QD pair 589780/589781 relate to samples 1806042001-020

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 2000	/S/ Fred Rejali 03/12/2018 02:48	/S/ Thomas J. Masoian 03/13/2018 08:31

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: **34-1806042**
Client Project ID: 20180595
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/saa/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806042

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9351 (HBN: 209682)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 589779
Analyzed: 03/09/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

MB: 590692
Analyzed: 03/09/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589780
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 589781
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.121	0.119	102	84.1	109.1	0.120	101	0.997	0.0	20.0

LCS: 590693
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590694
Analyzed: 03/09/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.117	0.119	98.7	84.1	109.1	0.108	91.3	7.80	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
03/12/2018 02:48	03/13/2018 08:29

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806042

1806042

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assem... N/A		C.O.C. No. 20180595	Page 1 of 2
Collector WAY	Contact/Requestor ROBERT COMPTON	Telephone No 373-6932	MSIN T6-05 FAX N/A
SAF No. N/A	Sample Origin 2018 FEB CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 FEB CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T007043	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-BA-EF	N/A
2	S18T007044	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-BA-IN	N/A
3	S18T007045	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-BL-EF	N/A
4	S18T007046	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-BL-IN	N/A
5	S18T007047	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EF-1	N/A
6	S18T007048	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EF-2	N/A
7	S18T007049	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EF-3	N/A
8	S18T007050	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EF-4	N/A
9	S18T007051	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EF-5	N/A
10	S18T007052	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ⦿ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brenter	2-28-18 0930	B Rogers	2/28/18 0930
B Rogers	2/28/18 1400	FEDEX	
Fedex		Tani Van Tassell	030178 0950

Matrix*

S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; VA = Vapor; X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By Fred Rejak	Date/Time 03/09/18 0400

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180595
		Page 2 of 2

Collector: WAX	Contact/Requestor: ROBERT COMPTON	Telephone No.: 373-6932	MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 FEB CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CR20	
Project Title: 2018 FEB CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: wts-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T007053	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EP-7	N/A
13	S18T007054	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-EP-8	N/A
13	S18T007055	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-1	N/A
14	S18T007056	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-2	N/A
15	S18T007057	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-3	N/A
16	S18T007058	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-4	N/A
17	S18T007059	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-5	N/A
18	S18T007060	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-6	N/A
19	S18T007061	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-7	N/A
20	S18T007062	VA	2/24/18		CHARCOAL TUBE	Methanol 18-01497-3-TL2-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS: Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brenton	2/28/18 0930	K Rogers	2/28/18 0930
K Rogers	2/28/18 1400	FEDEX	
		Tami VanTassell	03/01/18 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Rojali — Date/Time: 03/09/18 0400

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-982 (03/05)

02 - May - 2018 7:34:43
DSRHardcopyWOLimits 3.0.13a
DSR.Jar v. 3.0.14

2018 Cartridge Evaluation
Data Summary of All Results

Daniel Hansen
Daniel Hansen
5-2-18

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-BA-EF
Customer Sample ID: 18-01494-3-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007655			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007655			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007655			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007655			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007655			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007655			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007655			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007655			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007655			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-BA-IN
Customer Sample ID: 18-01494-3-SD1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007656			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007656			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007656			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007656			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007656			534-22-5	2-Methylfuran	NGS	100	<0.42	0.62	n/a	n/a	n/a	n/a	0.42	n/a	J
S18T007656			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007656			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007656			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007656			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-BL-EF
Customer Sample ID: 18-01494-3-SD1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007657			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007657			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007657			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007657			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007657			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007657			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007657			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007657			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007657			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-BL-IN
Customer Sample ID: 18-01494-3-SD1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007658			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007658			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007658			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007658			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007658			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007658			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007658			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007658			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007658			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-EF-1
Customer Sample ID: 18-01494-3-SD1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007659			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007659			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007659			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007659			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007659			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007659			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007659			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007659			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007659			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-EF-2
Customer Sample ID: 18-01494-3-SD1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007660			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007660			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007660			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007660			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007660			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007660			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007660			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007660			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007660			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-EF-3
Customer Sample ID: 18-01494-3-SD1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007661			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007661			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007661			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007661			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007661			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007661			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007661			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007661			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007661			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-EF-4
Customer Sample ID: 18-01494-3-SD1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007662			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007662			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007662			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007662			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007662			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007662			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007662			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007662			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007662			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-EF-5
Customer Sample ID: 18-01494-3-SD1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007663			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007663			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007663			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007663			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007663			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007663			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007663			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007663			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007663			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-EF-6
Customer Sample ID: 18-01494-3-SD1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007664			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007664			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007664			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007664			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007664			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007664			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007664			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007664			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007664			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-EF-8
Customer Sample ID: 18-01494-3-SD1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007666			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007666			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007666			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007666			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007666			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007666			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007666			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007666			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007666			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-1
Customer Sample ID: 18-01494-3-SD1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007667			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007667			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007667			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007667			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007667			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007667			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007667			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007667			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007667			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-2
Customer Sample ID: 18-01494-3-SD1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007668			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007668			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007668			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007668			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007668			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007668			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007668			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007668			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007668			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-3
Customer Sample ID: 18-01494-3-SD1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007669			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007669			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007669			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007669			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007669			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007669			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007669			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007669			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007669			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-4
Customer Sample ID: 18-01494-3-SD1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007670			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T007670			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T007670			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T007670			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T007670			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T007670			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T007670			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T007670			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T007670			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-5
Customer Sample ID: 18-01494-3-SD1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007671			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007671			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007671			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007671			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007671			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007671			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007671			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007671			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007671			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-6
Customer Sample ID: 18-01494-3-SD1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007672			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007672			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007672			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007672			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007672			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007672			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007672			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007672			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007672			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-7
Customer Sample ID: 18-01494-3-SD1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007673			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007673			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007673			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007673			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007673			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007673			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007673			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007673			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007673			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180631
SDG Number:
Customer Sample ID: 18-01494-3-SD1-IN-8
Customer Sample ID: 18-01494-3-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007675			1191-99-7	2,3-Dihydrofuran	NGS	84	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007675			1708-29-8	2,5-Dihydrofuran	NGS	78	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007675			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007675			3777-71-7	2-Heptylfuran	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007675			534-22-5	2-Methylfuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007675			3777-69-3	2-Pentylfuran	NGS	97	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007675			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007675			110-00-9	Furan	NGS	93	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007675			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

Daniel Hansen
Daniel Hansen
5-2-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-BA-EF
Customer Sample ID: 18-01495-3-SC1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007687			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007687			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007687			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007687			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007687			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007687			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007687			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007687			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007687			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-BA-IN
Customer Sample ID: 18-01495-3-SC1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007688			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007688			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007688			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007688			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007688			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007688			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007688			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007688			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007688			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-BL-EF
Customer Sample ID: 18-01495-3-SC1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007689			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007689			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007689			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007689			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007689			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007689			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007689			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007689			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007689			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-BL-IN
Customer Sample ID: 18-01495-3-SC1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007690			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007690			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007690			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007690			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007690			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007690			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007690			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007690			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007690			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-1
Customer Sample ID: 18-01495-3-SC1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007691			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007691			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007691			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007691			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007691			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007691			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007691			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007691			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007691			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-2
Customer Sample ID: 18-01495-3-SC1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007692			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007692			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007692			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007692			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007692			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007692			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007692			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007692			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007692			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-3
Customer Sample ID: 18-01495-3-SC1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007693			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007693			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007693			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007693			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007693			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007693			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007693			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007693			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007693			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-4
Customer Sample ID: 18-01495-3-SC1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007694			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007694			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007694			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007694			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007694			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007694			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007694			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007694			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007694			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-5
Customer Sample ID: 18-01495-3-SC1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007696			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007696			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007696			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007696			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007696			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007696			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007696			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007696			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007696			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-6
Customer Sample ID: 18-01495-3-SC1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007697			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007697			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007697			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007697			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007697			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007697			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007697			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007697			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007697			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-7
Customer Sample ID: 18-01495-3-SC1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007698			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007698			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007698			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007698			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007698			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007698			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007698			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007698			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007698			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-EF-8
Customer Sample ID: 18-01495-3-SC1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007699			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007699			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007699			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007699			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007699			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007699			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007699			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007699			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007699			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-1
Customer Sample ID: 18-01495-3-SC1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007700			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007700			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007700			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007700			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007700			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007700			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007700			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007700			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007700			109-99-9	Tetrahydrofuran	NGS	95	<0.37	1.8	n/a	n/a	n/a	n/a	0.37	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-2
Customer Sample ID: 18-01495-3-SC1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007701			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007701			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007701			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007701			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007701			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007701			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007701			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007701			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007701			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-3
Customer Sample ID: 18-01495-3-SC1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007702			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007702			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007702			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007702			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007702			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007702			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007702			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007702			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007702			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-4
Customer Sample ID: 18-01495-3-SC1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007703			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007703			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007703			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007703			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007703			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007703			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007703			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007703			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007703			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-5
Customer Sample ID: 18-01495-3-SC1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007704			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007704			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007704			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007704			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007704			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007704			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007704			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007704			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007704			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-6
Customer Sample ID: 18-01495-3-SC1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007706			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007706			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007706			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007706			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007706			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007706			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007706			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007706			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007706			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-7
Customer Sample ID: 18-01495-3-SC1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007708			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007708			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007708			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007708			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007708			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007708			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007708			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007708			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007708			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180633
SDG Number:
Customer Sample ID: 18-01495-3-SC1-IN-8
Customer Sample ID: 18-01495-3-SC1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007709			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007709			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007709			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007709			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007709			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007709			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007709			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007709			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007709			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

Daniel Hansen
Daniel Hansen
5-2-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-BA-EF
Customer Sample ID: 18-01496-4-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007750			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007750			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007750			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007750			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007750			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007750			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007750			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007750			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007750			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-BA-IN
Customer Sample ID: 18-01496-4-TL1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007751			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007751			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007751			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007751			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007751			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007751			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007751			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007751			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007751			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-BL-EF
Customer Sample ID: 18-01496-4-TL1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007752			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007752			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007752			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007752			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007752			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007752			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007752			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007752			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007752			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-BL-IN
Customer Sample ID: 18-01496-4-TL1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007753			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007753			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007753			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007753			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007753			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007753			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007753			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007753			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007753			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-1
Customer Sample ID: 18-01496-4-TL1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007754			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007754			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007754			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007754			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007754			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007754			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007754			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007754			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007754			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-3
Customer Sample ID: 18-01496-4-TL1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007757			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007757			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007757			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007757			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007757			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007757			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007757			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007757			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007757			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-4
Customer Sample ID: 18-01496-4-TL1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007758			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007758			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007758			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007758			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007758			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007758			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007758			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007758			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007758			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-2
Customer Sample ID: 18-01496-4-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007756			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007756			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007756			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007756			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007756			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007756			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007756			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007756			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007756			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-5
Customer Sample ID: 18-01496-4-TL1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007759			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007759			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007759			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007759			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007759			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007759			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007759			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007759			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007759			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-6
Customer Sample ID: 18-01496-4-TL1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007760			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007760			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007760			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007760			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007760			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007760			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007760			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007760			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007760			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-7
Customer Sample ID: 18-01496-4-TL1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007761			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007761			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007761			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007761			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007761			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007761			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007761			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007761			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007761			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-EF-8
Customer Sample ID: 18-01496-4-TL1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007763			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007763			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007763			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007763			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007763			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007763			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007763			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007763			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007763			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-1
Customer Sample ID: 18-01496-4-TL1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007765			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007765			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007765			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007765			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007765			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007765			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007765			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007765			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007765			109-99-9	Tetrahydrofuran	NGS	100	<0.37	12	n/a	n/a	n/a	n/a	0.37	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-2
Customer Sample ID: 18-01496-4-TL1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007766			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007766			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007766			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007766			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007766			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007766			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007766			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007766			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007766			109-99-9	Tetrahydrofuran	NGS	100	<0.37	87	n/a	n/a	n/a	n/a	0.37	n/a	E

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-3
Customer Sample ID: 18-01496-4-TL1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007767			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007767			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007767			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007767			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007767			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007767			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007767			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007767			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007767			109-99-9	Tetrahydrofuran	NGS	100	<0.37	38	n/a	n/a	n/a	n/a	0.37	n/a	

NA = Not Analyzed, ND = Not Detected

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-4
Customer Sample ID: 18-01496-4-TL1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007768			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007768			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007768			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007768			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007768			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007768			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007768			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007768			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007768			109-99-9	Tetrahydrofuran	NGS	100	<0.37	50	n/a	n/a	n/a	n/a	0.37	n/a	E

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-5
Customer Sample ID: 18-01496-4-TL1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007769			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007769			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007769			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007769			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007769			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007769			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007769			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007769			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007769			109-99-9	Tetrahydrofuran	NGS	100	<0.37	49	n/a	n/a	n/a	n/a	0.37	n/a	E

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-6
Customer Sample ID: 18-01496-4-TL1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007771			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007771			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007771			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007771			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007771			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007771			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007771			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007771			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007771			109-99-9	Tetrahydrofuran	NGS	100	<0.37	77	n/a	n/a	n/a	n/a	0.37	n/a	E

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-7
Customer Sample ID: 18-01496-4-TL1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007772			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007772			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007772			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007772			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007772			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007772			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007772			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007772			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007772			109-99-9	Tetrahydrofuran	NGS	100	<0.37	25	n/a	n/a	n/a	n/a	0.37	n/a	

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180634
SDG Number:
Customer Sample ID: 18-01496-4-TL1-IN-8
Customer Sample ID: 18-01496-4-TL1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007773			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007773			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	0.33	n/a	n/a	n/a	n/a	0.33	n/a	J
S18T007773			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007773			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007773			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007773			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007773			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007773			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007773			109-99-9	Tetrahydrofuran	NGS	100	<0.37	79	n/a	n/a	n/a	n/a	0.37	n/a	E

E - Outside Calibration Range J - Estimated U - Less Than Detection Limit NA = Not Analyzed, ND = Not Detected

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Daniel Hansen
Daniel Hansen
5-2-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-BA-EF
Customer Sample ID: 18-01497-4-TL2-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007785			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007785			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007785			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007785			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007785			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007785			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007785			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007785			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007785			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-BA-IN
Customer Sample ID: 18-01497-4-TL2-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007786			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007786			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007786			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007786			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007786			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007786			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007786			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007786			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007786			109-99-9	Tetrahydrofuran	NGS	95	<0.37	21	n/a	n/a	n/a	n/a	0.37	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-BL-EF
Customer Sample ID: 18-01497-4-TL2-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007787			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007787			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007787			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007787			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007787			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007787			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007787			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007787			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007787			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-BL-IN
Customer Sample ID: 18-01497-4-TL2-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007788			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007788			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007788			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007788			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007788			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007788			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007788			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007788			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007788			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-1
Customer Sample ID: 18-01497-4-TL2-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007789			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007789			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007789			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007789			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007789			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007789			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007789			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007789			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007789			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-2
Customer Sample ID: 18-01497-4-TL2-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007790			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007790			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007790			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007790			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007790			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007790			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007790			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007790			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007790			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-3
Customer Sample ID: 18-01497-4-TL2-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007791			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007791			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007791			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007791			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007791			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007791			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007791			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007791			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007791			109-99-9	Tetrahydrofuran	NGS	95	<0.37	0.96	n/a	n/a	n/a	n/a	0.37	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-4
Customer Sample ID: 18-01497-4-TL2-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007792			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007792			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007792			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007792			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007792			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007792			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007792			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007792			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007792			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-5
Customer Sample ID: 18-01497-4-TL2-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007793			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007793			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007793			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007793			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007793			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007793			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007793			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007793			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007793			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-6
Customer Sample ID: 18-01497-4-TL2-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007794			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007794			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007794			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007794			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007794			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007794			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007794			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007794			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007794			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-7
Customer Sample ID: 18-01497-4-TL2-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007795			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007795			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007795			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007795			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007795			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007795			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007795			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007795			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007795			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-EF-8
Customer Sample ID: 18-01497-4-TL2-EF-8

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T007796		1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007796		1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007796		625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007796		3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007796		534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007796		3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007796		4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007796		110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007796		109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-1
Customer Sample ID: 18-01497-4-TL2-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007797			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007797			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007797			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007797			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007797			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007797			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007797			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007797			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007797			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-2
Customer Sample ID: 18-01497-4-TL2-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007798			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007798			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007798			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007798			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007798			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007798			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007798			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007798			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007798			109-99-9	Tetrahydrofuran	NGS	95	<0.37	2.0	n/a	n/a	n/a	n/a	0.37	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-3
Customer Sample ID: 18-01497-4-TL2-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007799			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007799			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007799			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007799			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007799			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007799			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007799			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007799			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007799			109-99-9	Tetrahydrofuran	NGS	95	<0.37	0.74	n/a	n/a	n/a	n/a	0.37	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-4
Customer Sample ID: 18-01497-4-TL2-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007800			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007800			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007800			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007800			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007800			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007800			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007800			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007800			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007800			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-5
Customer Sample ID: 18-01497-4-TL2-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007801			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007801			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007801			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007801			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007801			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007801			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007801			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007801			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007801			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-6
Customer Sample ID: 18-01497-4-TL2-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007802			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007802			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007802			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007802			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007802			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007802			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007802			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007802			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007802			109-99-9	Tetrahydrofuran	NGS	95	<0.37	0.72	n/a	n/a	n/a	n/a	0.37	n/a	J

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-7
Customer Sample ID: 18-01497-4-TL2-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007803			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007803			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007803			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007803			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007803			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007803			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007803			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007803			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007803			109-99-9	Tetrahydrofuran	NGS	95	<0.37	0.58	n/a	n/a	n/a	n/a	0.37	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180635
SDG Number:
Customer Sample ID: 18-01497-4-TL2-IN-8
Customer Sample ID: 18-01497-4-TL2-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T007804			1191-99-7	2,3-Dihydrofuran	NGS	91	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T007804			1708-29-8	2,5-Dihydrofuran	NGS	98	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T007804			625-86-5	2,5-Dimethylfuran	NGS	100	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T007804			3777-71-7	2-Heptylfuran	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T007804			534-22-5	2-Methylfuran	NGS	99	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T007804			3777-69-3	2-Pentylfuran	NGS	100	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T007804			4229-91-8	2-Propylfuran	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T007804			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T007804			109-99-9	Tetrahydrofuran	NGS	95	<0.37	0.86	n/a	n/a	n/a	n/a	0.37	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

C.4.5 Amines

ANALYTICAL REPORT

Report Date: March 08, 2018

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Workorder: 34-1806075
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006623** Collected: 02/23/2018
Lab ID: 1806075001 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006624** Collected: 02/23/2018
Lab ID: 1806075002 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006625** Collected: 02/23/2018
Lab ID: 1806075003 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006626**			Collected: 02/23/2018
Lab ID: 1806075004	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006627**			Collected: 02/23/2018
Lab ID: 1806075005	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006628**			Collected: 02/23/2018
Lab ID: 1806075006	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.32**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006629**			Collected: 02/23/2018
Lab ID: 1806075007	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.41**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006630** Collected: 02/23/2018
Lab ID: 1806075008 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.61**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006631** Collected: 02/23/2018
Lab ID: 1806075009 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.60**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006632** Collected: 02/23/2018
Lab ID: 1806075010 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.50**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006633** Collected: 02/23/2018
Lab ID: 1806075011 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.59**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006634** Collected: 02/23/2018
Lab ID: 1806075012 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.51**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006635** Collected: 02/23/2018
Lab ID: 1806075013 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.57**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006636** Collected: 02/23/2018
Lab ID: 1806075014 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.63**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006637** Collected: 02/23/2018
Lab ID: 1806075015 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/03/2018 (209595)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.64**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006638**			Collected: 02/23/2018
Lab ID: 1806075016	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.71**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006639**			Collected: 02/23/2018
Lab ID: 1806075017	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.98**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006640**			Collected: 02/23/2018
Lab ID: 1806075018	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.71**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006641**			Collected: 02/23/2018
Lab ID: 1806075019	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006642**			Collected: 02/23/2018
Lab ID: 1806075020	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/03/2018 (209595)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.73**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006643**			Collected: 02/23/2018
Lab ID: 1806075021	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006644**			Collected: 02/23/2018
Lab ID: 1806075022	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006645**			Collected: 02/23/2018
Lab ID: 1806075023	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006646** Collected: 02/23/2018
Lab ID: 1806075024 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006647** Collected: 02/23/2018
Lab ID: 1806075025 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006648** Collected: 02/23/2018
Lab ID: 1806075026 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006649** Collected: 02/23/2018
Lab ID: 1806075027 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.41**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006650**			Collected: 02/23/2018
Lab ID: 1806075028	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.53**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006651**			Collected: 02/23/2018
Lab ID: 1806075029	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.56**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006652**			Collected: 02/23/2018
Lab ID: 1806075030	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.50**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006653**			Collected: 02/23/2018
Lab ID: 1806075031	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.59**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006654**			Collected: 02/23/2018
Lab ID: 1806075032	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.58**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006655**			Collected: 02/23/2018
Lab ID: 1806075033	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.43**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006656**			Collected: 02/23/2018
Lab ID: 1806075034	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.64**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006657**			Collected: 02/23/2018
Lab ID: 1806075035	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: Amines-VOA Aliphatic VAA-1	**Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]**		**Instrument: HPLC11**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/04/2018 (209596)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.70**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: 34-1806075
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006658** Collected: 02/23/2018
Lab ID: 1806075036 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.61**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006659** Collected: 02/23/2018
Lab ID: 1806075037 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.52**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006660** Collected: 02/23/2018
Lab ID: 1806075038 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.56**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006661** Collected: 02/23/2018
Lab ID: 1806075039 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.53**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806075**
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006662** Collected: 02/23/2018
Lab ID: 1806075040 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209596)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**1.0**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Comments

Quality Control: Amines-VOA Aliphatic VAA-1 - (HBN: 209595)

Amines-VOA Aliphatic VAA-1 is a panel of amines analyzed by modified methods OSHA 34, OSHA 36, and OSHA 40. The modifications to both the prep and analytical procedures allow Dimethylamine, Ethylamine, and Methylamine to be analyzed together in a single analytical run.

Quality Control: Amines-VOA Aliphatic VAA-1 - (HBN: 209596)

Amines-VOA Aliphatic VAA-1 is a panel of amines analyzed by modified methods OSHA 34, OSHA 36, and OSHA 40. The modifications to both the prep and analytical procedures allow Dimethylamine, Ethylamine, and Methylamine to be analyzed together in a single analytical run.

Report Authorization (*/S/* is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
Amines-VOA Aliphatic VAA-1	/S/ Stephen Brose 03/06/2018 14:23	/S/ Thomas Bosch 03/08/2018 10:38

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1806075
Client Project ID: 20180584
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806075

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH Aliphatic Amines
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18087 (HBN: 209595)
	Prepared By: NA	**Analyzed By:** Stephen Brose

Blank

LMB: 589577
Analyzed: 03/03/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

LMB: 589588
Analyzed: 03/03/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589578
Analyzed: 03/03/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589579
Analyzed: 03/03/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Dimethylamine	5.49	5.00	110	60.4	134.6	4.83	96.5	13.0	0.0	20.0
Ethylamine	3.41	5.00	68.2	40.0	160.0	3.54	70.7	3.64	0.0	20.0
Methylamine	3.70	5.00	73.9	40.0	160.0	3.74	74.8	1.16	0.0	20.0

LCS: 589589
Analyzed: 03/03/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589590
Analyzed: 03/03/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Dimethylamine	4.39	5.00	87.7	60.4	134.6	4.62	92.4	5.20	0.0	20.0
Ethylamine	4.35	5.00	86.9	40.0	160.0	4.62	92.4	6.10	0.0	20.0
Methylamine	4.37	5.00	87.5	40.0	160.0	4.56	91.2	4.16	0.0	20.0

Comments

Amines-VOA Aliphatic VAA-1 is a panel of amines analyzed by modified methods OSHA 34, OSHA 36, and OSHA 40. The modifications to both the prep and analytical procedures allow Dimethylamine, Ethylamine, and Methylamine to be analyzed together in a single analytical run.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806075

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH Aliphatic Amines
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18087 (HBN: 209595)
	Prepared By: NA	**Analyzed By:** Stephen Brose

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
03/06/2018 09:44	03/06/2018 13:30

Symbols and Definitions

- *- Analyte above reporting limit or outside of control limits
- ▲- Sample result is greater than 4 times the spike added
- ⬢- Sample and Matrix Duplicate less than 5 times the reporting limit
- ●- Result is above the calibration range
- #- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806075

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH Aliphatic Amines
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18038 (HBN: 209586)
	Prepared By: NA	**Analyzed By:** Stephen Brose

Blank

LMB: 589581
Analyzed: 03/04/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589582
Analyzed: 03/04/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589583
Analyzed: 03/04/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	LCS Result	Target	% Rec	QC Limits		LCSD Result	% Rec	RPD	QC Limits	
Dimethylamine	5.04	5.00	101	60.4	134.6	5.11	102	1.26	0.0	20.0
Ethylamine	3.84	5.00	76.7	40.0	160.0	3.75	74.9	2.38	0.0	20.0
Methylamine	3.65	5.00	72.9	40.0	160.0	3.74	74.9	2.66	0.0	20.0

Comments

Amines-VOA Aliphatic VAA-1 is a panel of amines analyzed by modified methods OSHA 34, OSHA 36, and OSHA 40. The modifications to both the prep and analytical procedures allow Dimethylamine, Ethylamine, and Methylamine to be analyzed together in a single analytical run.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
03/06/2018 14:23	03/08/2018 10:37

Symbols and Definitions

- ✱ - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806075

1806075

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180584

Page 1 of 4

Assembler: N/A			
Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771640872264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative	
	S18T006623	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-BA-EF	N/A	1
	S18T006624	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-BA-IN	N/A	2
	S18T006625	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-BL-EF	N/A	3
	S18T006626	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-BL-IN	N/A	4
	S18T006627	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-1	N/A	5
	S18T006628	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-2	N/A	6
	S18T006629	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-3	N/A	7
	S18T006630	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-4	N/A	8
	S18T006631	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-5	N/A	9
	S18T006632	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-6	N/A	10

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Don Singleton		2-28-18 0830	JA Gradisher WRPS	JA Gradisher		2/28/18 0930
Relinquished By	JA Gradisher WRPS		Date/Time	Received By			Date/Time
			2/28/18 1400		FEDEX		
Relinquished By			Date/Time	Received By			Date/Time
	FEDEX						03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed		3/2/18

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180584
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006633	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-7	N/A 11
	S18T006634	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-EF-8	N/A 12
	S18T006635	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-1	N/A 13
	S18T006636	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-2	N/A 14
	S18T006637	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-3	N/A 15
	S18T006638	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-4	N/A 16
	S18T006639	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-5	N/A 17
	S18T006640	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-6	N/A 18
	S18T006641	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-7	N/A 19
	S18T006642	VA	2/23/18		XAD-7-NBD	AMINES 18-01494-4-SD1-IN-8	N/A 20

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS: Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email CONTRACT 55502

RELEASE 15

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Don Sanderson			2-28-18 0930	JA Gradisher WRPS			2/28/18 0930
Relinquished By JA Gradisher WRPS			Date/Time 2/28/18 1400	Received By FEDEX			Date/Time
Relinquished By Fedex			Date/Time	Received By Desiree Hill			Date/Time 03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed		3/2/18

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180584
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS- 033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006643	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-BA-EF	N/A 21
	S18T006644	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-BA-IN	N/A 22
	S18T006645	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-BL-EF	N/A 23
	S18T006646	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-BL-IN	N/A 24
	S18T006647	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-1	N/A 25
	S18T006648	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-2	N/A 26
	S18T006649	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-3	N/A 27
	S18T006650	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-4	N/A 28
	S18T006651	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-5	N/A 29
	S18T006652	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-6	N/A 30

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
KeishaR_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Don Brenan		2/28/18 0930	JA Gradisher WRPS			2/28/18 0930
Relinquished By JA Gradisher WRPS			2/28/18 1400	Received By FEDEX			Date/Time
Relinquished By	Fedex		Date/Time	Received By	DeAnne Hill		03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure)	Disposed By	Date/Time
	Consumed		3/2/18

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180584
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB2C
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006653	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-7	N/A 31
	S18T006654	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-EF-8	N/A 32
	S18T006655	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-1	N/A 33
	S18T006656	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-2	N/A 34
	S18T006657	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-3	N/A 35
	S18T006658	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-4	N/A 36
	S18T006659	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-5	N/A 37
	S18T006660	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-6	N/A 38
	S18T006661	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-7	N/A 39
	S18T006662	VA	2/23/18		XAD-7-NBD	AMINES 18-01496-5-TL1-IN-8	N/A 40

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/18 9:30

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed — Disposed By: — Date/Time: 3/2/18

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 08, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006663** Collected: 02/24/2018
Lab ID: 1806078001 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: Amines-VOA Aliphatic VAA-1 **Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]** **Instrument: HPLC11**
Sampling Info: Air Volume Not Provided **Analyzed: 03/04/2018 (209645)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006664** Collected: 02/24/2018
Lab ID: 1806078002 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: Amines-VOA Aliphatic VAA-1 **Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]** **Instrument: HPLC11**
Sampling Info: Air Volume Not Provided **Analyzed: 03/04/2018 (209645)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006665** Collected: 02/24/2018
Lab ID: 1806078003 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: Amines-VOA Aliphatic VAA-1 **Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]** **Instrument: HPLC11**
Sampling Info: Air Volume Not Provided **Analyzed: 03/04/2018 (209645)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006666** Collected: 02/24/2018
Lab ID: 1806078004 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006667** Collected: 02/24/2018
Lab ID: 1806078005 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.32**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006668** Collected: 02/24/2018
Lab ID: 1806078006 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.53**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006669** Collected: 02/24/2018
Lab ID: 1806078007 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.60**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006670** Collected: 02/24/2018
Lab ID: 1806078008 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.49**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006671** Collected: 02/24/2018
Lab ID: 1806078009 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.55**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006672** Collected: 02/24/2018
Lab ID: 1806078010 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.49**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006673** Collected: 02/24/2018
Lab ID: 1806078011 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.52**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006674** Collected: 02/24/2018
Lab ID: 1806078012 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.49**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006675** Collected: 02/24/2018
Lab ID: 1806078013 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006676** Collected: 02/24/2018
Lab ID: 1806078014 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.72**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006677** Collected: 02/24/2018
Lab ID: 1806078015 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.48**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006678** Collected: 02/24/2018
Lab ID: 1806078016 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.32**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006679** Collected: 02/24/2018
Lab ID: 1806078017 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.62**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006680** Collected: 02/24/2018
Lab ID: 1806078018 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.70**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006681** Collected: 02/24/2018
Lab ID: 1806078019 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.52**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006682** Collected: 02/24/2018
Lab ID: 1806078020 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/04/2018 (209645)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.77**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006683** Collected: 02/24/2018
Lab ID: 1806078021 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.14**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006684** Collected: 02/24/2018
Lab ID: 1806078022 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.21**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006685** Collected: 02/24/2018
Lab ID: 1806078023 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006686** Collected: 02/24/2018
Lab ID: 1806078024 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006687** Collected: 02/24/2018
Lab ID: 1806078025 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.58**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006688** Collected: 02/24/2018
Lab ID: 1806078026 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.56**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006689** Collected: 02/24/2018
Lab ID: 1806078027 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.47**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006690** Collected: 02/24/2018
Lab ID: 1806078028 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.64**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006691** Collected: 02/24/2018
Lab ID: 1806078029 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.49**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006692** Collected: 02/24/2018
Lab ID: 1806078030 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.46**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006693** Collected: 02/24/2018
Lab ID: 1806078031 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.59**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006694** Collected: 02/24/2018
Lab ID: 1806078032 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.48**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006695** Collected: 02/24/2018
Lab ID: 1806078033 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.41**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006696** Collected: 02/24/2018
Lab ID: 1806078034 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006697** Collected: 02/24/2018
Lab ID: 1806078035 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.27**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006698** Collected: 02/24/2018
Lab ID: 1806078036 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.44**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006699** Collected: 02/24/2018
Lab ID: 1806078037 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.38**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006700** Collected: 02/24/2018
Lab ID: 1806078038 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.37**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T006701** Collected: 02/24/2018
Lab ID: 1806078039 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.21**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1806078**
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006702** Collected: 02/24/2018
Lab ID: 1806078040 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/05/2018 (209646)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	**0.68**	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Comments

Workorder: 1806078

Amines-VOA Aliphatic VAA-1 is a panel of amines analyzed by modified methods OSHA 34, OSHA 36, and OSHA 40. The modifications to both the prep and analytical procedures allow Dimethylamine, Ethylamine, and Methylamine to be analyzed together in a single analytical run

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
Amines-VOA Aliphatic VAA-1	/S/ Stephen Brose 03/08/2018 12:17	/S/ Thomas Bosch 03/08/2018 12:50

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1806078
Client Project ID: 20180585
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806078

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: IH Aliphatic Amines
Batch: ILC/18097 (HBN: 209645)
Analyzed By: Stephen Brose

Blank

LMB: 590369
Analyzed: 03/04/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589665
Analyzed: 03/04/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589666
Analyzed: 03/04/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Dimethylamine	4.11	5.00	82.2	60.4	134.6	4.24	84.7	3.07	0.0	20.0
Ethylamine	4.06	5.00	81.2	40.0	160.0	4.11	82.2	1.16	0.0	20.0
Methylamine	4.71	5.00	94.1	40.0	160.0	4.33	86.5	8.38	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
03/08/2018 11:09	03/08/2018 12:47

Symbols and Definitions

- ✱ - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806078

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: IH Aliphatic Amines
Batch: ILC/18098 (HBN: 209648)
Analyzed By: Stephen Brose

Blank

LMB: 589668
Analyzed: 03/05/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589669
Analyzed: 03/05/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589670
Analyzed: 03/05/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Dimethylamine	4.84	5.00	96.8	60.4	134.6	4.89	97.7	0.991	0.0	20.0
Ethylamine	3.72	5.00	74.5	40.0	160.0	3.64	72.8	2.30	0.0	20.0
Methylamine	3.63	5.00	72.7	40.0	160.0	3.83	76.5	5.17	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
03/08/2018 12:17	03/08/2018 12:50

Symbols and Definitions

- ✱ - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806078

1806078

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180585
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771640807 226A	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 943672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006663	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-BA-EF	N/A
	S18T006664	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-BA-IN	N/A
	S18T006665	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-BL-EF	N/A
	S18T006666	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-BL-IN	N/A
	S18T006667	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-1	N/A
	S18T006668	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-2	N/A
	S18T006669	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-3	N/A
	S18T006670	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-4	N/A
	S18T006671	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-5	N/A
	S18T006672	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl N Howald@rl.gov and
Keisha R Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Leslie DIAC	Leslie Diac	2/28/18 0930	JA Gradisher WRPS	JA Gradisher	JA Gradisher	2/28/18 0930
JA Gradisher WRPS	JA Gradisher	JA Gradisher	2/28/18 1400				
	Fedex			FEDEX			
				Desiree Hill	Desiree Hill	Desiree Hill	03/01/18 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure): Consumed — Disposed By: — Date/Time: 3/2/18

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180585
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 743672
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 7716 4087 22A

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006673	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-7	N/A
	S18T006674	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-EF-8	N/A
	S18T006675	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-1	N/A
	S18T006676	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-2	N/A
	S18T006677	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-3	N/A
	S18T006678	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-4	N/A
	S18T006679	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-5	N/A
	S18T006680	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-6	N/A
	S18T006681	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-7	N/A
	S18T006682	VA	2/24/18		XAD-7-NBD	AMINES 18-01495-4-SC1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ	2/28/18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
FedEx		Desmett III	03/01/18 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed — Disposed By — Date/Time: 3/2/18

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180585
		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861 MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-210	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 43672
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 7716 4087 2264

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006683	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-BA-EF	N/A
	S18T006684	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-BA-IN	N/A
	S18T006685	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-BL-EF	N/A
	S18T006686	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-BL-IN	N/A
	S18T006687	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-1	N/A
	S18T006688	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-2	N/A
	S18T006689	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-3	N/A
	S18T006690	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-4	N/A
	S18T006691	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-5	N/A
	S18T006692	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Leslie DIAZ		2-28-18 0930		JA Gradisher WRPS		2/28/18 0930
Relinquished By	JA Gradisher WRPS		2/28/18 1400	Received By	FEDEX		Date/Time
Relinquished By	Fedex		Date/Time	Received By			3/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed		3/2/18

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180585
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: HJS-033 Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 43672
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 7716 4087 226A

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006693	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-7	N/A
	S18T006694	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-EF-8	N/A
	S18T006695	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-1	N/A
	S18T006696	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-2	N/A
	S18T006697	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-3	N/A
	S18T006698	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-4	N/A
	S18T006699	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-5	N/A
	S18T006700	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-6	N/A
	S18T006701	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-7	N/A
	S18T006702	VA	2/24/18		XAD-7-NBD	AMINES 18-01497-5-TL2-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl W Howald@rl.gov and
KeishaR Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ	2/28/18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/2018 9:55

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure) used in process — Disposed By — Date/Time 3/2/18

consumed

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

C.4.6 Acetonitrile

ANALYTICAL REPORT

Report Date: March 09, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1806053
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S18T006463				Collected: 02/23/2018
Lab ID: 1806053001	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			Instrument: GCI02
	Sampling Info: Air Volume Not Provided			Analyzed: 03/07/2018 (209904)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S18T006464				Collected: 02/23/2018
Lab ID: 1806053002	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			Instrument: GCI02
	Sampling Info: Air Volume Not Provided			Analyzed: 03/07/2018 (209904)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S18T006465				Collected: 02/23/2018
Lab ID: 1806053003	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			Instrument: GCI02
	Sampling Info: Air Volume Not Provided			Analyzed: 03/07/2018 (209904)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006466**				Collected: 02/23/2018
Lab ID: 1806053004	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006467**				Collected: 02/23/2018
Lab ID: 1806053005	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006468**				Collected: 02/23/2018
Lab ID: 1806053006	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006469**				Collected: 02/23/2018
Lab ID: 1806053007	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006470**				Collected: 02/23/2018
Lab ID: 1806053008	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006471**				Collected: 02/23/2018
Lab ID: 1806053009	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006472**				Collected: 02/23/2018
Lab ID: 1806053010	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006473**				Collected: 02/23/2018
Lab ID: 1806053011	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006474**				Collected: 02/23/2018
Lab ID: 1806053012	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006475**				Collected: 02/23/2018
Lab ID: 1806053013	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006476**				Collected: 02/23/2018
Lab ID: 1806053014	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006477**				Collected: 02/23/2018
Lab ID: 1806053015	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006478**				Collected: 02/23/2018
Lab ID: 1806053016	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006479**				Collected: 02/23/2018
Lab ID: 1806053017	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006480**				Collected: 02/23/2018
Lab ID: 1806053018	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006481**				Collected: 02/23/2018
Lab ID: 1806053019	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006482**				Collected: 02/23/2018
Lab ID: 1806053020	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209904)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006483**				Collected: 02/23/2018
Lab ID: 1806053021	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006484**				Collected: 02/23/2018
Lab ID: 1806053022	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006485**				Collected: 02/23/2018
Lab ID: 1806053023	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006486**				Collected: 02/23/2018
Lab ID: 1806053024	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006487**				Collected: 02/23/2018
Lab ID: 1806053025	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006488**				Collected: 02/23/2018
Lab ID: 1806053026	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006489**				Collected: 02/23/2018
Lab ID: 1806053027	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006490**				Collected: 02/23/2018
Lab ID: 1806053028	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006491**				Collected: 02/23/2018
Lab ID: 1806053029	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006492**				Collected: 02/23/2018
Lab ID: 1806053030	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006493**				Collected: 02/23/2018
Lab ID: 1806053031	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006494**				Collected: 02/23/2018
Lab ID: 1806053032	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006495**				Collected: 02/23/2018
Lab ID: 1806053033	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006496**				Collected: 02/23/2018
Lab ID: 1806053034	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006497**				Collected: 02/23/2018
Lab ID: 1806053035	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006498**				Collected: 02/23/2018
Lab ID: 1806053036	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006499**				Collected: 02/23/2018
Lab ID: 1806053037	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006500**				Collected: 02/23/2018
Lab ID: 1806053038	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209919)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806053**
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006501**			Collected: 02/23/2018
Lab ID: 1806053039	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**		**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209919)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006502**			Collected: 02/23/2018
Lab ID: 1806053040	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**		**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209919)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Report Authorization (*/S/* is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1606	*/S/* Young Hee Yoon 03/09/2018 10:44	*/S/* Lyle Edwards 03/09/2018 11:28

Laboratory Contact Information

ALS Environmental
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ANALYTICAL REPORT

Workorder: 34-1806053
Client Project ID: 20180580
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806053

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: IH GC-FID QC
Batch: IFID/9358 (HBN: 209904)
Analyzed By: Young Hee Yoon

Blank

MB: 590181
Analyzed: 03/07/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590182
Analyzed: 03/07/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590183
Analyzed: 03/07/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Acetonitrile	0.325	0.312	104	86.6	115.3	0.315	101	3.13	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Young Hee Yoon	/S/ Lyle Edwards
03/09/2018 10:44	03/09/2018 11:26

Symbols and Definitions

*- Analyte above reporting limit or outside of control limits
▲- Sample result is greater than 4 times the spike added
●- Sample and Matrix Duplicate less than 5 times the reporting limit
◆- Result is above the calibration range
#- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806053

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: IH GC-FID QC
Batch: IFID/9360 (HBN: 209919)
Analyzed By: Young Hee Yoon

Blank

MB: 590215
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590216
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590217
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Acetonitrile	0.317	0.312	102	86.6	115.3	0.323	104	1.88	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Young Hee Yoon 03/09/2018 10:21	/S/ Lyle Edwards 03/09/2018 11:28

Symbols and Definitions

*- Analyte above reporting limit or outside of control limits
▲- Sample result is greater than 4 times the spike added
●- Sample and Matrix Duplicate less than 5 times the reporting limit
●- Result is above the calibration range
#- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806053

1806053

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180580
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-02 FAX: 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	22 total Sample Analysis	Preservative
1	S18T006463	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-BA-EF	N/A
2	S18T006464	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-BA-IN	N/A
3	S18T006465	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-BL-EF	N/A
4	S18T006466	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-BL-IN	N/A
5	S18T006467	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-1	N/A
6	S18T006468	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-2	N/A
7	S18T006469	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-3	N/A
8	S18T006470	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-4	N/A
9	S18T006471	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-5	N/A
10	S18T006472	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

Samples S18T006480, S18T006492 & S18T006494 Arrived with vent cap missing DH 3-1-18

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl.W.Howald@rl.gov and Keisha.R.Garcia@rl.gov ToF email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
FedEx		Renee Hill	03/01/18 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: [illegible] March 9, 2018 10:00 AM

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180580
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006473	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-7	N/A
12	S18T006474	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-EF-8	N/A
13	S18T006475	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-1	N/A
14	S18T006476	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-2	N/A
15	S18T006477	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-3	N/A
16	S18T006478	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-4	N/A
17	S18T006479	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-5	N/A
18	S18T006480	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-6	N/A
19	S18T006481	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-7	N/A
20	S18T006482	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01494-5-SD1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov for email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz	2/28/18 09:30	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
FedEx		Dennie Hill	03/01/18 9:50

Matrix*: S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; VA = Vapor; X = Other

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: [illegible] March 9, 2018 10:00 Am

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler: N/A		C.O.C. No. 20180580	Page 3 of 4
Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. On Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006483	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-BA-EF	N/A
22	S18T006484	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-BA-IN	N/A
23	S18T006485	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-BL-EF	N/A
24	S18T006486	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-BL-IN	N/A
25	S18T006487	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-1	N/A
26	S18T006488	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-2	N/A
27	S18T006489	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-3	N/A
28	S18T006490	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-4	N/A
29	S18T006491	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-5	N/A
30	S18T006492	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov For email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz / Leslie Diaz	2-28-18 0930	JA Gradisher WRPS / Ja Gradisher 2/28/18	0930
JA Gradisher WRPS / Ja Gradisher	2/28/18 1400	FEDEX	
Fedex		Desiree Hill / Desiree Hill	03/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Yong Nam Yom — Date/Time: March 9, 2018 10:00 am

...ntaining hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180580
		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861 MSIN: T6-02 FAX: 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 743672
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: T716 4087 2264

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006493	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-7	N/A
32 *	S18T006494	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-EF-8	N/A
33	S18T006495	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-1	N/A
34	S18T006496	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-2	N/A
35	S18T006497	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-3	N/A
36	S18T006498	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-4	N/A
37	S18T006499	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-5	N/A
38	S18T006500	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-6	N/A
39	S18T006501	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-7	N/A
40	S18T006502	VA	02/23/18		CHARCOAL TUBE	Acetonitrile 18-01496-6-TL1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_B_Garcia@rl.gov for email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz / Leslie Diaz	2/28/18 0930	JA Gradisher WRPS / JA Gradisher	2/28/18 0930
JA Gradisher WRPS / JA Gradisher	2/28/18 1400	FEDEX	
Fedex		Desmett / Desmett	03/01/18 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: [illegible] March 9, 2018 — Date/Time: 10:00 AM

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

2/28/2018

ANALYTICAL REPORT

Report Date: March 09, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006503**				Collected: 02/24/2018
Lab ID: 1806076001	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006504**				Collected: 02/24/2018
Lab ID: 1806076002	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006505**				Collected: 02/24/2018
Lab ID: 1806076003	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006506**				Collected: 02/24/2018
Lab ID: 1806076004	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006507**				Collected: 02/24/2018
Lab ID: 1806076005	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006508**				Collected: 02/24/2018
Lab ID: 1806076006	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006509**				Collected: 02/24/2018
Lab ID: 1806076007	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006510**				Collected: 02/24/2018
Lab ID: 1806076008	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006511**				Collected: 02/24/2018
Lab ID: 1806076009	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006512**				Collected: 02/24/2018
Lab ID: 1806076010	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006513**				Collected: 02/24/2018
Lab ID: 1806076011	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006514**				Collected: 02/24/2018
Lab ID: 1806076012	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006515**				Collected: 02/24/2018
Lab ID: 1806076013	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006516**				Collected: 02/24/2018
Lab ID: 1806076014	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006517**				Collected: 02/24/2018
Lab ID: 1806076015	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006518**				Collected: 02/24/2018
Lab ID: 1806076016	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006519**				Collected: 02/24/2018
Lab ID: 1806076017	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006520**				Collected: 02/24/2018
Lab ID: 1806076018	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006521**				Collected: 02/24/2018
Lab ID: 1806076019	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006522**				Collected: 02/24/2018
Lab ID: 1806076020	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/04/2018 (209674)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006523**				Collected: 02/24/2018
Lab ID: 1806076021	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006524**				Collected: 02/24/2018
Lab ID: 1806076022	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006525**				Collected: 02/24/2018
Lab ID: 1806076023	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	**0.011**	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006526**				Collected: 02/24/2018
Lab ID: 1806076024	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006527**				Collected: 02/24/2018
Lab ID: 1806076025	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006528**				Collected: 02/24/2018
Lab ID: 1806076026	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006529**				Collected: 02/24/2018
Lab ID: 1806076027	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006530**				Collected: 02/24/2018
Lab ID: 1806076028	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006531**				Collected: 02/24/2018
Lab ID: 1806076029	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006532**				Collected: 02/24/2018
Lab ID: 1806076030	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006533**				Collected: 02/24/2018
Lab ID: 1806076031	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006534**				Collected: 02/24/2018
Lab ID: 1806076032	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006535**				Collected: 02/24/2018
Lab ID: 1806076033	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006536**				Collected: 02/24/2018
Lab ID: 1806076034	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	**0.013**	NA	NA	0.010

Sample ID: **S18T006537**				Collected: 02/24/2018
Lab ID: 1806076035	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006538**				Collected: 02/24/2018
Lab ID: 1806076036	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006539**				Collected: 02/24/2018
Lab ID: 1806076037	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006540**				Collected: 02/24/2018
Lab ID: 1806076038	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209838)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1806076**
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006541**			Collected: 02/24/2018
Lab ID: 1806076039	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**		**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209838)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T006542**			Collected: 02/24/2018
Lab ID: 1806076040	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**		**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209838)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Comments

Sample: 1806076023

The reported amount of acetonitrile was found in the B section.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1606	/S/ Young Hee Yoon 03/09/2018 11:44	/S/ Lyle Edwards 03/09/2018 12:12

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1806076
Client Project ID: 20180581
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806076

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: IH GC-FID QC
Batch: IFID/9343 (HBN: 209674)
Analyzed By: Young Hee Yoon

Blank

MB: 589748
Analyzed: 03/04/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589749
Analyzed: 03/04/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 589750
Analyzed: 03/04/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Acetonitrile	0.311	0.312	99.7	86.6	115.3	0.291	93.3	6.64	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Young Hee Yoon 03/09/2018 11:44	/S/ Lyle Edwards 03/09/2018 12:12

Symbols and Definitions

*- Analyte above reporting limit or outside of control limits
▲- Sample result is greater than 4 times the spike added
●- Sample and Matrix Duplicate less than 5 times the reporting limit
●- Result is above the calibration range
#- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806076

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9357 (HBN: 209838)
	Prepared By: NA	**Analyzed By:** Young Hee Yoon

Blank

MB: 590083
Analyzed: 03/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590084
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590085
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Acetonitrile	0.352	0.312	113	86.6	115.3	0.313	100	11.7	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Young Hee Yoon	/S/ Lyle Edwards
03/09/2018 11:05	03/09/2018 11:33

Symbols and Definitions

*- Analyte above reporting limit or outside of control limits
▲- Sample result is greater than 4 times the spike added
●- Sample and Matrix Duplicate less than 5 times the reporting limit
◆- Result is above the calibration range
#- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806076

1806076

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler: N/A		C.O.C. No. 20180581 — Page 1 of 4
Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 — MSIN T6-02 — FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 — Temp. ON ICC
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 226A
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T006503	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-BA-EF	N/A
2	S18T006504	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-BA-IN	N/A
3	S18T006505	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-BL-EF	N/A
4	S18T006506	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-BL-IN	N/A
5	S18T006507	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-1	N/A
6	S18T006508	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-2	N/A
7	S18T006509	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-3	N/A
8	S18T006510	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-4	N/A
9	S18T006511	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-5	N/A
10	S18T006512	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	2-28-18 0930	JA Gradisher WRPS / J A Gradisher 2/28/18	0930
JA Gradisher WRPS / J A Gradisher 2/28/18	1400	FEDEX	
Fedex		Desiree Hill	03/01/18 9:50

Matrix*
S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, VA = Vapor, X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Young Na Chom — Date/Time: March 9, 2018, 10:30 am

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180581
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006513	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-7	N/A
12	S18T006514	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-EF-8	N/A
13	S18T006515	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-1	N/A
14	S18T006516	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-2	N/A
15	S18T006517	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-3	N/A
16	S18T006518	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-4	N/A
17	S18T006519	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-5	N/A
18	S18T006520	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-6	N/A
19	S18T006521	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-7	N/A
20	S18T006522	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01495-5-SC1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov ToF email

RELEASE 15
Reference Contract # 55502

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Don Ericson		2-28-18 0930	JA Gradisher WRPS		JA Gradisher 2/28/18	0930
Relinquished By JA Gradisher WRPS		JA Gradisher 2/28/18	1400	Received By			Date/Time
Relinquished By		Fedex	Date/Time	Received By FEDEX			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time: March 9, 2018 10:2 Am

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180581
		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN P6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006523	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-BA-EF	N/A
22	S18T006524	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-BA-IN	N/A
23	S18T006525	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-BL-EF	N/A
24	S18T006526	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-BL-IN	N/A
25	S18T006527	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-1	N/A
26	S18T006528	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-2	N/A
27	S18T006529	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-3	N/A
28	S18T006530	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-4	N/A
29	S18T006531	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-5	N/A
30	S18T006532	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS: Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D Swenson		2-28-18 0930	JA Gradisher WRPS			2/28/18 0930
Relinquished By	JA Gradisher WRPS		Date/Time 2/28/18 1430	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By			Date/Time 03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: [illegible] March 8, 2018 10:00 Am — Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-982 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180561
		Page 4 of 4

Collector: MAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTT-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006533	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-7 '	N/A
32	S18T006534	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-EF-8 -	N/A
33	S18T006535	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-1 ,	N/A
34	S18T006536	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-2 .	N/A
35	S18T006537	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-3 /	N/A
36	S18T006538	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-4 :	N/A
37	S18T006539	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-5 ;	N/A
38	S18T006540	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-6 ?	N/A
39	S18T006541	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-7 !	N/A
40	S18T006542	VA	02/24/18		CHARCOAL TUBE	Acetonitrile 18-01497-6-TL2-IN-8 ,	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS: Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov ToE email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Gordon	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
FedEx		Desiree Hill	03/01/18 9:30

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time: March 9, 2018 10:00 AM

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

C.4.7 Mercury

FINAL REPORT ON MERCURY VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED FEBRUARY 23-24, 2018

Document No.: 20180597 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
March 28, 2018

Prepared for:

washington river protection solutions

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March 28, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON MERCURY VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED FEBRUARY 23-24, 2018**

This final report presents the results of seventy-nine mercury vapor tubes received at the 222-S Laboratory on February 26, 2018, in good condition and with adequate paperwork. The mercury vapor tubes were logged into sample delivery group 20180597.

DISCLAIMERS

- The information contained in this report is intended only for the use of the addressee and should be considered confidential.
- This report shall not be reproduced, except in full, without written approval of the laboratory.
- The results shown in this report pertain only to the actual samples tested.
- These results conform to the requirements specified in the referenced methods/procedures and specifications provided verbally or electronically by the customer. Any deviations or modifications are discussed in the following narrative.
- This report only addresses laboratory activities related to the listed surveys. Requirements or anomalies concerning field sampling are not addressed in this report.

PROCEDURES

Method	Preparation Procedure	Analysis Procedure
Mercury by OSHA ID-140	LA-325-109, Rev. 2-5	LA-325-109, Rev. 2-5

ANALYTICAL SUMMARY

The vapor tubes were tested for mercury, as specified on the chain of custody. Standard laboratory procedures for digestions and cold vapor atomic absorption for mercury were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control standards (LCS). For mercury, the results of 178 LCS determinations indicate a mean recovery of 98% with a standard deviation of 6%. Statistical process control limits for the LCS are 80-108.7%, with no significant bias. The overall estimate of uncertainty is 12%, with coverage factor (k) = 2.

Background levels of mercury or interfering compounds can be present in the sorbent tube media used for collecting vapor samples. OSHA ID-140 recommends that the laboratory determine the average background for each lot of media and subtract it from the sample results prior to reporting. However, per agreement with the client, this background is being determined by the client using blank media submitted as blind samples to the laboratory. Any blank subtraction from the sample results will be performed by the client. The laboratory is using the same media

for QC samples. These QC samples may not match the lot numbers of the samples being submitted and the background for this QC sample media has not been determined. Over the past several years the results from preparation blanks, field blanks, and the vast majority of samples have been below the laboratory's method detection limit, which is an order of magnitude below the reporting limit. In general, the laboratory believes there is no need for background subtraction using the current sample media (Hydrar, SKC 226-17-1A).

Client sample ID 18-01496-7-tl1-in-4, was not a Hg Vapor Tube and therefore was not prepped or analyzed, resulting in only seventy-eight samples in this group being reported.

Sixty-four of the seventy-eight mercury results for this sample group were below the reporting limit of 0.05 µg/sample. Fifteen of the seventy-eight mercury results for sample group 20180597 were above the reporting limit of 0.05 µg per sample. For these samples, the total result includes the contribution from the back glass wool portion even though the back glass wool portion result is lower than the reporting limit (see Attachment 1).

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180597

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-01494-6-sd1-ba-ef	Total	S18T007229	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ba-ef	Resin	S18T007230	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ba-ef	Glass Wool	S18T007231	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ba-in	Total	S18T007232	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ba-in	Resin	S18T007233	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ba-in	Glass Wool	S18T007234	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-bl-ef	Total	S18T007235	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-bl-ef	Resin	S18T007236	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-bl-ef	Glass Wool	S18T007237	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-bl-in	Total	S18T007238	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-bl-in	Resin	S18T007239	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-bl-in	Glass Wool	S18T007240	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-1	Total	S18T007241	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-1	Resin	S18T007242	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-1	Glass Wool	S18T007243	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-2	Total	S18T007244	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-2	Resin	S18T007245	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-2	Glass Wool	S18T007246	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-3	Total	S18T007247	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-3	Resin	S18T007248	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-3	Glass Wool	S18T007249	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-4	Total	S18T007250	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-4	Resin	S18T007251	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-4	Glass Wool	S18T007252	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-5	Total	S18T007253	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-5	Resin	S18T007254	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-5	Glass Wool	S18T007255	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-7	Total	S18T007256	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-7	Resin	S18T007257	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-7	Glass Wool	S18T007258	Mercury	ug/sample	93.2	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-8	Total	S18T007259	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-8	Resin	S18T007260	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-ef-8	Glass Wool	S18T007261	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-1	Total	S18T007262	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-1	Resin	S18T007263	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-1	Glass Wool	S18T007264	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-2	Total	S18T007265	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-2	Resin	S18T007266	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-2	Glass Wool	S18T007267	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-3	Total	S18T007270	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-3	Resin	S18T007272	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-3	Glass Wool	S18T007273	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-4	Total	S18T007274	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-4	Resin	S18T007275	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-4	Glass Wool	S18T007276	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-5	Total	S18T007277	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-5	Resin	S18T007278	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-5	Glass Wool	S18T007279	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-6	Total	S18T007280	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-6	Resin	S18T007281	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-6	Glass Wool	S18T007282	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180597

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-01494-6-sd1-in-7	Total	S18T007283	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-7	Resin	S18T007284	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-7	Glass Wool	S18T007285	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-8	Total	S18T007286	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-8	Resin	S18T007287	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01494-6-sd1-in-8	Glass Wool	S18T007288	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ba-ef	Total	S18T007332	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ba-ef	Resin	S18T007333	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ba-ef	Glass Wool	S18T007334	Mercury	ug/sample	94.8	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ba-in	Total	S18T007339	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ba-in	Resin	S18T007348	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ba-in	Glass Wool	S18T007357	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-bl-ef	Total	S18T007360	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-bl-ef	Resin	S18T007361	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-bl-ef	Glass Wool	S18T007362	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-bl-in	Total	S18T007363	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-bl-in	Resin	S18T007366	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-bl-in	Glass Wool	S18T007367	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-1	Total	S18T007374	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-1	Resin	S18T007380	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-1	Glass Wool	S18T007381	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-2	Total	S18T007390	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-2	Resin	S18T007395	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-2	Glass Wool	S18T007397	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-3	Total	S18T007403	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-3	Resin	S18T007408	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-3	Glass Wool	S18T007409	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-4	Total	S18T007415	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-4	Resin	S18T007422	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-4	Glass Wool	S18T007424	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-5	Total	S18T007426	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-5	Resin	S18T007427	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-5	Glass Wool	S18T007428	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-6	Total	S18T007433	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-6	Resin	S18T007436	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-6	Glass Wool	S18T007437	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-7	Total	S18T007439	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-7	Resin	S18T007442	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-7	Glass Wool	S18T007443	Mercury	ug/sample	86.0	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-8	Total	S18T007444	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-8	Resin	S18T007450	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-ef-8	Glass Wool	S18T007452	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-1	Total	S18T007455	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-1	Resin	S18T007456	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-1	Glass Wool	S18T007457	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-SC1-IN-2	Total	S18T007559	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-SC1-IN-2	Resin	S18T007565	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-SC1-IN-2	Glass Wool	S18T007567	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-3	Total	S18T007572	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-3	Resin	S18T007573	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-3	Glass Wool	S18T007574	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180597

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-01495-6-sc1-in-4	Total	S18T007575	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-4	Resin	S18T007576	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-4	Glass Wool	S18T007577	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-5	Total	S18T007579	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-5	Resin	S18T007580	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-5	Glass Wool	S18T007581	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-6	Total	S18T007586	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-6	Resin	S18T007587	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-6	Glass Wool	S18T007588	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-7	Total	S18T007589	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-7	Resin	S18T007590	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-7	Glass Wool	S18T007591	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-8	Total	S18T007609	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-8	Resin	S18T007610	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01495-6-sc1-in-8	Glass Wool	S18T007611	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ba-ef	Total	S18T007612	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ba-ef	Resin	S18T007613	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ba-ef	Glass Wool	S18T007614	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ba-in	Total	S18T007615	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ba-in	Resin	S18T007617	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ba-in	Glass Wool	S18T007618	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-bl-ef	Total	S18T007622	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-bl-ef	Resin	S18T007628	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-bl-ef	Glass Wool	S18T007629	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-bl-in	Total	S18T007631	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-bl-in	Resin	S18T007633	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-bl-in	Glass Wool	S18T007634	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-1	Total	S18T007648	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-1	Resin	S18T007649	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-1	Glass Wool	S18T007650	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-2	Total	S18T007651	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-2	Resin	S18T007653	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-2	Glass Wool	S18T007654	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-TL1-EF-3	Total	S18T007705	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-TL1-EF-3	Resin	S18T007710	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-TL1-EF-3	Glass Wool	S18T007711	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-4	Total	S18T007713	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-4	Resin	S18T007715	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-4	Glass Wool	S18T007716	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-5	Total	S18T007718	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-5	Resin	S18T007720	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-5	Glass Wool	S18T007722	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-6	Total	S18T007724	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-6	Resin	S18T007726	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-6	Glass Wool	S18T007727	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-7	Total	S18T007729	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-7	Resin	S18T007730	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-7	Glass Wool	S18T007731	Mercury	ug/sample	85.6	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-8	Total	S18T007732	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-8	Resin	S18T007734	Mercury	ug/sample	84.5	<0.0500	<0.0500	0.0500
18-01496-7-tl1-ef-8	Glass Wool	S18T007735	Mercury	ug/sample	84.5	<0.0500	<0.0500	0.0500

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180597

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-01496-7-tl1-in-1	Total	S18T007736	Mercury	µg/sample	n/a	<0.0500	0.160	0.0500
18-01496-7-tl1-in-1	Resin	S18T007737	Mercury	µg/sample	84.5	<0.0500	0.155	0.0500
18-01496-7-tl1-in-1	Glass Wool	S18T007739	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01496-7-tl1-in-2	Total	S18T007741	Mercury	µg/sample	n/a	<0.0500	0.155	0.0500
18-01496-7-tl1-in-2	Resin	S18T007742	Mercury	µg/sample	84.5	<0.0500	0.150	0.0500
18-01496-7-tl1-in-2	Glass Wool	S18T007744	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01496-7-tl1-in-3	Total	S18T007747	Mercury	µg/sample	n/a	<0.0500	0.172	0.0500
18-01496-7-tl1-in-3	Resin	S18T007748	Mercury	µg/sample	84.5	<0.0500	0.167	0.0500
18-01496-7-tl1-in-3	Glass Wool	S18T007749	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01496-7-tl1-in-5	Total	S18T007770	Mercury	µg/sample	n/a	<0.0500	0.184	0.0500
18-01496-7-tl1-in-5	Resin	S18T007774	Mercury	µg/sample	84.5	<0.0500	0.179	0.0500
18-01496-7-tl1-in-5	Glass Wool	S18T007775	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01496-7-tl1-in-6	Total	S18T007776	Mercury	µg/sample	n/a	<0.0500	0.206	0.0500
18-01496-7-tl1-in-6	Resin	S18T007777	Mercury	µg/sample	84.5	<0.0500	0.201	0.0500
18-01496-7-tl1-in-6	Glass Wool	S18T007778	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01496-7-tl1-in-7	Total	S18T007779	Mercury	µg/sample	n/a	<0.0500	0.130	0.0500
18-01496-7-tl1-in-7	Resin	S18T007780	Mercury	µg/sample	84.5	<0.0500	0.125	0.0500
18-01496-7-tl1-in-7	Glass Wool	S18T007781	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01496-7-tl1-in-8	Total	S18T007782	Mercury	µg/sample	n/a	<0.0500	0.157	0.0500
18-01496-7-tl1-in-8	Resin	S18T007783	Mercury	µg/sample	84.5	<0.0500	0.152	0.0500
18-01496-7-tl1-in-8	Glass Wool	S18T007784	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01497-7-TL2-BA-EF	Total	S18T007914	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-TL2-BA-EF	Resin	S18T007915	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01497-7-TL2-BA-EF	Glass Wool	S18T007916	Mercury	µg/sample	84.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ba-in	Total	S18T007917	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ba-in	Resin	S18T007918	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ba-in	Glass Wool	S18T007919	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-bl-ef	Total	S18T007920	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-bl-ef	Resin	S18T007921	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-bl-ef	Glass Wool	S18T007922	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-bl-in	Total	S18T007923	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-bl-in	Resin	S18T007924	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-bl-in	Glass Wool	S18T007925	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-1	Total	S18T007926	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-1	Resin	S18T007927	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-1	Glass Wool	S18T007928	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-2	Total	S18T007929	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-2	Resin	S18T007930	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-2	Glass Wool	S18T007931	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-3	Total	S18T007932	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-3	Resin	S18T007933	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-3	Glass Wool	S18T007934	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-4	Total	S18T007935	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-4	Resin	S18T007936	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-4	Glass Wool	S18T007937	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-5	Total	S18T007938	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-5	Resin	S18T007939	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-5	Glass Wool	S18T007940	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-6	Total	S18T007941	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-6	Resin	S18T007942	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-6	Glass Wool	S18T007943	Mercury	µg/sample	88.5	<0.0500	<0.0500	0.0500

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180597

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-01497-7-tl2-ef-7	Total	S18T007944	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-7	Resin	S18T007947	Mercury	ug/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-7	Glass Wool	S18T007948	Mercury	ug/sample	88.5	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-8	Total	S18T007949	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-8	Resin	S18T007950	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-ef-8	Glass Wool	S18T007951	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-1	Total	S18T007954	Mercury	ug/sample	n/a	<0.0500	0.156	0.0500
18-01497-7-tl2-in-1	Resin	S18T007955	Mercury	ug/sample	84.4	<0.0500	0.151	0.0500
18-01497-7-tl2-in-1	Glass Wool	S18T007956	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-2	Total	S18T007957	Mercury	ug/sample	n/a	<0.0500	0.154	0.0500
18-01497-7-tl2-in-2	Resin	S18T007958	Mercury	ug/sample	84.4	<0.0500	0.149	0.0500
18-01497-7-tl2-in-2	Glass Wool	S18T007960	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-3	Total	S18T007967	Mercury	ug/sample	n/a	<0.0500	0.159	0.0500
18-01497-7-tl2-in-3	Resin	S18T007973	Mercury	ug/sample	84.4	<0.0500	0.154	0.0500
18-01497-7-tl2-in-3	Glass Wool	S18T007974	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-4	Total	S18T007975	Mercury	ug/sample	n/a	<0.0500	0.148	0.0500
18-01497-7-tl2-in-4	Resin	S18T007976	Mercury	ug/sample	84.4	<0.0500	0.143	0.0500
18-01497-7-tl2-in-4	Glass Wool	S18T007977	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-5	Total	S18T007978	Mercury	ug/sample	n/a	<0.0500	0.0921	0.0500
18-01497-7-tl2-in-5	Resin	S18T007979	Mercury	ug/sample	84.4	<0.0500	0.0871	0.0500
18-01497-7-tl2-in-5	Glass Wool	S18T007980	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-6	Total	S18T007981	Mercury	ug/sample	n/a	<0.0500	0.111	0.0500
18-01497-7-tl2-in-6	Resin	S18T007982	Mercury	ug/sample	84.4	<0.0500	0.106	0.0500
18-01497-7-tl2-in-6	Glass Wool	S18T007983	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-7	Total	S18T007985	Mercury	ug/sample	n/a	<0.0500	0.120	0.0500
18-01497-7-tl2-in-7	Resin	S18T007994	Mercury	ug/sample	84.4	<0.0500	0.115	0.0500
18-01497-7-tl2-in-7	Glass Wool	S18T007995	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
18-01497-7-tl2-in-8	Total	S18T008003	Mercury	ug/sample	n/a	<0.0500	0.120	0.0500
18-01497-7-tl2-in-8	Resin	S18T008007	Mercury	ug/sample	84.4	<0.0500	0.115	0.0500
18-01497-7-tl2-in-8	Glass Wool	S18T008009	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180597

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T007230	18-01494-6-sd1-ba-ef	Mercury	03/12/2018 08:00	03/20/2018 09:09
S18T007231	18-01494-6-sd1-ba-ef	Mercury	03/12/2018 08:00	03/20/2018 09:11
S18T007233	18-01494-6-sd1-ba-in	Mercury	03/12/2018 08:00	03/20/2018 09:12
S18T007234	18-01494-6-sd1-ba-in	Mercury	03/12/2018 08:00	03/20/2018 09:14
S18T007236	18-01494-6-sd1-bl-ef	Mercury	03/12/2018 08:00	03/20/2018 09:15
S18T007237	18-01494-6-sd1-bl-ef	Mercury	03/12/2018 08:00	03/20/2018 09:17
S18T007239	18-01494-6-sd1-bl-in	Mercury	03/12/2018 08:00	03/20/2018 09:18
S18T007240	18-01494-6-sd1-bl-in	Mercury	03/12/2018 08:00	03/20/2018 09:23
S18T007242	18-01494-6-sd1-ef-1	Mercury	03/12/2018 08:00	03/20/2018 09:25
S18T007243	18-01494-6-sd1-ef-1	Mercury	03/12/2018 08:00	03/20/2018 09:26
S18T007245	18-01494-6-sd1-ef-2	Mercury	03/12/2018 08:00	03/20/2018 09:28
S18T007246	18-01494-6-sd1-ef-2	Mercury	03/12/2018 08:00	03/20/2018 09:30
S18T007248	18-01494-6-sd1-ef-3	Mercury	03/12/2018 08:00	03/20/2018 09:31
S18T007249	18-01494-6-sd1-ef-3	Mercury	03/12/2018 08:00	03/20/2018 09:33
S18T007251	18-01494-6-sd1-ef-4	Mercury	03/12/2018 08:00	03/20/2018 09:34
S18T007252	18-01494-6-sd1-ef-4	Mercury	03/12/2018 08:00	03/20/2018 09:36
S18T007254	18-01494-6-sd1-ef-5	Mercury	03/12/2018 08:00	03/20/2018 09:37
S18T007255	18-01494-6-sd1-ef-5	Mercury	03/12/2018 08:00	03/20/2018 09:42
S18T007257	18-01494-6-sd1-ef-7	Mercury	03/12/2018 08:00	03/20/2018 09:44
S18T007258	18-01494-6-sd1-ef-7	Mercury	03/12/2018 08:00	03/20/2018 09:45
S18T007260	18-01494-6-sd1-ef-8	Mercury	03/12/2018 08:00	03/20/2018 09:52
S18T007261	18-01494-6-sd1-ef-8	Mercury	03/12/2018 08:00	03/20/2018 09:54
S18T007263	18-01494-6-sd1-in-1	Mercury	03/12/2018 08:00	03/20/2018 09:56
S18T007264	18-01494-6-sd1-in-1	Mercury	03/12/2018 08:00	03/20/2018 09:57
S18T007266	18-01494-6-sd1-in-2	Mercury	03/12/2018 08:00	03/20/2018 10:02
S18T007267	18-01494-6-sd1-in-2	Mercury	03/12/2018 08:00	03/20/2018 10:04
S18T007272	18-01494-6-sd1-in-3	Mercury	03/12/2018 08:00	03/20/2018 10:06
S18T007273	18-01494-6-sd1-in-3	Mercury	03/12/2018 08:00	03/20/2018 10:08
S18T007275	18-01494-6-sd1-in-4	Mercury	03/12/2018 08:00	03/20/2018 10:09
S18T007276	18-01494-6-sd1-in-4	Mercury	03/12/2018 08:00	03/20/2018 10:11
S18T007278	18-01494-6-sd1-in-5	Mercury	03/12/2018 08:00	03/20/2018 10:13
S18T007279	18-01494-6-sd1-in-5	Mercury	03/12/2018 08:00	03/20/2018 10:15
S18T007281	18-01494-6-sd1-in-6	Mercury	03/12/2018 08:00	03/20/2018 10:16
S18T007282	18-01494-6-sd1-in-6	Mercury	03/12/2018 08:00	03/20/2018 10:18
S18T007284	18-01494-6-sd1-in-7	Mercury	03/12/2018 08:00	03/20/2018 10:23
S18T007285	18-01494-6-sd1-in-7	Mercury	03/12/2018 08:00	03/20/2018 10:25
S18T007287	18-01494-6-sd1-in-8	Mercury	03/12/2018 08:00	03/20/2018 10:27
S18T007288	18-01494-6-sd1-in-8	Mercury	03/12/2018 08:00	03/20/2018 10:28
S18T007333	18-01495-6-sc1-ba-ef	Mercury	03/12/2018 08:00	03/20/2018 10:30
S18T007334	18-01495-6-sc1-ba-ef	Mercury	03/12/2018 08:00	03/20/2018 10:32
S18T007361	18-01495-6-sc1-bl-ef	Mercury	03/12/2018 08:00	03/20/2018 11:19
S18T007362	18-01495-6-sc1-bl-ef	Mercury	03/12/2018 08:00	03/20/2018 11:20
S18T007366	18-01495-6-sc1-bl-in	Mercury	03/12/2018 08:00	03/20/2018 11:22
S18T007367	18-01495-6-sc1-bl-in	Mercury	03/12/2018 08:00	03/20/2018 11:24
S18T007380	18-01495-6-sc1-ef-1	Mercury	03/12/2018 08:00	03/20/2018 11:25
S18T007381	18-01495-6-sc1-ef-1	Mercury	03/12/2018 08:00	03/20/2018 12:18

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T007395	18-01495-6-sc1-ef-2	Mercury	03/12/2018 08:00	03/20/2018 12:20
S18T007397	18-01495-6-sc1-ef-2	Mercury	03/12/2018 08:00	03/20/2018 12:21
S18T007408	18-01495-6-sc1-ef-3	Mercury	03/12/2018 08:00	03/20/2018 12:23
S18T007409	18-01495-6-sc1-ef-3	Mercury	03/12/2018 08:00	03/20/2018 12:24
S18T007422	18-01495-6-sc1-ef-4	Mercury	03/12/2018 08:00	03/20/2018 12:26
S18T007424	18-01495-6-sc1-ef-4	Mercury	03/12/2018 08:00	03/20/2018 12:28
S18T007427	18-01495-6-sc1-ef-5	Mercury	03/12/2018 08:00	03/20/2018 12:29
S18T007428	18-01495-6-sc1-ef-5	Mercury	03/12/2018 08:00	03/20/2018 12:31
S18T007436	18-01495-6-sc1-ef-6	Mercury	03/12/2018 08:00	03/20/2018 12:32
S18T007437	18-01495-6-sc1-ef-6	Mercury	03/12/2018 08:00	03/20/2018 12:39
S18T007442	18-01495-6-sc1-ef-7	Mercury	03/12/2018 08:00	03/20/2018 12:40
S18T007443	18-01495-6-sc1-ef-7	Mercury	03/12/2018 08:00	03/20/2018 12:43
S18T007617	18-01496-7-tl1-ba-in	Mercury	03/18/2018 07:30	03/20/2018 14:45
S18T007618	18-01496-7-tl1-ba-in	Mercury	03/18/2018 07:30	03/20/2018 14:46
S18T007628	18-01496-7-tl1-bl-ef	Mercury	03/18/2018 07:30	03/20/2018 14:48
S18T007629	18-01496-7-tl1-bl-ef	Mercury	03/18/2018 07:30	03/20/2018 14:49
S18T007633	18-01496-7-tl1-bl-in	Mercury	03/18/2018 07:30	03/20/2018 14:51
S18T007634	18-01496-7-tl1-bl-in	Mercury	03/18/2018 07:30	03/20/2018 14:53
S18T007649	18-01496-7-tl1-ef-1	Mercury	03/18/2018 07:30	03/20/2018 14:54
S18T007650	18-01496-7-tl1-ef-1	Mercury	03/18/2018 07:30	03/20/2018 14:59
S18T007653	18-01496-7-tl1-ef-2	Mercury	03/18/2018 07:30	03/20/2018 15:01
S18T007654	18-01496-7-tl1-ef-2	Mercury	03/18/2018 07:30	03/20/2018 15:02
S18T007710	18-01496-7-TL1-EF-3	Mercury	03/18/2018 07:30	03/20/2018 15:04
S18T007711	18-01496-7-TL1-EF-3	Mercury	03/18/2018 07:30	03/20/2018 15:06
S18T007715	18-01496-7-tl1-ef-4	Mercury	03/18/2018 07:30	03/20/2018 15:07
S18T007716	18-01496-7-tl1-ef-4	Mercury	03/18/2018 07:30	03/20/2018 15:09
S18T007720	18-01496-7-tl1-ef-5	Mercury	03/18/2018 07:30	03/20/2018 15:10
S18T007722	18-01496-7-tl1-ef-5	Mercury	03/18/2018 07:30	03/20/2018 15:12
S18T007726	18-01496-7-tl1-ef-6	Mercury	03/18/2018 07:30	03/20/2018 15:13
S18T007727	18-01496-7-tl1-ef-6	Mercury	03/18/2018 07:30	03/20/2018 15:18
S18T007730	18-01496-7-tl1-ef-7	Mercury	03/18/2018 07:30	03/20/2018 15:20
S18T007731	18-01496-7-tl1-ef-7	Mercury	03/18/2018 07:30	03/20/2018 15:22
S18T007734	18-01496-7-tl1-ef-8	Mercury	03/18/2018 07:30	03/20/2018 15:28
S18T007735	18-01496-7-tl1-ef-8	Mercury	03/18/2018 07:30	03/20/2018 15:30
S18T007737	18-01496-7-tl1-in-1	Mercury	03/18/2018 07:30	03/20/2018 15:32
S18T007739	18-01496-7-tl1-in-1	Mercury	03/18/2018 07:30	03/20/2018 15:33
S18T007742	18-01496-7-tl1-in-2	Mercury	03/18/2018 07:30	03/20/2018 15:38
S18T007744	18-01496-7-tl1-in-2	Mercury	03/18/2018 07:30	03/20/2018 15:40
S18T007748	18-01496-7-tl1-in-3	Mercury	03/18/2018 07:30	03/20/2018 15:42
S18T007749	18-01496-7-tl1-in-3	Mercury	03/18/2018 07:30	03/20/2018 15:44
S18T007774	18-01496-7-tl1-in-5	Mercury	03/18/2018 07:30	03/20/2018 15:45
S18T007775	18-01496-7-tl1-in-5	Mercury	03/18/2018 07:30	03/20/2018 15:47
S18T007777	18-01496-7-tl1-in-6	Mercury	03/18/2018 07:30	03/20/2018 15:49
S18T007778	18-01496-7-tl1-in-6	Mercury	03/18/2018 07:30	03/20/2018 15:51
S18T007780	18-01496-7-tl1-in-7	Mercury	03/18/2018 07:30	03/20/2018 15:52
S18T007781	18-01496-7-tl1-in-7	Mercury	03/18/2018 07:30	03/20/2018 15:54

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T007783	18-01496-7-tl1-in-8	Mercury	03/18/2018 07:30	03/20/2018 15:59
S18T007784	18-01496-7-tl1-in-8	Mercury	03/18/2018 07:30	03/20/2018 16:01
S18T007915	18-01497-7-TL2-BA-EF	Mercury	03/18/2018 07:30	03/20/2018 16:03
S18T007916	18-01497-7-TL2-BA-EF	Mercury	03/18/2018 07:30	03/20/2018 16:04
S18T007348	18-01495-6-sc1-ba-in	Mercury	03/18/2018 08:00	03/20/2018 11:16
S18T007357	18-01495-6-sc1-ba-in	Mercury	03/18/2018 08:00	03/20/2018 11:17
S18T007918	18-01497-7-tl2-ba-in	Mercury	03/18/2018 10:45	03/21/2018 13:36
S18T007919	18-01497-7-tl2-ba-in	Mercury	03/18/2018 10:45	03/21/2018 13:38
S18T007921	18-01497-7-tl2-bl-ef	Mercury	03/18/2018 10:45	03/21/2018 13:39
S18T007922	18-01497-7-tl2-bl-ef	Mercury	03/18/2018 10:45	03/21/2018 13:41
S18T007924	18-01497-7-tl2-bl-in	Mercury	03/18/2018 10:45	03/21/2018 13:42
S18T007925	18-01497-7-tl2-bl-in	Mercury	03/18/2018 10:45	03/21/2018 13:44
S18T007927	18-01497-7-tl2-ef-1	Mercury	03/18/2018 10:45	03/21/2018 13:45
S18T007928	18-01497-7-tl2-ef-1	Mercury	03/18/2018 10:45	03/21/2018 13:51
S18T007930	18-01497-7-tl2-ef-2	Mercury	03/18/2018 10:45	03/21/2018 13:52
S18T007931	18-01497-7-tl2-ef-2	Mercury	03/18/2018 10:45	03/21/2018 13:54
S18T007933	18-01497-7-tl2-ef-3	Mercury	03/18/2018 10:45	03/21/2018 13:56
S18T007934	18-01497-7-tl2-ef-3	Mercury	03/18/2018 10:45	03/21/2018 13:58
S18T007936	18-01497-7-tl2-ef-4	Mercury	03/18/2018 10:45	03/21/2018 13:59
S18T007937	18-01497-7-tl2-ef-4	Mercury	03/18/2018 10:45	03/21/2018 14:01
S18T007939	18-01497-7-tl2-ef-5	Mercury	03/18/2018 10:45	03/21/2018 14:02
S18T007940	18-01497-7-tl2-ef-5	Mercury	03/18/2018 10:45	03/21/2018 14:04
S18T007942	18-01497-7-tl2-ef-6	Mercury	03/18/2018 10:45	03/21/2018 14:05
S18T007943	18-01497-7-tl2-ef-6	Mercury	03/18/2018 10:45	03/21/2018 14:10
S18T007947	18-01497-7-tl2-ef-7	Mercury	03/18/2018 10:45	03/21/2018 14:12
S18T007948	18-01497-7-tl2-ef-7	Mercury	03/18/2018 10:45	03/21/2018 14:14
S18T007950	18-01497-7-tl2-ef-8	Mercury	03/18/2018 10:45	03/21/2018 14:21
S18T007951	18-01497-7-tl2-ef-8	Mercury	03/18/2018 10:45	03/21/2018 14:23
S18T007955	18-01497-7-tl2-in-1	Mercury	03/18/2018 10:45	03/21/2018 14:24
S18T007956	18-01497-7-tl2-in-1	Mercury	03/18/2018 10:45	03/21/2018 14:26
S18T007958	18-01497-7-tl2-in-2	Mercury	03/18/2018 10:45	03/21/2018 14:31
S18T007960	18-01497-7-tl2-in-2	Mercury	03/18/2018 10:45	03/21/2018 14:33
S18T007973	18-01497-7-tl2-in-3	Mercury	03/18/2018 10:45	03/21/2018 14:35
S18T007974	18-01497-7-tl2-in-3	Mercury	03/18/2018 10:45	03/21/2018 14:36
S18T007976	18-01497-7-tl2-in-4	Mercury	03/18/2018 10:45	03/21/2018 14:38
S18T007977	18-01497-7-tl2-in-4	Mercury	03/18/2018 10:45	03/21/2018 14:40
S18T007979	18-01497-7-tl2-in-5	Mercury	03/18/2018 10:45	03/21/2018 14:41
S18T007980	18-01497-7-tl2-in-5	Mercury	03/18/2018 10:45	03/21/2018 14:43
S18T007982	18-01497-7-tl2-in-6	Mercury	03/18/2018 10:45	03/21/2018 14:45
S18T007983	18-01497-7-tl2-in-6	Mercury	03/18/2018 10:45	03/21/2018 14:47
S18T007994	18-01497-7-tl2-in-7	Mercury	03/18/2018 10:45	03/21/2018 14:52
S18T007995	18-01497-7-tl2-in-7	Mercury	03/18/2018 10:45	03/21/2018 14:54
S18T008007	18-01497-7-tl2-in-8	Mercury	03/18/2018 10:45	03/21/2018 14:55
S18T008009	18-01497-7-tl2-in-8	Mercury	03/18/2018 10:45	03/21/2018 14:57
S18T007450	18-01495-6-sc1-ef-8	Mercury	03/18/2018 12:00	03/20/2018 13:31
S18T007452	18-01495-6-sc1-ef-8	Mercury	03/18/2018 12:00	03/20/2018 13:33

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T007456	18-01495-6-sc1-in-1	Mercury	03/18/2018 12:00	03/20/2018 13:34
S18T007457	18-01495-6-sc1-in-1	Mercury	03/18/2018 12:00	03/20/2018 13:36
S18T007565	18-01495-6-SC1-IN-2	Mercury	03/18/2018 12:00	03/20/2018 13:38
S18T007567	18-01495-6-SC1-IN-2	Mercury	03/18/2018 12:00	03/20/2018 13:39
S18T007573	18-01495-6-sc1-in-3	Mercury	03/18/2018 12:00	03/20/2018 13:41
S18T007574	18-01495-6-sc1-in-3	Mercury	03/18/2018 12:00	03/20/2018 13:46
S18T007576	18-01495-6-sc1-in-4	Mercury	03/18/2018 12:00	03/20/2018 13:48
S18T007577	18-01495-6-sc1-in-4	Mercury	03/18/2018 12:00	03/20/2018 13:50
S18T007580	18-01495-6-sc1-in-5	Mercury	03/18/2018 12:00	03/20/2018 13:51
S18T007581	18-01495-6-sc1-in-5	Mercury	03/18/2018 12:00	03/20/2018 13:53
S18T007587	18-01495-6-sc1-in-6	Mercury	03/18/2018 12:00	03/20/2018 13:55
S18T007588	18-01495-6-sc1-in-6	Mercury	03/18/2018 12:00	03/20/2018 13:57
S18T007590	18-01495-6-sc1-in-7	Mercury	03/18/2018 12:00	03/20/2018 13:58
S18T007591	18-01495-6-sc1-in-7	Mercury	03/18/2018 12:00	03/20/2018 14:00
S18T007610	18-01495-6-sc1-in-8	Mercury	03/18/2018 12:00	03/20/2018 14:02
S18T007611	18-01495-6-sc1-in-8	Mercury	03/18/2018 12:00	03/20/2018 14:07
S18T007613	18-01496-7-tl1-ba-ef	Mercury	03/18/2018 12:00	03/20/2018 14:09
S18T007614	18-01496-7-tl1-ba-ef	Mercury	03/18/2018 12:00	03/20/2018 14:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-1

Date Samples Received: 2-26-18 Total Number of Samples: 997 Group No.: 20180597

Sample Custodian: Dan Sorensen IH Technician: Ryan Burns

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC/SC Initials: DJS Date: 2-26-18

If No, comment on communication and resolution:

WRPS Ship 600
Run 238

WH2 NH380 Hg80

Number of IH Samples Received: Acetonitrile 80

Aldehyde Screen: 80	Amines: 80	Ammonia: 80	Aromatic HC:		Asbestos:
Beryllium:	Be-Bulk:	Be-Filter:	Be-Wipe:		1, 3-Butadiene: 160
Formaldehyde:	Furans: 80	Mercury: 79	Methanol: 40		Nitrosamines: 80
Nitrous Oxide:	Pyridines: 80	SVOA: 79	VOA: 79		Other-IH:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01494-3-SD1-IN-8 / TDU (Tenax)~~ KDB 2/21/18	~~Furans Source~~
518T007229	18-01494-6-SD1-BA-EF / Hydrar (SKC 226-17-1A) 518T007230 518T007231	Hg-Elemental Source
518T007232	18-01494-6-SD1-BA-IN / Hydrar (SKC 226-17-1A) 518T007233 518T007234	Hg-Elemental Source
518T007235	18-01494-6-SD1-BL-EF / Hydrar (SKC 226-17-1A) 518T007236 518T007237	Hg-Elemental Source
518T007238	18-01494-6-SD1-BL-IN / Hydrar (SKC 226-17-1A) 518T007239 518T007240	Hg-Elemental Source
518T007241	18-01494-6-SD1-EF-1 / Hydrar (SKC 226-17-1A) 518T007242 518T007243	Hg-Elemental Source
518T007244	18-01494-6-SD1-EF-2 / Hydrar (SKC 226-17-1A) 518T007245 518T007246	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M Stangle	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0817

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Shannon Hohle	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T007247	18-01494-6-SD1-EF-3 / Hydrar (SKC 226-17-1A) 518T007248 518T007249	Hg-Elemental Source
518T007250	18-01494-6-SD1-EF-4 / Hydrar (SKC 226-17-1A) 518T007251 518T007252	Hg-Elemental Source
518T007253	18-01494-6-SD1-EF-5 / Hydrar (SKC 226-17-1A) 518T007254 518T007255	Hg-Elemental Source
518T007	18-01494-6-SD1-EF-6 / Hydrar (SKC 226-17-1A) VOID Stay 2-26-18	Hg-Elemental Source
518T007256	18-01494-6-SD1-EF-7 / Hydrar (SKC 226-17-1A) 518T007257 518T007258	Hg-Elemental Source
518T007259	18-01494-6-SD1-EF-8 / Hydrar (SKC 226-17-1A) 518T007260 518T007261	Hg-Elemental Source
518T007262	18-01494-6-SD1-IN-1 / Hydrar (SKC 226-17-1A) 518T007263 518T007264	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stl	Ryan M. Stanley	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0817

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Sharon Lwolder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
18T007265	18-01494-6-SD1-IN-2 / Hydrar (SKC 226-17-1A) / 18T007266 • 18T007267	Hg-Elemental Source
18T007270	18-01494-6-SD1-IN-3 / Hydrar (SKC 226-17-1A) / 18T007272 • 18T007273	Hg-Elemental Source
18T007274	18-01494-6-SD1-IN-4 / Hydrar (SKC 226-17-1A) / 18T007275 • 18T007276	Hg-Elemental Source
18T007277	18-01494-6-SD1-IN-5 / Hydrar (SKC 226-17-1A) / 18T007278 • 18T007279	Hg-Elemental Source
18T007280	18-01494-6-SD1-IN-6 / Hydrar (SKC 226-17-1A) / 18T007281 • 18T007282	Hg-Elemental Source
18T007283	18-01494-6-SD1-IN-7 / Hydrar (SKC 226-17-1A) / 18T007284 • 18T007285	Hg-Elemental Source
18T007286	18-01494-6-SD1-IN-8 / Hydrar (SKC 226-17-1A) / 18T007287 • 18T007288	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stl	Ryan M. Stanyle	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0817

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-23-18	1430
Received By:		Sharon L McCabe	2.26.18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01495-3-SC1-IN-8 / TDU (Tenax)~~ EJW 03-21-18	~~Furans Source~~
S18T007332	18-01495-6-SC1-BA-EF / Hydrar (SKC 226-17-1A) S18T007333 S18T007334	Hg-Elemental Source
S18T007339	18-01495-6-SC1-BA-IN / Hydrar (SKC 226-17-1A) S18T007348 S18T007357	Hg-Elemental Source
S18T007360	18-01495-6-SC1-BL-EF / Hydrar (SKC 226-17-1A) S18T007361 S18T007362	Hg-Elemental Source
S18T007363	18-01495-6-SC1-BL-IN / Hydrar (SKC 226-17-1A) S18T007366 S18T007367	Hg-Elemental Source
S18T007374	18-01495-6-SC1-EF-1 / Hydrar (SKC 226-17-1A) S18T007380 S18T007381	Hg-Elemental Source
S18T007390	18-01495-6-SC1-EF-2 / Hydrar (SKC 226-17-1A) S18T007395 S18T007397	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stengle	Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:	RR	RYAN BURNS		2/26/18	0917

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN JONES	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 7-27-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
518T007403 *	18-01495-6-SC1-EF-3 / Hydrar (SKC 226-17-1A)	518T007408 * 518T007409	Hg-Elemental Source
518T007415 *	18-01495-6-SC1-EF-4 / Hydrar (SKC 226-17-1A)	* 518T007422 518T007424	Hg-Elemental Source
518T007426 *	18-01495-6-SC1-EF-5 / Hydrar (SKC 226-17-1A)	* 518T007427 518T007428	Hg-Elemental Source
518T007433 *	18-01495-6-SC1-EF-6 / Hydrar (SKC 226-17-1A)	* 518T007436 518T007437	Hg-Elemental Source
518T007439 *	18-01495-6-SC1-EF-7 / Hydrar (SKC 226-17-1A)	* 518T007442 518T007443	Hg-Elemental Source
518T007444 *	18-01495-6-SC1-EF-8 / Hydrar (SKC 226-17-1A)	* 518T007450 518T007452	Hg-Elemental Source
518T007455 *	18-01495-6-SC1-IN-1 / Hydrar (SKC 226-17-1A)	518T007456 * 518T007457	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stagle	M0252	7-25-18	0530
Retrieved from Storage:	[signature]	RYAN BURNS		7/26/18	0917

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YUNGS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
518T007559	18-01495-6-SC1-IN-2 / Hydrar (SKC 226-17-1A)	518T007565 518T007567	Hg-Elemental Source
518T007572	18-01495-6-SC1-IN-3 / Hydrar (SKC 226-17-1A)	518T007573 518T007574	Hg-Elemental Source
518T007575	18-01495-6-SC1-IN-4 / Hydrar (SKC 226-17-1A)	518T007576 518T007577	Hg-Elemental Source
518T007579	18-01495-6-SC1-IN-5 / Hydrar (SKC 226-17-1A)	518T007580 518T007581	Hg-Elemental Source
518T007586	18-01495-6-SC1-IN-6 / Hydrar (SKC 226-17-1A)	518T007587 518T007588	Hg-Elemental Source
518T007589	18-01495-6-SC1-IN-7 / Hydrar (SKC 226-17-1A)	518T007590 518T007591	Hg-Elemental Source
518T007609	18-01495-6-SC1-IN-8 / Hydrar (SKC 226-17-1A)	518T007610 518T007611	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stgl	Ryan M. Stengle	M0252	225-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0917

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
~~18-01496-4-TL1-IN-8 / TDU (Tenax)~~ KDB 2/21/18	~~Furans Source~~	
18T007612	18-01496-7-TL1-BA-EF / Hydrar (SKC 226-17-1A) 18T007613 18T007614	Hg-Elemental Source
18T007615	18-01496-7-TL1-BA-IN / Hydrar (SKC 226-17-1A) 18T007617 18T007618	Hg-Elemental Source
18T007622	18-01496-7-TL1-BL-EF / Hydrar (SKC 226-17-1A) 18T007628 18T007629	Hg-Elemental Source
18T007631	18-01496-7-TL1-BL-IN / Hydrar (SKC 226-17-1A) 18T007633 18T007634	Hg-Elemental Source
18T007648	18-01496-7-TL1-EF-1 / Hydrar (SKC 226-17-1A) 18T007649 18T007650	Hg-Elemental Source
18T007651	18-01496-7-TL1-EF-2 / Hydrar (SKC 226-17-1A) 18T007653 18T007654	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. Stl	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-24-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2.25.18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2/25/18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T007705	18-01496-7-TL1-EF-3 / Hydrar (SKC 226-17-1A) 518T007710 518T007711	Hg-Elemental Source
518T007713	18-01496-7-TL1-EF-4 / Hydrar (SKC 226-17-1A) 518T007715 518T007716	Hg-Elemental Source
518T007718	18-01496-7-TL1-EF-5 / Hydrar (SKC 226-17-1A) 518T007720 518T007722	Hg-Elemental Source
518T007724	18-01496-7-TL1-EF-6 / Hydrar (SKC 226-17-1A) 518T007726 518T007727	Hg-Elemental Source
518T007729	18-01496-7-TL1-EF-7 / Hydrar (SKC 226-17-1A) 518T007730 518T007731	Hg-Elemental Source
518T007732	18-01496-7-TL1-EF-8 / Hydrar (SKC 226-17-1A) 518T007734 518T007735	Hg-Elemental Source
518T007736	18-01496-7-TL1-IN-1 / Hydrar (SKC 226-17-1A) 518T007737 518T007739	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stengle	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T007741	18-01496-7-TL1-IN-2 / Hydrar (SKC 226-17-1A) 518T007742 518T007744	Hg-Elemental Source
518T007747	18-01496-7-TL1-IN-3 / Hydrar (SKC 226-17-1A) 518T007748 518T007749	Hg-Elemental Source
518T007755	18-01496-7-TL1-IN-4 / Hydrar (SKC 226-17-1A) 518T007762 518T007764	Hg-Elemental Source
518T007770	18-01496-7-TL1-IN-5 / Hydrar (SKC 226-17-1A) 518T007774 518T007775	Hg-Elemental Source
518T007776	18-01496-7-TL1-IN-6 / Hydrar (SKC 226-17-1A) 518T007777 518T007778	Hg-Elemental Source
518T007779	18-01496-7-TL1-IN-7 / Hydrar (SKC 226-17-1A) 518T007780 518T007781	Hg-Elemental Source
518T007792	18-01496-7-TL1-IN-8 / Hydrar (SKC 226-17-1A) 518T007783 518T007784	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stgle	Ryan M. Stagle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:	Leslie Diaz	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01497-4-TL2-IN-8 / TDU (Tenax)~~ EJW 02-21-18	~~Furans Source~~
518T007914	18-01497-7-TL2-BA-EF / Hydrar (SKC 226-17-1A) 518T007 915 518T007 916	Hg-Elemental Source
518T007 917	18-01497-7-TL2-BA-IN / Hydrar (SKC 226-17-1A) 518T007 918 518T007 919	Hg-Elemental Source
518T007 920	18-01497-7-TL2-BL-EF / Hydrar (SKC 226-17-1A) 518T007921 518T007922	Hg-Elemental Source
518T007923	18-01497-7-TL2-BL-IN / Hydrar (SKC 226-17-1A) 518T007924 518T007 925	Hg-Elemental Source
518T007926	18-01497-7-TL2-EF-1 / Hydrar (SKC 226-17-1A) 518T007927 518T007 928	Hg-Elemental Source
518T007929	18-01497-7-TL2-EF-2 / Hydrar (SKC 226-17-1A) 518T007930 518T007 931	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:			2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T007932	18-01497-7-TL2-EF-3 / Hydrar (SKC 226-17-1A) S18T007933 S18T007934	Hg-Elemental Source
S18T007935	18-01497-7-TL2-EF-4 / Hydrar (SKC 226-17-1A) S18T007936 S18T007937	Hg-Elemental Source
S18T007938	18-01497-7-TL2-EF-5 / Hydrar (SKC 226-17-1A) S18T007939 S18T007940	Hg-Elemental Source
S18T007941	18-01497-7-TL2-EF-6 / Hydrar (SKC 226-17-1A) S18T007942 S18T007943	Hg-Elemental Source
S18T007944	18-01497-7-TL2-EF-7 / Hydrar (SKC 226-17-1A) S18T007947 S18T007948	Hg-Elemental Source
S18T007949	18-01497-7-TL2-EF-8 / Hydrar (SKC 226-17-1A) S18T007950 S18T007951	Hg-Elemental Source
S18T007954	18-01497-7-TL2-IN-1 / Hydrar (SKC 226-17-1A) S18T007955 S18T007956	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stoyle	M-252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Dr Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180597 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T007957	18-01497-7-TL2-IN-2 / Hydrar (SKC 226-17-1A) 518T007958 518T007960	Hg-Elemental Source
518T007967	18-01497-7-TL2-IN-3 / Hydrar (SKC 226-17-1A) 518T007973 518T007974	Hg-Elemental Source
518T007975	18-01497-7-TL2-IN-4 / Hydrar (SKC 226-17-1A) 518T007976 518T007977	Hg-Elemental Source
518T007978	18-01497-7-TL2-IN-5 / Hydrar (SKC 226-17-1A) 518T007979 518T007980	Hg-Elemental Source
518T007981	18-01497-7-TL2-IN-6 / Hydrar (SKC 226-17-1A) 518T007982 518T007983	Hg-Elemental Source
518T007985	18-01497-7-TL2-IN-7 / Hydrar (SKC 226-17-1A) 518T007994 518T007995	Hg-Elemental Source
518T008003	18-01497-7-TL2-IN-8 / Hydrar (SKC 226-17-1A) 518T008007 518T008009	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stegle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BUENS	2/26/18	1430
Received By:		DR STENSON	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

C.4.8 Ammonia

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED FEBRUARY 23 – 24, 2018

Document No.: 20180596 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 9, 2018

Prepared for:

washington river protection solutions

Joyce A. Caldwell
Washington River Protection Solutions, Inc.
P.O. Box 850
Richland, WA 99352
509-376-0737

Prepared by:

WAI HANFORD LABORATORY

WAI Hanford Laboratory
1955 Jadwin Ave, Suite 330
Richland, WA 99354
509-373-3240

April 9, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED FEBRUARY 23 – 24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on February 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180596.

DISCLAIMERS

- The information contained in this report is intended only for the use of the addressee and should be considered confidential.
- This report shall not be reproduced, except in full, without written approval of the laboratory.
- The results shown in this report pertain only to the actual samples tested.
- These results conform to the requirements specified in the referenced methods/procedures and specifications provided verbally or electronically by the customer. Any deviations or modifications are discussed in the following narrative.
- This report only addresses laboratory activities related to the listed surveys. Requirements or anomalies concerning field sampling are not addressed in this report.

PROCEDURES

Method	Preparation Procedure	Analysis Procedure
Ammonia by OSHA ID-188	LA-533-117, Rev. 3-2	LA-503-157, Rev. 2- 7 LA-503-157, Rev. 2- 8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83 - 112%, with no significant bias. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which

makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Samples 18-01496-8-TL1-EF-5, 18-01496-8-TL1-EF-6, 18-01496-8-TL1-EF-7, 18-01496-8-TL1-EF-8, 18-01496-8-TL1-IN-1, 18-01496-8-TL1-IN-2, 18-01496-8-TL1-IN-3, 18-01496-8-TL-1-IN-4, 18-01496-8-TL1-IN-5, 18-01496-8-TL1-IN-6, 18-01496-8-TL1-IN-7, 18-01496-8-TL1-IN-8, 18-01497-8-TL2-BA-EF, 18-01497-8-TL2-BA-IN, 18-01497-8-TL2-BL-EF, 18-01497-8-TL2-BL-IN, 18-01497-8-TL2-EF-1, 18-01497-8-TL2-EF-2, and 18-01497-8-TL2-EF-3 were analyzed outside of the 29-day holding time (date sampled to date analyzed). The 'Totals' result for affected samples have been H flagged.

Seventeen of the eighty ammonia results for this sample group were below the reporting limit of 10 µg/sample. Sixty-three of the eighty ammonia results for sample group 20180596 were above the reporting limit of 10 µg/sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180596

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit	Qualifier
18-01494-7-sd1-ba-ef	Total	S18T008018	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01494-7-sd1-ba-ef	Front Resin	S18T008038	Ammonia	µg/sample	95.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ba-ef	Back Resin	S18T008039	Ammonia	µg/sample	95.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ba-in	Total	S18T008019	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01494-7-sd1-ba-in	Front Resin	S18T008040	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ba-in	Back Resin	S18T008041	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-bl-ef	Total	S18T008020	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01494-7-sd1-bl-ef	Front Resin	S18T008042	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-bl-ef	Back Resin	S18T008043	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-bl-in	Total	S18T008021	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01494-7-sd1-bl-in	Front Resin	S18T008044	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-bl-in	Back Resin	S18T008045	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-1	Total	S18T008022	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-1	Front Resin	S18T008046	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-1	Back Resin	S18T008047	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-2	Total	S18T008023	Ammonia	µg/sample	n/a	<10.0	114	10.0	
18-01494-7-sd1-ef-2	Front Resin	S18T008048	Ammonia	µg/sample	92.5	<10.0	113	10.0	
18-01494-7-sd1-ef-2	Back Resin	S18T008049	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-3	Total	S18T008024	Ammonia	µg/sample	n/a	<10.0	826	10.0	
18-01494-7-sd1-ef-3	Front Resin	S18T008050	Ammonia	µg/sample	92.5	<10.0	825	10.0	
18-01494-7-sd1-ef-3	Back Resin	S18T008051	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-4	Total	S18T008025	Ammonia	µg/sample	n/a	<10.0	1.93E+03	10.0	
18-01494-7-sd1-ef-4	Front Resin	S18T008052	Ammonia	µg/sample	92.5	<10.0	1.93E+03	10.0	
18-01494-7-sd1-ef-4	Back Resin	S18T008053	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-5	Total	S18T008026	Ammonia	µg/sample	n/a	<10.0	2.83E+03	10.0	
18-01494-7-sd1-ef-5	Front Resin	S18T008054	Ammonia	µg/sample	92.5	<10.0	2.83E+03	10.0	
18-01494-7-sd1-ef-5	Back Resin	S18T008055	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-6	Total	S18T008027	Ammonia	µg/sample	n/a	<10.0	3.85E+03	10.0	
18-01494-7-sd1-ef-6	Front Resin	S18T008056	Ammonia	µg/sample	92.5	<10.0	3.84E+03	10.0	
18-01494-7-sd1-ef-6	Back Resin	S18T008057	Ammonia	µg/sample	92.5	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-7	Total	S18T008028	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-7	Front Resin	S18T008058	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-7	Back Resin	S18T008059	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-ef-8	Total	S18T008029	Ammonia	µg/sample	n/a	<10.0	4.62E+03	10.0	
18-01494-7-sd1-ef-8	Front Resin	S18T008060	Ammonia	µg/sample	96.7	<10.0	4.62E+03	10.0	
18-01494-7-sd1-ef-8	Back Resin	S18T008061	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-in-1	Total	S18T008030	Ammonia	µg/sample	n/a	<10.0	3.45E+03	10.0	
18-01494-7-sd1-in-1	Front Resin	S18T008062	Ammonia	µg/sample	96.7	<10.0	3.45E+03	10.0	
18-01494-7-sd1-in-1	Back Resin	S18T008063	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-in-2	Total	S18T008031	Ammonia	µg/sample	n/a	<10.0	1.74E+03	10.0	
18-01494-7-sd1-in-2	Front Resin	S18T008064	Ammonia	µg/sample	96.7	<10.0	1.74E+03	10.0	
18-01494-7-sd1-in-2	Back Resin	S18T008065	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-in-3	Total	S18T008032	Ammonia	µg/sample	n/a	<10.0	1.58E+03	10.0	
18-01494-7-sd1-in-3	Front Resin	S18T008066	Ammonia	µg/sample	96.7	<10.0	1.58E+03	10.0	
18-01494-7-sd1-in-3	Back Resin	S18T008067	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-in-4	Total	S18T008033	Ammonia	µg/sample	n/a	<10.0	628	10.0	
18-01494-7-sd1-in-4	Front Resin	S18T008068	Ammonia	µg/sample	96.7	<10.0	628	10.0	
18-01494-7-sd1-in-4	Back Resin	S18T008069	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-in-5	Total	S18T008034	Ammonia	µg/sample	n/a	<10.0	1.01E+03	10.0	
18-01494-7-sd1-in-5	Front Resin	S18T008070	Ammonia	µg/sample	96.7	<10.0	1.01E+03	10.0	
18-01494-7-sd1-in-5	Back Resin	S18T008071	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	

18-01494-7-sd1-in-6	Total	S18T008035	Ammonia	µg/sample	n/a	<10.0	2.08E+03	10.0	
18-01494-7-sd1-in-6	Front Resin	S18T008072	Ammonia	µg/sample	96.7	<10.0	2.08E+03	10.0	
18-01494-7-sd1-in-6	Back Resin	S18T008073	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-in-7	Total	S18T008036	Ammonia	µg/sample	n/a	<10.0	1.19E+03	10.0	
18-01494-7-sd1-in-7	Front Resin	S18T008074	Ammonia	µg/sample	96.7	<10.0	1.19E+03	10.0	
18-01494-7-sd1-in-7	Back Resin	S18T008075	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01494-7-sd1-in-8	Total	S18T008037	Ammonia	µg/sample	n/a	<10.0	1.91E+03	10.0	
18-01494-7-sd1-in-8	Front Resin	S18T008076	Ammonia	µg/sample	96.7	<10.0	1.91E+03	10.0	
18-01494-7-sd1-in-8	Back Resin	S18T008077	Ammonia	µg/sample	96.7	<10.0	<10.0	10.0	
18-01495-7-sc1-ba-ef	Total	S18T008078	Ammonia	µg/sample	n/a	<10.0	18.5	10.0	
18-01495-7-sc1-ba-ef	Front Resin	S18T008098	Ammonia	µg/sample	97.9	<10.0	17.8	10.0	
18-01495-7-sc1-ba-ef	Back Resin	S18T008099	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-ba-in	Total	S18T008079	Ammonia	µg/sample	n/a	<10.0	15.9	10.0	
18-01495-7-sc1-ba-in	Front Resin	S18T008100	Ammonia	µg/sample	97.9	<10.0	15.2	10.0	
18-01495-7-sc1-ba-in	Back Resin	S18T008101	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-bl-ef	Total	S18T008080	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01495-7-sc1-bl-ef	Front Resin	S18T008102	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-bl-ef	Back Resin	S18T008103	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-bl-in	Total	S18T008081	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01495-7-sc1-bl-in	Front Resin	S18T008104	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-bl-in	Back Resin	S18T008105	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-1	Total	S18T008082	Ammonia	µg/sample	n/a	<10.0	164	10.0	
18-01495-7-sc1-ef-1	Front Resin	S18T008106	Ammonia	µg/sample	97.9	<10.0	163	10.0	
18-01495-7-sc1-ef-1	Back Resin	S18T008107	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-2	Total	S18T008083	Ammonia	µg/sample	n/a	<10.0	2.31E+03	10.0	
18-01495-7-sc1-ef-2	Front Resin	S18T008108	Ammonia	µg/sample	97.9	<10.0	2.31E+03	10.0	
18-01495-7-sc1-ef-2	Back Resin	S18T008109	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-3	Total	S18T008084	Ammonia	µg/sample	n/a	<10.0	3.16E+03	10.0	
18-01495-7-sc1-ef-3	Front Resin	S18T008110	Ammonia	µg/sample	97.9	<10.0	3.16E+03	10.0	
18-01495-7-sc1-ef-3	Back Resin	S18T008111	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-4	Total	S18T008085	Ammonia	µg/sample	n/a	<10.0	3.20E+03	10.0	
18-01495-7-sc1-ef-4	Front Resin	S18T008112	Ammonia	µg/sample	97.9	<10.0	3.20E+03	10.0	
18-01495-7-sc1-ef-4	Back Resin	S18T008113	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-5	Total	S18T008086	Ammonia	µg/sample	n/a	<10.0	3.86E+03	10.0	
18-01495-7-sc1-ef-5	Front Resin	S18T008114	Ammonia	µg/sample	97.9	<10.0	3.86E+03	10.0	
18-01495-7-sc1-ef-5	Back Resin	S18T008115	Ammonia	µg/sample	97.9	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-6	Total	S18T008087	Ammonia	µg/sample	n/a	<10.0	3.97E+03	10.0	
18-01495-7-sc1-ef-6	Front Resin	S18T008116	Ammonia	µg/sample	96.2	<10.0	3.97E+03	10.0	
18-01495-7-sc1-ef-6	Back Resin	S18T008117	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-7	Total	S18T008088	Ammonia	µg/sample	n/a	<10.0	3.47E+03	10.0	
18-01495-7-sc1-ef-7	Front Resin	S18T008118	Ammonia	µg/sample	96.2	<10.0	3.47E+03	10.0	
18-01495-7-sc1-ef-7	Back Resin	S18T008119	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-ef-8	Total	S18T008089	Ammonia	µg/sample	n/a	<10.0	3.34E+03	10.0	
18-01495-7-sc1-ef-8	Front Resin	S18T008120	Ammonia	µg/sample	96.2	<10.0	3.34E+03	10.0	
18-01495-7-sc1-ef-8	Back Resin	S18T008121	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-in-1	Total	S18T008090	Ammonia	µg/sample	n/a	<10.0	456	10.0	
18-01495-7-sc1-in-1	Front Resin	S18T008122	Ammonia	µg/sample	96.2	<10.0	456	10.0	
18-01495-7-sc1-in-1	Back Resin	S18T008123	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-in-2	Total	S18T008091	Ammonia	µg/sample	n/a	<10.0	3.63E+03	10.0	
18-01495-7-sc1-in-2	Front Resin	S18T008124	Ammonia	µg/sample	96.2	<10.0	3.63E+03	10.0	
18-01495-7-sc1-in-2	Back Resin	S18T008125	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-in-3	Total	S18T008092	Ammonia	µg/sample	n/a	<10.0	3.57E+03	10.0	
18-01495-7-sc1-in-3	Front Resin	S18T008126	Ammonia	µg/sample	96.2	<10.0	3.57E+03	10.0	
18-01495-7-sc1-in-3	Back Resin	S18T008127	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-in-4	Total	S18T008093	Ammonia	µg/sample	n/a	<10.0	3.35E+03	10.0	
18-01495-7-sc1-in-4	Front Resin	S18T008128	Ammonia	µg/sample	96.2	<10.0	3.35E+03	10.0	
18-01495-7-sc1-in-4	Back Resin	S18T008129	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	

18-01495-7-sc1-in-5	Total	S18T008094	Ammonia	µg/sample	n/a	<10.0	4.05E+03	10.0	
18-01495-7-sc1-in-5	Front Resin	S18T008130	Ammonia	µg/sample	96.2	<10.0	4.05E+03	10.0	
18-01495-7-sc1-in-5	Back Resin	S18T008131	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-in-6	Total	S18T008095	Ammonia	µg/sample	n/a	<10.0	4.01E+03	10.0	
18-01495-7-sc1-in-6	Front Resin	S18T008132	Ammonia	µg/sample	96.2	<10.0	4.01E+03	10.0	
18-01495-7-sc1-in-6	Back Resin	S18T008133	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-in-7	Total	S18T008096	Ammonia	µg/sample	n/a	<10.0	3.02E+03	10.0	
18-01495-7-sc1-in-7	Front Resin	S18T008134	Ammonia	µg/sample	96.2	<10.0	3.02E+03	10.0	
18-01495-7-sc1-in-7	Back Resin	S18T008135	Ammonia	µg/sample	96.2	<10.0	<10.0	10.0	
18-01495-7-sc1-in-8	Total	S18T008097	Ammonia	µg/sample	n/a	<10.0	2.68E+03	10.0	
18-01495-7-sc1-in-8	Front Resin	S18T008136	Ammonia	µg/sample	96.3	<10.0	2.68E+03	10.0	
18-01495-7-sc1-in-8	Back Resin	S18T008137	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ba-ef	Total	S18T008138	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01496-8-tl1-ba-ef	Front Resin	S18T008158	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ba-ef	Back Resin	S18T008159	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ba-in	Total	S18T008139	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01496-8-tl1-ba-in	Front Resin	S18T008160	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ba-in	Back Resin	S18T008161	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-bl-ef	Total	S18T008140	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01496-8-tl1-bl-ef	Front Resin	S18T008162	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-bl-ef	Back Resin	S18T008163	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-bl-in	Total	S18T008141	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01496-8-tl1-bl-in	Front Resin	S18T008164	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-bl-in	Back Resin	S18T008165	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-1	Total	S18T008142	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-1	Front Resin	S18T008166	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-1	Back Resin	S18T008167	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-2	Total	S18T008143	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-2	Front Resin	S18T008168	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-2	Back Resin	S18T008169	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-3	Total	S18T008144	Ammonia	µg/sample	n/a	<10.0	67.0	10.0	
18-01496-8-tl1-ef-3	Front Resin	S18T008170	Ammonia	µg/sample	96.3	<10.0	66.2	10.0	
18-01496-8-tl1-ef-3	Back Resin	S18T008171	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-4	Total	S18T008145	Ammonia	µg/sample	n/a	<10.0	1.21E+03	10.0	
18-01496-8-tl1-ef-4	Front Resin	S18T008172	Ammonia	µg/sample	96.3	<10.0	1.21E+03	10.0	
18-01496-8-tl1-ef-4	Back Resin	S18T008173	Ammonia	µg/sample	96.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-5	Total	S18T008146	Ammonia	µg/sample	n/a	<10.0	1.51E+03	10.0	H
18-01496-8-tl1-ef-5	Front Resin	S18T008174	Ammonia	µg/sample	95.3	<10.0	1.51E+03	10.0	
18-01496-8-tl1-ef-5	Back Resin	S18T008175	Ammonia	µg/sample	95.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-6	Total	S18T008147	Ammonia	µg/sample	n/a	<10.0	2.42E+03	10.0	H
18-01496-8-tl1-ef-6	Front Resin	S18T008176	Ammonia	µg/sample	95.3	<10.0	2.42E+03	10.0	
18-01496-8-tl1-ef-6	Back Resin	S18T008177	Ammonia	µg/sample	95.3	<10.0	<10.0	10.0	
18-01496-8-tl1-ef-7	Total	S18T008148	Ammonia	µg/sample	n/a	<10.0	2.61E+03	10.0	H
18-01496-8-tl1-ef-7	Front Resin	S18T008178	Ammonia	µg/sample	95.3	<10.0	54.5	10.0	
18-01496-8-tl1-ef-7	Back Resin	S18T008179	Ammonia	µg/sample	95.3	<10.0	2.56E+03	10.0	
18-01496-8-tl1-ef-8	Total	S18T008149	Ammonia	µg/sample	n/a	<10.0	3.02E+03	10.0	H
18-01496-8-tl1-ef-8	Front Resin	S18T008180	Ammonia	µg/sample	95.3	<10.0	3.02E+03	10.0	
18-01496-8-tl1-ef-8	Back Resin	S18T008181	Ammonia	µg/sample	95.3	<10.0	<10.0	10.0	
18-01496-8-tl1-in-1	Total	S18T008150	Ammonia	µg/sample	n/a	<10.0	2.28E+03	10.0	H
18-01496-8-tl1-in-1	Front Resin	S18T008182	Ammonia	µg/sample	95.3	<10.0	2.28E+03	10.0	
18-01496-8-tl1-in-1	Back Resin	S18T008183	Ammonia	µg/sample	95.3	<10.0	<10.0	10.0	
18-01496-8-tl1-in-2	Total	S18T008151	Ammonia	µg/sample	n/a	<10.0	2.40E+03	10.0	H
18-01496-8-tl1-in-2	Front Resin	S18T008184	Ammonia	µg/sample	95.3	<10.0	2.40E+03	10.0	
18-01496-8-tl1-in-2	Back Resin	S18T008185	Ammonia	µg/sample	95.3	<10.0	<10.0	10.0	
18-01496-8-tl1-in-3	Total	S18T008152	Ammonia	µg/sample	n/a	<10.0	3.14E+03	10.0	H
18-01496-8-tl1-in-3	Front Resin	S18T008186	Ammonia	µg/sample	95.3	<10.0	3.09E+03	10.0	
18-01496-8-tl1-in-3	Back Resin	S18T008187	Ammonia	µg/sample	95.3	<10.0	52.3	10.0	

18-01496-8-tl1-in-4	Total	S18T008153	Ammonia	µg/sample	n/a	<10.0	2.83E+03	10.0	H
18-01496-8-tl1-in-4	Front Resin	S18T008188	Ammonia	µg/sample	95.3	<10.0	137	10.0	
18-01496-8-tl1-in-4	Back Resin	S18T008189	Ammonia	µg/sample	95.3	<10.0	2.69E+03	10.0	
18-01496-8-tl1-in-5	Total	S18T008154	Ammonia	µg/sample	n/a	<10.0	2.96E+03	10.0	H
18-01496-8-tl1-in-5	Front Resin	S18T008190	Ammonia	µg/sample	95.3	<10.0	2.96E+03	10.0	
18-01496-8-tl1-in-5	Back Resin	S18T008191	Ammonia	µg/sample	95.3	<10.0	<10.0	10.0	
18-01496-8-tl1-in-6	Total	S18T008155	Ammonia	µg/sample	n/a	<10.0	2.61E+03	10.0	H
18-01496-8-tl1-in-6	Front Resin	S18T008192	Ammonia	µg/sample	95.3	<10.0	2.61E+03	10.0	
18-01496-8-tl1-in-6	Back Resin	S18T008193	Ammonia	µg/sample	95.3	<10.0	<10.0	10.0	
18-01496-8-tl1-in-7	Total	S18T008156	Ammonia	µg/sample	n/a	<10.0	1.83E+03	10.0	H
18-01496-8-tl1-in-7	Front Resin	S18T008194	Ammonia	µg/sample	95.9	<10.0	1.83E+03	10.0	
18-01496-8-tl1-in-7	Back Resin	S18T008195	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01496-8-tl1-in-8	Total	S18T008157	Ammonia	µg/sample	n/a	<10.0	2.21E+03	10.0	H
18-01496-8-tl1-in-8	Front Resin	S18T008196	Ammonia	µg/sample	95.9	<10.0	2.20E+03	10.0	
18-01496-8-tl1-in-8	Back Resin	S18T008197	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-ba-ef	Total	S18T008282	Ammonia	µg/sample	n/a	<10.0	13.1	10.0	H
18-01497-8-tl2-ba-ef	Front Resin	S18T008302	Ammonia	µg/sample	95.9	<10.0	12.5	10.0	
18-01497-8-tl2-ba-ef	Back Resin	S18T008303	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-ba-in	Total	S18T008283	Ammonia	µg/sample	n/a	<10.0	16.9	10.0	H
18-01497-8-tl2-ba-in	Front Resin	S18T008304	Ammonia	µg/sample	95.9	<10.0	16.3	10.0	
18-01497-8-tl2-ba-in	Back Resin	S18T008305	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-bl-ef	Total	S18T008284	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	H
18-01497-8-tl2-bl-ef	Front Resin	S18T008306	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-bl-ef	Back Resin	S18T008307	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-bl-in	Total	S18T008285	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	H
18-01497-8-tl2-bl-in	Front Resin	S18T008308	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-bl-in	Back Resin	S18T008309	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-1	Total	S18T008286	Ammonia	µg/sample	n/a	<10.0	482	10.0	H
18-01497-8-tl2-ef-1	Front Resin	S18T008310	Ammonia	µg/sample	95.9	<10.0	482	10.0	
18-01497-8-tl2-ef-1	Back Resin	S18T008311	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-2	Total	S18T008287	Ammonia	µg/sample	n/a	<10.0	1.89E+03	10.0	H
18-01497-8-tl2-ef-2	Front Resin	S18T008312	Ammonia	µg/sample	95.9	<10.0	1.88E+03	10.0	
18-01497-8-tl2-ef-2	Back Resin	S18T008313	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-3	Total	S18T008288	Ammonia	µg/sample	n/a	<10.0	2.20E+03	10.0	H
18-01497-8-tl2-ef-3	Front Resin	S18T008314	Ammonia	µg/sample	95.9	<10.0	2.20E+03	10.0	
18-01497-8-tl2-ef-3	Back Resin	S18T008315	Ammonia	µg/sample	95.9	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-4	Total	S18T008289	Ammonia	µg/sample	n/a	<10.0	2.09E+03	10.0	
18-01497-8-tl2-ef-4	Front Resin	S18T008316	Ammonia	µg/sample	95.8	<10.0	2.09E+03	10.0	
18-01497-8-tl2-ef-4	Back Resin	S18T008317	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-5	Total	S18T008290	Ammonia	µg/sample	n/a	<10.0	2.37E+03	10.0	
18-01497-8-tl2-ef-5	Front Resin	S18T008318	Ammonia	µg/sample	95.8	<10.0	2.37E+03	10.0	
18-01497-8-tl2-ef-5	Back Resin	S18T008319	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-6	Total	S18T008291	Ammonia	µg/sample	n/a	<10.0	2.41E+03	10.0	
18-01497-8-tl2-ef-6	Front Resin	S18T008320	Ammonia	µg/sample	95.8	<10.0	2.41E+03	10.0	
18-01497-8-tl2-ef-6	Back Resin	S18T008321	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-7	Total	S18T008292	Ammonia	µg/sample	n/a	<10.0	2.60E+03	10.0	
18-01497-8-tl2-ef-7	Front Resin	S18T008322	Ammonia	µg/sample	95.8	<10.0	2.60E+03	10.0	
18-01497-8-tl2-ef-7	Back Resin	S18T008323	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-8	Total	S18T008293	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-8	Front Resin	S18T008324	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-ef-8	Back Resin	S18T008325	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-in-1	Total	S18T008294	Ammonia	µg/sample	n/a	<10.0	2.16E+03	10.0	
18-01497-8-tl2-in-1	Front Resin	S18T008326	Ammonia	µg/sample	95.8	<10.0	2.16E+03	10.0	
18-01497-8-tl2-in-1	Back Resin	S18T008327	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-in-2	Total	S18T008295	Ammonia	µg/sample	n/a	<10.0	2.04E+03	10.0	
18-01497-8-tl2-in-2	Front Resin	S18T008328	Ammonia	µg/sample	95.8	<10.0	2.04E+03	10.0	
18-01497-8-tl2-in-2	Back Resin	S18T008329	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	

18-01497-8-tl2-in-3	Total	S18T008296	Ammonia	µg/sample	n/a	<10.0	2.48E+03	10.0	
18-01497-8-tl2-in-3	Front Resin	S18T008330	Ammonia	µg/sample	95.8	<10.0	2.48E+03	10.0	
18-01497-8-tl2-in-3	Back Resin	S18T008331	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-in-4	Total	S18T008297	Ammonia	µg/sample	n/a	<10.0	2.07E+03	10.0	
18-01497-8-tl2-in-4	Front Resin	S18T008332	Ammonia	µg/sample	95.8	<10.0	2.07E+03	10.0	
18-01497-8-tl2-in-4	Back Resin	S18T008333	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-in-5	Total	S18T008298	Ammonia	µg/sample	n/a	<10.0	2.15E+03	10.0	
18-01497-8-tl2-in-5	Front Resin	S18T008334	Ammonia	µg/sample	95.8	<10.0	2.15E+03	10.0	
18-01497-8-tl2-in-5	Back Resin	S18T008335	Ammonia	µg/sample	95.8	<10.0	<10.0	10.0	
18-01497-8-tl2-in-6	Total	S18T008299	Ammonia	µg/sample	n/a	<10.0	2.23E+03	10.0	
18-01497-8-tl2-in-6	Front Resin	S18T008336	Ammonia	µg/sample	96.0	<10.0	2.23E+03	10.0	
18-01497-8-tl2-in-6	Back Resin	S18T008337	Ammonia	µg/sample	96.0	<10.0	<10.0	10.0	
18-01497-8-tl2-in-7	Total	S18T008300	Ammonia	µg/sample	n/a	<10.0	2.26E+03	10.0	
18-01497-8-tl2-in-7	Front Resin	S18T008338	Ammonia	µg/sample	96.0	<10.0	2.26E+03	10.0	
18-01497-8-tl2-in-7	Back Resin	S18T008339	Ammonia	µg/sample	96.0	<10.0	<10.0	10.0	
18-01497-8-tl2-in-8	Total	S18T008301	Ammonia	µg/sample	n/a	<10.0	2.01E+03	10.0	
18-01497-8-tl2-in-8	Front Resin	S18T008340	Ammonia	µg/sample	96.0	<10.0	2.01E+03	10.0	
18-01497-8-tl2-in-8	Back Resin	S18T008341	Ammonia	µg/sample	96.0	<10.0	<10.0	10.0	

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180596

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T008038	18-01494-7-sd1-ba-ef	Ammonia	03/14/2018 10:15	03/14/2018 23:24
S18T008039	18-01494-7-sd1-ba-ef	Ammonia	03/14/2018 10:15	03/14/2018 23:38
S18T008040	18-01494-7-sd1-ba-in	Ammonia	03/14/2018 10:15	03/15/2018 01:35
S18T008041	18-01494-7-sd1-ba-in	Ammonia	03/14/2018 10:15	03/15/2018 01:50
S18T008042	18-01494-7-sd1-bl-ef	Ammonia	03/14/2018 10:15	03/15/2018 02:04
S18T008043	18-01494-7-sd1-bl-ef	Ammonia	03/14/2018 10:15	03/15/2018 02:19
S18T008044	18-01494-7-sd1-bl-in	Ammonia	03/14/2018 10:15	03/15/2018 02:33
S18T008045	18-01494-7-sd1-bl-in	Ammonia	03/14/2018 10:15	03/15/2018 02:48
S18T008046	18-01494-7-sd1-ef-1	Ammonia	03/14/2018 10:15	03/15/2018 03:32
S18T008047	18-01494-7-sd1-ef-1	Ammonia	03/14/2018 10:15	03/15/2018 03:46
S18T008048	18-01494-7-sd1-ef-2	Ammonia	03/14/2018 10:15	03/15/2018 09:34
S18T008049	18-01494-7-sd1-ef-2	Ammonia	03/14/2018 10:15	03/15/2018 04:15
S18T008050	18-01494-7-sd1-ef-3	Ammonia	03/14/2018 10:15	03/15/2018 09:48
S18T008051	18-01494-7-sd1-ef-3	Ammonia	03/14/2018 10:15	03/15/2018 04:45
S18T008052	18-01494-7-sd1-ef-4	Ammonia	03/14/2018 10:15	03/15/2018 10:46
S18T008053	18-01494-7-sd1-ef-4	Ammonia	03/14/2018 10:15	03/15/2018 05:14
S18T008054	18-01494-7-sd1-ef-5	Ammonia	03/14/2018 10:15	03/15/2018 10:17
S18T008055	18-01494-7-sd1-ef-5	Ammonia	03/14/2018 10:15	03/15/2018 05:43
S18T008056	18-01494-7-sd1-ef-6	Ammonia	03/14/2018 10:15	03/15/2018 11:01
S18T008057	18-01494-7-sd1-ef-6	Ammonia	03/14/2018 10:15	03/15/2018 06:41
S18T008058	18-01494-7-sd1-ef-7	Ammonia	03/19/2018 13:50	03/20/2018 10:59
S18T008059	18-01494-7-sd1-ef-7	Ammonia	03/19/2018 13:50	03/20/2018 11:13
S18T008060	18-01494-7-sd1-ef-8	Ammonia	03/19/2018 13:50	03/22/2018 09:10
S18T008061	18-01494-7-sd1-ef-8	Ammonia	03/19/2018 13:50	03/20/2018 11:42
S18T008062	18-01494-7-sd1-in-1	Ammonia	03/19/2018 13:50	03/22/2018 09:25
S18T008063	18-01494-7-sd1-in-1	Ammonia	03/19/2018 13:50	03/20/2018 12:11
S18T008064	18-01494-7-sd1-in-2	Ammonia	03/19/2018 13:50	03/22/2018 09:40
S18T008065	18-01494-7-sd1-in-2	Ammonia	03/19/2018 13:50	03/20/2018 13:10
S18T008066	18-01494-7-sd1-in-3	Ammonia	03/19/2018 13:50	03/22/2018 09:54
S18T008067	18-01494-7-sd1-in-3	Ammonia	03/19/2018 13:50	03/20/2018 13:39
S18T008068	18-01494-7-sd1-in-4	Ammonia	03/19/2018 13:50	03/22/2018 10:09
S18T008069	18-01494-7-sd1-in-4	Ammonia	03/19/2018 13:50	03/20/2018 14:08
S18T008070	18-01494-7-sd1-in-5	Ammonia	03/19/2018 13:50	03/22/2018 10:23
S18T008071	18-01494-7-sd1-in-5	Ammonia	03/19/2018 13:50	03/20/2018 14:37
S18T008072	18-01494-7-sd1-in-6	Ammonia	03/19/2018 13:50	03/22/2018 10:38
S18T008073	18-01494-7-sd1-in-6	Ammonia	03/19/2018 13:50	03/20/2018 15:06
S18T008074	18-01494-7-sd1-in-7	Ammonia	03/19/2018 13:50	03/22/2018 10:52
S18T008075	18-01494-7-sd1-in-7	Ammonia	03/19/2018 13:50	03/20/2018 16:05
S18T008076	18-01494-7-sd1-in-8	Ammonia	03/19/2018 13:50	03/22/2018 11:07
S18T008077	18-01494-7-sd1-in-8	Ammonia	03/19/2018 13:50	03/20/2018 16:34
S18T008098	18-01495-7-sc1-ba-ef	Ammonia	03/19/2018 13:50	03/20/2018 18:31
S18T008099	18-01495-7-sc1-ba-ef	Ammonia	03/19/2018 13:50	03/20/2018 18:45
S18T008100	18-01495-7-sc1-ba-in	Ammonia	03/19/2018 13:50	03/20/2018 19:00
S18T008101	18-01495-7-sc1-ba-in	Ammonia	03/19/2018 13:50	03/20/2018 19:14
S18T008102	18-01495-7-sc1-bl-ef	Ammonia	03/19/2018 13:50	03/20/2018 19:29
S18T008103	18-01495-7-sc1-bl-ef	Ammonia	03/19/2018 13:50	03/20/2018 19:43

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180596

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T008104	18-01495-7-sc1-bl-in	Ammonia	03/19/2018 13:50	03/20/2018 20:27
S18T008105	18-01495-7-sc1-bl-in	Ammonia	03/19/2018 13:50	03/20/2018 20:42
S18T008106	18-01495-7-sc1-ef-1	Ammonia	03/19/2018 13:50	03/22/2018 11:22
S18T008107	18-01495-7-sc1-ef-1	Ammonia	03/19/2018 13:50	03/20/2018 21:11
S18T008108	18-01495-7-sc1-ef-2	Ammonia	03/19/2018 13:50	03/22/2018 12:05
S18T008109	18-01495-7-sc1-ef-2	Ammonia	03/19/2018 13:50	03/20/2018 21:40
S18T008110	18-01495-7-sc1-ef-3	Ammonia	03/19/2018 13:50	03/22/2018 12:20
S18T008111	18-01495-7-sc1-ef-3	Ammonia	03/19/2018 13:50	03/20/2018 22:09
S18T008112	18-01495-7-sc1-ef-4	Ammonia	03/19/2018 13:50	03/22/2018 12:35
S18T008113	18-01495-7-sc1-ef-4	Ammonia	03/19/2018 13:50	03/20/2018 22:38
S18T008114	18-01495-7-sc1-ef-5	Ammonia	03/19/2018 13:50	03/22/2018 12:49
S18T008115	18-01495-7-sc1-ef-5	Ammonia	03/19/2018 13:50	03/20/2018 23:37
S18T008116	18-01495-7-sc1-ef-6	Ammonia	03/20/2018 10:25	03/22/2018 13:33
S18T008117	18-01495-7-sc1-ef-6	Ammonia	03/20/2018 10:25	03/21/2018 11:56
S18T008118	18-01495-7-sc1-ef-7	Ammonia	03/20/2018 10:25	03/22/2018 13:47
S18T008119	18-01495-7-sc1-ef-7	Ammonia	03/20/2018 10:25	03/21/2018 12:25
S18T008120	18-01495-7-sc1-ef-8	Ammonia	03/20/2018 10:25	03/22/2018 14:02
S18T008121	18-01495-7-sc1-ef-8	Ammonia	03/20/2018 10:25	03/21/2018 12:54
S18T008122	18-01495-7-sc1-in-1	Ammonia	03/20/2018 10:25	03/22/2018 14:17
S18T008123	18-01495-7-sc1-in-1	Ammonia	03/20/2018 10:25	03/21/2018 13:52
S18T008124	18-01495-7-sc1-in-2	Ammonia	03/20/2018 10:25	03/22/2018 14:31
S18T008125	18-01495-7-sc1-in-2	Ammonia	03/20/2018 10:25	03/21/2018 14:21
S18T008126	18-01495-7-sc1-in-3	Ammonia	03/20/2018 10:25	03/22/2018 14:46
S18T008127	18-01495-7-sc1-in-3	Ammonia	03/20/2018 10:25	03/21/2018 14:51
S18T008128	18-01495-7-sc1-in-4	Ammonia	03/20/2018 10:25	03/22/2018 15:00
S18T008129	18-01495-7-sc1-in-4	Ammonia	03/20/2018 10:25	03/21/2018 15:20
S18T008130	18-01495-7-sc1-in-5	Ammonia	03/20/2018 10:25	03/22/2018 15:15
S18T008131	18-01495-7-sc1-in-5	Ammonia	03/20/2018 10:25	03/21/2018 15:49
S18T008132	18-01495-7-sc1-in-6	Ammonia	03/20/2018 10:25	03/22/2018 15:30
S18T008133	18-01495-7-sc1-in-6	Ammonia	03/20/2018 10:25	03/21/2018 16:47
S18T008134	18-01495-7-sc1-in-7	Ammonia	03/20/2018 10:25	03/22/2018 15:44
S18T008135	18-01495-7-sc1-in-7	Ammonia	03/20/2018 10:25	03/21/2018 17:16
S18T008136	18-01495-7-sc1-in-8	Ammonia	03/20/2018 10:25	03/22/2018 16:28
S18T008137	18-01495-7-sc1-in-8	Ammonia	03/20/2018 10:25	03/21/2018 19:28
S18T008158	18-01496-8-TL1-BA-EF	Ammonia	03/20/2018 10:25	03/21/2018 19:42
S18T008159	18-01496-8-TL1-BA-EF	Ammonia	03/20/2018 10:25	03/21/2018 19:57
S18T008160	18-01496-8-tl1-ba-in	Ammonia	03/20/2018 10:25	03/21/2018 20:11
S18T008161	18-01496-8-tl1-ba-in	Ammonia	03/20/2018 10:25	03/21/2018 20:26
S18T008162	18-01496-8-tl1-bl-ef	Ammonia	03/20/2018 10:25	03/21/2018 21:10
S18T008163	18-01496-8-tl1-bl-ef	Ammonia	03/20/2018 10:25	03/21/2018 21:24
S18T008164	18-01496-8-tl1-bl-in	Ammonia	03/20/2018 10:25	03/21/2018 21:39
S18T008165	18-01496-8-tl1-bl-in	Ammonia	03/20/2018 10:25	03/21/2018 21:53
S18T008166	18-01496-8-tl1-ef-1	Ammonia	03/20/2018 10:25	03/21/2018 22:08
S18T008167	18-01496-8-tl1-ef-1	Ammonia	03/20/2018 10:25	03/21/2018 22:23
S18T008168	18-01496-8-tl1-ef-2	Ammonia	03/20/2018 10:25	03/21/2018 22:37
S18T008169	18-01496-8-tl1-ef-2	Ammonia	03/20/2018 10:25	03/21/2018 22:52

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180596

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T008170	18-01496-8-tl1-ef-3	Ammonia	03/20/2018 10:25	03/21/2018 23:06
S18T008171	18-01496-8-tl1-ef-3	Ammonia	03/20/2018 10:25	03/21/2018 23:21
S18T008172	18-01496-8-tl1-ef-4	Ammonia	03/20/2018 10:25	03/22/2018 16:42
S18T008173	18-01496-8-tl1-ef-4	Ammonia	03/20/2018 10:25	03/22/2018 00:19
S18T008174	18-01496-8-tl1-ef-5	Ammonia	03/22/2018 11:20	03/28/2018 09:59
S18T008175	18-01496-8-tl1-ef-5	Ammonia	03/22/2018 11:20	03/27/2018 12:33
S18T008176	18-01496-8-tl1-ef-6	Ammonia	03/22/2018 11:20	03/28/2018 10:14
S18T008177	18-01496-8-tl1-ef-6	Ammonia	03/22/2018 11:20	03/27/2018 13:02
S18T008178	18-01496-8-tl1-ef-7	Ammonia	03/22/2018 11:20	03/27/2018 13:17
S18T008179	18-01496-8-tl1-ef-7	Ammonia	03/22/2018 11:20	03/30/2018 13:35
S18T008180	18-01496-8-tl1-ef-8	Ammonia	03/22/2018 11:20	03/28/2018 10:28
S18T008181	18-01496-8-tl1-ef-8	Ammonia	03/22/2018 11:20	03/27/2018 14:30
S18T008182	18-01496-8-tl1-in-1	Ammonia	03/22/2018 11:20	03/28/2018 10:43
S18T008183	18-01496-8-tl1-in-1	Ammonia	03/22/2018 11:20	03/27/2018 14:59
S18T008184	18-01496-8-tl1-in-2	Ammonia	03/22/2018 11:20	03/28/2018 10:58
S18T008185	18-01496-8-tl1-in-2	Ammonia	03/22/2018 11:20	03/27/2018 15:28
S18T008186	18-01496-8-tl1-in-3	Ammonia	03/22/2018 11:20	03/28/2018 11:12
S18T008187	18-01496-8-tl1-in-3	Ammonia	03/22/2018 11:20	03/27/2018 15:57
S18T008188	18-01496-8-tl1-in-4	Ammonia	03/22/2018 11:20	03/28/2018 11:27
S18T008189	18-01496-8-tl1-in-4	Ammonia	03/22/2018 11:20	03/28/2018 11:41
S18T008190	18-01496-8-tl1-in-5	Ammonia	03/22/2018 11:20	03/28/2018 11:56
S18T008191	18-01496-8-tl1-in-5	Ammonia	03/22/2018 11:20	03/27/2018 17:25
S18T008192	18-01496-8-tl1-in-6	Ammonia	03/22/2018 11:20	03/28/2018 12:11
S18T008193	18-01496-8-tl1-in-6	Ammonia	03/22/2018 11:20	03/27/2018 17:54
S18T008194	18-01496-8-tl1-in-7	Ammonia	03/22/2018 11:20	03/28/2018 12:54
S18T008195	18-01496-8-tl1-in-7	Ammonia	03/22/2018 11:20	03/27/2018 20:05
S18T008196	18-01496-8-tl1-in-8	Ammonia	03/22/2018 11:20	03/28/2018 13:09
S18T008197	18-01496-8-tl1-in-8	Ammonia	03/22/2018 11:20	03/27/2018 20:34
S18T008302	18-01497-8-tl2-ba-ef	Ammonia	03/22/2018 11:20	03/27/2018 20:49
S18T008303	18-01497-8-tl2-ba-ef	Ammonia	03/22/2018 11:20	03/27/2018 21:03
S18T008304	18-01497-8-tl2-ba-in	Ammonia	03/22/2018 11:20	03/27/2018 21:47
S18T008305	18-01497-8-tl2-ba-in	Ammonia	03/22/2018 11:20	03/27/2018 22:02
S18T008306	18-01497-8-tl2-bl-ef	Ammonia	03/22/2018 11:20	03/27/2018 22:16
S18T008307	18-01497-8-tl2-bl-ef	Ammonia	03/22/2018 11:20	03/27/2018 22:31
S18T008308	18-01497-8-tl2-bl-in	Ammonia	03/22/2018 11:20	03/27/2018 22:45
S18T008309	18-01497-8-tl2-bl-in	Ammonia	03/22/2018 11:20	03/27/2018 23:00
S18T008310	18-01497-8-tl2-ef-1	Ammonia	03/22/2018 11:20	03/28/2018 13:23
S18T008311	18-01497-8-tl2-ef-1	Ammonia	03/22/2018 11:20	03/27/2018 23:29
S18T008312	18-01497-8-tl2-ef-2	Ammonia	03/22/2018 11:20	03/28/2018 13:38
S18T008313	18-01497-8-tl2-ef-2	Ammonia	03/22/2018 11:20	03/27/2018 23:58
S18T008314	18-01497-8-tl2-ef-3	Ammonia	03/22/2018 11:20	03/28/2018 13:53
S18T008315	18-01497-8-tl2-ef-3	Ammonia	03/22/2018 11:20	03/28/2018 00:57
S18T008316	18-01497-8-tl2-ef-4	Ammonia	03/22/2018 13:10	03/24/2018 08:43
S18T008317	18-01497-8-tl2-ef-4	Ammonia	03/22/2018 13:10	03/23/2018 10:07
S18T008318	18-01497-8-tl2-ef-5	Ammonia	03/22/2018 13:10	03/24/2018 08:58
S18T008319	18-01497-8-tl2-ef-5	Ammonia	03/22/2018 13:10	03/23/2018 10:36

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180596

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T008320	18-01497-8-tl2-ef-6	Ammonia	03/22/2018 13:10	03/24/2018 09:13
S18T008321	18-01497-8-tl2-ef-6	Ammonia	03/22/2018 13:10	03/23/2018 11:05
S18T008322	18-01497-8-tl2-ef-7	Ammonia	03/22/2018 13:10	03/24/2018 09:27
S18T008323	18-01497-8-tl2-ef-7	Ammonia	03/22/2018 13:10	03/23/2018 12:03
S18T008324	18-01497-8-tl2-ef-8	Ammonia	03/22/2018 13:10	03/23/2018 12:18
S18T008325	18-01497-8-tl2-ef-8	Ammonia	03/22/2018 13:10	03/23/2018 12:33
S18T008326	18-01497-8-tl2-in-1	Ammonia	03/22/2018 13:10	03/24/2018 09:42
S18T008327	18-01497-8-tl2-in-1	Ammonia	03/22/2018 13:10	03/23/2018 13:02
S18T008328	18-01497-8-tl2-in-2	Ammonia	03/22/2018 13:10	03/24/2018 09:56
S18T008329	18-01497-8-tl2-in-2	Ammonia	03/22/2018 13:10	03/23/2018 13:31
S18T008330	18-01497-8-tl2-in-3	Ammonia	03/22/2018 13:10	03/24/2018 10:11
S18T008331	18-01497-8-tl2-in-3	Ammonia	03/22/2018 13:10	03/23/2018 14:00
S18T008332	18-01497-8-tl2-in-4	Ammonia	03/22/2018 13:10	03/24/2018 10:25
S18T008333	18-01497-8-tl2-in-4	Ammonia	03/22/2018 13:10	03/23/2018 14:58
S18T008334	18-01497-8-tl2-in-5	Ammonia	03/22/2018 13:10	03/24/2018 10:40
S18T008335	18-01497-8-tl2-in-5	Ammonia	03/22/2018 13:10	03/23/2018 15:28
S18T008336	18-01497-8-tl2-in-6	Ammonia	03/22/2018 13:10	03/24/2018 11:24
S18T008337	18-01497-8-tl2-in-6	Ammonia	03/22/2018 13:10	03/23/2018 17:39
S18T008338	18-01497-8-tl2-in-7	Ammonia	03/22/2018 13:10	03/24/2018 11:38
S18T008339	18-01497-8-tl2-in-7	Ammonia	03/22/2018 13:10	03/23/2018 18:08
S18T008340	18-01497-8-tl2-in-8	Ammonia	03/22/2018 13:10	03/24/2018 11:53
S18T008341	18-01497-8-tl2-in-8	Ammonia	03/22/2018 13:10	03/23/2018 18:37

Attachment 3

RECEIPT PAPERWORK

20180596 Rev.0

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-1

Date Samples Received: 2-26-18 Total Number of Samples: 997 Group No.: 20180596

Sample Custodian: Don Sorensen IH Technician: Ryan Burns

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC/SC Initials: DS Date: 2-26-18

If No, comment on communication and resolution:

WRPS Ship 600
Run 238

WH2 NH380 Hg80

Number of IH Samples Received: Acetonitrile 80

Aldehyde Screen: 80	Amines: 80	Ammonia: 80	Aromatic HC:		Asbestos:
Beryllium:	Be-Bulk:	Be-Filter:	Be-Wipe:		1, 3-Butadiene: 160
Formaldehyde:	Furans: 80	Mercury: 79	Methanol: 40		Nitrosamines: 80
Nitrous Oxide:	Pyridines: 80	SVOA: 79	VOA: 79		Other-IH:

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
18T008018	18-01494-7-SD1-BA-EF / CISA (SKC 226-29) # — 18T008038 18T008039	NH3 Source
18T008019	18-01494-7-SD1-BA-IN / CISA (SKC 226-29) # — 18T008040 18T008041	NH3 Source
18T008020	18-01494-7-SD1-BL-EF / CISA (SKC 226-29) # — 18T008042 18T008043	NH3 Source
18T008021	18-01494-7-SD1-BL-IN / CISA (SKC 226-29) # — 18T008044 18T008045	NH3 Source
18T008022	18-01494-7-SD1-EF-1 / CISA (SKC 226-29) # — 18T008046 18T008047	NH3 Source
18T008023	18-01494-7-SD1-EF-2 / CISA (SKC 226-29) # — 18T008048 18T008049	NH3 Source
18T008024	18-01494-7-SD1-EF-3 / CISA (SKC 226-29) # — 18T008050 18T008051	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stayle	Ryan M. Stayle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Shannon Lloyd	Shannon Lloyd	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T008025	18-01494-7-SD1-EF-4 / CISA (SKC 226-29) 518T008052 518T008053	NH3 Source
518T008026	18-01494-7-SD1-EF-5 / CISA (SKC 226-29) 518T008054 518T008055	NH3 Source
518T008027	18-01494-7-SD1-EF-6 / CISA (SKC 226-29) 518T008056 518T008057	NH3 Source
518T008028	18-01494-7-SD1-EF-7 / CISA (SKC 226-29) 518T008058 518T008059	NH3 Source
518T008029	18-01494-7-SD1-EF-8 / CISA (SKC 226-29) 518T008060 518T008061	NH3 Source
518T008030	18-01494-7-SD1-IN-1 / CISA (SKC 226-29) 518T008062 518T008063	NH3 Source
518T008031	18-01494-7-SD1-IN-2 / CISA (SKC 226-29) 518T008064 518T008065	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R.M.S	Ryan M. Stegle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Sharon Lilolde	Sharon Lilolde	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
18T008032	18-01494-7-SD1-IN-3 / CISA (SKC 226-29) / 18T00806 6 [redacted] 18T00807	NH3 Source
18T008033	18-01494-7-SD1-IN-4 / CISA (SKC 226-29) / 18T00808 [redacted] 18T00809	NH3 Source
18T008034	18-01494-7-SD1-IN-5 / CISA (SKC 226-29) / 18T00810 [redacted] 18T00811	NH3 Source
18T008035	18-01494-7-SD1-IN-6 / CISA (SKC 226-29) / 18T00812 [redacted] 18T00813	NH3 Source
18T008036	18-01494-7-SD1-IN-7 / CISA (SKC 226-29) / 18T00814 [redacted] 18T00815	NH3 Source
18T008037	18-01494-7-SD1-IN-8 / CISA (SKC 226-29) / 18T00816 [redacted] 18T00817	NH3 Source
	~~18-01494-12-SD1-BA-EF / Thermosorb-N (TDX)~~ KPB 2/21/18 [redacted]	~~Nitrosamines Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stanglt	M0252	2-24-18	0600
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNG	2-26-18	1430
Received By:	[signature]	Sharon L Waldele	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
518T008078	18-01495-7-SC1-BA-EF / CISA (SKC 226-29)	518T008098 • 518T008099	NH3 Source
518T008079	18-01495-7-SC1-BA-IN / CISA (SKC 226-29)	518T008100 • 518T008101	NH3 Source
518T008080	18-01495-7-SC1-BL-EF / CISA (SKC 226-29)	518T008102 • 518T008103	NH3 Source
518T008081	18-01495-7-SC1-BL-IN / CISA (SKC 226-29)	518T008104 • 518T008105	NH3 Source
518T008082	18-01495-7-SC1-EF-1 / CISA (SKC 226-29)	518T008106 • 518T008107	NH3 Source
518T008083	18-01495-7-SC1-EF-2 / CISA (SKC 226-29)	518T008108 • 518T008109	NH3 Source
518T008084	18-01495-7-SC1-EF-3 / CISA (SKC 226-29)	518T008110 • 518T008111	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stenzel	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	RYAN BURNS		2/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2-26-18	1430
Received By:	[signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
518T008085	18-01495-7-SC1-EF-4 / CISA (SKC 226-29)	518T008112 518T008113	NH3 Source
518T008086	18-01495-7-SC1-EF-5 / CISA (SKC 226-29)	518T008114 518T008115	NH3 Source
518T008087	18-01495-7-SC1-EF-6 / CISA (SKC 226-29)	518T008116 518T008117	NH3 Source
518T008088	18-01495-7-SC1-EF-7 / CISA (SKC 226-29)	518T008118 518T008119	NH3 Source
518T008089	18-01495-7-SC1-EF-8 / CISA (SKC 226-29)	518T008120 518T008121	NH3 Source
518T008090	18-01495-7-SC1-IN-1 / CISA (SKC 226-29)	518T008122 518T008123	NH3 Source
518T008091	18-01495-7-SC1-IN-2 / CISA (SKC 226-29)	518T008124 518T008125	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1480
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T008092	18-01495-7-SC1-IN-3 / CISA (SKC 226-29)	S18T008126 S18T008127	NH3 Source
S18T008093	18-01495-7-SC1-IN-4 / CISA (SKC 226-29)	S18T008128 S18T008129	NH3 Source
S18T008094	18-01495-7-SC1-IN-5 / CISA (SKC 226-29)	S18T008130 S18T008131	NH3 Source
S18T008095	18-01495-7-SC1-IN-6 / CISA (SKC 226-29)	S18T008132 S18T008133	NH3 Source
S18T008096	18-01495-7-SC1-IN-7 / CISA (SKC 226-29)	S18T008134 S18T008135	NH3 Source
S18T008097	18-01495-7-SC1-IN-8 / CISA (SKC 226-29)	S18T008136 S18T008137	NH3 Source
	~~18-01495-12-SC1-BA-EF / Thermosorb-N (TDX)~~	ZJW 02-21-18	~~Nitrosamines Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R.M.S.	Ryan M. Stangle	M0252	~~2-25-18~~	0530
Retrieved from Storage:	[signature]	RYAN BURNS		2/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-5 / Silica Gel (SKC-226-51) KDB 3/21/18	Methanol Source
	18-01496-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
5187008138	18-01496-8-TL1-BA-EF / CISA (SKC 226-29) 5187008158 5187008189	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Strangle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN [illegible]		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T008139	18-01496-8-TL1-BA-IN / CISA (SKC 226-29) — 518T008160 / 518T008161	NH3 Source
518T008140	18-01496-8-TL1-BL-EF / CISA (SKC 226-29) 518T008162 / 518T008163	NH3 Source
518T008140	18-01496-8-TL1-BL-IN / CISA (SKC 226-29) — 518T008164 / 518T008165	NH3 Source
518T008142	18-01496-8-TL1-EF-1 / CISA (SKC 226-29) 518T008166 / 518T008167	NH3 Source
518T008143	18-01496-8-TL1-EF-2 / CISA (SKC 226-29) 518T008168 / 518T008169	NH3 Source
518T008144	18-01496-8-TL1-EF-3 / CISA (SKC 226-29) 518T008170 / 518T008171	NH3 Source
518T008145	18-01496-8-TL1-EF-4 / CISA (SKC 226-29) 518T008172 / 518T008173	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stk	Ryan M. Stanley	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN [illegible]		2-26-18	0730

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:	Leslie Diaz	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T008146	18-01496-8-TL1-EF-5 / CISA (SKC 226-29) 518T008174 518T008175	NH3 Source
518T008147	18-01496-8-TL1-EF-6 / CISA (SKC 226-29) 518T008176 518T008177	NH3 Source
518T008148	18-01496-8-TL1-EF-7 / CISA (SKC 226-29) 518T008178 518T008179	NH3 Source
518T008149	18-01496-8-TL1-EF-8 / CISA (SKC 226-29) 518T008180 518T008181	NH3 Source
518T008150	18-01496-8-TL1-IN-1 / CISA (SKC 226-29) 518T008182 518T008183	NH3 Source
518T008151	18-01496-8-TL1-IN-2 / CISA (SKC 226-29) 518T008184 518T008185	NH3 Source
518T008152	18-01496-8-TL1-IN-3 / CISA (SKC 226-29) 518T008186 518T008187	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. S	Ryan M. Steingle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	226-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T008153	18-01496-8-TL1-IN-4 / CISA (SKC 226-29) 518T008188	NH3 Source
	[redacted] 518T008189	
518T008154	18-01496-8-TL1-IN-5 / CISA (SKC 226-29) 518T008190	NH3 Source
	[redacted] 518T008191	
518T008155	18-01496-8-TL1-IN-6 / CISA (SKC 226-29) 518T008192	NH3 Source
	[redacted] 518T008193	
518T008156	18-01496-8-TL1-IN-7 / CISA (SKC 226-29) 518T008194	NH3 Source
	[redacted] 518T008195	
518T008157	18-01496-8-TL1-IN-8 / CISA (SKC 226-29) 518T008196	NH3 Source
	[redacted] 518T008197	
	18-01496-13-TL1-BA-EF / Thermosorb-N (TDX) [redacted] RDB 2/21/18	Nitrosamines Source
	18-01496-13-TL1-BA-IN / Thermosorb-N (TDX) [redacted]	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stenzel	M0252	2-24-18	0700
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	LESLIE DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWHD - Chain of Custody 20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
518T008282	18-01497-8-TL2-BA-EE / CISA (SKC 226-29) 518T008302 518T008303	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steinle	M0252	2-24-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DN Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T008283	18-01497-8-TL2-BA-IN / CISA (SKC 226-29) 518T008304	NH3 Source
	518T008305	
518T008284	18-01497-8-TL2-BL-EF / CISA (SKC 226-29) 518T008306	NH3 Source
	518T008307	
518T008285	18-01497-8-TL2-BL-IN / CISA (SKC 226-29) 518T008308	NH3 Source
	518T008309	
518T008286	18-01497-8-TL2-EF-1 / CISA (SKC 226-29) 518T008310	NH3 Source
	518T008311	
518T008287	18-01497-8-TL2-EF-2 / CISA (SKC 226-29) 518T008312	NH3 Source
	518T008313	
518T008288	18-01497-8-TL2-EF-3 / CISA (SKC 226-29) 518T008314	NH3 Source
	518T008315	
518T008289	18-01497-8-TL2-EF-4 / CISA (SKC 226-29) 518T008316	NH3 Source
	518T008317	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stayle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DN Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
518T008290	18-01497-8-TL2-EF-5 / CISA (SKC 226-29) — 518T008318 / 518T008319	NH3 Source
518T008291	18-01497-8-TL2-EF-6 / CISA (SKC 226-29) — 518T008320 / 518T008321	NH3 Source
518T008292	18-01497-8-TL2-EF-7 / CISA (SKC 226-29) — 518T008322 / 518T008323	NH3 Source
518T008293	18-01497-8-TL2-EF-8 / CISA (SKC 226-29) — 518T008324 / 518T008325	NH3 Source
518T008294	18-01497-8-TL2-IN-1 / CISA (SKC 226-29) — 518T008326 / 518T008327	NH3 Source
518T008295	18-01497-8-TL2-IN-2 / CISA (SKC 226-29) — 518T008328 / 518T008329	NH3 Source
518T008296	18-01497-8-TL2-IN-3 / CISA (SKC 226-29) — 518T008330 / 518T008331	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stgl	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:		DR Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180596 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T008297	18-01497-8-TL2-IN-4 / CISA (SKC 226-29)	S18T008332 S18T008333	NH3 Source
S18T008298	18-01497-8-TL2-IN-5 / CISA (SKC 226-29)	S18T008334 S18T008335	NH3 Source
S18T008299 S18T008298	18-01497-8-TL2-IN-6 / CISA (SKC 226-29)	S18T008336 S18T008337	NH3 Source
S18T008300	18-01497-8-TL2-IN-7 / CISA (SKC 226-29)	S18T008338 S18T008339	NH3 Source
S18T008301	18-01497-8-TL2-IN-8 / CISA (SKC 226-29)	S18T008340 S18T008341	NH3 Source
	18-01497-13-TL2-BA-EF / Thermosorb-N (TDX)	E/W 02-21-18	Nitrosamines Source
	18-01497-13-TL2-BA-IN / Thermosorb-N (TDX)		Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stayle	Ryan M. Stayle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		IVAN BURNS	2/26/18	1430
Received By:		D Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

C.4.9 Aldehydes

ANALYTICAL REPORT

Report Date: March 23, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006543** Collected: 02/23/2018
Lab ID: 1806057001 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: EPA TO-11A Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006544** Collected: 02/23/2018
Lab ID: 1806057002 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: EPA TO-11A Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.98**	NA	NA	0.050
Acetaldehyde	**0.37**	NA	NA	0.050
Acetone	**4.3**	NA	NA	0.050

Results Continued on Next Page

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006544**			Collected: 02/23/2018
Lab ID: 1806057002	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006545**			Collected: 02/23/2018
Lab ID: 1806057003	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	3.2	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006546**				Collected: 02/23/2018
Lab ID: 1806057004	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**2.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006547**				Collected: 02/23/2018
Lab ID: 1806057005	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.075**	NA	NA	0.050
Acetaldehyde	**0.083**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006548**				Collected: 02/23/2018
Lab ID: 1806057006	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.072**	NA	NA	0.050
Acetaldehyde	**0.29**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006549**				Collected: 02/23/2018
Lab ID: 1806057007	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.051**	NA	NA	0.050
Acetaldehyde	**0.19**	NA	NA	0.050
Acetone	**3.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006550**			Collected: 02/23/2018
Lab ID: 1806057008	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.18**	NA	NA	0.050
Acetone	**2.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006551**			Collected: 02/23/2018
Lab ID: 1806057009	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.19**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006552**				Collected: 02/23/2018
Lab ID: 1806057010	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: Air Volume Not Provided			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.22**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006553**				Collected: 02/23/2018
Lab ID: 1806057011	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: Air Volume Not Provided			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.064**	NA	NA	0.050
Acetaldehyde	**0.25**	NA	NA	0.050
Acetone	**5.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006554**				Collected: 02/23/2018
Lab ID: 1806057012	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.051**	NA	NA	0.050
Acetaldehyde	**0.26**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006555**				Collected: 02/23/2018
Lab ID: 1806057013	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.099**	NA	NA	0.050
Acetaldehyde	**4.3**	NA	NA	0.050
Acetone	**87**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.3**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.8**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.62**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006556**			Collected: 02/23/2018
Lab ID: 1806057014	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/02/2018 (209639)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	**3.8**	NA	NA	0.050
Acetone	**84**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.2**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.6**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.58**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006557**			Collected: 02/23/2018
Lab ID: 1806057015	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/02/2018 (209639)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.064**	NA	NA	0.050
Acetaldehyde	**3.7**	NA	NA	0.050
Acetone	**81**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.5**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.53**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006558**			Collected: 02/23/2018
Lab ID: 1806057016	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.078**	NA	NA	0.050
Acetaldehyde	**1.3**	NA	NA	0.050
Acetone	**29**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.77**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.79**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.20**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006559**			Collected: 02/23/2018
Lab ID: 1806057017	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**85**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.5**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.59**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006560**			Collected: 02/23/2018
Lab ID: 1806057018	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.082**	NA	NA	0.050
Acetaldehyde	**3.4**	NA	NA	0.050
Acetone	**79**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.2**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.43**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006561**			Collected: 02/23/2018
Lab ID: 1806057019	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.056**	NA	NA	0.050
Acetaldehyde	**3.6**	NA	NA	0.050
Acetone	**80**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.4**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.48**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006562**				Collected: 02/23/2018
Lab ID: 1806057020	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/02/2018 (209639)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.079**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**81**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.7**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.60**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006563**				Collected: 02/23/2018
Lab ID: 1806057021	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209694)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.062**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**2.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006564**			Collected: 02/23/2018
Lab ID: 1806057022	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.46**	NA	NA	0.050
Acetaldehyde	**0.23**	NA	NA	0.050
Acetone	**4.8**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006565**			Collected: 02/23/2018
Lab ID: 1806057023	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006566**			Collected: 02/23/2018
Lab ID: 1806057024	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.054**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**4.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006567**			Collected: 02/23/2018
Lab ID: 1806057025	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.14**	NA	NA	0.050
Acetaldehyde	**0.24**	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006568**			Collected: 02/23/2018
Lab ID: 1806057026	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**2.2**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006569**			Collected: 02/23/2018
Lab ID: 1806057027	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.19**	NA	NA	0.050
Acetaldehyde	**2.6**	NA	NA	0.050
Acetone	**2.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006570**			Collected: 02/23/2018
Lab ID: 1806057028	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.077**	NA	NA	0.050
Acetaldehyde	**1.7**	NA	NA	0.050
Acetone	**3.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006571**			Collected: 02/23/2018
Lab ID: 1806057029	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.079**	NA	NA	0.050
Acetaldehyde	**1.3**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006572**			Collected: 02/23/2018
Lab ID: 1806057030	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**1.7**	NA	NA	0.050
Acetone	**4.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006573**			Collected: 02/23/2018
Lab ID: 1806057031	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**2.4**	NA	NA	0.050
Acetone	**3.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006574**			Collected: 02/23/2018
Lab ID: 1806057032	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**3.7**	NA	NA	0.050
Acetone	**4.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006575**			Collected: 02/23/2018
Lab ID: 1806057033	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**35**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.7**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.47**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006576**			Collected: 02/23/2018
Lab ID: 1806057034	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.19**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**37**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.8**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.46**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006577**			Collected: 02/23/2018
Lab ID: 1806057035	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209694)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**6.0**	NA	NA	0.050
Acetone	**56**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**3.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**4.4**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.85**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006578**			Collected: 02/23/2018
Lab ID: 1806057036	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**5.4**	NA	NA	0.050
Acetone	**49**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.7**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**4.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.74**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006579**			Collected: 02/23/2018
Lab ID: 1806057037	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**5.1**	NA	NA	0.050
Acetone	**49**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.6**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**3.6**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.63**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006580**				Collected: 02/23/2018
Lab ID: 1806057038	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: Air Volume Not Provided			Analyzed: 03/06/2018 (209694)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**5.0**	NA	NA	0.050
Acetone	**46**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.6**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**3.7**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.70**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006581**				Collected: 02/23/2018
Lab ID: 1806057039	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: Air Volume Not Provided			Analyzed: 03/06/2018 (209694)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**2.8**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.42**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006582** Collected: 02/23/2018
Lab ID: 1806057040 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.073**	NA	NA	0.050
Acetaldehyde	**2.7**	NA	NA	0.050
Acetone	**27**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.9**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.32**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Comments

Workorder: 1806057

Amended TO-11A: Report was re-issued on 03/19/18 because the reporting limit was not adjusted for total acetone in samples 1806057(013-015, 017-020) in the original report. The reporting limit for total acetone was adjusted to 0.1 ug/sample for these samples before resubmitting the report. The results for the remaining compounds in these samples were also changed because the original results were derived from the diluted samples of the A sections, not the undiluted samples. The results from the undiluted samples were used for the A sections in samples 1806057(013-015, 017-020) for all compounds except acetone before resubmitting the report.

Amended TO-11A 3/23/18: The 3/19/18 sample comments above should have also listed samples 1806057(035-037). The only change to the report was the addition of this comment.

Quality Control: EPA TO-11A - (HBN: 209639)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

TO-11A: The result for 2, 5-dimethylbenzaldehyde in the LCSD failed ALS historical limits but passes general laboratory limits. Furthermore, no analyte was found in any of the field samples so no further action was taken.

Quality Control: EPA TO-11A - (HBN: 209694)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA TO-11A	/S/ Easton Welcher 03/08/2018 14:06	/S/ Lyle Edwards 03/09/2018 12:45
EPA TO-11A	/S/ Easton Welcher 03/12/2018 09:25	/S/ Thomas Bosch 03/12/2018 14:51

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18096 (HBN: 209639)
Analyzed By: Easton Welcher

Blank

LMB: 589657
Analyzed: 03/02/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.100	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589658
Analyzed: 03/02/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589659
Analyzed: 03/02/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result		%Rec	RPD	QC Limits	
Formaldehyde	3.04	3.00	101	87.8	116.8	2.96		98.7	2.70	0.0	20.0
Acetaldehyde	2.99	3.00	99.6	94.7	110.5	3.03		101	1.26	0.0	20.0
Acetone	3.05	3.00	102	69.2	119.9	2.99		99.8	1.72	0.0	20.0
Acrolein	2.92	3.00	97.3	83.5	120.2	2.91		97.0	0.377	0.0	20.0
Propionaldehyde	2.96	3.00	98.5	92.2	117.2	2.93		97.7	0.850	0.0	20.0
Crotonaldehyde	3.02	3.00	101	93.1	114.8	3.07		102	1.81	0.0	20.0
Butyraldehyde	2.98	3.00	99.2	86.6	120.8	2.92		97.4	1.80	0.0	20.0
Benzaldehyde	2.94	3.00	98.0	96.0	112.3	2.93		97.7	0.341	0.0	20.0
Isovaleraldehyde	3.14	3.00	105	95.4	121.6	3.14		105	0.287	0.0	20.0
Valeraldehyde	2.81	3.00	93.6	85.3	120.4	2.77		92.3	1.43	0.0	20.0
m,p-Tolualdehyde	2.96	3.00	98.7	80.0	120.0	2.98		99.3	0.673	0.0	20.0
o-Tolualdehyde	2.89	3.00	96.4	91.6	111.4	2.87		95.7	0.694	0.0	20.0
Hexanal	2.96	3.00	98.5	85.4	127.6	3.07		102	3.88	0.0	20.0
2,5-Dimethylbenzaldehyde	2.99	3.00	99.6	99.6	118.7	2.97	*	99.0	0.638	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18096 (HBN: 209639)
	Prepared By: NA	**Analyzed By:** Easton Welcher

Comments

TO-11A: The result for 2, 5-dimethylbenzaldehyde in the LCSD failed ALS historical limits but passes general laboratory limits. Furthermore, no analyte was found in any of the field samples so no further action was taken.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Lyle Edwards
03/08/2018 14:06	03/09/2018 12:45

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18102 (HBN: 209694)
Analyzed By: Easton Welcher

Blank

LMB: 589805
Analyzed: 03/06/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.130	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589806
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589807
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Formaldehyde	2.78	3.00	92.7	87.8	116.8	3.04	101	8.93	0.0	20.0
Acetaldehyde	2.89	3.00	96.3	94.7	110.5	3.02	101	4.40	0.0	20.0
Acetone	2.93	3.00	97.7	69.2	119.9	3.01	100	2.69	0.0	20.0
Acrolein	2.82	3.00	94.0	83.5	120.2	2.87	95.7	1.76	0.0	20.0
Propionaldehyde	2.92	3.00	97.3	92.2	117.2	2.97	99.0	1.70	0.0	20.0
Crotonaldehyde	3.02	3.00	101	93.1	114.8	3.08	103	1.97	0.0	20.0
Butyraldehyde	2.80	3.00	93.3	86.6	120.8	2.99	99.7	6.56	0.0	20.0
Benzaldehyde	2.92	3.00	97.3	96.0	112.3	2.98	99.3	2.03	0.0	20.0
Isovaleraldehyde	3.12	3.00	104	95.4	121.6	3.09	103	0.968	0.0	20.0
Valeraldehyde	2.81	3.00	93.7	85.3	120.4	2.79	93.0	0.714	0.0	20.0
m,p-Tolualdehyde	2.86	3.00	95.3	80.0	120.0	2.99	99.7	4.44	0.0	20.0
o-Tolualdehyde	2.91	3.00	97.0	91.6	111.4	2.94	98.0	1.03	0.0	20.0
Hexanal	3.11	3.00	104	85.4	127.6	2.97	99.0	4.61	0.0	20.0
2,5-Dimethylbenzaldehyde	2.99	3.00	99.7	99.6	118.7	2.99	99.7	0.00	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18102 (HBN: 209694)
	Prepared By: NA	**Analyzed By:** Easton Welcher

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Thomas Bosch
03/12/2018 09:25	03/12/2018 14:51

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806057

1806057

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180582
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN I6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: LNTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 743672
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 77116 4087 2264

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T006543	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BA-EF	25C or low
2	S18T006544	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BA-IN	25C or low
3	S18T006545	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BL-EF	25C or low
4	S18T006546	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BL-IN	25C or low
5	S18T006547	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-1	25C or low
6	S18T006548	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-2	25C or low
7	S18T006549	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-3	25C or low
8	S18T006550	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-4	25C or low
9	S18T006551	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-5	25C or low
10	S18T006552	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

Sample S18T006580 arrived with ~~no~~ end cap broken off. DH 3/1/18

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV and Keisha Garcia
Carl_N_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ	2-28-18 09:30	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desmeethill	3/1/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Fowler Gress

Disposed By: Sample consumed

Date/Time: 3/2/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180582
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp: ON DCC
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006553	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EP-7	25C or low
12	S18T006554	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EP-8	25C or low
13	S18T006555	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-1	25C or low
14	S18T006556	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-2	25C or low
15	S18T006557	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-3	25C or low
16	S18T006558	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-4	25C or low
17	S18T006559	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-5	25C or low
18	S18T006560	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-6	25C or low
19	S18T006561	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-7	25C or low
20	S18T006562	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-8	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz	2/28/18 09:30	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Dumpster Gress

Disposed By: Sample Consumed

Date/Time: 3/2/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180582
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 43672
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 7716 4097 2264

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006563	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BA-EF	25C or low
22	S18T006564	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BA-IN	25C or low
23	S18T006565	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BL-EF	25C or low
24	S18T006566	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BL-IN	25C or low
25	S18T006567	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-1	25C or low
26	S18T006568	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-2	25C or low
27	S18T006569	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-3	25C or low
28	S18T006570	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-4	25C or low
29	S18T006571	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-5	25C or low
30	S18T006572	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No
EPA TO-11A

SPECIAL INSTRUCTIONS Hold Time
Send Results to Carl Howald IV and Keisha Garcia
Carl.W.Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Leslie DIAZ		2-28-18 09:30		JA Gradisher WRPS	JA Gradisher	2/28/18 09:30
Relinquished By	JA Gradisher WRPS	JA Gradisher	2/28/18 1400	Received By	FEDEX		Date/Time
Relinquished By	FEDEX		Date/Time	Received By	Desiree Hill		03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Normal Disposal	Sample consumed	3/5/18 9:00

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180582
		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771640872264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006573	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-7	25C or low
32	S18T006574	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-8	25C or low
33	S18T006575	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-1	25C or low
34	S18T006576	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-2	25C or low
35	S18T006577	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-3	25C or low
36	S18T006578	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-4	25C or low
37	S18T006579	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-5	25C or low
38	S18T006580	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-6	25C or low
39	S18T006581	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-7	25C or low
40	S18T006582	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-8	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
LESLIE DIAZ	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
FedEx		Desiree Hill	03/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Return to Customer

Disposed By: Sample consumed

Date/Time: 3/5/18 9:00

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 23, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006583** Collected: 02/24/2018
Lab ID: 1806070001 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.087**	NA	NA	0.050
Acetaldehyde	**0.084**	NA	NA	0.050
Acetone	**4.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006584** Collected: 02/24/2018
Lab ID: 1806070002 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.43**	NA	NA	0.050
Acetaldehyde	**0.25**	NA	NA	0.050
Acetone	**4.4**	NA	NA	0.050

Results Continued on Next Page

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006584**			Collected: 02/24/2018
Lab ID: 1806070002	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006585**			Collected: 02/24/2018
Lab ID: 1806070003	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.27**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006586**				Collected: 02/24/2018
Lab ID: 1806070004	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.057**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006587**				Collected: 02/24/2018
Lab ID: 1806070005	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**0.33**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006588**				Collected: 02/24/2018
Lab ID: 1806070006	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.073**	NA	NA	0.050
Acetaldehyde	**0.62**	NA	NA	0.050
Acetone	**3.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006589**				Collected: 02/24/2018
Lab ID: 1806070007	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.079**	NA	NA	0.050
Acetaldehyde	**0.68**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006590**			Collected: 02/24/2018
Lab ID: 1806070008	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.12**	NA	NA	0.050
Acetaldehyde	**0.74**	NA	NA	0.050
Acetone	**3.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006591**			Collected: 02/24/2018
Lab ID: 1806070009	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**0.81**	NA	NA	0.050
Acetone	**3.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006592**				Collected: 02/24/2018
Lab ID: 1806070010	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.087**	NA	NA	0.050
Acetaldehyde	**1.0**	NA	NA	0.050
Acetone	**2.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006593**				Collected: 02/24/2018
Lab ID: 1806070011	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.091**	NA	NA	0.050
Acetaldehyde	**1.1**	NA	NA	0.050
Acetone	**6.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006594**				Collected: 02/24/2018
Lab ID: 1806070012	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**1.2**	NA	NA	0.050
Acetone	**6.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006595**				Collected: 02/24/2018
Lab ID: 1806070013	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**3.8**	NA	NA	0.050
Acetone	**77**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006596**			Collected: 02/24/2018
Lab ID: 1806070014	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**3.8**	NA	NA	0.050
Acetone	**79**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.54**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006597**			Collected: 02/24/2018
Lab ID: 1806070015	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.12**	NA	NA	0.050
Acetaldehyde	**3.5**	NA	NA	0.050
Acetone	**72**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006598**			Collected: 02/24/2018
Lab ID: 1806070016	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**3.4**	NA	NA	0.050
Acetone	**74**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006599**			Collected: 02/24/2018
Lab ID: 1806070017	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**3.5**	NA	NA	0.050
Acetone	**76**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006600**			Collected: 02/24/2018
Lab ID: 1806070018	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.095**	NA	NA	0.050
Acetaldehyde	**3.3**	NA	NA	0.050
Acetone	**73**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.8**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.58**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006601**			Collected: 02/24/2018
Lab ID: 1806070019	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.096**	NA	NA	0.050
Acetaldehyde	**3.3**	NA	NA	0.050
Acetone	**72**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.8**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.51**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006602**				Collected: 02/24/2018
Lab ID: 1806070020	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.092**	NA	NA	0.050
Acetaldehyde	**3.3**	NA	NA	0.050
Acetone	**72**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.8**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.60**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006603**				Collected: 02/24/2018
Lab ID: 1806070021	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/08/2018 (209697)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.14**	NA	NA	0.050
Acetaldehyde	**0.090**	NA	NA	0.050
Acetone	**4.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006604**			Collected: 02/24/2018
Lab ID: 1806070022	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.46**	NA	NA	0.050
Acetaldehyde	**0.24**	NA	NA	0.050
Acetone	**3.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006605**			Collected: 02/24/2018
Lab ID: 1806070023	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.052**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**4.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006606**			Collected: 02/24/2018
Lab ID: 1806070024	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.057**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006607**			Collected: 02/24/2018
Lab ID: 1806070025	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**1.2**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006608**				Collected: 02/24/2018
Lab ID: 1806070026	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/08/2018 (209697)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.086**	NA	NA	0.050
Acetaldehyde	**3.0**	NA	NA	0.050
Acetone	**3.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006609**				Collected: 02/24/2018
Lab ID: 1806070027	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/08/2018 (209697)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**2.5**	NA	NA	0.050
Acetone	**4.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006610**			Collected: 02/24/2018
Lab ID: 1806070028	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**1.4**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006611**			Collected: 02/24/2018
Lab ID: 1806070029	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**1.5**	NA	NA	0.050
Acetone	**4.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006612**			Collected: 02/24/2018
Lab ID: 1806070030	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**1.7**	NA	NA	0.050
Acetone	**4.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006613**			Collected: 02/24/2018
Lab ID: 1806070031	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**2.3**	NA	NA	0.050
Acetone	**5.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006614**			Collected: 02/24/2018
Lab ID: 1806070032	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.093**	NA	NA	0.050
Acetaldehyde	**2.4**	NA	NA	0.050
Acetone	**5.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006615**			Collected: 02/24/2018
Lab ID: 1806070033	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.21**	NA	NA	0.050
Acetaldehyde	**3.0**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.9**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.35**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006616**				Collected: 02/24/2018
Lab ID: 1806070034	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209697)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**2.8**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.3**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.37**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006617**				Collected: 02/24/2018
Lab ID: 1806070035	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209697)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.31**	NA	NA	0.050
Acetaldehyde	**4.3**	NA	NA	0.050
Acetone	**38**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**3.1**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.52**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006618**			Collected: 02/24/2018
Lab ID: 1806070036	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.23**	NA	NA	0.050
Acetaldehyde	**2.9**	NA	NA	0.050
Acetone	**29**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.5**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.40**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006619**			Collected: 02/24/2018
Lab ID: 1806070037	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.23**	NA	NA	0.050
Acetaldehyde	**2.7**	NA	NA	0.050
Acetone	**27**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.3**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.8**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.37**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006620**			Collected: 02/24/2018
Lab ID: 1806070038	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**2.5**	NA	NA	0.050
Acetone	**24**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.6**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.24**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006621**			Collected: 02/24/2018
Lab ID: 1806070039	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**2.9**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.29**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006622** Collected: 02/24/2018
Lab ID: 1806070040 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**2.8**	NA	NA	0.050
Acetone	**29**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.43**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Comments

Workorder: 1806070

TO-11A: Some of the solvent used to extract the front section, section "A", for sample 1806070024 was lost during the extraction process. Results for this sample may be biased.

TO-11A: Sample 1806070038 arrived with the glass around the back section (section "B") broken. The silica gel was spread out in the plastic container and could not be retrieved for extraction. As a consequence, the B section was not run for this sample. Results for this sample may be biased low.

TO-11A: The "A" sections for samples 1806070(013-020) required 2x dilutions to keep within calibration parameters for acetone. The reporting limits for these sample sections have been adjusted accordingly.

Amended TO-11A: Report was re-issued on 03/19/18 because the reporting limit was not adjusted for total acetone in samples 1806070(013-020) in the original report. The reporting limit for total acetone was adjusted to 0.1 ug/sample for these samples before resubmitting the report. The results for the remaining compounds in these samples were also changed because the original results were derived from the diluted samples of the A sections, not the undiluted samples. The results from the undiluted samples were used for the A sections in samples 1806070(013-020) for all compounds except acetone before resubmitting the report.

Amended TO-11A: Report was re-issued on 03/23/18 because an irrelevant comment was included in the work order comments. The irrelevant comment was removed before re-issuing the report.

Quality Control: EPA TO-11A - (HBN: 209696)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control: EPA TO-11A - (HBN: 209697)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA TO-11A	/S/ Easton Welcher 03/12/2018 10:32	/S/ Christopher Winter 03/13/2018 14:58
EPA TO-11A	/S/ Easton Welcher 03/12/2018 11:37	/S/ Stephen Brose 03/12/2018 14:45

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

ANALYTICAL REPORT

Workorder: 34-1806070
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18104 (HBN: 209696)
	Prepared By: NA	**Analyzed By:** Easton Welcher

Blank

LMB: 589808
Analyzed: 03/06/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.125	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589809
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589810
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	LCS Result	Target	LCS %Rec	QC Limits		LCSD Result	LCSD %Rec	RPD	QC Limits	
Formaldehyde	2.97	3.00	99.0	87.8	116.8	2.97	99.0	0.00	0.0	20.0
Acetaldehyde	2.99	3.00	99.7	94.7	110.5	2.98	99.3	0.335	0.0	20.0
Acetone	2.93	3.00	97.5	69.2	119.9	2.95	98.2	0.681	0.0	20.0
Acrolein	2.78	3.00	92.7	83.5	120.2	2.85	95.0	2.49	0.0	20.0
Propionaldehyde	2.96	3.00	98.7	92.2	117.2	2.97	99.0	0.337	0.0	20.0
Crotonaldehyde	3.21	3.00	107	93.1	114.8	3.13	104	2.52	0.0	20.0
Butyraldehyde	2.97	3.00	99.0	86.6	120.8	2.93	97.7	1.36	0.0	20.0
Benzaldehyde	2.96	3.00	98.7	96.0	112.3	2.93	97.7	1.02	0.0	20.0
Isovaleraldehyde	3.01	3.00	100	95.4	121.6	2.98	99.3	1.00	0.0	20.0
Valeraldehyde	2.90	3.00	96.7	85.3	120.4	2.90	96.7	0.00	0.0	20.0
m,p-Tolualdehyde	2.94	3.00	98.0	80.0	120.0	3.03	101	3.02	0.0	20.0
o-Tolualdehyde	2.99	3.00	99.7	91.6	111.4	3.05	102	1.99	0.0	20.0
Hexanal	2.97	3.00	99.0	85.4	127.6	3.15	105	5.88	0.0	20.0
2,5-Dimethylbenzaldehyde	3.05	3.00	102	99.6	118.7	3.09	103	1.30	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18104 (HBN: 209696)
	Prepared By: NA	**Analyzed By:** Easton Welcher

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Christopher Winter
03/12/2018 10:32	03/13/2018 14:58

Symbols and Definitions

- *- Analyte above reporting limit or outside of control limits
- ▲- Sample result is greater than 4 times the spike added
- ●- Sample and Matrix Duplicate less than 5 times the reporting limit
- ●- Result is above the calibration range
- #- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18105 (HBN: 209697)
	Prepared By: NA	**Analyzed By:** Easton Welcher

Blank

LMB: 589811
Analyzed: 03/08/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.0961	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589812
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589813
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Formaldehyde	2.95	3.00	98.3	87.8	116.8	2.92	97.3	1.02	0.0	20.0
Acetaldehyde	2.92	3.00	97.3	94.7	110.5	2.89	96.3	1.03	0.0	20.0
Acetone	2.95	3.00	98.5	69.2	119.9	2.92	97.5	1.02	0.0	20.0
Acrolein	2.78	3.00	92.7	83.5	120.2	2.73	91.0	1.81	0.0	20.0
Propionaldehyde	2.95	3.00	98.3	92.2	117.2	2.88	96.0	2.40	0.0	20.0
Crotonaldehyde	3.21	3.00	107	93.1	114.8	3.06	102	4.78	0.0	20.0
Butyraldehyde	2.89	3.00	96.3	86.6	120.8	2.90	96.7	0.345	0.0	20.0
Benzaldehyde	2.92	3.00	97.3	96.0	112.3	2.91	97.0	0.343	0.0	20.0
Isovaleraldehyde	2.94	3.00	98.0	95.4	121.6	2.94	98.0	0.00	0.0	20.0
Valeraldehyde	2.76	3.00	92.0	85.3	120.4	2.81	93.7	1.80	0.0	20.0
m,p-Tolualdehyde	2.95	3.00	98.3	80.0	120.0	2.97	99.0	0.676	0.0	20.0
o-Tolualdehyde	2.94	3.00	98.0	91.6	111.4	2.98	99.3	1.35	0.0	20.0
Hexanal	2.98	3.00	99.3	85.4	127.6	2.73	91.0	8.76	0.0	20.0
2,5-Dimethylbenzaldehyde	3.07	3.00	102	99.6	118.7	2.99	99.7	2.64	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18105 (HBN: 209697)
	Prepared By: NA	**Analyzed By:** Easton Welcher

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Stephen Brose
03/12/2018 11:37	03/12/2018 14:45

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806070

1806070

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180583
		Page 1 of 4

Collector: MAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771640872264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T006583	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BA-EF	25C or low
2	S18T006584	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BA-IN	25C or low
3	S18T006585	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BL-EF	25C or low
4	S18T006586	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BL-IN	25C or low
5	S18T006587	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-1	25C or low
6	S18T006588	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-2	25C or low
7	S18T006589	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-3	25C or low
8	S18T006590	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-4	25C or low
9	S18T006591	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-5	25C or low
10	S18T006592	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

Sample S18T006620 arrived Broken. DH 2/1/18

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D Sorenson	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/2018 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Pouring Grass

Disposed By: Sample consumed

Date/Time: 3/5/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-952 (03/05)

Assembler: N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180583
Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1876
SAF No. N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WTS-033 Temp. ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006593	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-7	25C or low
12	S18T006594	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-8	25C or low
13	S18T006595	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-1	25C or low
14	S18T006596	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-2	25C or low
15	S18T006597	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-3	25C or low
16	S18T006598	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-4	25C or low
17	S18T006599	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-5	25C or low
18	S18T006600	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-6	25C or low
19	S18T006601	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-7	25C or low
20	S18T006602	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-8	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ⦿ No
EPA TO-11A

SPECIAL INSTRUCTIONS
Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Snyder [signature]	2/28/18 0930	JA Gradisher WRPS [signature]	2/28/18 0930
JA Gradisher WRPS [signature]	2/28/18 1400	FEDEX	
Fedex		Desiree Hill [signature]	03/01/2018 09:50

Matrix*
S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, VA = Vapor, X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): [signature] — Disposed By: Sample consumed — Date/Time: 3/5/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180583
		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN P6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-IIC	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006603	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BA-EF	25C or low
22	S18T006604	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BA-IN	25C or low
23	S18T006605	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BL-EF	25C or low
24	S18T006606	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BL-IN	25C or low
25	S18T006607	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-1	25C or low
26	S18T006608	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-2	25C or low
27	S18T006609	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-3	25C or low
28	S18T006610	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-4	25C or low
29	S18T006611	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-5	25C or low
30	S18T006612	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_B_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brewster	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Denise Hill	03/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Porter Bros

Disposed By: Sample consumed

Date/Time: 3/5/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler: N/A		C.O.C. No. 20180583 — Page 4 of 4
Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 — MSIN T6-05 — FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 — Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 771640872264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006613	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-7	25C or low
32	S18T006614	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-8	25C or low
33	S18T006615	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-1	25C or low
34	S18T006616	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-2	25C or low
35	S18T006617	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-3	25C or low
36	S18T006618	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-4	25C or low
37	S18T006619	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-5	25C or low
38	S18T006620	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-6	25C or low
39	S18T006621	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-7	25C or low
40	S18T006622	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-8	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By	Date/Time	Received By	Date/Time
Print: Don Brandov — Sign: [signature] 2/28/18	0930	Print: JA Gradisher WRPS — Sign: [signature] 2/28/18	0930
JA Gradisher WRPS [signature] 2/28/18	1400	FEDEX	
Fedex		Desiree Hill [signature]	3/01/18 9:50

Matrix*

S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, VA = Vapor, X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): [signature] — Disposed By: sample consumed — Date/Time: 3/15/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 23, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006543** Collected: 02/23/2018
Lab ID: 1806057001 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: EPA TO-11A Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006544** Collected: 02/23/2018
Lab ID: 1806057002 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: EPA TO-11A Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.98**	NA	NA	0.050
Acetaldehyde	**0.37**	NA	NA	0.050
Acetone	**4.3**	NA	NA	0.050

Results Continued on Next Page

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006544** Collected: 02/23/2018
Lab ID: 1806057002 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006545** Collected: 02/23/2018
Lab ID: 1806057003 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	3.2	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006546** Collected: 02/23/2018
Lab ID: 1806057004 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**2.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006547** Collected: 02/23/2018
Lab ID: 1806057005 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.075**	NA	NA	0.050
Acetaldehyde	**0.083**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006548** Collected: 02/23/2018
Lab ID: 1806057006 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.072**	NA	NA	0.050
Acetaldehyde	**0.29**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006549** Collected: 02/23/2018
Lab ID: 1806057007 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.051**	NA	NA	0.050
Acetaldehyde	**0.19**	NA	NA	0.050
Acetone	**3.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006550**			Collected: 02/23/2018
Lab ID: 1806057008	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/02/2018 (209639)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.18**	NA	NA	0.050
Acetone	**2.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006551**			Collected: 02/23/2018
Lab ID: 1806057009	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/02/2018 (209639)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.19**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S18T006552			Collected: 02/23/2018
Lab ID: 1806057010	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: Air Volume Not Provided		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.22**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S18T006553			Collected: 02/23/2018
Lab ID: 1806057011	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: Air Volume Not Provided		Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.064**	NA	NA	0.050
Acetaldehyde	**0.25**	NA	NA	0.050
Acetone	**5.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006554** Collected: 02/23/2018
Lab ID: 1806057012 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.051**	NA	NA	0.050
Acetaldehyde	**0.26**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006555** Collected: 02/23/2018
Lab ID: 1806057013 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.099**	NA	NA	0.050
Acetaldehyde	**4.3**	NA	NA	0.050
Acetone	**87**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.3**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.8**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.62**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006556** Collected: 02/23/2018
Lab ID: 1806057014 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	**3.8**	NA	NA	0.050
Acetone	**84**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.2**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.6**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.58**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006557** Collected: 02/23/2018
Lab ID: 1806057015 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.064**	NA	NA	0.050
Acetaldehyde	**3.7**	NA	NA	0.050
Acetone	**81**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.5**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.53**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006558** Collected: 02/23/2018
Lab ID: 1806057016 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.078**	NA	NA	0.050
Acetaldehyde	**1.3**	NA	NA	0.050
Acetone	**29**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.77**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.79**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.20**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006559** Collected: 02/23/2018
Lab ID: 1806057017 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**85**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.5**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.59**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006560** Collected: 02/23/2018
Lab ID: 1806057018 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.082**	NA	NA	0.050
Acetaldehyde	**3.4**	NA	NA	0.050
Acetone	**79**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.2**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.43**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006561** Collected: 02/23/2018
Lab ID: 1806057019 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.056**	NA	NA	0.050
Acetaldehyde	**3.6**	NA	NA	0.050
Acetone	**80**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.4**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.48**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006562** Collected: 02/23/2018
Lab ID: 1806057020 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/02/2018 (209639)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.079**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**81**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.7**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.60**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006563** Collected: 02/23/2018
Lab ID: 1806057021 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.062**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**2.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006564** Collected: 02/23/2018
Lab ID: 1806057022 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.46**	NA	NA	0.050
Acetaldehyde	**0.23**	NA	NA	0.050
Acetone	**4.8**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006565** Collected: 02/23/2018
Lab ID: 1806057023 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006566** Collected: 02/23/2018
Lab ID: 1806057024 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.054**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**4.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006567** Collected: 02/23/2018
Lab ID: 1806057025 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.14**	NA	NA	0.050
Acetaldehyde	**0.24**	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006568** Collected: 02/23/2018
Lab ID: 1806057026 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**2.2**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006569** Collected: 02/23/2018
Lab ID: 1806057027 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.19**	NA	NA	0.050
Acetaldehyde	**2.6**	NA	NA	0.050
Acetone	**2.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006570** Collected: 02/23/2018
Lab ID: 1806057028 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.077**	NA	NA	0.050
Acetaldehyde	**1.7**	NA	NA	0.050
Acetone	**3.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006571** Collected: 02/23/2018
Lab ID: 1806057029 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.079**	NA	NA	0.050
Acetaldehyde	**1.3**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006572** Collected: 02/23/2018
Lab ID: 1806057030 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**1.7**	NA	NA	0.050
Acetone	**4.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006573** Collected: 02/23/2018
Lab ID: 1806057031 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**2.4**	NA	NA	0.050
Acetone	**3.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006574** Collected: 02/23/2018
Lab ID: 1806057032 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**3.7**	NA	NA	0.050
Acetone	**4.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006575** Collected: 02/23/2018
Lab ID: 1806057033 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**35**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.7**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.47**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006576** Collected: 02/23/2018
Lab ID: 1806057034 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.19**	NA	NA	0.050
Acetaldehyde	**3.9**	NA	NA	0.050
Acetone	**37**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.8**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.46**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006577** Collected: 02/23/2018
Lab ID: 1806057035 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**6.0**	NA	NA	0.050
Acetone	**56**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**3.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**4.4**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.85**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006578** Collected: 02/23/2018
Lab ID: 1806057036 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**5.4**	NA	NA	0.050
Acetone	**49**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.7**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**4.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.74**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006579** Collected: 02/23/2018
Lab ID: 1806057037 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**5.1**	NA	NA	0.050
Acetone	**49**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.6**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**3.6**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.63**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006580** Collected: 02/23/2018
Lab ID: 1806057038 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: EPA TO-11A Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**5.0**	NA	NA	0.050
Acetone	**46**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.6**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**3.7**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.70**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006581** Collected: 02/23/2018
Lab ID: 1806057039 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: EPA TO-11A Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**2.8**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.42**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: 34-1806057
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006582** Collected: 02/23/2018
Lab ID: 1806057040 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209694)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.073**	NA	NA	0.050
Acetaldehyde	**2.7**	NA	NA	0.050
Acetone	**27**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.9**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.32**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Comments

Workorder: 1806057

Amended TO-11A: Report was re-issued on 03/19/18 because the reporting limit was not adjusted for total acetone in samples 1806057(013-015, 017-020) in the original report. The reporting limit for total acetone was adjusted to 0.1 ug/sample for these samples before resubmitting the report. The results for the remaining compounds in these samples were also changed because the original results were derived from the diluted samples of the A sections, not the undiluted samples. The results from the undiluted samples were used for the A sections in samples 1806057(013-015, 017-020) for all compounds except acetone before resubmitting the report.

Amended TO-11A 3/23/18: The 3/19/18 sample comments above should have also listed samples 1806057(035-037). The only change to the report was the addition of this comment.

Quality Control: EPA TO-11A - (HBN: 209639)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

TO-11A: The result for 2, 5-dimethylbenzaldehyde in the LCSD failed ALS historical limits but passes general laboratory limits. Furthermore, no analyte was found in any of the field samples so no further action was taken.

Quality Control: EPA TO-11A - (HBN: 209694)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA TO-11A	/S/ Easton Welcher 03/08/2018 14:06	/S/ Lyle Edwards 03/09/2018 12:45
EPA TO-11A	/S/ Easton Welcher 03/12/2018 09:25	/S/ Thomas Bosch 03/12/2018 14:51

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Laboratory Contact Information

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Salt Lake City, Utah 84123

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Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ANALYTICAL REPORT

Workorder: **34-1806057**
Client Project ID: 20180582
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18096 (HBN: 209639)
Analyzed By: Easton Welcher

Blank

LMB: 589657
Analyzed: 03/02/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.100	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589658
Analyzed: 03/02/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589659
Analyzed: 03/02/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result		% Rec	RPD	QC Limits	
Formaldehyde	3.04	3.00	101	87.8	116.8	2.96		98.7	2.70	0.0	20.0
Acetaldehyde	2.99	3.00	99.6	94.7	110.5	3.03		101	1.26	0.0	20.0
Acetone	3.05	3.00	102	69.2	119.9	2.99		99.8	1.72	0.0	20.0
Acrolein	2.92	3.00	97.3	83.5	120.2	2.91		97.0	0.377	0.0	20.0
Propionaldehyde	2.96	3.00	98.5	92.2	117.2	2.93		97.7	0.850	0.0	20.0
Crotonaldehyde	3.02	3.00	101	93.1	114.8	3.07		102	1.81	0.0	20.0
Butyraldehyde	2.98	3.00	99.2	86.6	120.8	2.92		97.4	1.80	0.0	20.0
Benzaldehyde	2.94	3.00	98.0	96.0	112.3	2.93		97.7	0.341	0.0	20.0
Isovaleraldehyde	3.14	3.00	105	95.4	121.6	3.14		105	0.287	0.0	20.0
Valeraldehyde	2.81	3.00	93.6	85.3	120.4	2.77		92.3	1.43	0.0	20.0
m,p-Tolualdehyde	2.96	3.00	98.7	80.0	120.0	2.98		99.3	0.673	0.0	20.0
o-Tolualdehyde	2.89	3.00	96.4	91.6	111.4	2.87		95.7	0.694	0.0	20.0
Hexanal	2.96	3.00	98.5	85.4	127.6	3.07		102	3.88	0.0	20.0
2,5-Dimethylbenzaldehyde	2.99	3.00	99.6	99.6	118.7	2.97	*	99.0	0.638	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18096 (HBN: 209639)
	Prepared By: NA	**Analyzed By:** Easton Welcher

Comments

TO-11A: The result for 2, 5-dimethylbenzaldehyde in the LCSD failed ALS historical limits but passes general laboratory limits. Furthermore, no analyte was found in any of the field samples so no further action was taken.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Lyle Edwards
03/08/2018 14:06	03/09/2018 12:45

Symbols and Definitions

- ✱ - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ● - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18102 (HBN: 209694)
	Prepared By: NA	**Analyzed By:** Easton Welcher

Blank

LMB: 589805
Analyzed: 03/06/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.130	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

	LCS: 589806 Analyzed: 03/06/2018 00:00 Dilution: 1 Units: ug/sample					LCSD: 589807 Analyzed: 03/06/2018 00:00 Dilution: 1 Units: ug/sample				
Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Formaldehyde	2.78	3.00	92.7	87.8	116.8	3.04	101	8.93	0.0	20.0
Acetaldehyde	2.89	3.00	96.3	94.7	110.5	3.02	101	4.40	0.0	20.0
Acetone	2.93	3.00	97.7	69.2	119.9	3.01	100	2.69	0.0	20.0
Acrolein	2.82	3.00	94.0	83.5	120.2	2.87	95.7	1.76	0.0	20.0
Propionaldehyde	2.92	3.00	97.3	92.2	117.2	2.97	99.0	1.70	0.0	20.0
Crotonaldehyde	3.02	3.00	101	93.1	114.8	3.08	103	1.97	0.0	20.0
Butyraldehyde	2.80	3.00	93.3	86.6	120.8	2.99	99.7	6.56	0.0	20.0
Benzaldehyde	2.92	3.00	97.3	96.0	112.3	2.98	99.3	2.03	0.0	20.0
Isovaleraldehyde	3.12	3.00	104	95.4	121.6	3.09	103	0.968	0.0	20.0
Valeraldehyde	2.81	3.00	93.7	85.3	120.4	2.79	93.0	0.714	0.0	20.0
m,p-Tolualdehyde	2.86	3.00	95.3	80.0	120.0	2.99	99.7	4.44	0.0	20.0
o-Tolualdehyde	2.91	3.00	97.0	91.6	111.4	2.94	98.0	1.03	0.0	20.0
Hexanal	3.11	3.00	104	85.4	127.6	2.97	99.0	4.61	0.0	20.0
2,5-Dimethylbenzaldehyde	2.99	3.00	99.7	99.6	118.7	2.99	99.7	0.00	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806057

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18102 (HBN: 209694)
	Prepared By: NA	**Analyzed By:** Easton Welcher

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Thomas Bosch
03/12/2018 09:25	03/12/2018 14:51

Symbols and Definitions

✱ - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806057

1806057

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180582
		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6851 MSIN P6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 443672
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 77116 4087 2264

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T006543	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BA-EF	25C or low
2	S18T006544	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BA-IN	25C or low
3	S18T006545	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BL-EF	25C or low
4	S18T006546	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-BL-IN	25C or low
5	S18T006547	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-1	25C or low
6	S18T006548	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-2	25C or low
7	S18T006549	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-3	25C or low
8	S18T006550	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-4	25C or low
9	S18T006551	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-5	25C or low
10	S18T006552	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

Sample S18T006580 arrived with ~~RD~~ end cap broken off. DH 3/1/18

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ	2-28-18 09:30	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1450	FEDEX	
Fedex		Desmett Hill	3/1/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Pouya Gress	Sample consumed	3/2/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180582
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN: T6-05 FAX: 372-1978
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WHS-033	Temp: ON PCC
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006553	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-7	25C or low
12	S18T006554	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-EF-8	25C or low
13	S18T006555	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-1	25C or low
14	S18T006556	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-2	25C or low
15	S18T006557	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-3	25C or low
16	S18T006558	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-4	25C or low
17	S18T006559	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-5	25C or low
18	S18T006560	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-6	25C or low
19	S18T006561	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-7	25C or low
20	S18T006562	VA	2/23/18		SILICA GEL	Aldehyde 18-01494-8-SD1-IN-8	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz	2-28-18 09:30	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Douglas Gress

Disposed By: Sample Consumed

Date/Time: 3/2/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler N/A	**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**	C.O.C. No. 20180582 Page 3 of 4
Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No. N/A	Sample Origin CARTRIDGE TESTING BY-110	Purchase Order/Charge Code 203006/CB20
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 743672
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 7716 4087 2264

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006563	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BA-EF	25C or low
22	S18T006564	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BA-IN	25C or low
23	S18T006565	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BL-EF	25C or low
24	S18T006566	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-BL-IN	25C or low
25	S18T006567	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-1	25C or low
26	S18T006568	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-2	25C or low
27	S18T006569	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-3	25C or low
28	S18T006570	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-4	25C or low
29	S18T006571	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-5	25C or low
30	S18T006572	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No
EPA TO-11A

SPECIAL INSTRUCTIONS Hold Time
Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Leslie Diaz		2-28-18 09:30		JA Gradisher WRPS	JA Gradisher	2/28/18 0930
Relinquished By	JA Gradisher WRPS	JA Gradisher	2/28/18 1400	Received By	FEDEX		Date/Time
Relinquished By	FEDEX		Date/Time	Received By	Desiree Hill		03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*
S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, VA = Vapor, X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Pour down drain	Sample consumed	3/5/18 9:00

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180582
		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771640872264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006573	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-7	25C or low
32	S18T006574	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-EF-8	25C or low
33	S18T006575	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-1	25C or low
34	S18T006576	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-2	25C or low
35	S18T006577	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-3	25C or low
36	S18T006578	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-4	25C or low
37	S18T006579	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-5	25C or low
38	S18T006580	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-6	25C or low
39	S18T006581	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-7	25C or low
40	S18T006582	VA	2/23/18		SILICA GEL	Aldehyde 18-01496-9-TL1-IN-8	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
FedEx		Delmer Hill	03/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Drum Dress	Sample consumed	3/5/18 9:00

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 23, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006583** Collected: 02/24/2018
Lab ID: 1806070001 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.087**	NA	NA	0.050
Acetaldehyde	**0.084**	NA	NA	0.050
Acetone	**4.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006584** Collected: 02/24/2018
Lab ID: 1806070002 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.43**	NA	NA	0.050
Acetaldehyde	**0.25**	NA	NA	0.050
Acetone	**4.4**	NA	NA	0.050

Results Continued on Next Page

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006584**			Collected: 02/24/2018
Lab ID: 1806070002	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006585**			Collected: 02/24/2018
Lab ID: 1806070003	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.27**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006586**				Collected: 02/24/2018
Lab ID: 1806070004	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.057**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006587**				Collected: 02/24/2018
Lab ID: 1806070005	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**0.33**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006588**				Collected: 02/24/2018
Lab ID: 1806070006	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.073**	NA	NA	0.050
Acetaldehyde	**0.62**	NA	NA	0.050
Acetone	**3.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006589**				Collected: 02/24/2018
Lab ID: 1806070007	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.079**	NA	NA	0.050
Acetaldehyde	**0.68**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006590**			Collected: 02/24/2018
Lab ID: 1806070008	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.12**	NA	NA	0.050
Acetaldehyde	**0.74**	NA	NA	0.050
Acetone	**3.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006591**			Collected: 02/24/2018
Lab ID: 1806070009	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209696)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**0.81**	NA	NA	0.050
Acetone	**3.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006592**				Collected: 02/24/2018
Lab ID: 1806070010	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.087**	NA	NA	0.050
Acetaldehyde	**1.0**	NA	NA	0.050
Acetone	**2.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006593**				Collected: 02/24/2018
Lab ID: 1806070011	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.091**	NA	NA	0.050
Acetaldehyde	**1.1**	NA	NA	0.050
Acetone	**6.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006594**				Collected: 02/24/2018
Lab ID: 1806070012	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**1.2**	NA	NA	0.050
Acetone	**6.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006595**				Collected: 02/24/2018
Lab ID: 1806070013	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**3.8**	NA	NA	0.050
Acetone	**77**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006596**			Collected: 02/24/2018
Lab ID: 1806070014	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**3.8**	NA	NA	0.050
Acetone	**79**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.54**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006597**			Collected: 02/24/2018
Lab ID: 1806070015	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209696)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.12**	NA	NA	0.050
Acetaldehyde	**3.5**	NA	NA	0.050
Acetone	**72**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006598**				Collected: 02/24/2018
Lab ID: 1806070016	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**3.4**	NA	NA	0.050
Acetone	**74**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006599**				Collected: 02/24/2018
Lab ID: 1806070017	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209696)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**3.5**	NA	NA	0.050
Acetone	**76**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.9**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006600**				Collected: 02/24/2018
Lab ID: 1806070018	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.095**	NA	NA	0.050
Acetaldehyde	**3.3**	NA	NA	0.050
Acetone	**73**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.8**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.58**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006601**				Collected: 02/24/2018
Lab ID: 1806070019	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.096**	NA	NA	0.050
Acetaldehyde	**3.3**	NA	NA	0.050
Acetone	**72**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.8**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.51**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006602**				Collected: 02/24/2018
Lab ID: 1806070020	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209696)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.092**	NA	NA	0.050
Acetaldehyde	**3.3**	NA	NA	0.050
Acetone	**72**	NA	NA	0.10
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.8**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.60**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006603**				Collected: 02/24/2018
Lab ID: 1806070021	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**			**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209697)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.14**	NA	NA	0.050
Acetaldehyde	**0.090**	NA	NA	0.050
Acetone	**4.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006604**			Collected: 02/24/2018
Lab ID: 1806070022	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.46**	NA	NA	0.050
Acetaldehyde	**0.24**	NA	NA	0.050
Acetone	**3.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006605**			Collected: 02/24/2018
Lab ID: 1806070023	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.052**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**4.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006606**			Collected: 02/24/2018
Lab ID: 1806070024	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.057**	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006607**			Collected: 02/24/2018
Lab ID: 1806070025	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**1.2**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006608**				Collected: 02/24/2018
Lab ID: 1806070026	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/08/2018 (209697)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.086**	NA	NA	0.050
Acetaldehyde	**3.0**	NA	NA	0.050
Acetone	**3.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006609**				Collected: 02/24/2018
Lab ID: 1806070027	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/08/2018 (209697)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**2.5**	NA	NA	0.050
Acetone	**4.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006610**			Collected: 02/24/2018
Lab ID: 1806070028	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**1.4**	NA	NA	0.050
Acetone	**3.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006611**			Collected: 02/24/2018
Lab ID: 1806070029	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**1.5**	NA	NA	0.050
Acetone	**4.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006612**			Collected: 02/24/2018
Lab ID: 1806070030	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**1.7**	NA	NA	0.050
Acetone	**4.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006613**			Collected: 02/24/2018
Lab ID: 1806070031	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**2.3**	NA	NA	0.050
Acetone	**5.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006614**			Collected: 02/24/2018
Lab ID: 1806070032	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.093**	NA	NA	0.050
Acetaldehyde	**2.4**	NA	NA	0.050
Acetone	**5.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006615**			Collected: 02/24/2018
Lab ID: 1806070033	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.21**	NA	NA	0.050
Acetaldehyde	**3.0**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.9**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.35**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006616**			Collected: 02/24/2018
Lab ID: 1806070034	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**2.8**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.3**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.37**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006617**			Collected: 02/24/2018
Lab ID: 1806070035	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: EPA TO-11A	**Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)**		**Instrument: HPLC13**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209697)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.31**	NA	NA	0.050
Acetaldehyde	**4.3**	NA	NA	0.050
Acetone	**38**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**2.0**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**3.1**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.52**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006618**				Collected: 02/24/2018
Lab ID: 1806070036	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/08/2018 (209697)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.23**	NA	NA	0.050
Acetaldehyde	**2.9**	NA	NA	0.050
Acetone	**29**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.5**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.40**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006619**				Collected: 02/24/2018
Lab ID: 1806070037	Sampling Location: CARTRIDGE TESTING BY			Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/08/2018 (209697)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	**0.23**	NA	NA	0.050
Acetaldehyde	**2.7**	NA	NA	0.050
Acetone	**27**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.3**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.8**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.37**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006620**			Collected: 02/24/2018
Lab ID: 1806070038	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**2.5**	NA	NA	0.050
Acetone	**24**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.1**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**1.6**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.24**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T006621**			Collected: 02/24/2018
Lab ID: 1806070039	Sampling Location: CARTRIDGE TESTING BY		Received: 03/01/2018
Method: **EPA TO-11A**	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		Instrument: HPLC13
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.13**	NA	NA	0.050
Acetaldehyde	**2.9**	NA	NA	0.050
Acetone	**28**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.29**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006622** Collected: 02/24/2018
Lab ID: 1806070040 Sampling Location: CARTRIDGE TESTING BY Received: 03/01/2018

Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (209697)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**2.8**	NA	NA	0.050
Acetone	**29**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**1.4**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**2.0**	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	**0.43**	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Comments

Workorder: 1806070

TO-11A: Some of the solvent used to extract the front section, section "A", for sample 1806070024 was lost during the extraction process. Results for this sample may be biased.

TO-11A: Sample 1806070038 arrived with the glass around the back section (section "B") broken. The silica gel was spread out in the plastic container and could not be retrieved for extraction. As a consequence, the B section was not run for this sample. Results for this sample may be biased low.

TO-11A: The "A" sections for samples 1806070(013-020) required 2x dilutions to keep within calibration parameters for acetone. The reporting limits for these sample sections have been adjusted accordingly.

Amended TO-11A: Report was re-issued on 03/19/18 because the reporting limit was not adjusted for total acetone in samples 1806070(013-020) in the original report. The reporting limit for total acetone was adjusted to 0.1 ug/sample for these samples before resubmitting the report. The results for the remaining compounds in these samples were also changed because the original results were derived from the diluted samples of the A sections, not the undiluted samples. The results from the undiluted samples were used for the A sections in samples 1806070(013-020) for all compounds except acetone before resubmitting the report.

Amended TO-11A: Report was re-issued on 03/23/18 because an irrelevant comment was included in the work order comments. The irrelevant comment was removed before re-issuing the report.

Quality Control: EPA TO-11A - (HBN: 209696)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control: EPA TO-11A - (HBN: 209697)

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA TO-11A	/S/ Easton Welcher 03/12/2018 10:32	/S/ Christopher Winter 03/13/2018 14:58
EPA TO-11A	/S/ Easton Welcher 03/12/2018 11:37	/S/ Stephen Brose 03/12/2018 14:45

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

ANALYTICAL REPORT

Workorder: **34-1806070**
Client Project ID: 20180583
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18104 (HBN: 209696)
Analyzed By: Easton Welcher

Blank

LMB: 589808
Analyzed: 03/06/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.125	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589809
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589810
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Formaldehyde	2.97	3.00	99.0	87.8	116.8	2.97	99.0	0.00	0.0	20.0
Acetaldehyde	2.99	3.00	99.7	94.7	110.5	2.98	99.3	0.335	0.0	20.0
Acetone	2.93	3.00	97.5	69.2	119.9	2.95	98.2	0.681	0.0	20.0
Acrolein	2.78	3.00	92.7	83.5	120.2	2.85	95.0	2.49	0.0	20.0
Propionaldehyde	2.96	3.00	98.7	92.2	117.2	2.97	99.0	0.337	0.0	20.0
Crotonaldehyde	3.21	3.00	107	93.1	114.8	3.13	104	2.52	0.0	20.0
Butyraldehyde	2.97	3.00	99.0	86.6	120.8	2.93	97.7	1.36	0.0	20.0
Benzaldehyde	2.96	3.00	98.7	96.0	112.3	2.93	97.7	1.02	0.0	20.0
Isovaleraldehyde	3.01	3.00	100	95.4	121.6	2.98	99.3	1.00	0.0	20.0
Valeraldehyde	2.90	3.00	96.7	85.3	120.4	2.90	96.7	0.00	0.0	20.0
m,p-Tolualdehyde	2.94	3.00	98.0	80.0	120.0	3.03	101	3.02	0.0	20.0
o-Tolualdehyde	2.99	3.00	99.7	91.6	111.4	3.05	102	1.99	0.0	20.0
Hexanal	2.97	3.00	99.0	85.4	127.6	3.15	105	5.88	0.0	20.0
2,5-Dimethylbenzaldehyde	3.05	3.00	102	99.6	118.7	3.09	103	1.30	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18104 (HBN: 209696)
	Prepared By: NA	**Analyzed By:** Easton Welcher

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Christopher Winter
03/12/2018 10:32	03/13/2018 14:58

Symbols and Definitions

- *- Analyte above reporting limit or outside of control limits
- ▲- Sample result is greater than 4 times the spike added
- ⬢- Sample and Matrix Duplicate less than 5 times the reporting limit
- ●- Result is above the calibration range
- #- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18105 (HBN: 209697)
	Prepared By: NA	**Analyzed By:** Easton Welcher

Blank

LMB: 589811
Analyzed: 03/08/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.0961	NA	0.0500
Acrolein	ND	NA	0.0500
Propionaldehyde	ND	NA	0.0500
Crotonaldehyde	ND	NA	0.0500
Butyraldehyde	ND	NA	0.0500
Benzaldehyde	ND	NA	0.0500
Isovaleraldehyde	ND	NA	0.0500
Valeraldehyde	ND	NA	0.0500
m,p-Tolualdehyde	ND	NA	0.0500
o-Tolualdehyde	ND	NA	0.0500
Hexanal	ND	NA	0.0500
2,5-Dimethylbenzaldehyde	ND	NA	0.0500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589812
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 589813
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Formaldehyde	2.95	3.00	98.3	87.8	116.8	2.92	97.3	1.02	0.0	20.0
Acetaldehyde	2.92	3.00	97.3	94.7	110.5	2.89	96.3	1.03	0.0	20.0
Acetone	2.95	3.00	98.5	69.2	119.9	2.92	97.5	1.02	0.0	20.0
Acrolein	2.78	3.00	92.7	83.5	120.2	2.73	91.0	1.81	0.0	20.0
Propionaldehyde	2.95	3.00	98.3	92.2	117.2	2.88	96.0	2.40	0.0	20.0
Crotonaldehyde	3.21	3.00	107	93.1	114.8	3.06	102	4.78	0.0	20.0
Butyraldehyde	2.89	3.00	96.3	86.6	120.8	2.90	96.7	0.345	0.0	20.0
Benzaldehyde	2.92	3.00	97.3	96.0	112.3	2.91	97.0	0.343	0.0	20.0
Isovaleraldehyde	2.94	3.00	98.0	95.4	121.6	2.94	98.0	0.00	0.0	20.0
Valeraldehyde	2.76	3.00	92.0	85.3	120.4	2.81	93.7	1.80	0.0	20.0
m,p-Tolualdehyde	2.95	3.00	98.3	80.0	120.0	2.97	99.0	0.676	0.0	20.0
o-Tolualdehyde	2.94	3.00	98.0	91.6	111.4	2.98	99.3	1.35	0.0	20.0
Hexanal	2.98	3.00	99.3	85.4	127.6	2.73	91.0	8.76	0.0	20.0
2,5-Dimethylbenzaldehyde	3.07	3.00	102	99.6	118.7	2.99	99.7	2.64	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806070

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18105 (HBN: 209697)
	Prepared By: NA	**Analyzed By:** Easton Welcher

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Easton Welcher	/S/ Stephen Brose
03/12/2018 11:37	03/12/2018 14:45

Symbols and Definitions

- *- Analyte above reporting limit or outside of control limits
- ▲- Sample result is greater than 4 times the spike added
- ⬢- Sample and Matrix Duplicate less than 5 times the reporting limit
- ●- Result is above the calibration range
- #- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected. (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806070

1806070

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180583
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771640872264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T006583	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BA-EF	25C or low
2	S18T006584	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BA-IN	25C or low
3	S18T006585	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BL-EF	25C or low
4	S18T006586	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-BL-IN	25C or low
5	S18T006587	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-1	25C or low
6	S18T006588	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-2	25C or low
7	S18T006589	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-3	25C or low
8	S18T006590	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-4	25C or low
9	S18T006591	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-5	25C or low
10	S18T006592	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

Sample S18T006620 arrived Broken. DFT 2/1/18

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Don Sorenson		2-28-18 0930		JA Gradisher WRPS	JA Gradisher	2/28/18 0930
Relinquished By	JA Gradisher WRPS	JA Gradisher	2/28/18 1400	Received By	FEDEX		Date/Time
Relinquished By	FedEx		Date/Time	Received By	Desiree Hill	Desiree	03/01/2018 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Douglas Grass	Sample consumed	3/5/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-952 (03/05)

Assembler: N/A	**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**	C.O.C. No. 20180583
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN 76-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006593	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-7	25C or low
12	S18T006594	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-EF-8	25C or low
13	S18T006595	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-1	25C or low
14	S18T006596	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-2	25C or low
15	S18T006597	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-3	25C or low
16	S18T006598	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-4	25C or low
17	S18T006599	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-5	25C or low
18	S18T006600	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-6	25C or low
19	S18T006601	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-7	25C or low
20	S18T006602	VA	2/24/18		SILICA GEL	Aldehyde 18-01495-8-SC1-IN-8	25C or low

POSSIBLE SAMPLE HAZAROS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No
EPA TO-11A

SPECIAL INSTRUCTIONS
Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Dan Sobotka			2-28-18 0930	JA Gradisher WRPS		JA Gradisher	2/28/18 0930
Relinquished By			Date/Time	Received By			Date/Time
JA Gradisher WRPS		JA Gradisher	2/28/18 1400	FEDEX			
Relinquished By			Date/Time	Received By			Date/Time
Fedex				Desmeethill		DesmeeHill	03/01/2018 09:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Drucker Gross	Sample consumed	3/5/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180583
		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN P6-05 FAX 372-1978
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-IIC	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006603	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BA-EF	25C or low
22	S18T006604	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BA-IN	25C or low
23	S18T006605	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BL-EF	25C or low
24	S18T006606	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-BL-IN	25C or low
25	S18T006607	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-1	25C or low
26	S18T006608	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-2	25C or low
27	S18T006609	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-3	25C or low
28	S18T006610	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-4	25C or low
29	S18T006611	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-5	25C or low
30	S18T006612	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-6	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

EPA TO-11A

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov See SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brewster	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Dennell Hill	03/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Poured Down Sink

Disposed By: Sample consumed

Date/Time: 3/5/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180583
		Page 4 of 4

Collector: KAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771640872264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006613	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-7	25C or low
32	S18T006614	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-EF-8	25C or low
33	S18T006615	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-1	25C or low
34	S18T006616	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-2	25C or low
35	S18T006617	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-3	25C or low
36	S18T006618	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-4	25C or low
37	S18T006619	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-5	25C or low
38	S18T006620	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-6	25C or low
39	S18T006621	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-7	25C or low
40	S18T006622	VA	2/24/18		SILICA GEL	Aldehyde 18-01497-9-TL2-IN-8	25C or low

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No
EPA TO-11A

SPECIAL INSTRUCTIONS Hold Time
Send Results to Carl Howald IV and Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brandon	2/28/18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/18 9:50

Matrix*: S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, VA = Vapor, X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Sample consumed — Disposed By — Date/Time: 3/5/18 13:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

C.4.10 1,3-Butadiene

ANALYTICAL REPORT

Report Date: March 13, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1806077
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S18T006783				Collected: 02/23/2018
Lab ID: 1806077001	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube Sampling Info: Air Volume Not Provided			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S18T006784				Collected: 02/23/2018
Lab ID: 1806077002	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube Sampling Info: Air Volume Not Provided			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S18T006785				Collected: 02/23/2018
Lab ID: 1806077003	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube Sampling Info: Air Volume Not Provided			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006786**				Collected: 02/23/2018
Lab ID: 1806077004	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006787**				Collected: 02/23/2018
Lab ID: 1806077005	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006788**				Collected: 02/23/2018
Lab ID: 1806077006	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006789**				Collected: 02/23/2018
Lab ID: 1806077007	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006790**				Collected: 02/23/2018
Lab ID: 1806077008	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006791**				Collected: 02/23/2018
Lab ID: 1806077009	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006792**				Collected: 02/23/2018
Lab ID: 1806077010	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006793**				Collected: 02/23/2018
Lab ID: 1806077011	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006794**				Collected: 02/23/2018
Lab ID: 1806077012	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006795**				Collected: 02/23/2018
Lab ID: 1806077013	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006796** Collected: 02/23/2018
Lab ID: 1806077014 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006797** Collected: 02/23/2018
Lab ID: 1806077015 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006798** Collected: 02/23/2018
Lab ID: 1806077016 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006799** Collected: 02/23/2018
Lab ID: 1806077017 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006800** Collected: 02/23/2018
Lab ID: 1806077018 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006801**			Collected: 02/23/2018
Lab ID: 1806077019	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006802**			Collected: 02/23/2018
Lab ID: 1806077020	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006803**			Collected: 02/23/2018
Lab ID: 1806077021	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006804**			Collected: 02/23/2018
Lab ID: 1806077022	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006805**			Collected: 02/23/2018
Lab ID: 1806077023	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006806**				Collected: 02/23/2018
Lab ID: 1806077024	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006807**				Collected: 02/23/2018
Lab ID: 1806077025	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006808**				Collected: 02/23/2018
Lab ID: 1806077026	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006809**				Collected: 02/23/2018
Lab ID: 1806077027	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006810**				Collected: 02/23/2018
Lab ID: 1806077028	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006811**			Collected: 02/23/2018
Lab ID: 1806077029	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006812**			Collected: 02/23/2018
Lab ID: 1806077030	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006813**			Collected: 02/23/2018
Lab ID: 1806077031	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006814**			Collected: 02/23/2018
Lab ID: 1806077032	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006815**			Collected: 02/23/2018
Lab ID: 1806077033	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006816**				Collected: 02/23/2018
Lab ID: 1806077034	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006817**				Collected: 02/23/2018
Lab ID: 1806077035	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006818**				Collected: 02/23/2018
Lab ID: 1806077036	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006819**				Collected: 02/23/2018
Lab ID: 1806077037	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006820**				Collected: 02/23/2018
Lab ID: 1806077038	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**			Instrument: GCI07 Analyzed: 03/08/2018 (210070)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006821**			Collected: 02/23/2018
Lab ID: 1806077039	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006822**			Collected: 02/23/2018
Lab ID: 1806077040	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**		Instrument: GCI07 Analyzed: 03/08/2018 (210070)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1806077

QC/QD pair 590687/590688 relate to samples 1806077001-020

QC/QD pair 590690/590691 relate to samples 1806077021-040

Samples 1806077025, 27, 29, 31, 33, 35, 37, and 39 had butane coeluting in the 1,3-butadiene region of theGC/FID analysis. As per the client, these samples were analyzed by GC/MS to confirm that 1,3-butadiene was not detected. TheGC/MS lowest concentration of 1,3-butadiene that could be detected was 0.002 mg/sample.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 03/11/2018 15:53	/S/ Thomas J. Masoian 03/13/2018 10:16

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: **34-1806077**
Client Project ID: 20180588
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/saa/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806077

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9363 (HBN: 210070)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 590591
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590686
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590689
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590592
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590593
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	LCS Result	Target	%Rec	QC Limits		LCSD Result	%Rec	RPD	QC Limits	
1,3-Butadiene	0.0324	0.0342	94.7	78.0	117.6	0.0296	86.5	9.10	0.0	20.0

LCS: 590687
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590688
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	LCS Result	Target	%Rec	QC Limits		LCSD Result	%Rec	RPD	QC Limits	
1,3-Butadiene	0.0354	0.0342	103	78.0	117.6	0.0341	99.8	3.52	0.0	20.0

LCS: 590690
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590691
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	LCS Result	Target	%Rec	QC Limits		LCSD Result	%Rec	RPD	QC Limits	
1,3-Butadiene	0.0335	0.0342	97.9	78.0	117.6	0.0329	96.2	1.68	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806077

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9363 (HBN: 210070)
	Prepared By: NA	**Analyzed By:** Fred Rejali

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masolan
03/11/2018 15:53	03/13/2018 10:16

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
■ - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806077

1806077

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180588
		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WLS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006783	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-BA-EFA	CHILL -4C
	S18T006784	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-BA-EFB	CHILL -4C
	S18T006785	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-BA-INA	CHILL -4C
	S18T006786	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-BA-INB	CHILL -4C
	S18T006787	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-BL-EFA	CHILL -4C
	S18T006788	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-BL-EFB	CHILL -4C
	S18T006789	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-BL-INA	CHILL -4C
	S18T006790	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-BL-INB	CHILL -4C
	S18T006791	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-1-A	CHILL -4C
	S18T006792	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-1-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Gordon	2/28/18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
FedEx		Denise Hill	3/1/18 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Redd — Date/Time: 03/08/18 0800

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180588

Page 2 of 4

Assembler: N/A	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
Collector: WAY	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
SAF No.: N/A	Logbook/ Work Package No.: N/A	Ice Chest No.: WS-033	Temp.: ON ICE
Project Title: 2018 CARTRIDGE EVALUATION	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Shipped To (Lab): ALS	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	
Protocol: N/A			

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006793	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-2-A	CHILL -4C
	S18T006794	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-2-B	CHILL -4C
	S18T006795	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-3-A	CHILL -4C
	S18T006796	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-3-B	CHILL -4C
	S18T006797	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-4-A	CHILL -4C
	S18T006798	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-4-B	CHILL -4C
	S18T006799	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-5-A	CHILL -4C
	S18T006800	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-5-B	CHILL -4C
	S18T006801	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-6-A	CHILL -4C
	S18T006802	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-6-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
		2-28-18 0930	JA Gradisher WRPS	JA Gradisher	2/28/18 0930
JA Gradisher WRPS	JA Gradisher	2/28/18 1400		FEDEX	
	Fedex		Desiree Hill	Desiree Hill	03/01/2018 9:58

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rajah — Date/Time: 03/08/18 2300

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

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C.630

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180588
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006803	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-7-A	CHILL -4C
	S18T006804	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-7-B	CHILL -4C
	S18T006805	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-EF-8-A	CHILL -4C
	S18T006806	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-EF-8-B	CHILL -4C
	S18T006807	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-1-A	CHILL -4C
	S18T006808	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-1-B	CHILL -4C
	S18T006809	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-2-A	CHILL -4C
	S18T006810	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-2-B	CHILL -4C
	S18T006811	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-3-A	CHILL -4C
	S18T006812	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-3-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS: Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

	Print	Sign	Date/Time
Relinquished By	Don Spencer		2-28-18 0930
Relinquished By	JA Gradisher WRPS	JA Gradisher	2/28/18 1400
Relinquished By	Fedex		
Relinquished By			

	Print	Sign	Date/Time
Received By	JA Gradisher WRPS	JA Gradisher	2/28/18 0930
Received By	FEDEX		
Received By	Denise Hill	Denise Hill	03/01/18 9:50
Received By			

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Reinhardt — Date/Time: 03/08/18 2300

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180588
		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006813	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-4-A	CHILL -4C
	S18T006814	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-4-B	CHILL -4C
	S18T006815	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-5-A	CHILL -4C
	S18T006816	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-5-B	CHILL -4C
	S18T006817	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-6-A	CHILL -4C
	S18T006818	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-6-B	CHILL -4C
	S18T006819	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-7-A	CHILL -4C
	S18T006820	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-7-B	CHILL -4C
	S18T006821	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-9-SD1-IN-8-A	CHILL -4C
	S18T006822	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01494-10-SD1-IN-8-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl W Howald IV, Carl_W_Howald@rl.gov, and Keisha Garcia, Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Bryson	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/18 9:8

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		Fred Rejal	03/08/18 2300

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin. A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 09, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006823**				Collected: 02/23/2018
Lab ID: 1806040001	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006824**				Collected: 02/23/2018
Lab ID: 1806040002	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006825**				Collected: 02/23/2018
Lab ID: 1806040003	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006826**				Collected: 02/23/2018
Lab ID: 1806040004	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006827**				Collected: 02/23/2018
Lab ID: 1806040005	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006828**				Collected: 02/23/2018
Lab ID: 1806040006	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006829**				Collected: 02/23/2018
Lab ID: 1806040007	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006830**				Collected: 02/23/2018
Lab ID: 1806040008	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006831**			Collected: 02/23/2018
Lab ID: 1806040009	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006832**			Collected: 02/23/2018
Lab ID: 1806040010	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006833**			Collected: 02/23/2018
Lab ID: 1806040011	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006834**			Collected: 02/23/2018
Lab ID: 1806040012	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006835**			Collected: 02/23/2018
Lab ID: 1806040013	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006836**			Collected: 02/23/2018
Lab ID: 1806040014	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006837**			Collected: 02/23/2018
Lab ID: 1806040015	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006838**			Collected: 02/23/2018
Lab ID: 1806040016	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006839**			Collected: 02/23/2018
Lab ID: 1806040017	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006840**			Collected: 02/23/2018
Lab ID: 1806040018	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006841**			Collected: 02/23/2018
Lab ID: 1806040019	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006842**			Collected: 02/23/2018
Lab ID: 1806040020	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006843**			Collected: 02/23/2018
Lab ID: 1806040021	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006844**			Collected: 02/23/2018
Lab ID: 1806040022	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006845**			Collected: 02/23/2018
Lab ID: 1806040023	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/06/2018 (209679)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006846**				Collected: 02/23/2018
Lab ID: 1806040024	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006847**				Collected: 02/23/2018
Lab ID: 1806040025	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006848**				Collected: 02/23/2018
Lab ID: 1806040026	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006849**				Collected: 02/23/2018
Lab ID: 1806040027	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006850**				Collected: 02/23/2018
Lab ID: 1806040028	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006851**				Collected: 02/23/2018
Lab ID: 1806040029	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006852**				Collected: 02/23/2018
Lab ID: 1806040030	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006853**				Collected: 02/23/2018
Lab ID: 1806040031	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006854**				Collected: 02/23/2018
Lab ID: 1806040032	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006855**				Collected: 02/23/2018
Lab ID: 1806040033	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006856**				Collected: 02/23/2018
Lab ID: 1806040034	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006857**				Collected: 02/23/2018
Lab ID: 1806040035	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006858**				Collected: 02/23/2018
Lab ID: 1806040036	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006859**				Collected: 02/23/2018
Lab ID: 1806040037	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006860**				Collected: 02/23/2018
Lab ID: 1806040038	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/06/2018 (209679)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806040**
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006861**		Collected: 02/23/2018
Lab ID: 1806040039	Sampling Location: 2018 CARTRIDGE EVALU	Received: 03/01/2018
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube **Sampling Info: Air Volume Not Provided**	Instrument: GCI07 Analyzed: 03/06/2018 (209679)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006862**		Collected: 02/23/2018
Lab ID: 1806040040	Sampling Location: 2018 CARTRIDGE EVALU	Received: 03/01/2018
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube **Sampling Info: Air Volume Not Provided**	Instrument: GCI07 Analyzed: 03/06/2018 (209679)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1806040

QC/QD pair 590424/590425 relate to samples 1806040001-016

QC/QD pair 590427/590428 relate to samples 1806040017-036

QC/QD pair 590430/590431 relate to samples 1806040037-040

Samples 1806040001, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, and 39 had butane coeluting in the 1,3-butadiene region of theGC/FID analysis. As per the client, these samples were analyzed by GC/MS to confirm that 1,3-butadiene was not detected. TheGC/MS lowest concentration of 1,3-butadiene that could be detected was 0.002 mg/sample.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 03/09/2018 01:02	/S/ Thomas J. Masoian 03/09/2018 08:59

Laboratory Contact Information

ALS Environmental
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Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1806040
Client Project ID: 20180589
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806040

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9348 (HBN 209679)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 589767
Analyzed: 03/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590423
Analyzed: 03/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590426
Analyzed: 03/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590429
Analyzed: 03/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589768
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 589769
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0510	0.0479	107	78.0	117.6	0.0516	108	1.14	0.0	20.0

LCS: 590424
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590425
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0515	0.0479	107	78.0	117.6	0.0477	99.6	7.63	0.0	20.0

LCS: 590427
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590428
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0489	0.0479	102	78.0	117.6	0.0476	99.5	2.71	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806040

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: NIOSH 1024
Batch: IFID/9348 (HBN: 209679)
Analyzed By: Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590430
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590431
Analyzed: 03/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0477	0.0479	99.6	78.0	117.6	0.0462	96.4	3.19	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
03/09/2018 01:02	03/09/2018 08:59

Symbols and Definitions

- *- Analyte above reporting limit or outside of control limits
- ▲- Sample result is greater than 4 times the spike added
- ●- Sample and Matrix Duplicate less than 5 times the reporting limit
- ✹- Result is above the calibration range
- #- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806040

1806040

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180589
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: wts-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T006823	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-BA-EFA	CHILL -4C
2	S18T006824	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-BA-EFB	CHILL -4C
3	S18T006825	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-BA-INA	CHILL -4C
4	S18T006826	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-BA-INB	CHILL -4C
5	S18T006827	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-BL-EFA	CHILL -4C
6	S18T006828	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-BL-EFB	CHILL -4C
7	S18T006829	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-BL-INA	CHILL -4C
8	S18T006830	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-BL-INB	CHILL -4C
9	S18T006831	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-1-A	CHILL -4C
10	S18T006832	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-1-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
		2-28-18 0930			2/28/18 0930
Relinquished By		Date/Time	Received By		Date/Time
		2/28/18 1400	FEDEX		
Relinquished By		Date/Time	Received By		Date/Time
					03/01/18 9:50
Relinquished By		Date/Time	Received By		Date/Time

Matrix*: S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; VA = Vapor; X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		Fred Reid	03/06/18 2200

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180589
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: 26-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006833	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-2-A	CHILL -4C
12	S18T006834	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-2-B	CHILL -4C
13	S18T006835	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-3-A	CHILL -4C
14	S18T006836	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-3-B	CHILL -4C
15	S18T006837	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-4-A	CHILL -4C
16	S18T006838	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-4-B	CHILL -4C
17	S18T006839	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-5-A	CHILL -4C
18	S18T006840	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-5-B	CHILL -4C
19	S18T006841	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-6-A	CHILL -4C
20	S18T006842	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-6-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
DON BRENSON	2-28-18 0930	RE Rogers	2/28/18 0930
RE Rogers	2/28/18 1400		
Fedex		FEDEX	
		Tamm VanTassell	03-01-18 0950

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Reid — Date/Time: 03/06/18 0200

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180589
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WT3-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006843	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-7-A	CHILL -4C
32	S18T006844	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-7-B	CHILL -4C
33	S18T006845	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-EF-8-A	CHILL -4C
34	S18T006846	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-EF-8-B	CHILL -4C
35	S18T006847	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-1-A	CHILL -4C
36	S18T006848	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-1-B	CHILL -4C
37	S18T006849	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-2-A	CHILL -4C
38	S18T006850	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-2-B	CHILL -4C
39	S18T006851	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-3-A	CHILL -4C
40	S18T006852	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-3-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

	Print	Sign	Date/Time
Relinquished By	Don Sorenson		2-28-18 0930
Relinquished By			2/28/18 1400
Relinquished By	fedex		
Relinquished By			
Received By			2/28/18 0930
Received By	FEDEX		
Received By			3-01-18 0932
Received By			

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rajal — Date/Time: 03/06/18 2200

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin. A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler: N/A		C.O.C. No. 20180589	Page 4 of 4
Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. wts033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 436672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006853	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-4-A	CHILL -4C
32	S18T006854	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-4-B	CHILL -4C
33	S18T006855	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-5-A	CHILL -4C
34	S18T006856	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-5-B	CHILL -4C
35	S18T006857	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-6-A	CHILL -4C
36	S18T006858	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-6-B	CHILL -4C
37	S18T006859	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-7-A	CHILL -4C
38	S18T006860	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-7-B	CHILL -4C
39	S18T006861	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-10-TL1-IN-8-A	CHILL -4C
40	S18T006862	VA	2/23/18		CHARCOAL TUBE	1,3-Butadiene 18-01496-11-TL1-IN-8-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl W Howald IV, Carl_W_Howald@rl.gov, and Keisha Garcia, Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Swenson [signature]	2-28-18 0930	SE Rogers [signature]	2/28/18 0930
SE Rogers [signature]	2/28/18 1400	FEDEX	
[signature]		[signature]	03-01-18 950

Matrix*
S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; VA = Vapor; X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): used in process (circled) — Disposed By: Fred Rejak — Date/Time: 03/06/18 2200

*All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 09, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006863** Collected: 02/24/2018
Lab ID: 1806044001 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006864** Collected: 02/24/2018
Lab ID: 1806044002 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006865** Collected: 02/24/2018
Lab ID: 1806044003 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006866**			Collected: 02/24/2018
Lab ID: 1806044004	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006867**			Collected: 02/24/2018
Lab ID: 1806044005	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006868**			Collected: 02/24/2018
Lab ID: 1806044006	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006869**			Collected: 02/24/2018
Lab ID: 1806044007	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006870**			Collected: 02/24/2018
Lab ID: 1806044008	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006871**			Collected: 02/24/2018
Lab ID: 1806044009	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006872**			Collected: 02/24/2018
Lab ID: 1806044010	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006873**			Collected: 02/24/2018
Lab ID: 1806044011	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006874**			Collected: 02/24/2018
Lab ID: 1806044012	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006875**			Collected: 02/24/2018
Lab ID: 1806044013	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006876**			Collected: 02/24/2018
Lab ID: 1806044014	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006877**			Collected: 02/24/2018
Lab ID: 1806044015	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006878**			Collected: 02/24/2018
Lab ID: 1806044016	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006879**			Collected: 02/24/2018
Lab ID: 1806044017	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006880**			Collected: 02/24/2018
Lab ID: 1806044018	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006881**			Collected: 02/24/2018
Lab ID: 1806044019	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006882**			Collected: 02/24/2018
Lab ID: 1806044020	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006883**			Collected: 02/24/2018
Lab ID: 1806044021	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006884**			Collected: 02/24/2018
Lab ID: 1806044022	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006885**			Collected: 02/24/2018
Lab ID: 1806044023	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006886**			Collected: 02/24/2018
Lab ID: 1806044024	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006887**			Collected: 02/24/2018
Lab ID: 1806044025	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006888**			Collected: 02/24/2018
Lab ID: 1806044026	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006889**			Collected: 02/24/2018
Lab ID: 1806044027	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006890**			Collected: 02/24/2018
Lab ID: 1806044028	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006891**			Collected: 02/24/2018
Lab ID: 1806044029	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006892**			Collected: 02/24/2018
Lab ID: 1806044030	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006893**			Collected: 02/24/2018
Lab ID: 1806044031	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006894**			Collected: 02/24/2018
Lab ID: 1806044032	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006895**			Collected: 02/24/2018
Lab ID: 1806044033	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006896**			Collected: 02/24/2018
Lab ID: 1806044034	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006897**			Collected: 02/24/2018
Lab ID: 1806044035	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006898**			Collected: 02/24/2018
Lab ID: 1806044036	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006899**			Collected: 02/24/2018
Lab ID: 1806044037	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006900**			Collected: 02/24/2018
Lab ID: 1806044038	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806044**
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006901**		Collected: 02/24/2018
Lab ID: 1806044039	Sampling Location: 2018 CARTRIDGE EVALU	Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**	Instrument: GCI07 Analyzed: 03/08/2018 (209925)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006902**		Collected: 02/24/2018
Lab ID: 1806044040	Sampling Location: 2018 CARTRIDGE EVALU	Received: 03/01/2018
Method: **NIOSH 1024**	Media: SKC 226-37 Sorbent Tube Sampling Info: **Air Volume Not Provided**	Instrument: GCI07 Analyzed: 03/08/2018 (209925)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1806044

QC/QD pair 590231/590232 relate to samples 1806044001-020

QC/QD pair 590433/590434 relate to samples 1806044021-040

Samples 1806044019, 21, 23, 25, 27, 29, 31, 33, 35, 37, and 39 had butane coeluting in the 1,3-butadiene region of theGC/FID analysis. As per the client, these samples were analyzed by GC/MS to confirm that 1,3-butadiene was not detected. TheGC/MS lowest concentration of 1,3-butadiene that could be detected was 0.002 mg/sample.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 03/09/2018 02:56	/S/ Thomas J. Masoian 03/09/2018 11:51

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1806044
Client Project ID: 20180590
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806044

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9362 (HBN 209925)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 590230
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590432
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590435
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590438
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	0.001	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590231
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590232
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0481	0.0445	108	78.0	117.6	0.0503	113	4.53	0.0	20.0

LCS: 590433
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590434
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0473	0.0445	106	78.0	117.6	0.0434	97.6	8.47	0.0	20.0

LCS: 590436
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590437
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0436	0.0445	98.1	78.0	117.6	0.0447	109	2.52	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806044

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: NIOSH 1024
Batch: IFID/9362 (HBN: 209925)
Analyzed By: Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590439
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590440
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
1,3-Butadiene	0.0416	0.0445	93.5	78.0	117.6	0.0433	97.4	4.10	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
03/09/2018 02:56	03/09/2018 11:51

Symbols and Definitions

*- Analyte above reporting limit or outside of control limits
▲- Sample result is greater than 4 times the spike added
●- Sample and Matrix Duplicate less than 5 times the reporting limit
●- Result is above the calibration range
#- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806044

1806044

Assembler
N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180590
Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. On Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T006863	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-BA-EFA	CHILL -4C
2	S18T006864	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-BA-EFB	CHILL -4C
3	S18T006865	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-BA-INA	CHILL -4C
4	S18T006866	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-BA-INB	CHILL -4C
5	S18T006867	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-BL-EFA	CHILL -4C
6	S18T006868	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-BL-EFB	CHILL -4C
7	S18T006869	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-BL-INA	CHILL -4C
8	S18T006870	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-BL-INB	CHILL -4C
9	S18T006871	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-1-A	CHILL -4C
10	S18T006872	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-1-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

	Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
1	Don Dotson		2-28-18 0930	Ke Rogers		2/28/18 0930
2	Ke Rogers		3/28/18 1400		FEDEX	
3	Fedex			Desiree Hill		03/01/18 9:50
4						

Matrix*

S	= Soil	DL	= Drum Liquids
SE	= Sediment	T	= Tissue
SO	= Solid	WI	= Wipe
SL	= Sludge	L	= Liquid
W	= Water	V	= Vegetation
O	= Oil	VA	= Vapor
A	= Air	X	= Other
DS	= Drum Solids		

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Fred R. 03/08/18 Date/Time: 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180590
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006873	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-2-A	CHILL -4C
12	S18T006874	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-2-B	CHILL -4C
13	S18T006875	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-3-A	CHILL -4C
14	S18T006876	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-3-B	CHILL -4C
15	S18T006877	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-4-A	CHILL -4C
16	S18T006878	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-4-B	CHILL -4C
17	S16T006879	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-5-A	CHILL -4C
18	S18T006880	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-5-B	CHILL -4C
19	S18T006881	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-6-A	CHILL -4C
20	S18T006882	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-6-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Don Brenson		2-28-18 0930		K.E. Rogers		2/28/18 0930
Relinquished By			Date/Time	Received By			Date/Time
K.E. Rogers			2/28/18 1400	FEDEX			
Relinquished By			Date/Time	Received By			Date/Time
Fedex				Desiree Hill			03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rojas — Date/Time: 03/08/18 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180590
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. wts-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006883	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-7-A	CHILL -4C
22	S18T006884	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-7-B	CHILL -4C
23	S18T006885	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-EF-8-A	CHILL -4C
24	S18T006886	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-EF-8-B	CHILL -4C
25	S18T006887	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-1-A	CHILL -4C
26	S18T006888	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-1-B	CHILL -4C
27	S18T006889	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-2-A	CHILL -4C
28	S18T006890	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-2-B	CHILL -4C
29	S18T006891	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-3-A	CHILL -4C
30	S18T006892	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-3-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

Hold Time

SPECIAL INSTRUCTIONS

Send Results to Carl W Howald IV, Carl_W_Howald@rl.gov, and Keisha Garcia, Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	2/28/18 0930	K E Rogers	2/28/18 0930
K E Rogers	2/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/01/18 9:50

Matrix*

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solids
DL = Drum Liquids	T = Tissue	WI = Wipe	L = Liquid
V = Vegetation	VA = Vapor	X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Reid 03/08/18 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180590 — Page 4 of 4

Assembler: N/A			
Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 22164	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006893	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-4-A	CHILL -4C
32	S18T006894	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-4-B	CHILL -4C
33	S18T006895	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-5-A	CHILL -4C
34	S18T006896	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-5-B	CHILL -4C
35	S18T006897	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-6-A	CHILL -4C
36	S18T006898	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-6-B	CHILL -4C
37	S18T006899	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-7-A	CHILL -4C
38	S18T006900	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-7-B	CHILL -4C
39	S18T006901	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-9-SC1-IN-8-A	CHILL -4C
40	S18T006902	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01495-10-SC1-IN-8-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ⦿ No

SPECIAL INSTRUCTIONS: Hold Time

Send Results to Carl W Howald IV, Carl W Howald@rl.gov, and Keisha Garcia, Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	2-28-18 0930	Se Rogers	2/28/18 0930
Re Rogers	2/28/18 1400	FEDEX	
Fedex		Desireethill	03/01/18 930

Matrix*
S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; VA = Vapor; X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rajah — Date/Time: 03/08/18 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 09, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006903** Collected: 02/24/2018
Lab ID: 1806048001 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (209925)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006904** Collected: 02/24/2018
Lab ID: 1806048002 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (209925)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006905** Collected: 02/24/2018
Lab ID: 1806048003 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1024** Media: SKC 226-37 Sorbent Tube Instrument: GCI07
Sampling Info: **Air Volume Not Provided** Analyzed: 03/08/2018 (209925)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006906**				Collected: 02/24/2018
Lab ID: 1806048004	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006907**				Collected: 02/24/2018
Lab ID: 1806048005	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006908**				Collected: 02/24/2018
Lab ID: 1806048006	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006909**				Collected: 02/24/2018
Lab ID: 1806048007	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006910**				Collected: 02/24/2018
Lab ID: 1806048008	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006911**			Collected: 02/24/2018
Lab ID: 1806048009	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006912**			Collected: 02/24/2018
Lab ID: 1806048010	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006913**			Collected: 02/24/2018
Lab ID: 1806048011	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006914**			Collected: 02/24/2018
Lab ID: 1806048012	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006915**			Collected: 02/24/2018
Lab ID: 1806048013	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**		**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006916**				Collected: 02/24/2018
Lab ID: 1806048014	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006917**				Collected: 02/24/2018
Lab ID: 1806048015	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006918**				Collected: 02/24/2018
Lab ID: 1806048016	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006919**				Collected: 02/24/2018
Lab ID: 1806048017	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006920**				Collected: 02/24/2018
Lab ID: 1806048018	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006921**				Collected: 02/24/2018
Lab ID: 1806048019	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006922**				Collected: 02/24/2018
Lab ID: 1806048020	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006923**				Collected: 02/24/2018
Lab ID: 1806048021	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006924**				Collected: 02/24/2018
Lab ID: 1806048022	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006925**				Collected: 02/24/2018
Lab ID: 1806048023	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006926**				Collected: 02/24/2018
Lab ID: 1806048024	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006927**				Collected: 02/24/2018
Lab ID: 1806048025	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006928**				Collected: 02/24/2018
Lab ID: 1806048026	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006929**				Collected: 02/24/2018
Lab ID: 1806048027	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006930**				Collected: 02/24/2018
Lab ID: 1806048028	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006931**				Collected: 02/24/2018
Lab ID: 1806048029	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006932**				Collected: 02/24/2018
Lab ID: 1806048030	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006933**				Collected: 02/24/2018
Lab ID: 1806048031	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006934**				Collected: 02/24/2018
Lab ID: 1806048032	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006935**				Collected: 02/24/2018
Lab ID: 1806048033	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006936**				Collected: 02/24/2018
Lab ID: 1806048034	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006937**				Collected: 02/24/2018
Lab ID: 1806048035	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006938**				Collected: 02/24/2018
Lab ID: 1806048036	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T006939**				Collected: 02/24/2018
Lab ID: 1806048037	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006940**				Collected: 02/24/2018
Lab ID: 1806048038	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube**			**Instrument: GCI07**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1806048**
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006941**			Collected: 02/24/2018
Lab ID: 1806048039	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0020	NA	NA	0.0020

Sample ID: **S18T006942**			Collected: 02/24/2018
Lab ID: 1806048040	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 03/08/2018 (209925)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1806048

QC/QD pair 590436/590437 relate to samples 1806048001-020

QC/QD pair 590439/590440 relate to samples 1806048021-040

Samples 1806048013, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, and 39 had butane coeluting in the 1,3-butadiene region of theGC/FID analysis. As per the client, these samples were analyzed by GC/MS to confirm that 1,3-butadiene was not detected. TheGC/MS lowest concentration of 1,3-butadiene that could be detected was 0.002 mg/sample.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 03/09/2018 02:56	/S/ Thomas J. Masoian 03/09/2018 11:51

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1806048
Client Project ID: 20180591
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806048

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9362 (HBN 209925)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 590230
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590432
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590435
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 590438
Analyzed: 03/08/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	0.001	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590231
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590232
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0481	0.0445	108	78.0	117.6	0.0503	113	4.53	0.0	20.0

LCS: 590433
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590434
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0473	0.0445	106	78.0	117.6	0.0434	97.6	8.47	0.0	20.0

LCS: 590436
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 590437
Analyzed: 03/08/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0436	0.0445	98.1	78.0	117.6	0.0447	109	2.52	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806048

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9362 (HBN: 209925)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590439 **Analyzed:** 03/08/2018 00:00 **Dilution:** 1 **Units:** mg/sample						**LCSD:** 590440 **Analyzed:** 03/08/2018 00:00 **Dilution:** 1 **Units:** mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0416	0.0445	93.5	78.0	117.6	0.0433	97.4	4.10	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
03/09/2018 02:56	03/09/2018 11:51

Symbols and Definitions

- *- Analyte above reporting limit or outside of control limits
- ▲- Sample result is greater than 4 times the spike added
- ●- Sample and Matrix Duplicate less than 5 times the reporting limit
- ●- Result is above the calibration range
- #- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806048

1806048

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler N/A		C.O.C. No. 20180591	Page 1 of 4
Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No. N/A	Sample Origin 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. wts-033	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis 72U-37	Preservative
1	S18T006903	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-BA-EFA	CHILL -4C
2	S18T006904	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-BA-EFB	CHILL -4C
3	S18T006905	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-BA-INA	CHILL -4C
4	S18T006906	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-BA-INB	CHILL -4C
5	S18T006907	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-BL-EFA	CHILL -4C
6	S18T006908	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-BL-EFB	CHILL -4C
7	S18T006909	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-BL-INA	CHILL -4C
8	S18T006910	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-BL-INB	CHILL -4C
9	S18T006911	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-1-A	CHILL -4C
10	S18T006912	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-1-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ⦿ No

SPECIAL INSTRUCTIONS

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Swanson [signature]	2-28-18 0930	JA Gradisher WRPS [signature] 2/28/18	0930
JA Gradisher WRPS [signature] 2/28/18	1400	FEDEX	
FedEx		Desiree Hill [signature]	03/01/18 9:50

Matrix*

S = Soil	DL = Drum Liquids
SE = Sediment	T = Tissue
SO = Solid	WI = Wipe
SL = Sludge	L = Liquid
W = Water	V = Vegetation
O = Oil	VA = Vapor
A = Air	X = Other
DS = Drum Solids	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By Fred Rajah	Date/Time 03/08/18 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180591
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. wts-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43622

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006913	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-2-A	CHILL -4C
12	S18T006914	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-2-B	CHILL -4C
13	S18T006915	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-3-A	CHILL -4C
14	S18T006916	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-3-B	CHILL -4C
15	S18T006917	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-4-A	CHILL -4C
16	S18T006918	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-4-B	CHILL -4C
17	S18T006919	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-5-A	CHILL -4C
18	S18T006920	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-5-B	CHILL -4C
19	S18T006921	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-6-A	CHILL -4C
20	S18T006922	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-6-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl W Howald IV, Carl_W_Howald@rl.gov, and Keisha Garcia, Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

	Print	Sign	Date/Time
Relinquished By	Don Bronson		2-28-18 0930
Received By	JA Gradisher WRPS	JA Gradisher	2/28/18 0930
Relinquished By	JA Gradisher WRPS	JA Gradisher	2/28/18 1400
Received By	FEDEX		
Relinquished By	FedEx		
Received By	Dianne Hill	Dianne Hill	03/01/18 9:50
Relinquished By			
Received By			

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Fred Reil Date/Time: 03/08/18 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180591
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4082 2269
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006923	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-7-A	CHILL -4C
22	S18T006924	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-7-B	CHILL -4C
23	S18T006925	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-EF-8-A	CHILL -4C
24	S18T006926	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-EF-8-B	CHILL -4C
25	S18T006927	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-1-A	CHILL -4C
26	S18T006928	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-1-B	CHILL -4C
27	S18T006929	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-2-A	CHILL -4C
28	S18T006930	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-2-B	CHILL -4C
29	S18T006931	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-3-A	CHILL -4C
30	S18T006932	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-3-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV,
Carl_W_Howald@rl.gov, and Keisha Garcia,
Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

	Print	Sign	Date/Time
Relinquished By	Don Torgerson		2-28-18 0930
Relinquished By	JA Gradisher WRPS		2/28/18 1400
Relinquished By	Fedex		
Relinquished By			

	Print	Sign	Date/Time
Received By	JA Gradisher WRPS		2/28/18 0930
Received By			
Received By	FEDEX		
Received By	Desiree Hill		03/01/18 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Fred Rajah Date/Time: 03/08/18 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180591
N/A		Page 4 of 4

Collector: RAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2269	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006933	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-4-A	CHILL -4C
32	S18T006934	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-4-B	CHILL -4C
33	S18T006935	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-5-A	CHILL -4C
34	S18T006936	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-5-B	CHILL -4C
35	S18T006937	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-6-A	CHILL -4C
36	S18T006938	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-6-B	CHILL -4C
37	S18T006939	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-7-A	CHILL -4C
38	S18T006940	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-7-B	CHILL -4C
39	S18T006941	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-10-TL2-IN-8-A	CHILL -4C
40	S18T006942	VA	2/24/18		CHARCOAL TUBE	1,3-Butadiene 18-01497-11-TL2-IN-8-B	CHILL -4C

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV, Carl_W_Howald@rl.gov, and Keisha Garcia, Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	DON SORENSON		2-28-18 0930		JA Gradisher WRPS	JA Gradisher	2/28/18 0930
Relinquished By	JA Gradisher WRPS	JA Gradisher	2/28/18 1400	Received By	FEDEX		Date/Time
Relinquished By	FEDEX		Date/Time	Received By	Desiree Hill	Desiree Hill	03/01/18 9:50
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		Fred Rapp	03/08/18 2100

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

C.4.11 Pyridines

ANALYTICAL REPORT

Report Date: March 08, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1806049
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006943** Collected: 02/23/2018
Lab ID: 1806049001 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1613 Mod.** Media: SKC 226-01, Charcoal Tube 100/50mg Instrument: 5975-H
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006944** Collected: 02/23/2018
Lab ID: 1806049002 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1613 Mod.** Media: SKC 226-01, Charcoal Tube 100/50mg Instrument: 5975-H
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006945** Collected: 02/23/2018
Lab ID: 1806049003 Sampling Location: 2018 CARTRIDGE EVALU Received: 03/01/2018
Method: **NIOSH 1613 Mod.** Media: SKC 226-01, Charcoal Tube 100/50mg Instrument: 5975-H
Sampling Info: **Air Volume Not Provided** Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006946**				Collected: 02/23/2018
Lab ID: 1806049004	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006947**				Collected: 02/23/2018
Lab ID: 1806049005	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006948**				Collected: 02/23/2018
Lab ID: 1806049006	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006949**				Collected: 02/23/2018
Lab ID: 1806049007	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006950**			Collected: 02/23/2018
Lab ID: 1806049008	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: Air Volume Not Provided		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006951**			Collected: 02/23/2018
Lab ID: 1806049009	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: Air Volume Not Provided		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006952**			Collected: 02/23/2018
Lab ID: 1806049010	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: Air Volume Not Provided		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006953**			Collected: 02/23/2018
Lab ID: 1806049011	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: Air Volume Not Provided		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006954**			Collected: 02/23/2018
Lab ID: 1806049012	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006955**			Collected: 02/23/2018
Lab ID: 1806049013	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006956**			Collected: 02/23/2018
Lab ID: 1806049014	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006957**			Collected: 02/23/2018
Lab ID: 1806049015	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg		Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**		Analyzed: 03/06/2018 (209776)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006958**				Collected: 02/23/2018
Lab ID: 1806049016	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006959**				Collected: 02/23/2018
Lab ID: 1806049017	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006960**				Collected: 02/23/2018
Lab ID: 1806049018	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006961**				Collected: 02/23/2018
Lab ID: 1806049019	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006962**				Collected: 02/23/2018
Lab ID: 1806049020	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-H
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209776)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006963**				Collected: 02/23/2018
Lab ID: 1806049021	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006964**				Collected: 02/23/2018
Lab ID: 1806049022	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006965**				Collected: 02/23/2018
Lab ID: 1806049023	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006966**				Collected: 02/23/2018
Lab ID: 1806049024	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006967**				Collected: 02/23/2018
Lab ID: 1806049025	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006968**				Collected: 02/23/2018
Lab ID: 1806049026	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006969**				Collected: 02/23/2018
Lab ID: 1806049027	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006970**				Collected: 02/23/2018
Lab ID: 1806049028	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006971**				Collected: 02/23/2018
Lab ID: 1806049029	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006972**				Collected: 02/23/2018
Lab ID: 1806049030	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006973**				Collected: 02/23/2018
Lab ID: 1806049031	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006974**				Collected: 02/23/2018
Lab ID: 1806049032	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006975**				Collected: 02/23/2018
Lab ID: 1806049033	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	**0.61**	NA	NA	0.50
2,4-Dimethylpyridine	**0.61**	NA	NA	0.50

Sample ID: **S18T006976**				Collected: 02/23/2018
Lab ID: 1806049034	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	**0.54**	NA	NA	0.50
2,4-Dimethylpyridine	**0.68**	NA	NA	0.50

Sample ID: **S18T006977**				Collected: 02/23/2018
Lab ID: 1806049035	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/06/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	**0.67**	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006978**				Collected: 02/23/2018
Lab ID: 1806049036	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006979**				Collected: 02/23/2018
Lab ID: 1806049037	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	**0.62**	NA	NA	0.50
2,4-Dimethylpyridine	**0.80**	NA	NA	0.50

Sample ID: **S18T006980**				Collected: 02/23/2018
Lab ID: 1806049038	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	**0.51**	NA	NA	0.50

Sample ID: **S18T006981**				Collected: 02/23/2018
Lab ID: 1806049039	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg			Instrument: 5975-A
	Sampling Info: **Air Volume Not Provided**			Analyzed: 03/07/2018 (209777)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	**0.54**	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806049**
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006982**		Collected: 02/23/2018
Lab ID: 1806049040	Sampling Location: 2018 CARTRIDGE EVALU	Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A
	Sampling Info: Air Volume Not Provided	Analyzed: 03/07/2018 (209777)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	**0.53**	NA	NA	0.50

Comments

Workorder: 1806049

Clarification to QA was added and this was re-reported 3.12-18.

Quality Control: NIOSH 1613 Mod. - (HBN: 209776)

LCS and LCSD failed RPD. This is not a method requirement. These QCs are associated with samples 1806049001-020.

Report Authorization (*/S/* is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1613 Mod.	*/S/* Benson Boy 03/07/2018 17:46	*/S/* Thomas J. Masoian 03/08/2018 09:53

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1806049
Client Project ID: 20180592
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806049

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1613 Mod.
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ISVO/3851 (HBN: 209776)
	Prepared By: NA	**Analyzed By:** Benson Boy

Blank

LMB: 589961
Analyzed: 03/06/2018 12:15
Units: ug/sample

Analyte	Result	MDL	RL
Pyridine	ND	NA	0.500
2,4-Dimethylpyridine	ND	NA	0.500

Laboratory Control Sample - Laboratory Control Sample Duplicate

	LCS: 589962 Analyzed: 03/08/2018 06:58 Dilution: 1 Units: ug/sample					LCSD: 589963 Analyzed: 03/07/2018 03:51 Dilution: 1 Units: ug/sample					
Analyte	Result	Target	%Rec	QC Limits		Result	%Rec		RPD	QC Limits	
Pyridine	1.01	2.00	50.6	28.7	141.2	1.81	90.7	*	56.7	0.0	22.1
2,4-Dimethylpyridine	1.14	2.00	56.8	18.3	119.1	1.89	94.4	*	49.8	0.0	22.2

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Benson Boy	/S/ Thomas J. Masolan
03/08/2018 08:08	03/08/2018 09:41

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806049

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1613 Mod.
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ISVO/3852 (HBN: 209777)
	Prepared By: NA	**Analyzed By:** Benson Boy

Blank

LMB: 589965
Analyzed: 03/06/2018 12:16
Units: ug/sample

Analyte	Result	MDL	RL
Pyridine	ND	NA	0.500
2,4-Dimethylpyridine	ND	NA	0.500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 589966
Analyzed: 03/06/2018 12:37
Dilution: 1
Units: ug/sample

LCSD: 589967
Analyzed: 03/06/2018 12:58
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Pyridine	2.04	2.00	102	28.7	141.2	1.86	93.2	9.25	0.0	22.1
2,4-Dimethylpyridine	2.19	2.00	109	18.3	119.1	2.04	102	7.22	0.0	22.2

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Benson Boy	/S/ Thomas J. Masolan
03/07/2018 12:13	03/08/2018 09:52

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806049

1806049

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180592
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.	7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	43678

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
						72(e-0)	
1	S18T006943	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-BA-EP	N/A
2	S18T006944	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-BA-IN	N/A
3	S18T006945	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-BL-EP	N/A
4	S18T006946	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-BL-IN	N/A
5	S18T006947	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-EF-1	N/A
6	S18T006948	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-EF-2	N/A
7	S18T006949	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-EF-3	N/A
8	S18T006950	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-EF-4	N/A
9	S18T006951	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-EF-5	N/A
10	S19T006952	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ◯ Yes ◉ No

Samples S18T006952, S18T006941 & S18T006981 Arrived with an end cap broken off, OK 3.1.18

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400		
Fedex		FEDEX	
		Desiree Hill	03/01/2018 9:50

Matrix*

S = Soil	DL = Drum Liquids		
SE = Sediment	T = Tissue		
SO = Solid	WI = Wipe		
SL = Sludge	L = Liquid		
W = Water	V = Vegetation		
O = Oil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Per lab procedure

Disposed By

Date/Time: 3/5/18 1200

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-982 (03/05)

1806049 - Page 15 of 18

C.695

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180592
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006953	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-BF-7	N/A
12	S18T006954	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-BF-8	N/A
13	S18T006955	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-1	N/A
14	S18T006956	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-2	N/A
15	S18T006957	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-3	N/A
16	S18T006958	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-4	N/A
17	S18T006959	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-5	N/A
18	S18T006960	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-6	N/A
19	S18T006961	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-7	N/A
20	S18T006962	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01494-11-SD1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie DIAZ Leslie Diaz	2-28-18 0930	JA Gradisher WRPS JaGradisher	2/28/18 0930
JA Gradisher WRPS JaGradisher	2/28/18 1405	FEDEX	
FedEx		Desmett Hill Desmett Hill	03/01/2018 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Per lab procedure — Disposed By: — Date/Time: 3/5/18 1200

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180592
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T006963	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-BA-EF *	N/A
22	S18T006964	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-BA-IN *	N/A
23	S18T006965	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-BL-EF *	N/A
24	S18T006966	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-BL-IN *	N/A
25	S18T006967	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-EF-1 *	N/A
26	S18T006968	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-EF-2 *	N/A
27	S18T006969	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-EF-3 *	N/A
28	S18T006970	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-EF-4 *	N/A
29	S18T006971	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-EF-5 *	N/A
30	S18T006972	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-EF-6 *	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Keisha DIAZ Keisha Diaz	2-28-18 09:30	JA Gradisher WRPS JA Gradisher	2/28/18 0930
JA Gradisher WRPS JA Gradisher	2/28/18 1400	FEDEX	
FEDEX		Desiree Hill Desiree Hill	3/01/18 9:50

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): per lab procedure — Disposed By: — Date/Time: 3/5/18 1200

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-952 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler N/A			C.O.C. No. 20180592 — Page 4 of 4
Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX N/A
SAF No. N/A	Sample Origin 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2284	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T006973	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01456-12-TL1-EF-7	N/A
32	S18T006974	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-EF-8	N/A
33	S18T006975	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-1	N/A
34	S18T006976	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-2	N/A
35	S18T006977	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-3	N/A
36	S18T006978	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-4	N/A
37	S18T006979	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-5	N/A
38	S18T006980	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-6	N/A
39	S18T006981	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-7	N/A
40	S18T006982	VA	02/23/18		CHARCOAL TUBE	Pyridines 18-01496-12-TL1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz / Leslie Diaz	2-28-18 0930	JA Gradisher WRPS / JA Gradisher 2/28/18	0930
JA Gradisher WRPS / JA Gradisher 2/28/18	1400	FEDEX	
FedEx		Desiree Hill / Desiree Hill	3/01/18 9:35

Matrix*

S = Soil	DL = Drum Liquids
SE = Sediment	T = Tissue
SO = Solid	WI = Wipe
SL = Sludge	L = Liquid
W = Water	V = Vegetation
O = Oil	VA = Vapor
A = Air	X = Other
DS = Drum Solids	

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Per lab procedure — Disposed By: [signature] — Date/Time: 3/5/18 1200

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: March 09, 2018

Robert (Buddy) Sosa
Washington River Protection So
PO Box 850, MSIN T6-02
Richland, WA 99352

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006983**			Collected: 02/24/2018
Lab ID: 1806051001	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**		**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/07/2018 (209845)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006984**			Collected: 02/24/2018
Lab ID: 1806051002	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**		**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/07/2018 (209845)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006985**			Collected: 02/24/2018
Lab ID: 1806051003	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**		**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/07/2018 (209845)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006986**				Collected: 02/24/2018
Lab ID: 1806051004	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006987**				Collected: 02/24/2018
Lab ID: 1806051005	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006988**				Collected: 02/24/2018
Lab ID: 1806051006	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006989**				Collected: 02/24/2018
Lab ID: 1806051007	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006990**				Collected: 02/24/2018
Lab ID: 1806051008	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006991**				Collected: 02/24/2018
Lab ID: 1806051009	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006992**				Collected: 02/24/2018
Lab ID: 1806051010	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006993**				Collected: 02/24/2018
Lab ID: 1806051011	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006994**				Collected: 02/24/2018
Lab ID: 1806051012	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006995**				Collected: 02/24/2018
Lab ID: 1806051013	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006996**				Collected: 02/24/2018
Lab ID: 1806051014	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006997**				Collected: 02/24/2018
Lab ID: 1806051015	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T006998**				Collected: 02/24/2018
Lab ID: 1806051016	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T006999**				Collected: 02/24/2018
Lab ID: 1806051017	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007000**				Collected: 02/24/2018
Lab ID: 1806051018	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007001**				Collected: 02/24/2018
Lab ID: 1806051019	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
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Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007002**				Collected: 02/24/2018
Lab ID: 1806051020	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209845)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007003**				Collected: 02/24/2018
Lab ID: 1806051021	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007004**				Collected: 02/24/2018
Lab ID: 1806051022	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007005**				Collected: 02/24/2018
Lab ID: 1806051023	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007006**			Collected: 02/24/2018
Lab ID: 1806051024	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**		**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/07/2018 (209846)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007007**			Collected: 02/24/2018
Lab ID: 1806051025	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**		**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/07/2018 (209846)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007008**			Collected: 02/24/2018
Lab ID: 1806051026	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**		**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/07/2018 (209846)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007009**			Collected: 02/24/2018
Lab ID: 1806051027	Sampling Location: 2018 CARTRIDGE EVALU		Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**		**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided		**Analyzed: 03/07/2018 (209846)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007010**				Collected: 02/24/2018
Lab ID: 1806051028	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007011**				Collected: 02/24/2018
Lab ID: 1806051029	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/07/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007012**				Collected: 02/24/2018
Lab ID: 1806051030	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007013**				Collected: 02/24/2018
Lab ID: 1806051031	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007014**				Collected: 02/24/2018
Lab ID: 1806051032	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007015**				Collected: 02/24/2018
Lab ID: 1806051033	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007016**				Collected: 02/24/2018
Lab ID: 1806051034	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007017**				Collected: 02/24/2018
Lab ID: 1806051035	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007018**				Collected: 02/24/2018
Lab ID: 1806051036	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007019**				Collected: 02/24/2018
Lab ID: 1806051037	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007020**				Collected: 02/24/2018
Lab ID: 1806051038	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-A**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: **S18T007021**				Collected: 02/24/2018
Lab ID: 1806051039	Sampling Location: 2018 CARTRIDGE EVALU			Received: 03/01/2018
Method: NIOSH 1613 Mod.	**Media: SKC 226-01, Charcoal Tube 100/50mg**			**Instrument: 5975-H**
	Sampling Info: Air Volume Not Provided			**Analyzed: 03/08/2018 (209846)**
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1806051**
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T007022**		Collected: 02/24/2018
Lab ID: 1806051040	Sampling Location: 2018 CARTRIDGE EVALU	Received: 03/01/2018
Method: **NIOSH 1613 Mod.**	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A
	Sampling Info: Air Volume Not Provided	Analyzed: 03/08/2018 (209846)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 1613 Mod.	/S/ Benson Boy 03/09/2018 11:23	/S/ Thomas J. Masoian 03/09/2018 12:08

Laboratory Contact Information

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ANALYTICAL REPORT

Workorder: 34-1806051
Client Project ID: 20180593
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-288	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
	Utah (TNI)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704450-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing			
CPSC	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com
Soil, Dust, Paint	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	PJLA (ISO 17025)	L17-291	http://www.pjlabs.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

ALS Envrionmental certifies this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this report has been electronically authorized by the following laboratory representative:

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806051

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1613 Mod
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ISVQ/3854 (HBN: 209845)
	Prepared By: NA	**Analyzed By:** Benson Boy

Blank

LMB: 590111
Analyzed: 03/07/2018 12:49
Units: ug/sample

Analyte	Result	MDL	RL
Pyridine	ND	NA	0.500
2,4-Dimethylpyridine	ND	NA	0.500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590112
Analyzed: 03/07/2018 13:11
Dilution: 1
Units: ug/sample

LCSD: 590113
Analyzed: 03/07/2018 13:33
Dilution: 1
Units: ug/sample

Analyte	LCS Result	Target	% Rec	QC Limits		LCSD Result	% Rec	RPD	QC Limits	
Pyridine	1.30	2.00	65.2	28.7	141.2	1.30	65.0	0.407	0.0	22.1
2,4-Dimethylpyridine	1.52	2.00	76.0	18.3	119.1	1.03	51.7	* 38.1	0.0	22.2

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Benson Boy	/S/ Thomas J. Masoian
03/09/2018 11:23	03/09/2018 12:06

Symbols and Definitions

- *- Analyte above reporting limit or outside of control limits
- ▲- Sample result is greater than 4 times the spike added
- ●- Sample and Matrix Duplicate less than 5 times the reporting limit
- ●- Result is above the calibration range
- #- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1806051

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: NIOSH 1613 Mod
Batch: ISVO/3855 (HBN: 209846)
Analyzed By: Benson Boy

Blank

LMB: 590115
Analyzed: 03/07/2018 12:45
Units: ug/sample

Analyte	Result	MDL	RL
Pyridine	ND	NA	0.500
2,4-Dimethylpyridine	ND	NA	0.500

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 590116
Analyzed: 03/07/2018 13:06
Dilution: 1
Units: ug/sample

LCSD: 590117
Analyzed: 03/07/2018 13:27
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec		RPD	QC Limits	
Pyridine	1.58	2.00	78.8	28.7	141.2	1.29	64.6		19.8	0.0	22.1
2,4-Dimethylpyridine	1.80	2.00	90.2	18.3	119.1	1.41	70.4	*	24.6	0.0	22.2

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Benson Boy	/S/ Thomas J. Masoian
03/09/2018 10:39	03/09/2018 12:08

Symbols and Definitions

*- Analyte above reporting limit or outside of control limits
▲- Sample result is greater than 4 times the spike added
●- Sample and Matrix Duplicate less than 5 times the reporting limit
●- Result is above the calibration range
#- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1806051

1806051

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180593

Page 1 of 4

Assembler: N/A	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: N/A
Collector: WAY	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
SAF No.: N/A	Logbook/ Work Package No.: N/A	Ice Chest No.: WHS-033	Temp.: ONICE
Project Title: 2018 CARTRIDGE EVALUATION	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Shipped To (Lab): ALS	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	
Protocol: N/A			

Sample No.	Lab ID	*	Date	Time	No./Type Container	22U-01 Sample Analysis	Preservative
1	S18T006983	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-BA-EF	N/A
2	S18T006984	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-BA-IN	N/A
3	S18T006985	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-BL-EF	N/A
4	S18T006986	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-BL-IN	N/A
5	S18T006987	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-1	N/A
6	S18T006988	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-2	N/A
7	S18T006989	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-3	N/A
8	S18T006990	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-4	N/A
9	S18T006991	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-5	N/A
10	S18T006992	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS / Hold Time

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz	2-28-18 0930	JA Gradisher WRPS	2/28/18 0930
JA Gradisher WRPS	2/28/18 1400		
Fedex		FEDEX	
		Desiree Hill	3/1/18 9:50

Matrix*: S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, VA = Vapor, X = Other

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process): Per Lab Procedure — Disposed By — Date/Time: 3/7/18 900

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-662 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180593 | Page 2 of 4

Assembler: N/A		
Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203005/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. 4ts-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T006993	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-7	N/A
12	S18T006994	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-EF-8	N/A
13	S18T006995	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-1	N/A
14	S18T006996	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-2	N/A
15	S18T006997	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-3	N/A
16	S18T006998	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-4	N/A
17	S18T006999	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-5	N/A
18	S18T007000	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-6	N/A
19	S18T007001	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-7	N/A
20	S18T007002	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01495-11-SC1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ⦿ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Leslie Diaz / Leslie Diaz	2-28-18 0930	JA Gradisher WRPS / Ja Gradisher	2/28/18 0930
JA Gradisher WRPS / Ja Gradisher	2/28/18 1400	FEDEX	
Fedex		Deanne Hill / Deanne Hill	3/01/18 9:50

Matrix*
S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; VA = Vapor; X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Per lab Procedure — Disposed By: [signature] — Date/Time: 3/7/18 1000

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-862 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180593
		Page 3 of 4

Collector: RAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6851	MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7716 4087 2264	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43672	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T007003	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-BA-EF	N/A
22	S18T007004	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-BA-IN	N/A
23	S18T007005	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-BL-EF	N/A
24	S18T007006	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-BL-IN	N/A
25	S18T007007	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-1	N/A
26	S18T007008	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-2	N/A
27	S18T007009	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-3	N/A
28	S18T007010	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-4	N/A
29	S18T007011	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-5	N/A
30	S18T007012	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

	Print	Sign	Date/Time
Relinquished By	Leslie DIAZ	Leslie Diaz	2-28-18 0930
Received By	JA Gradisher WRPS	JA Gradisher	2/28/18 0930
Relinquished By	JA Gradisher WRPS	JA Gradisher	2/28/18 1400
Received By	FEDEX		
Relinquished By	FEDEX		
Received By	Desiree Hill	Desiree Hill	03/01/18 9:50
Relinquished By			
Received By			

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Per lab Procedure — Disposed By — Date/Time: 3/4/18 1000

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180593
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN 76-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. wts-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7716 4087 2264
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43672

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T007013	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-7	N/A
32	S18T007014	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-EF-8	N/A
33	S18T007015	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-1	N/A
34	S18T007016	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-2	N/A
35	S18T007017	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-3	N/A
36	S18T007018	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-4	N/A
37	S18T007019	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-5	N/A
38	S18T007020	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-6	N/A
39	S18T007021	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-7	N/A
40	S18T007022	VA	02/24/18		CHARCOAL TUBE	Pyridines 18-01497-12-TL2-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Hold Time

	Print	Sign	Date/Time
Relinquished By	Leslie DIAZ		2-28-18 0930
Received By	JA Gradisher WRPS		2/28/18 0930
Relinquished By	JA Gradisher WRPS		2/28/18 1400
Received By	FEDEX		
Relinquished By	Fedex		
Received By	Delaree Hill		03/01/18 9:50
Relinquished By			
Received By			

Matrix*

S	= Soil	DL	= Drum Liquids
SE	= Sediment	T	= Tissue
SO	= Solid	WI	= Wipe
SL	= Sludge	L	= Liquid
W	= Water	V	= Vegetation
O	= Oil	VA	= Vapor
A	= Air	X	= Other
DS	= Drum Solids		

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): per lab Procedure

Disposed By:

Date/Time: 3/7/18 900

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

C.4.12 Nitrosamines

RJ LEE GROUP

RJ Lee Group, Inc. | Columbia Basin Analytical Laboratories
2710 North 20th Avenue, Pasco WA 99301
Tel: (509) 545-4989 | Fax: (509) 544-6010

Carl Howald IV
Washington River Protection Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352
2018 Cartridge Evaluation

3/16/2018
Contract: 55503 R9

Subject: Nitrosamines Analysis Report, Group Number 20180586

Enclosed is the final report for group 20180586 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20180586 has been assigned a Columbia Basin Analytical Laboratories login order number of W802140. This report consists of a summary report of the samples, a single quality control report for the analysis batch, and a copy of the chain of custody.

General Set Comments

Columbia Basin Analytical Laboratories received 40 samples on 02/28/18 to be tested for Nitrosamines. The samples were analyzed in accordance with NIOSH 2522-Modified for N-Nitrosodimethylamine, N-Nitrosomethylethylamine, N-Nitrosodiethylamine, N-Nitrosodi-n-propylamine, N-Nitrosodi-n-butylamine, N-Nitrosopiperidine, N-Nitrosopyrrolidine,and N-Nitrosomorpholine. All results have been corrected for desorption efficiency and measurable levels in the blanks.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples.

SampleName	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-BA-EF	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-BA-IN	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	

RJ LEE GROUP

18-01494-12-SD1-BL-EF	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosodimethylamine	62-75-9	0.012	0.009	µg/tube	C
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-BL-IN	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-1	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	*
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.018	0.009	µg/tube	X
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-2	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-3	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-4	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-5	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-5	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-5	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-5	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-5	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-5	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	

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18-01494-12-SD1-EF-5	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-5	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-6	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	X S
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-7	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	X S
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01494-12-SD1-EF-8	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01494-12-SD1-IN-1	03/01/18	N-Nitrosodiethylamine	55-18-5	0.129	0.009	µg/tube	C
18-01494-12-SD1-IN-1	03/13/18	N-Nitrosodimethylamine	62-75-9	1.541	0.935	µg/tube	C D S X
18-01494-12-SD1-IN-1	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	*
18-01494-12-SD1-IN-1	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.046	0.009	µg/tube	C
18-01494-12-SD1-IN-1	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.472	0.010	µg/tube	X
18-01494-12-SD1-IN-1	03/01/18	N-Nitrosomorpholine	59-89-2	0.010	0.010	µg/tube	C
18-01494-12-SD1-IN-1	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-1	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-2	03/01/18	N-Nitrosodiethylamine	55-18-5	0.133	0.009	µg/tube	C
18-01494-12-SD1-IN-2	03/13/18	N-Nitrosodimethylamine	62-75-9	1.710	0.935	µg/tube	C D S X
18-01494-12-SD1-IN-2	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	*
18-01494-12-SD1-IN-2	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.085	0.009	µg/tube	C
18-01494-12-SD1-IN-2	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.587	0.010	µg/tube	X
18-01494-12-SD1-IN-2	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-2	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-2	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-3	03/01/18	N-Nitrosodiethylamine	55-18-5	0.117	0.009	µg/tube	C
18-01494-12-SD1-IN-3	03/13/18	N-Nitrosodimethylamine	62-75-9	1.812	0.935	µg/tube	C D S X
18-01494-12-SD1-IN-3	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	*
18-01494-12-SD1-IN-3	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.071	0.009	µg/tube	C
18-01494-12-SD1-IN-3	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.504	0.010	µg/tube	XC

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18-01494-12-SD1-IN-3	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-3	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-3	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-4	03/01/18	N-Nitrosodiethylamine	55-18-5	0.041	0.009	µg/tube	C
18-01494-12-SD1-IN-4	03/02/18	N-Nitrosodimethylamine	62-75-9	0.773	0.009	µg/tube	S C
18-01494-12-SD1-IN-4	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	*
18-01494-12-SD1-IN-4	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.030	0.009	µg/tube	C
18-01494-12-SD1-IN-4	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.289	0.010	µg/tube	X
18-01494-12-SD1-IN-4	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-4	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-4	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-5	03/01/18	N-Nitrosodiethylamine	55-18-5	0.109	0.009	µg/tube	C
18-01494-12-SD1-IN-5	03/13/18	N-Nitrosodimethylamine	62-75-9	1.609	0.935	µg/tube	C D S X
18-01494-12-SD1-IN-5	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	0.014	0.009	µg/tube	C
18-01494-12-SD1-IN-5	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.061	0.009	µg/tube	C
18-01494-12-SD1-IN-5	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.553	0.010	µg/tube	CX
18-01494-12-SD1-IN-5	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-5	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-5	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-6	03/01/18	N-Nitrosodiethylamine	55-18-5	0.151	0.009	µg/tube	C
18-01494-12-SD1-IN-6	03/13/18	N-Nitrosodimethylamine	62-75-9	1.957	0.935	µg/tube	C D S X
18-01494-12-SD1-IN-6	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	0.009	0.009	µg/tube	C
18-01494-12-SD1-IN-6	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.098	0.009	µg/tube	C
18-01494-12-SD1-IN-6	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.657	0.010	µg/tube	C
18-01494-12-SD1-IN-6	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-6	03/01/18	N-Nitrosopiperidine	100-75-4	0.012	0.010	µg/tube	C
18-01494-12-SD1-IN-6	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-7	03/01/18	N-Nitrosodiethylamine	55-18-5	0.140	0.009	µg/tube	C
18-01494-12-SD1-IN-7	03/13/18	N-Nitrosodimethylamine	62-75-9	1.814	0.935	µg/tube	C D S X
18-01494-12-SD1-IN-7	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	*
18-01494-12-SD1-IN-7	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.085	0.009	µg/tube	C
18-01494-12-SD1-IN-7	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.588	0.010	µg/tube	XC
18-01494-12-SD1-IN-7	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-7	03/01/18	N-Nitrosopiperidine	100-75-4	0.012	0.010	µg/tube	C
18-01494-12-SD1-IN-7	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-8	03/01/18	N-Nitrosodiethylamine	55-18-5	0.145	0.009	µg/tube	C
18-01494-12-SD1-IN-8	03/13/18	N-Nitrosodimethylamine	62-75-9	4.000	0.935	µg/tube	C E D S X
18-01494-12-SD1-IN-8	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	*
18-01494-12-SD1-IN-8	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.114	0.009	µg/tube	C
18-01494-12-SD1-IN-8	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.649	0.010	µg/tube	XC
18-01494-12-SD1-IN-8	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-8	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01494-12-SD1-IN-8	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	

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18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-EF	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-BA-IN	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-EF	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-BL-IN	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-1	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-2	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-3	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-3	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-EF-3	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	

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18-01496-13-TL1-EF-3	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-3	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-3	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-3	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-3	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-4	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-5	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	B
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-6	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-7	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-EF-8	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-1	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-IN-1	03/02/18	N-Nitrosodimethylamine	62-75-9	0.358	0.010	µg/tube	X

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18-01496-13-TL1-IN-1	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-1	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-1	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.290	0.010	µg/tube	X
18-01496-13-TL1-IN-1	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-1	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-1	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-2	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-IN-2	03/03/18	N-Nitrosodimethylamine	62-75-9	1.187	0.010	µg/tube	X
18-01496-13-TL1-IN-2	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-2	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	0.010	0.010	µg/tube	X
18-01496-13-TL1-IN-2	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.321	0.010	µg/tube	X
18-01496-13-TL1-IN-2	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-2	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-2	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-3	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-IN-3	03/03/18	N-Nitrosodimethylamine	62-75-9	0.424	0.010	µg/tube	X
18-01496-13-TL1-IN-3	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-3	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-3	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.389	0.010	µg/tube	X
18-01496-13-TL1-IN-3	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-3	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-3	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-4	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-IN-4	03/03/18	N-Nitrosodimethylamine	62-75-9	1.345	0.010	µg/tube	X
18-01496-13-TL1-IN-4	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-4	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-4	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.381	0.010	µg/tube	X
18-01496-13-TL1-IN-4	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-4	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-4	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-5	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-IN-5	03/03/18	N-Nitrosodimethylamine	62-75-9	0.469	0.010	µg/tube	X
18-01496-13-TL1-IN-5	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-5	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	0.010	0.010	µg/tube	X
18-01496-13-TL1-IN-5	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.477	0.010	µg/tube	X
18-01496-13-TL1-IN-5	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-5	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-5	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-6	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-IN-6	03/03/18	N-Nitrosodimethylamine	62-75-9	0.427	0.010	µg/tube	X
18-01496-13-TL1-IN-6	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-6	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	0.015	0.010	µg/tube	X
18-01496-13-TL1-IN-6	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.414	0.010	µg/tube	X
18-01496-13-TL1-IN-6	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-6	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-6	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-7	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	

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18-01496-13-TL1-IN-7	03/03/18	N-Nitrosodimethylamine	62-75-9	0.340	0.010	µg/tube	X
18-01496-13-TL1-IN-7	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-7	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-7	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.363	0.010	µg/tube	X
18-01496-13-TL1-IN-7	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-7	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-7	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-8	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-01496-13-TL1-IN-8	03/03/18	N-Nitrosodimethylamine	62-75-9	1.637	0.010	µg/tube	X
18-01496-13-TL1-IN-8	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01496-13-TL1-IN-8	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-8	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.370	0.010	µg/tube	X
18-01496-13-TL1-IN-8	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube	*
18-01496-13-TL1-IN-8	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01496-13-TL1-IN-8	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*

Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV, LCS. There were recovery failures in the MRL.

RSD Failures in the LCS

There were no RSD failures between the laboratory control samples.

Measurable Blank Values

There were measurable analytes in the blank samples.

Calibration Curves

The calibration curves for Nitrosamines had an R-value that was 0.997 or better, over a range of 5.00 ng/mL to 1,000.00 ng/mL.

RJ LEE GROUP

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Laboratory Report

NIOSH 2522-Modified
on
Summary Table

RJ Lee Work Order: W802140
COC No.: 20180586
Samples Received: 02/28/18
Extraction Date: 03/01/18
Report Date: 03/16/18

Client Project: 2018 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-BA-EF | S18T006703	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-BA-IN | S18T006704	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-BL-EF | S18T006705	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.012	0.009	C
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-BL-IN | S18T006706	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-EF-1 | S18T006707	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	*
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.018	0.009	X
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-EF-2 | S18T006708	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-EF-3 | S18T006709	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-EF-4 | S18T006710	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-EF-5 | S18T006711	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-EF-6 | S18T006712	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	X S
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	S
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01494-12-SD1-EF-7 | S18T006713	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	X S
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	X S
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01494-12-SD1-EF-8 | S18T006714	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.129	0.009	C
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/13/18	N-Nitrosodimethylamine	62-75-9	1.541	0.935	D, X S
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	C S
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.046	0.009	C
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.461	0.010	X
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.011	0.010	X
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	0.010	0.010	C
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01494-12-SD1-IN-1 | S18T006715	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.133	0.009	C
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/13/18	N-Nitrosodimethylamine	62-75-9	1.710	0.935	D, X S
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	C S
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.085	0.009	C
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.587	0.010	X
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01494-12-SD1-IN-2 | S18T006716	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.117	0.009	C
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/13/18	N-Nitrosodimethylamine	62-75-9	1.798	0.935	D, X S
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.014	0.009	C S
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.071	0.009	C
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.483	0.010	X
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.022	0.010	C
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01494-12-SD1-IN-3 | S18T006717	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.041	0.009	C
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	0.773	0.009	C S
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	C S
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.030	0.009	C
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.289	0.010	X
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01494-12-SD1-IN-4 | S18T006718	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.109	0.009	C
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	C S
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/13/18	N-Nitrosodimethylamine	62-75-9	1.609	0.935	D, X S
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	0.014	0.009	C
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.061	0.009	C
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.541	0.010	X
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.011	0.010	C
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01494-12-SD1-IN-5 | S18T006719	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.151	0.009	C
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.011	0.009	C S
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/13/18	N-Nitrosodimethylamine	62-75-9	1.946	0.935	D, X S
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	0.009	0.009	C
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.098	0.009	C
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.011	0.010	C
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.646	0.010	C
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	0.012	0.010	C
18-01494-12-SD1-IN-6 | S18T006720	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.140	0.009	C
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	C S
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/13/18	N-Nitrosodimethylamine	62-75-9	1.814	0.935	D, X S
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.085	0.009	C
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.010	0.010	C
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.578	0.010	X
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	0.012	0.010	C
18-01494-12-SD1-IN-7 | S18T006721	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosodiethylamine	55-18-5	0.145	0.009	C
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	C S
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosodimethylamine	62-75-9	2.246	0.009	C, E S
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/13/18	N-Nitrosodimethylamine	62-75-9	1.755	0.935	D, X S
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosodi-n-propylamine	621-64-7	0.114	0.009	C
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosomethylethylamine	10595-95-6	0.639	0.010	X
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.010	0.010	C
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01494-12-SD1-IN-8 | S18T006722	02/23/18	03/01/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-BA-EF | S18T006723	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-BA-IN | S18T006724	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-BL-EF | S18T006725	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-BL-IN | S18T006726	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-EF-1 | S18T006727	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-EF-2 | S18T006728	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-EF-3 | S18T006729	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-EF-4 | S18T006730	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-EF-5 | S18T006731	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	B
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
18-01496-13-TL1-EF-6 | S18T006732	02/23/18	03/03/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-EF-7 | S18T006733	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-EF-8 | S18T006734	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.049	0.010	X
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.309	0.010	X
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.290	0.010	X
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-1 | S18T006735	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	1.122	0.010	X
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	0.065	0.010	X
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	0.010	0.010	X
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.321	0.010	X
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-2 | S18T006736	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	0.086	0.010	X
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.338	0.010	X
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.389	0.010	X
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-3 | S18T006737	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	1.294	0.010	X
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	0.052	0.010	X
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.370	0.010	X
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.011	0.010	X
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-4 | S18T006738	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.406	0.010	X
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	0.063	0.010	X
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	0.010	0.010	X
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.462	0.010	X
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.015	0.010	X
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-5 | S18T006739	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	0.050	0.010	X
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.377	0.010	X
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	0.015	0.010	X
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.013	0.010	X
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.401	0.010	X
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-6 | S18T006740	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	0.038	0.010	X
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	0.302	0.010	X
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/03/18	N-Nitrosomethylethylamine	10595-95-6	0.011	0.010	X
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.352	0.010	X
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-7 | S18T006741	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/03/18	N-Nitrosodimethylamine	62-75-9	0.083	0.010	X
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosodimethylamine	62-75-9	1.554	0.010	X
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosomethylethylamine	10595-95-6	0.370	0.010	X
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosomorpholine	59-89-2	<0.009	0.009	*
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01496-13-TL1-IN-8 | S18T006742	02/23/18	03/02/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*

RJ LEE GROUP

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P.O. Box 850 MSIN H1-40
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Quality Control

NIOSH 2522-Modified

RJ Lee Work Order: W802140
COC No.: 20180586
Samples Received: 02/28/18
Extraction Date: 03/01/18
Report Date: 03/16/18

Client Project: 2018 Cartridge Evaluation

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	LCS-1	03/01/18	0.200	0.214	1.07		0.08	107	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/02/18	0.200	0.203	1.05		3.27	101	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/03/18	0.200	0.221	1.11		0.67	110	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/13/18	0.200	0.206	1.06		3.37	103	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/01/18	0.200	0.204	1.05		2.83	102	83.2 - 129	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/13/18	0.200	0.207	1.07		3.23	104	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/01/18	0.200	0.227	1.17		2.86	113	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/02/18	0.200	0.202	1.05		4.61	101	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/03/18	0.200	0.241	1.25		4.47	121	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/01/18	0.200	0.201	1.17		12.34	101	81.8 - 134	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/02/18	0.201	0.206	1.04		1.50	103	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/03/18	0.201	0.220	1.10		1.68	110	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/13/18	0.201	0.206	1.05		2.15	103	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/01/18	0.201	0.207	1.08		3.70	103	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/01/18	0.201	0.211	1.05		0.69	105	85 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/01/18	0.200	0.207	1.06		2.38	103	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/03/18	0.200	0.221	1.12		1.40	110	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/02/18	0.200	0.205	1.04		1.93	102	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/01/18	0.200	0.213	1.08		1.07	106	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/13/18	0.200	0.211	1.07		1.35	106	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/01/18	0.200	0.201	1.03		2.81	100	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/03/18	0.200	0.225	1.12		0.53	112	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/01/18	0.200	0.220	1.10		2.06	110	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/02/18	0.200	0.204	1.04		1.82	102	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/13/18	0.200	0.201	1.04		3.93	100	83.6 - 125	
N-Nitrosomorpholine	59-89-2	LCS-1	03/01/18	0.200	0.205	1.04		1.54	102	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/03/18	0.200	0.218	1.10		1.63	109	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/13/18	0.200	0.208	1.05		1.11	104	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/02/18	0.200	0.207	1.06		2.09	103	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/01/18	0.200	0.205	1.05		3.53	102	84.8 - 127	
N-Nitrosopiperidine	100-75-4	LCS-1	03/01/18	0.200	0.208	1.05		2.28	104	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/03/18	0.200	0.221	1.11		1.91	110	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/02/18	0.200	0.201	1.04		3.27	100	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/01/18	0.200	0.204	1.04		1.88	102	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/13/18	0.200	0.201	1.04		3.55	100	84 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/03/18	0.200	0.221	1.10		1.50	110	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/02/18	0.200	0.204	1.03		2.22	102	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/13/18	0.200	0.197	1.05		3.26	98.5	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/01/18	0.200	0.199	1.03		3.23	99.2	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/01/18	0.200	0.204	1.03		2.80	102	84.5 - 126	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/02/18	0.200	0.213	1.05		3.27	106	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/01/18	0.200	0.212	1.05		2.83	106	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/01/18	0.200	0.214	1.07		0.08	107	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/03/18	0.200	0.221	1.11		0.67	110	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/13/18	0.200	0.212	1.06		3.37	106	83.2 - 129	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/02/18	0.200	0.207	1.05		4.61	103	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/13/18	0.200	0.214	1.07		3.23	107	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/01/18	0.200	0.239	1.17		2.86	119	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/03/18	0.200	0.263	1.25		4.47	131	81.8 - 134	

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Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodimethylamine	62-75-9	LCS-2	03/01/18	0.200	0.256	1.17		12.34	128	81.8 - 134	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/13/18	0.201	0.211	1.05		2.15	105	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/01/18	0.201	0.212	1.05		0.69	106	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/01/18	0.201	0.219	1.08		3.70	109	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/02/18	0.201	0.210	1.04		1.50	105	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/03/18	0.201	0.225	1.10		1.68	112	85 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/03/18	0.200	0.226	1.12		1.40	113	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/01/18	0.200	0.212	1.06		2.38	106	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/02/18	0.200	0.212	1.04		1.93	106	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/01/18	0.200	0.218	1.08		1.07	109	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/13/18	0.200	0.216	1.07		1.35	108	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/13/18	0.200	0.209	1.04		3.93	104	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/02/18	0.200	0.211	1.04		1.82	106	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/03/18	0.200	0.225	1.12		0.53	112	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/01/18	0.200	0.216	1.10		2.06	108	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/01/18	0.200	0.209	1.03		2.81	104	83.6 - 125	
N-Nitrosomorpholine	59-89-2	LCS-2	03/13/18	0.200	0.212	1.05		1.11	106	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/01/18	0.200	0.211	1.04		1.54	106	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/03/18	0.200	0.225	1.10		1.63	112	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/01/18	0.200	0.208	1.05		3.53	104	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/02/18	0.200	0.214	1.06		2.09	107	84.8 - 127	
N-Nitrosopiperidine	100-75-4	LCS-2	03/01/18	0.200	0.211	1.04		1.88	106	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/01/18	0.200	0.216	1.05		2.28	108	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/02/18	0.200	0.211	1.04		3.27	106	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/13/18	0.200	0.211	1.04		3.55	105	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/03/18	0.200	0.227	1.11		1.91	114	84 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/13/18	0.200	0.213	1.05		5.26	106	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/01/18	0.200	0.208	1.03		3.23	104	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/02/18	0.200	0.204	1.03		2.22	102	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/01/18	0.200	0.214	1.03		2.80	107	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/03/18	0.200	0.225	1.10		1.50	112	84.5 - 126	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/13/18	0.200	0.220	1.06		3.37	110	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/01/18	0.200	0.216	1.05		2.83	108	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/03/18	0.200	0.224	1.11		0.67	112	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/02/18	0.200	0.216	1.05		3.27	108	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/01/18	0.200	0.214	1.07		0.08	107	83.2 - 129	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/01/18	0.200	0.246	1.17		12.34	123	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/13/18	0.200	0.221	1.07		3.23	110	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/02/18	0.200	0.220	1.05		4.61	110	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/01/18	0.200	0.238	1.17		2.86	119	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/03/18	0.200	0.247	1.25		4.47	123	81.8 - 134	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/02/18	0.201	0.212	1.04		1.50	106	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/03/18	0.201	0.217	1.10		1.68	108	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/01/18	0.201	0.222	1.08		3.70	111	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/01/18	0.201	0.209	1.05		0.69	104	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/13/18	0.201	0.215	1.05		2.15	107	85 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/13/18	0.200	0.217	1.07		1.35	108	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/01/18	0.200	0.215	1.08		1.07	107	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/01/18	0.200	0.217	1.06		2.38	108	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/02/18	0.200	0.206	1.04		1.93	103	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/03/18	0.200	0.227	1.12		1.40	113	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/02/18	0.200	0.208	1.04		1.82	104	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/01/18	0.200	0.212	1.03		2.81	106	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/13/18	0.200	0.218	1.04		3.93	109	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/03/18	0.200	0.223	1.12		0.53	111	83.6 - 125	

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Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/01/18	0.200	0.225	1.10		2.06	112	83.6 - 125	
N-Nitrosomorpholine	59-89-2	LCS-3	03/02/18	0.200	0.214	1.06		2.09	107	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/03/18	0.200	0.221	1.10		1.63	110	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/01/18	0.200	0.209	1.04		1.54	104	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/01/18	0.200	0.219	1.05		5.53	109	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/13/18	0.200	0.213	1.05		1.11	106	84.8 - 127	
N-Nitrosopiperidine	100-75-4	LCS-3	03/13/18	0.200	0.215	1.04		3.55	108	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/01/18	0.200	0.208	1.05		2.28	104	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/01/18	0.200	0.210	1.04		1.88	105	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/03/18	0.200	0.220	1.11		1.91	110	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/02/18	0.200	0.214	1.04		3.27	107	84 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/03/18	0.200	0.218	1.10		1.50	109	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/01/18	0.200	0.212	1.03		3.23	106	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/13/18	0.200	0.219	1.05		5.26	109	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/02/18	0.200	0.212	1.03		2.22	106	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/01/18	0.200	0.204	1.03		2.80	102	84.5 - 126	
N-Nitrosodiethylamine	55-18-5	MB	03/02/18		<0.010	1.05	<0.009				
N-Nitrosodiethylamine	55-18-5	MB	03/13/18		<0.010	1.06	<0.009				
N-Nitrosodiethylamine	55-18-5	MB	03/03/18		<0.010	1.11	<0.009				
N-Nitrosodiethylamine	55-18-5	MB	03/01/18		<0.010	1.05	<0.009				
N-Nitrosodiethylamine	55-18-5	MB	03/01/18		<0.010	1.07	<0.009				
N-Nitrosodimethylamine	62-75-9	MB	03/13/18		<0.010	1.07	<0.009				
N-Nitrosodimethylamine	62-75-9	MB	03/01/18		0.076	1.17	0.065				B
N-Nitrosodimethylamine	62-75-9	MB	03/02/18		<0.010	1.05	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	03/03/18		0.023	1.25	0.019				B
N-Nitrosodimethylamine	62-75-9	MB	03/01/18		<0.010	1.17	<0.009				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/01/18		<0.010	1.08	<0.009				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/13/18		<0.010	1.05	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/03/18		<0.010	1.10	<0.009				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/01/18		<0.010	1.05	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/02/18		<0.010	1.04	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/02/18		<0.010	1.04	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/01/18		<0.010	1.08	<0.009				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/01/18		<0.010	1.06	<0.009				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/13/18		<0.010	1.07	<0.009				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/03/18		<0.010	1.12	<0.009				
N-Nitrosomethylethylamine	10595-95-6	MB	03/13/18		<0.010	1.04	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	03/02/18		<0.010	1.04	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	03/01/18		<0.010	1.03	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	03/03/18		<0.010	1.12	<0.009				
N-Nitrosomethylethylamine	10595-95-6	MB	03/01/18		<0.010	1.10	<0.009				
N-Nitrosomorpholine	59-89-2	MB	03/13/18		<0.010	1.05	<0.009				
N-Nitrosomorpholine	59-89-2	MB	03/02/18		<0.010	1.06	<0.009				
N-Nitrosomorpholine	59-89-2	MB	03/03/18		<0.010	1.10	<0.009				
N-Nitrosomorpholine	59-89-2	MB	03/01/18		<0.010	1.04	<0.010				
N-Nitrosomorpholine	59-89-2	MB	03/01/18		<0.010	1.05	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/02/18		<0.010	1.04	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/01/18		<0.010	1.05	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/03/18		<0.010	1.11	<0.009				
N-Nitrosopiperidine	100-75-4	MB	03/13/18		<0.010	1.04	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/01/18		<0.010	1.04	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/01/18		<0.010	1.03	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/13/18		<0.010	1.05	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/02/18		<0.010	1.03	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/01/18		<0.010	1.03	<0.010				

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Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosopyrrolidine	930-55-2	MB	03/03/18		<0.010	1.10	<0.009				
N-Nitrosodiethylamine	55-18-5	MRL	03/01/18	0.010	0.011	1.07	0.010		104	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/02/18	0.010	0.009	1.05	0.009		89.1	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/01/18	0.010	0.011	1.05	0.011		106	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/03/18	0.010	0.012	1.11	0.011		110	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/13/18	0.010	0.009	1.06	0.009		89.2	39.6 - 158	
N-Nitrosodimethylamine	62-75-9	MRL	03/01/18	0.010	0.090	1.17	0.077		765	71.6 - 181	S
N-Nitrosodimethylamine	62-75-9	MRL	03/13/18	0.010	0.021	1.07	0.020		195	71.6 - 181	S
N-Nitrosodimethylamine	62-75-9	MRL	03/02/18	0.010	0.016	1.05	0.015		149	71.6 - 181	
N-Nitrosodimethylamine	62-75-9	MRL	03/01/18	0.010	0.018	1.17	0.015		149	71.6 - 181	
N-Nitrosodimethylamine	62-75-9	MRL	03/03/18	0.010	0.014	1.25	0.011		114	71.6 - 181	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/13/18	0.010	0.010	1.05	0.010		96.5	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/01/18	0.010	0.007	1.05	0.007		65.8	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/01/18	0.010	0.012	1.08	0.011		107	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/03/18	0.010	0.008	1.10	0.008		75.4	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/02/18	0.010	0.010	1.04	0.010		96.5	27.4 - 210	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/01/18	0.010	0.010	1.08	0.010		96.5	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/13/18	0.010	0.010	1.07	0.009		89.7	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/01/18	0.010	0.011	1.06	0.010		102	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/03/18	0.010	0.010	1.12	0.009		92.7	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/02/18	0.010	0.009	1.04	0.008		84.1	47.8 - 163	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/13/18	0.010	0.011	1.04	0.010		104	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/02/18	0.010	0.010	1.04	0.010		95.8	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/01/18	0.010	0.011	1.03	0.011		106	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/03/18	0.010	0.011	1.12	0.010		102	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/01/18	0.010	0.009	1.10	0.008		78.9	50.8 - 164	
N-Nitrosomorpholine	59-89-2	MRL	03/01/18	0.010	0.008	1.04	0.008		80.6	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/02/18	0.010	0.009	1.06	0.009		89.1	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/03/18	0.010	0.010	1.10	0.009		89.4	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/13/18	0.010	0.008	1.05	0.008		80.2	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/01/18	0.010	0.011	1.05	0.011		105	36 - 169	
N-Nitrosopiperidine	100-75-4	MRL	03/03/18	0.010	0.010	1.11	0.009		86.0	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/01/18	0.010	0.009	1.05	0.009		88.5	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/02/18	0.010	0.008	1.04	0.008		77.3	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/01/18	0.010	0.012	1.04	0.011		111	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/13/18	0.010	0.009	1.04	0.009		88.7	26.8 - 171	
N-Nitrosopyrrolidine	930-55-2	MRL	03/03/18	0.010	0.009	1.10	0.008		82.4	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/01/18	0.010	0.010	1.03	0.010		100	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/01/18	0.010	0.009	1.03	0.009		88.6	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/02/18	0.010	0.011	1.03	0.011		107	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/13/18	0.010	0.010	1.05	0.010		98.2	43.3 - 163	

W802140

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180586
		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1078
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 703006/CS20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.	Temp. 20.6°C
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006703	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-BA-EF	N/A
	S18T006704	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-BA-IN	N/A
	S18T006705	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-BL-EF	N/A
	S18T006706	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-BL-IN	N/A
	S18T006707	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-1	N/A
	S18T006708	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-2	N/A
	S18T006709	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-3	N/A
	S18T006710	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-4	N/A
	S18T006711	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-5	N/A
	S18T006712	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sloan	2-28-18 0930	RE Rogers	2/28/18 0930
RE Rogers	2/28/18 1240	Jeanne Story	02/28/18 1240
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	CONSUMED	SUZANNE BAIRD Suzanne Baird	03/09/18 08:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

W802140

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180586
		Page 2 of 4

Collector RAY	Contact/Requestor CARL HONALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No. N/A	Sample Origin CARTRIDGE TESTING BY-110	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No.	Temp.
Shipped To (Lab) CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006713	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-7	N/A
	S18T006714	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-EF-8	N/A
	S18T006715	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-1	N/A
	S18T006716	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-2	N/A
	S18T006717	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-3	N/A
	S18T006718	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-4	N/A
	S18T006719	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-5	N/A
	S18T006720	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-6	N/A
	S18T006721	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-7	N/A
	S18T006722	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01494-12-SD1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Jenson	2-28-18 0930	RE Rogers	2/28/18 0930
RE Rogers	2/28/18 12:40	Jeanne Story	04/28/18 1240

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	CONSUMED	SUZANNE BAIRD Suzanne Baird	03/09/18 08:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

W802140

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180586
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006723	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-BA-EF ✓	N/A
	S18T006724	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-BA-IN ✓	N/A
	S18T006725	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-BL-EF ✓	N/A
	S18T006726	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-BL-IN ✓	N/A
	S18T006727	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-1 ✓	N/A
	S18T006728	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-2 ✓	N/A
	S18T006729	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-3 ✓	N/A
	S18T006730	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-4 ✓	N/A
	S18T006731	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-5 ✓	N/A
	S18T006732	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-6 ✓	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	2-28-18 0930	RE Rogers	2/28/18 0930
RE Rogers	2/28/18 12:40	Jeanne Story	02/28/18 1240

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	CONSUMED	Suzanne Baird	03/09/18 08:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

W802140

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180586
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. / Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006733	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-7	N/A
	S18T006734	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-EF-8	N/A
	S18T006735	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-1	N/A
	S18T006736	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-2	N/A
	S18T006737	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-3	N/A
	S18T006738	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-4	N/A
	S18T006739	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-5	N/A
	S18T006740	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-6	N/A
	S18T006741	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-7	N/A
	S18T006742	VA	02/23/18		Thermosorb-N	Nitrosamines 18-01496-13-TL1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
DON SOMMER	2-28-18 0930	RE Rogers	2/28/18 0930
RE Rogers	2/28/18 1240	Jeanne Sloy	02/28/18 1240

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	CONSUMED	SUZANNE BAIRD	03/09/18 08:30

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

RJ LEE GROUP

RJ Lee Group, Inc. | Columbia Basin Analytical Laboratories
2710 North 20th Avenue, Pasco WA 99301
Tel: (509) 545-4989 | Fax: (509) 544-6010

Carl Howald IV
Washington River Protection Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352
2018 Cartridge Evaluation

05/10/18
Contract: 55503 R9

Subject: Nitrosamines Analysis Report, Group Number 20180587

Enclosed is the final report for group 20180587 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20180587 has been assigned a Columbia Basin Analytical Laboratories login order number of W802141. This report consists of a summary report of the samples, a single quality control report for the analysis batch, and a copy of the chain of custody.

General Set Comments

Columbia Basin Analytical Laboratories received 40 samples on 02/28/18 to be tested for Nitrosamines. The samples were analyzed in accordance with NIOSH 2522-Modified for N-Nitrosodimethylamine, N-Nitrosomethylethylamine, N-Nitrosodiethylamine, N-Nitrosodi-n-propylamine, N-Nitrosodi-n-butylamine, N-Nitrosopiperidine, N-Nitrosopyrrolidine,and N-Nitrosomorpholine. All results have been corrected for desorption efficiency and measurable levels in the blanks.

Several samples included in this work order became extremely turbid during the extraction process, presumably due to a high moisture in the samples as they were recieved. Upon analysis of these samples, retention time shifts, peakshape deformations and significant artifact peaks co-eluting with target analytes were observed. The client was notified immediately of the issue and advised the lab to qualify the affected samples. A 'Q' qualifier has been applied to the affected samples reported herein.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples.

SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-EF	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-IN	03/08/18	N-Nitrosodiethylamine	55-18-5	0.022	0.010	µg/tube	X
18-01495-12-SC1-BA-IN	03/23/18	N-Nitrosodimethylamine	62-75-9	0.205	0.010	µg/tube	X B M
18-01495-12-SC1-BA-IN	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-IN	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.024	0.010	µg/tube	C
18-01495-12-SC1-BA-IN	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.096	0.010	µg/tube	X
18-01495-12-SC1-BA-IN	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01495-12-SC1-BA-IN	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-BA-IN	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-EF	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-BL-IN	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-1	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-2	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-3	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-4	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-5	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-6	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-7	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01495-12-SC1-EF-8	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01495-12-SC1-IN-1	03/07/18	N-Nitrosodiethylamine	55-18-5	0.123	0.010	µg/tube	X
18-01495-12-SC1-IN-1	03/08/18	N-Nitrosodimethylamine	62-75-9	2.098	0.011	µg/tube	CX B M
18-01495-12-SC1-IN-1	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-1	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	0.086	0.010	µg/tube	C
18-01495-12-SC1-IN-1	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.483	0.010	µg/tube	X
18-01495-12-SC1-IN-1	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-1	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-1	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-2	03/07/18	N-Nitrosodiethylamine	55-18-5	0.138	0.010	µg/tube	X
18-01495-12-SC1-IN-2	03/08/18	N-Nitrosodimethylamine	62-75-9	2.094	0.011	µg/tube	CX B M
18-01495-12-SC1-IN-2	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.010	µg/tube	C
18-01495-12-SC1-IN-2	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	0.091	0.010	µg/tube	C
18-01495-12-SC1-IN-2	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.348	0.010	µg/tube	X
18-01495-12-SC1-IN-2	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-2	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-2	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-3	03/07/18	N-Nitrosodiethylamine	55-18-5	0.042	0.010	µg/tube	X
18-01495-12-SC1-IN-3	03/08/18	N-Nitrosodimethylamine	62-75-9	1.952	0.011	µg/tube	XC B M
18-01495-12-SC1-IN-3	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-3	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	0.075	0.010	µg/tube	C
18-01495-12-SC1-IN-3	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.448	0.010	µg/tube	X
18-01495-12-SC1-IN-3	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-3	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-3	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosodiethylamine	55-18-5	0.117	0.010	µg/tube	X
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosodimethylamine	62-75-9	1.974	0.011	µg/tube	XC B M
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.066	0.010	µg/tube	C
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.339	0.010	µg/tube	X
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-4	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosodimethylamine	62-75-9	1.951	0.011	µg/tube	XC B M
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.075	0.010	µg/tube	C
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.331	0.010	µg/tube	X
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-5	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	*

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosodiethylamine	55-18-5	0.116	0.010	µg/tube	X
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosodimethylamine	62-75-9	1.935	0.011	µg/tube	CX B M
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	0.010	0.010	µg/tube	C
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.077	0.010	µg/tube	C
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.321	0.010	µg/tube	X
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosopiperidine	100-75-4	0.011	0.010	µg/tube	C
18-01495-12-SC1-IN-6	03/08/18	N-Nitrosopyrrolidine	930-55-2	0.012	0.011	µg/tube	C
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosodiethylamine	55-18-5	0.093	0.010	µg/tube	X
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosodimethylamine	62-75-9	1.693	0.011	µg/tube	CX B M
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.022	0.010	µg/tube	C
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.277	0.010	µg/tube	X
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-7	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosodiethylamine	55-18-5	0.102	0.010	µg/tube	X
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosodimethylamine	62-75-9	1.744	0.011	µg/tube	CX B M
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.048	0.010	µg/tube	
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.282	0.010	µg/tube	X
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	*
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01495-12-SC1-IN-8	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	*
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	* M
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	*
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	*
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	*
18-01497-13-TL2-BA-EF	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	0.019	0.010	µg/tube	
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosomethylethylamine	10595-95-6	0.100	0.010	µg/tube	X
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	*
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosopiperidine	100-75-4	0.015	0.010	µg/tube	X
18-01497-13-TL2-BA-IN	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	*

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-EF	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-BL-IN	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-1	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-2	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-3	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-4	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-5	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	M
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-6	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	Q M
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-EF-7	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	QM
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-EF-8	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	Q

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01497-13-TL2-IN-1	03/12/18	N-Nitrosodiethylamine	55-18-5	0.011	0.010	µg/tube	QX
18-01497-13-TL2-IN-1	03/13/18	N-Nitrosodimethylamine	62-75-9	0.742	0.012	µg/tube	QXCB|M
18-01497-13-TL2-IN-1	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-1	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-1	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-1	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-1	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-1	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	Q*
18-01497-13-TL2-IN-2	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-2	03/13/18	N-Nitrosodimethylamine	62-75-9	0.697	0.012	µg/tube	QXB|M
18-01497-13-TL2-IN-2	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.010	µg/tube	QX
18-01497-13-TL2-IN-2	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-2	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-2	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-2	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-2	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	Q*
18-01497-13-TL2-IN-3	03/12/18	N-Nitrosodiethylamine	55-18-5	0.011	0.010	µg/tube	QX
18-01497-13-TL2-IN-3	03/13/18	N-Nitrosodimethylamine	62-75-9	0.681	0.012	µg/tube	QXB|M
18-01497-13-TL2-IN-3	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-3	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-3	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-3	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-3	03/12/18	N-Nitrosopiperidine	100-75-4	0.017	0.010	µg/tube	QX
18-01497-13-TL2-IN-3	03/12/18	N-Nitrosopyrrolidine	930-55-2	0.012	0.010	µg/tube	QC
18-01497-13-TL2-IN-4	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-4	03/13/18	N-Nitrosodimethylamine	62-75-9	0.616	0.012	µg/tube	QXCM
18-01497-13-TL2-IN-4	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.014	0.010	µg/tube	QX
18-01497-13-TL2-IN-4	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-4	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-4	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q
18-01497-13-TL2-IN-4	03/12/18	N-Nitrosopiperidine	100-75-4	0.019	0.010	µg/tube	QX
18-01497-13-TL2-IN-4	03/12/18	N-Nitrosopyrrolidine	930-55-2	0.013	0.010	µg/tube	QC
18-01497-13-TL2-IN-5	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-5	03/13/18	N-Nitrosodimethylamine	62-75-9	0.737	0.012	µg/tube	QXCB|M
18-01497-13-TL2-IN-5	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.012	0.010	µg/tube	QX
18-01497-13-TL2-IN-5	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-5	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-5	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q
18-01497-13-TL2-IN-5	03/12/18	N-Nitrosopiperidine	100-75-4	0.011	0.010	µg/tube	QX
18-01497-13-TL2-IN-5	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	Q*

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-01497-13-TL2-IN-6	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-6	03/13/18	N-Nitrosodimethylamine	62-75-9	0.686	0.012	µg/tube	QXCM
18-01497-13-TL2-IN-6	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.010	µg/tube	QX
18-01497-13-TL2-IN-6	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-6	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-6	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-6	03/12/18	N-Nitrosopiperidine	100-75-4	0.014	0.010	µg/tube	QX
18-01497-13-TL2-IN-6	03/12/18	N-Nitrosopyrrolidine	930-55-2	0.010	0.010	µg/tube	QC
18-01497-13-TL2-IN-7	03/12/18	N-Nitrosodiethylamine	55-18-5	0.013	0.010	µg/tube	QX
18-01497-13-TL2-IN-7	03/13/18	N-Nitrosodimethylamine	62-75-9	0.542	0.012	µg/tube	QXCM
18-01497-13-TL2-IN-7	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-7	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-7	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-7	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-7	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-7	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	Q*
18-01497-13-TL2-IN-8	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-8	03/13/18	N-Nitrosodimethylamine	62-75-9	0.486	0.012	µg/tube	QXCM
18-01497-13-TL2-IN-8	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.012	0.010	µg/tube	QX
18-01497-13-TL2-IN-8	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	Q
18-01497-13-TL2-IN-8	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-8	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	Q*
18-01497-13-TL2-IN-8	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube	Q
18-01497-13-TL2-IN-8	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube	Q*

Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV. There were recovery failures in the LCS, MRL.

RSD Failures in the LCS

There were no RSD failures between the laboratory control samples.

Measurable Blank Values

There were measurable analytes in the blank samples.

Calibration Curves

The calibration curves for Nitrosamines had an R-value that was 0.995 or better, over a range of 5.00 ng/mL to 1,000.00 ng/mL.

RJ LEE GROUP

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Washington River Protection Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352

Laboratory Report

NIOSH 2522-Modified
on
Summary Table

RJ Lee Work Order: W802141
COC No.: 20180587
Samples Received: 02/28/18
Extraction Date: 03/07/18
Report Date: 05/10/18

Client Project: 2018 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-BA-EF | S18T006743	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	0.022	0.010	X
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.187	0.009	X
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/23/18	N-Nitrosodimethylamine	62-75-9	0.018	0.010	X BM
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.024	0.010	C
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.096	0.010	X
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-BA-IN | S18T006744	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-BL-EF | S18T006745	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-BL-IN | S18T006746	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-1 | S18T006747	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-2 | S18T006748	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-3 | S18T006749	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-4 | S18T006750	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	

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18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-5 | S18T006751	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-6 | S18T006752	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-7 | S18T006753	02/24/18	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01495-12-SC1-EF-8 | S18T006754	02/24/18	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	

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18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosodiethylamine	55-18-5	0.123	0.010	X
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosodimethylamine	62-75-9	2.019	0.011	C
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.079	0.011	X B M
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	0.086	0.010	C
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.012	0.010	X
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosomethylethylamine	10595-95-6	0.472	0.010	X
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01495-12-SC1-IN-1 | S18T006755	02/24/18	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	*
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosodiethylamine	55-18-5	0.138	0.010	X
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosodimethylamine	62-75-9	1.989	0.011	C
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.104	0.011	X B M
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.010	C
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	0.091	0.010	C
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosomethylethylamine	10595-95-6	0.334	0.010	X
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.014	0.010	X
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01495-12-SC1-IN-2 | S18T006756	02/24/18	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	*
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosodiethylamine	55-18-5	0.042	0.010	X
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosodimethylamine	62-75-9	1.841	0.011	C
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.111	0.011	X B M
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosodi-n-propylamine	621-64-7	0.075	0.010	C
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.016	0.010	X
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosomethylethylamine	10595-95-6	0.432	0.010	X
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01495-12-SC1-IN-3 | S18T006757	02/24/18	03/07/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	*
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	0.117	0.010	X
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	1.894	0.011	C
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.080	0.011	X B M
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.066	0.010	C
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.339	0.010	X
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01495-12-SC1-IN-4 | S18T006758	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	*

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18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.088	0.011	X
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	1.863	0.011	C B M
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.075	0.010	C
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.317	0.010	X
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.014	0.010	X
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01495-12-SC1-IN-5 | S18T006759	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	*
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	0.116	0.010	X
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.092	0.011	X
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	1.844	0.011	C B M
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	0.010	0.010	C
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.077	0.010	C
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.308	0.010	X
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.013	0.010	X
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	0.011	0.010	C
18-01495-12-SC1-IN-6 | S18T006760	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	0.012	0.011	C
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	0.093	0.010	X
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	1.544	0.011	CB M
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.149	0.011	XB M
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.022	0.010	C
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.019	0.010	X
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.258	0.010	X
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01495-12-SC1-IN-7 | S18T006761	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	*
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosodiethylamine	55-18-5	0.102	0.010	X
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	0.143	0.011	XB M
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosodimethylamine	62-75-9	1.600	0.011	CB M
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosodi-n-propylamine	621-64-7	0.048	0.010	
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.026	0.010	X
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosomethylethylamine	10595-95-6	0.256	0.010	X
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	*
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01495-12-SC1-IN-8 | S18T006762	02/24/18	03/08/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	*

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	* M
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	*
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	*
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	*
18-01497-13-TL2-BA-EF | S18T006763	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	0.019	0.010	
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	0.100	0.010	X
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	*
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	0.015	0.010	X
18-01497-13-TL2-BA-IN | S18T006764	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	*
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-BL-EF | S18T006765	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-BL-IN | S18T006766	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	

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18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-EF-1 | S18T006767	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-EF-2 | S18T006768	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-EF-3 | S18T006769	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-EF-4 | S18T006770	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	

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18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-EF-5 | S18T006771	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	M
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
18-01497-13-TL2-EF-6 | S18T006772	02/24/18	03/09/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	Q
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	QM
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	Q
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	Q
18-01497-13-TL2-EF-7 | S18T006773	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	Q
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	Q
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	QM
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	Q
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	Q
18-01497-13-TL2-EF-8 | S18T006774	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	Q

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18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	0.011	0.010	Q X
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.692	0.012	Q X
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	0.050	0.010	C B M
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	Q
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q *
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	Q
18-01497-13-TL2-IN-1 | S18T006775	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	Q *
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	Q
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.685	0.012	Q X
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	0.012	0.010	B M
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.010	Q X
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q *
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	Q
18-01497-13-TL2-IN-2 | S18T006776	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	Q *
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	0.011	0.010	Q X
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.669	0.012	Q X
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	0.012	0.010	B M
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	Q
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q *
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	0.017	0.010	Q X
18-01497-13-TL2-IN-3 | S18T006777	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	0.012	0.010	Q C
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	Q
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.616	0.012	Q X
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	C M
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.014	0.010	Q X
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	0.019	0.010	Q X
18-01497-13-TL2-IN-4 | S18T006778	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	0.013	0.010	Q C

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	Q
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.725	0.012	Q X
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	0.012	0.010	CB|M
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.012	0.010	Q X
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	0.011	0.010	Q X
18-01497-13-TL2-IN-5 | S18T006779	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	Q *
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	Q
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.686	0.012	Q X
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	CM
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.010	Q X
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q *
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	0.014	0.010	Q X
18-01497-13-TL2-IN-6 | S18T006780	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	0.010	0.010	Q C
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	0.013	0.010	Q X
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.542	0.012	Q X
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	CM
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	Q
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q *
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	Q
18-01497-13-TL2-IN-7 | S18T006781	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	Q *
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	Q
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosodimethylamine	62-75-9	0.486	0.012	Q X
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/13/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	CM
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosodi-n-butylamine	924-16-3	0.012	0.010	Q X
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	Q
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	Q *
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	Q *
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosopiperidine	100-75-4	<0.010	0.010	Q
18-01497-13-TL2-IN-8 | S18T006782	02/24/18	03/12/18	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	Q *

RJ LEE GROUP

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Quality Control

NIOSH 2522-Modified

RJ Lee Work Order: W802141
COC No.: 20180587
Samples Received: 02/28/18
Extraction Date: 03/05/18
Report Date: 05/10/18

Client Project: 2018 Cartridge Evaluation

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	LCS-1	03/07/18	0.200	0.190	0.96		1.88	95.2	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/13/18	0.200	0.203	1.00		1.85	101	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/12/18	0.200	0.188	0.97		2.82	93.8	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/23/18	0.200	0.206	1.03		0.58	103	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	03/08/18	0.200	0.191	0.97		2.66	95.4	83.2 - 129	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/23/18	0.200	0.203	1.02		1.10	101	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/07/18	0.200	0.186	0.95		1.85	93.0	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/13/18	0.200	0.205	0.99		4.52	102	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	03/12/18	0.200	0.155	0.86		9.46	77.4	81.8 - 134	J
N-Nitrosodimethylamine	62-75-9	LCS-1	03/08/18	0.200	0.194	1.12		13.34	96.7	81.8 - 134	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/13/18	0.201	0.195	0.97		1.38	97.1	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/12/18	0.201	0.191	0.97		1.14	95.5	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/23/18	0.201	0.204	1.03		1.33	102	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/08/18	0.201	0.189	0.97		3.05	94.0	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	03/07/18	0.201	0.197	0.97		1.65	98.3	85 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/08/18	0.200	0.193	0.99		2.70	96.6	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/12/18	0.200	0.191	1.07		9.32	95.4	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/13/18	0.200	0.316	1.49		5.64	158	85.5 - 126	J
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/07/18	0.200	0.196	0.97		1.00	98.0	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	03/23/18	0.200	0.211	1.05		0.23	105	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/08/18	0.200	0.192	0.98		2.01	95.7	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/12/18	0.200	0.172	0.89		3.49	85.7	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/07/18	0.200	0.192	0.96		0.84	95.6	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/13/18	0.200	0.204	1.00		1.32	102	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	03/23/18	0.200	0.207	1.03		0.88	103	83.6 - 125	
N-Nitrosomorpholine	59-89-2	LCS-1	03/07/18	0.200	0.190	0.95		0.44	94.9	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/12/18	0.200	0.187	0.94		0.66	93.2	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/23/18	0.200	0.207	1.02		0.86	103	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/13/18	0.200	0.190	0.95		1.47	94.9	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	03/08/18	0.200	0.189	0.97		2.68	94.5	84.8 - 127	
N-Nitrosopiperidine	100-75-4	LCS-1	03/07/18	0.200	0.191	0.96		0.74	95.3	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/12/18	0.200	0.190	0.98		3.20	94.9	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/13/18	0.200	0.201	0.98		1.82	100	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/08/18	0.200	0.190	0.98		3.31	94.8	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	03/23/18	0.200	0.204	1.03		1.24	102	84 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/12/18	0.200	0.189	0.97		2.24	94.3	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/13/18	0.200	0.193	0.96		2.06	96.1	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/23/18	0.200	0.209	1.04		0.56	104	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/08/18	0.200	0.185	0.97		4.88	92.4	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	03/07/18	0.200	0.188	0.95		1.67	93.6	84.5 - 126	

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Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	LCS-2	03/13/18	0.200	0.203	1.00		1.85	101	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/08/18	0.200	0.192	0.97		2.66	96.1	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/07/18	0.200	0.197	0.96		1.88	98.4	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/12/18	0.200	0.194	0.97		2.82	97.1	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-2	03/23/18	0.200	0.207	1.03		0.58	104	83.2 - 129	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/13/18	0.200	0.202	0.99		4.52	101	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/23/18	0.200	0.206	1.02		1.10	103	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/07/18	0.200	0.193	0.95		1.85	96.5	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/12/18	0.200	0.187	0.86		9.46	93.5	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	03/08/18	0.200	0.227	1.12		13.34	113	81.8 - 134	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/23/18	0.201	0.209	1.03		1.33	104	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/07/18	0.201	0.194	0.97		1.65	96.8	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/08/18	0.201	0.198	0.97		3.05	98.9	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/13/18	0.201	0.192	0.97		1.38	95.7	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	03/12/18	0.201	0.194	0.97		1.14	97.0	85 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/12/18	0.200	0.224	1.07		9.32	112	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/08/18	0.200	0.199	0.99		2.70	99.3	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/13/18	0.200	0.297	1.49		5.64	148	85.5 - 126	L
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/07/18	0.200	0.195	0.97		1.00	97.3	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	03/23/18	0.200	0.211	1.05		0.23	105	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/23/18	0.200	0.207	1.03		0.88	103	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/13/18	0.200	0.200	1.00		1.32	100	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/12/18	0.200	0.177	0.89		3.49	88.3	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/07/18	0.200	0.194	0.96		0.84	97.1	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	03/08/18	0.200	0.197	0.98		2.01	98.2	83.6 - 125	
N-Nitrosomorpholine	59-89-2	LCS-2	03/23/18	0.200	0.204	1.02		0.86	102	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/07/18	0.200	0.189	0.95		0.44	94.1	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/12/18	0.200	0.188	0.94		0.66	93.8	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/08/18	0.200	0.194	0.97		2.68	96.8	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	03/13/18	0.200	0.193	0.95		1.47	96.1	84.8 - 127	
N-Nitrosopiperidine	100-75-4	LCS-2	03/08/18	0.200	0.194	0.98		3.31	97.0	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/07/18	0.200	0.194	0.96		0.74	96.7	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/13/18	0.200	0.196	0.98		1.82	98.1	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/23/18	0.200	0.209	1.03		1.24	104	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	03/12/18	0.200	0.196	0.98		3.20	98.1	84 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/23/18	0.200	0.208	1.04		0.56	104	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/08/18	0.200	0.193	0.97		4.88	96.1	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/13/18	0.200	0.196	0.96		2.06	97.8	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/07/18	0.200	0.194	0.95		1.67	96.7	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	03/12/18	0.200	0.194	0.97		2.24	96.9	84.5 - 126	

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Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	LCS-3	03/23/18	0.200	0.205	1.03		0.58	103	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/08/18	0.200	0.201	0.97		2.66	100	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/12/18	0.200	0.199	0.97		2.82	99.2	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/13/18	0.200	0.196	1.00		1.85	98.0	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	03/07/18	0.200	0.191	0.96		1.88	95.3	83.2 - 129	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/08/18	0.200	0.254	1.12		13.34	127	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/23/18	0.200	0.207	1.02		1.10	103	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/13/18	0.200	0.188	0.99		4.52	93.8	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/07/18	0.200	0.191	0.95		1.85	95.4	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	03/12/18	0.200	0.175	0.86		9.46	87.3	81.8 - 134	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/13/18	0.201	0.197	0.97		1.38	98.4	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/12/18	0.201	0.196	0.97		1.14	97.6	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/08/18	0.201	0.199	0.97		3.05	99.4	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/07/18	0.201	0.191	0.97		1.65	95.1	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	03/23/18	0.201	0.207	1.03		1.33	103	85 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/23/18	0.200	0.210	1.05		0.23	105	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/07/18	0.200	0.192	0.97		1.00	96.1	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/08/18	0.200	0.204	0.99		2.70	102	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/13/18	0.200	0.282	1.49		5.64	141	85.5 - 126	[
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	03/12/18	0.200	0.227	1.07		9.32	113	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/13/18	0.200	0.198	1.00		1.32	99.0	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/08/18	0.200	0.199	0.98		2.01	99.5	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/23/18	0.200	0.204	1.03		0.88	102	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/12/18	0.200	0.184	0.89		3.49	91.9	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	03/07/18	0.200	0.192	0.96		0.84	95.7	83.6 - 125	
N-Nitrosomorpholine	59-89-2	LCS-3	03/13/18	0.200	0.187	0.95		1.47	93.3	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/12/18	0.200	0.189	0.94		0.66	94.4	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/07/18	0.200	0.190	0.95		0.44	94.7	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/08/18	0.200	0.200	0.97		2.68	99.7	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	03/23/18	0.200	0.204	1.02		0.86	102	84.8 - 127	
N-Nitrosopiperidine	100-75-4	LCS-3	03/23/18	0.200	0.208	1.03		1.24	104	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/07/18	0.200	0.192	0.96		0.74	95.9	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/08/18	0.200	0.202	0.98		3.31	101	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/12/18	0.200	0.202	0.98		3.20	101	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	03/13/18	0.200	0.194	0.98		1.82	96.8	84 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/12/18	0.200	0.198	0.97		2.24	98.7	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/08/18	0.200	0.204	0.97		4.88	102	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/23/18	0.200	0.206	1.04		0.56	103	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/13/18	0.200	0.188	0.96		2.06	93.9	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	03/07/18	0.200	0.190	0.95		1.67	94.6	84.5 - 126	

RJ LEE GROUP

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	MB	03/13/18		<0.010	1.00	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	03/23/18		<0.010	1.03	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	03/12/18		<0.010	0.97	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	03/08/18		<0.010	0.97	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	03/07/18		<0.010	0.96	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	03/23/18		<0.010	1.02	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	03/08/18		0.043	1.12	0.038				B
N-Nitrosodimethylamine	62-75-9	MB	03/13/18		0.019	0.99	0.019				B
N-Nitrosodimethylamine	62-75-9	MB	03/12/18		0.030	0.86	0.035				B
N-Nitrosodimethylamine	62-75-9	MB	03/07/18		<0.010	0.95	<0.011				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/08/18		<0.010	0.97	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/23/18		<0.010	1.03	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/12/18		<0.010	0.97	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/07/18		<0.010	0.97	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	03/13/18		<0.010	0.97	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/13/18		<0.010	1.49	<0.007				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/07/18		<0.010	0.97	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/08/18		<0.010	0.99	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/23/18		<0.010	1.05	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	03/12/18		<0.010	1.07	<0.009				
N-Nitrosomethylethylamine	10595-95-6	MB	03/23/18		<0.010	1.03	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	03/13/18		<0.010	1.00	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	03/08/18		<0.010	0.98	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	03/12/18		<0.010	0.89	<0.011				
N-Nitrosomethylethylamine	10595-95-6	MB	03/07/18		<0.010	0.96	<0.010				
N-Nitrosomorpholine	59-89-2	MB	03/23/18		<0.010	1.02	<0.010				
N-Nitrosomorpholine	59-89-2	MB	03/13/18		<0.010	0.95	<0.011				
N-Nitrosomorpholine	59-89-2	MB	03/12/18		<0.010	0.94	<0.011				
N-Nitrosomorpholine	59-89-2	MB	03/07/18		<0.010	0.95	<0.011				
N-Nitrosomorpholine	59-89-2	MB	03/08/18		<0.010	0.97	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/13/18		<0.010	0.98	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/07/18		<0.010	0.96	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/12/18		<0.010	0.98	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/23/18		<0.010	1.03	<0.010				
N-Nitrosopiperidine	100-75-4	MB	03/08/18		<0.010	0.98	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/08/18		<0.010	0.97	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/23/18		<0.010	1.04	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/13/18		<0.010	0.96	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	03/07/18		<0.010	0.95	<0.011				
N-Nitrosopyrrolidine	930-55-2	MB	03/12/18		<0.010	0.97	<0.010				

RJ LEE GROUP

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	MRL	03/07/18	0.010	0.009	0.96	0.010		97.3	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/13/18	0.010	0.009	1.00	0.009		94.2	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/08/18	0.010	0.008	0.97	0.008		78.4	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/12/18	0.010	0.010	0.97	0.010		103	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	03/23/18	0.010	0.014	1.03	0.013		132	39.6 - 158	
N-Nitrosodimethylamine	62-75-9	MRL	03/08/18	0.010	0.055	1.12	0.049		485	71.6 - 181	M
N-Nitrosodimethylamine	62-75-9	MRL	03/23/18	0.010	0.012	1.02	0.012		122	71.6 - 181	
N-Nitrosodimethylamine	62-75-9	MRL	03/13/18	0.010	0.026	0.99	0.026		263	71.6 - 181	M
N-Nitrosodimethylamine	62-75-9	MRL	03/07/18	0.010	0.016	0.95	0.017		167	71.6 - 181	
N-Nitrosodimethylamine	62-75-9	MRL	03/12/18	0.010	0.037	0.86	0.043		425	71.6 - 181	M
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/23/18	0.010	0.006	1.03	0.006		62.6	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/07/18	0.010	0.009	0.97	0.009		92.6	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/08/18	0.010	0.009	0.97	0.009		88.4	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/12/18	0.010	0.008	0.97	0.008		78.2	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	03/13/18	0.010	0.010	0.97	0.010		98.9	27.4 - 210	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/07/18	0.010	0.011	0.97	0.011		113	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/23/18	0.010	0.010	1.05	0.010		99.5	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/08/18	0.010	0.012	0.99	0.012		124	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/12/18	0.010	0.012	1.07	0.012		116	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	03/13/18	0.010	0.028	1.49	0.019		189	47.8 - 163	M
N-Nitrosomethylethylamine	10595-95-6	MRL	03/23/18	0.010	0.010	1.03	0.010		101	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/13/18	0.010	0.009	1.00	0.009		89.5	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/08/18	0.010	0.010	0.98	0.010		104	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/12/18	0.010	0.007	0.89	0.008		82.1	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	03/07/18	0.010	0.009	0.96	0.009		88.7	50.8 - 164	
N-Nitrosomorpholine	59-89-2	MRL	03/07/18	0.010	0.009	0.95	0.010		99.3	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/13/18	0.010	0.008	0.95	0.008		84.5	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/12/18	0.010	0.009	0.94	0.010		98.5	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/23/18	0.010	0.010	1.02	0.010		97.1	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	03/08/18	0.010	0.009	0.97	0.009		88.6	36 - 169	
N-Nitrosopiperidine	100-75-4	MRL	03/12/18	0.010	0.009	0.98	0.010		95.9	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/07/18	0.010	0.009	0.96	0.009		94.0	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/13/18	0.010	0.010	0.98	0.010		98.4	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/08/18	0.010	0.009	0.98	0.009		89.0	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	03/23/18	0.010	0.010	1.03	0.009		92.6	26.8 - 171	
N-Nitrosopyrrolidine	930-55-2	MRL	03/12/18	0.010	0.010	0.97	0.010		102	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/08/18	0.010	0.008	0.97	0.008		78.6	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/07/18	0.010	0.009	0.95	0.009		93.0	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/13/18	0.010	0.012	0.96	0.012		121	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	03/23/18	0.010	0.008	1.04	0.008		79.1	43.3 - 163	

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180587 | Page 1 of 4

Assembler N/A			
Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No. N/A	Sample Origin CARTRIDGE TESTING BY-110	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No.	Temp. 20.4°C
Shipped To (Lab) CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006743	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-BA-EF ✓	N/A
	S18T006744	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-BA-IN ✓	N/A
	S18T006745	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-BL-EF ✓	N/A
	S18T006746	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-BL-IN ✓	N/A
	S18T006747	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-1 ✓	N/A
	S18T006748	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-2 ✓	N/A
	S18T006749	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-3 ✓	N/A
	S18T006750	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-4 ✓	N/A
	S18T006751	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-5 ✓	N/A
	S18T006752	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-6 ✓	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sronson [signature]	2-28-18 0930	[signature] [signature]	2/28/18 0930
[signature] [signature] 2/28/18	12:40	Jeanne [signature] [signature]	02/28/18 1240

Matrix*
S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; VA = Vapor; X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

W802141

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180587
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006753	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-7	N/A
	S18T006754	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-EF-8	N/A
	S18T006755	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-1	N/A
	S18T006756	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-2	N/A
	S18T006757	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-3	N/A
	S18T006758	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-4	N/A
	S18T006759	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-5	N/A
	S18T006760	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-6	N/A
	S18T006761	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-7	N/A
	S18T006762	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01495-12-SC1-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Bratton	2-28-18 0930	RE Rogers	2/28/18 0930
RE Rogers	2/28/18 12:40	Jeanne Story	02/28/18 1240

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

C.770

W802141

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180587
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006763	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-BA-EF	N/A
	S18T006764	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-BA-IN	N/A
	S18T006765	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-BL-EF	N/A
	S18T006766	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-BL-IN	N/A
	S18T006767	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-1	N/A
	S18T006768	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-2	N/A
	S18T006769	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-3	N/A
	S18T006770	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-4	N/A
	S18T006771	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-5	N/A
	S18T006772	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Bronson	2-28-18 0930	RE Rogers	2/28/18 0930
RE Rogers	2/28/18 12:40	Jeanne Gray	02/28/18 1240

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

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Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180587
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. Temp.
Shipped To (Lab): CBAI	Method of Shipment	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T006773	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-7	N/A
	S18T006774	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-EF-8	N/A
	S18T006775	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-1	N/A
	S18T006776	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-2	N/A
	S18T006777	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-3	N/A
	S18T006778	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-4	N/A
	S18T006779	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-5	N/A
	S18T006780	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-6	N/A
	S18T006781	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-7	N/A
	S18T006782	VA	02/24/18		Thermosorb-N	Nitrosamines 18-01497-13-TL2-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Kiesha Garcia
Carl_W_Howald@rl.gov and
Kiesha_R_Garcia@rl.gov see SOW for email

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
DON BRANSON	2-28-18 0830	RE Rogers	2/28/18 0830
RE Rogers	2/28/18 12:40	Jeanne Story	2/28/18 1240

Matrix*

S = Soil		DL = Drum Liquids	
SE = Sediment		T = Tissue	
SO = Solid		WI = Wipe	
SL = Sludge		L = Liquid	
W = Water		V = Vegetation	
O = Oil		VA = Vapor	
A = Air		X = Other	
DS = Drum Solids			

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

C.772

C.4.13 Chain of Custody Forms

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-1

Date Samples Received: 2-26-18 Total Number of Samples: 997 Group No.:

Sample Custodian: Don Sorenson IH Technician: Ryan Burns

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC/SC Initials: DPS Date: 2-26-18

If No, comment on communication and resolution:

WRPS Ship 600
Run 238

WH2 NH380 Hg80

Number of IH Samples Received: Acetonitrile 80

Aldehyde Screen: 80	Amines: 80	Ammonia: 80	Aromatic HC:		Asbestos:
Beryllium:	Be-Bulk:	Be-Filter:	Be-Wipe:		1, 3-Butadiene: 160
Formaldehyde:	Furans: 80	Mercury: 79	Methanol: 40		Nitrosamines: 80
Nitrous Oxide:	Pyridines: 80	SVOA: 79	VOA: 79		Other-IH:

Page 1 of 1 A-6005-302 (REV 5)

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-10-SD1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-IN-7-A / Charcoal Tube (SKC-226-37) KDB 2/21/18	1,3-Butadiene Source
	18-01494-10-SD1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-10-SD1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-5-SD1-BA-EF / Charcoal Tube (SKC-226-09) # 4	Acetonitrile Source
	18-01494-5-SD1-BA-IN / Charcoal Tube (SKC-226-09) # 4	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stay	Ryan M. Stayb	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon L Holden	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-5-SD1-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-EF-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. St	Ryan M. Steagle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:	Sharon L Holden	Sharon L Holden	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-5-SD1-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stf	Ryan M. Stanglc	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon Lloyd	2.26.18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-5-SD1-IN-5 / Charcoal Tube (SKC-226-09) ✓	Acetonitrile Source
	18-01494-5-SD1-IN-6 / Charcoal Tube (SKC-226-09) ✓	Acetonitrile Source
	18-01494-5-SD1-IN-7 / Charcoal Tube (SKC-226-09) ✓	Acetonitrile Source
	18-01494-5-SD1-IN-8 / Charcoal Tube (SKC-226-09) ✓	Acetonitrile Source
	~~18-01494-8-SD1-BA-EF / Silica Gel (SKC 226-119)~~	~~Aldehyde Panel Source **Method:** EPA TO-11A~~
	~~18-01494-8-SD1-BA-IN / Silica Gel (SKC 226-119)~~ KDB 2/21/18	~~Aldehyde Panel Source **Method:** EPA TO-11A~~
	~~18-01494-8-SD1-BL-EF / Silica Gel (SKC 226-119)~~	~~Aldehyde Panel Source **Method:** EPA TO-11A~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. St	Ryan M. Stangle	MO252	2-24-18	1600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	R B	RYAN BURNS	2/26/18	1430
Received By:	S Lloldel	Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions | **Date Sampled:** 2-23-18

CACN: 203006 | **COA:** CB20 | **Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac

Contact Name: Way, Zachary K | **Phone:** (509)373-4237 | **Turnaround:** N/A

Return Report To: Maxwell, Sally A | **MSIN:** R1-06 | **Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-8-SD1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source Method: EPA TO-11A KPB 2/21/18
	18-01494-8-SD1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source Method: EPA TO-11A
	18-01494-8-SD1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source Method: EPA TO-11A
	18-01494-4-SD1-BA-EF / XAD-7-NBD (SKC 226-96) ✓	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-BA-IN / XAD-7-NBD (SKC 226-96) ✓	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-BL-EF / XAD-7-NBD (SKC 226-96) ✓	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-BL-IN / XAD-7-NBD (SKC 226-96) ✓	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. St	Ryan M. Stengle	MO053	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	R R	RYAN BURNS	2/26/18	1430
Received By:	[signature]	Sharon Lilolda	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-4-SD1-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-EF-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stemple	M0252	2-24-18	0600
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-4-SD1-EF-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-IN-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-IN-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-IN-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-IN-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-IN-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-IN-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	M0252	2-24-18	0600
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-4-SD1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-3-SD1-BA-EF / TDU (Tenax)	Furans Source
	18-01494-3-SD1-BA-IN / TDU (Tenax)	Furans Source KDB 2/21/18
	18-01494-3-SD1-BL-EF / TDU (Tenax)	Furans Source
	18-01494-3-SD1-BL-IN / TDU (Tenax)	Furans Source
	18-01494-3-SD1-EF-1 / TDU (Tenax)	Furans Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Strayle	M0252	2-24-18	0600
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-5-SD1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-IN-6 / Charcoal Tube (SKC-226-09) KDB 2/21/18	Acetonitrile Source
	18-01494-5-SD1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-5-SD1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01494-8-SD1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-BA-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stf	Ryan M. Stanfe	M252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0806

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon Lholden	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-8-SD1-BL-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-EF-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-EF-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-EF-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-EF-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-EF-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-EF-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stengl	Ryan M. Stengl	M0252	2-24-18	0600
Retrieved from Storage:	L M	RYAN BURNS		2/26/18	0806

	Signature	Printed Name	Date	Time
Relinquished By:	L M	RYAN BURNS	2/26/18	1430
Received By:	Sharon Ldolde	Sharon Ldolde	2.26.18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-8-SD1-EF-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-EF-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-IN-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-IN-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-IN-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-IN-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-IN-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stayl	Ryan M. Stayle	MO252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0806

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon L Holder	2-26 18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions | **Date Sampled:** 2-23-18

CACN: 203006 | **COA:** CB20 | **Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac

Contact Name: Way, Zachary K | **Phone:** (509)373-4237 | **Turnaround:** N/A

Return Report To: Maxwell, Sally A | **MSIN:** R1-06 | **Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-8-SD1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-8-SD1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01494-4-SD1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source KDB 2/21/18
	18-01494-4-SD1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01494-4-SD1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. Stl	Ryan M. Stagl	MO 252	2-24-18	0600
Retrieved from Storage:	[signature]	RYAN BURNS		2/26/18	0806

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	Sh LUolde	Sharon LUolden	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-7-SD1-IN-3 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-5 / CISA (SKC 226-29) KPB 2/24/18	NH3 Source
	18-01494-7-SD1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-01494-12-SD1-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stenzel	MD252	2-24-18	0600
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNG	2-26-18	1430
Received By:	[signature]	Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-12-SD1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-BL-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-BL-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-EF-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-EF-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-EF-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-EF-4 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. Stg	Ryan M. Stengle	MO252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	SL Walde	Sharon L Walder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-12-SD1-EF-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-EF-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-EF-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-EF-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-3 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R.M. [signature]	Ryan M. Stegle	M0252	2-24-18	0600
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	Sharon L. Wollen	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-12-SD1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-11-SD1-BA-EF / Charcoal Tube (SKC 226-01) KDB 2/21/18	Pyridines Source
	18-01494-11-SD1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stengle	Ryan M Stengle	M0252	2-24-18	0900
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0742

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:	Sharon Ullalde	Sharon Ullalde	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-12-SD1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-12-SD1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01494-11-SD1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source

KDB 2/21/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M.Stenzel	MO252	2-21-18	0600
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	Sharon Lilolden	2-26-18	14 30
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-11-SD1-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-BL-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-EF-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-EF-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-EF-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-EF-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-EF-5 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steyle	M0252	2-24-18	0600
Retrieved from Storage:		STEPHEN Young		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN Young	2-26-18	1430
Received By:		Sharon Lidolbar	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-11-SD1-EF-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-EF-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-EF-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-4 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stayk	Ryan M. Stayk	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0730

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Sharon Lidder	Sharon Lidder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-11-SD1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-1-SD1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01494-1-SD1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01494-1-SD1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source

KDB 2/21/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-24-18	0600
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Sharon L McClure	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-9-SD1-BA-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-10-SD1-BA-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-BA-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-10-SD1-BA-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-BL-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-10-SD1-BL-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-BL-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steingle	M0252	2-24-18	0600
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Sharon Holden	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-10-SD1-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stg	Ryan M. Stargle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:		Sharon L Holden	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-9-SD1-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-EF-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stegle	Ryan M. Stegle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	Sharon L Wallace	Sharon L Wallace	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-10-SD1-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-IN-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stayte	10252	2-24-18	0600
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNG	2-26-18	1430
Received By:	[signature]	Sharon Lilleberg	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-9-SD1-IN-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-10-SD1-IN-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-IN-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-10-SD1-IN-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-IN-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-10-SD1-IN-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-IN-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stayle	Ryan M. Stayle	110252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:		Sharon Wolder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-10-SD1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-9-SD1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01494-9-SD1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
	18-01494-10-SD1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source ✓
~~X~~	~~18-01494-5-SD1-BA-EF / Charcoal Tube (SKC-226-09)~~ KDB 2/21/18	~~Acetonitrile Source~~
~~X~~	~~18-01494-5-SD1-BA-IN / Charcoal Tube (SKC-226-09)~~	~~Acetonitrile Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stf	Ryan M. Stenger	110252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	Sharon Ulloa	Sharon Ulloa	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-7-SD1-BA-EF / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-BA-IN / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-BL-EF / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-BL-IN / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-EF-1 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-EF-2 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-EF-3 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stagle	Ryan M. Stagle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Shawna L McQuin	Shawna L McQuin	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-7-SD1-EF-4 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-EF-5 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-EF-6 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-EF-7 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-EF-8 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-1 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-2 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stayle	Ryan M. Stayle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Sharon Wolfe	Sharon Wolfe	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-7-SD1-IN-3 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-01494-7-SD1-IN-8 / CISA (SKC 226-29)	NH3 Source
	~~18-01494-12-SD1-BA-EF / Thermosorb-N (TDX)~~ KDB 2/21/18	~~Nitrosamines Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stengl	Ryan M. Stengl	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	Sharon L Holder	Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01494-3-SD1-IN-8 / TDU (Tenax)~~ KDB 2/21/18	~~Furans Source~~
	18-01494-6-SD1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M Stanley	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0817

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Shawn Hobbs	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-6-SD1-EF-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-EF-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-EF-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	~~18-01494-6-SD1-EF-6 / Hydrar (SKC 226-17-1A)~~ VOID SWY 2-26-18	Hg-Elemental Source
	18-01494-6-SD1-EF-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-EF-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-IN-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stl	Ryan M. Stengle	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0817

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Sharon Lilolde	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-6-SD1-IN-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-IN-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-IN-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-IN-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-IN-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-IN-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-IN-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stfl	Ryan M. Stanyle	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0817

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNES	2-23-18	1430
Received By:		Sharon L Hollis	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-1-SD1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049074
	18-01494-1-SD1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048866
	18-01494-1-SD1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048871
	18-01494-2-SD1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01494-2-SD1-BA-IN / TDU-VOC (Carbotrap300/PE/G) KDB 2/21/18	VOC Source
	18-01494-2-SD1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01494-2-SD1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Staple	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0757

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YANIS	2-26-18	1430
Received By:		D Sorensen	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-1-SD1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049068
	18-01494-1-SD1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048831
	18-01494-1-SD1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069273
	18-01494-1-SD1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069301
	18-01494-1-SD1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069412
	18-01494-1-SD1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069339
	18-01494-1-SD1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049053

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stenke	MO252	2-24-18	0600
Retrieved from Storage:	[signature]	RYAN BURNS		2/26/18	0757

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	[signature]	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-11-SD1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-11-SD1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01494-1-SD1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049066
	18-01494-1-SD1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049064
	18-01494-1-SD1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049032

KOB 2/21/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stark	M0252	2-24-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0757

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN JENKINS	2-26-18	1430
Received By:		[illegible]	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

2-23-18 SWH

Contractor: Washington River Protection Solutions			**Date Sampled:** ~~STEPHEN~~ 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-1-SD1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069478
	18-01494-1-SD1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069359
	18-01494-1-SD1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069522 ~~2069?~~ DMS 2-26-18
	18-01494-1-SD1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069462
	18-01494-1-SD1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069499
	18-01494-1-SD1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049039
	18-01494-1-SD1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049075

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R.M.S	Ryan M. Stanley	M0252	2-26-18	0600
Retrieved from Storage:		RYAN BURNS		2/26/18	0757

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		DON SORENSEN	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-27-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01494-4-SD1-IN-7 / XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~ ADB 2/21/18
	~~18-01494-4-SD1-IN-8 / XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~
	18-01494-3-SD1-BA-EF / TDU (Tenax)	Furans Source 2049707
	18-01494-3-SD1-BA-IN / TDU (Tenax)	Furans Source 2049700
	18-01494-3-SD1-BL-EF / TDU (Tenax)	Furans Source 2050225
	18-01494-3-SD1-BL-IN / TDU (Tenax)	Furans Source 2050090
	18-01494-3-SD1-EF-1 / TDU (Tenax)	Furans Source 2054737

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		DON WOODBURY	W252	2-24-18	0645
Retrieved from Storage:		RYAN BURNS		2/26/18	0828

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-3-SD1-EF-2 / TDU (Tenax)	Furans Source 2050094
	18-01494-3-SD1-EF-3 / TDU (Tenax)	Furans Source 2050089
	18-01494-3-SD1-EF-4 / TDU (Tenax)	Furans Source 2049777
	18-01494-3-SD1-EF-5 / TDU (Tenax)	Furans Source 2050093
	18-01494-3-SD1-EF-6 / TDU (Tenax)	Furans Source 2049928
	18-01494-3-SD1-EF-7 / TDU (Tenax)	Furans Source 2049811
	18-01494-3-SD1-EF-8 / TDU (Tenax)	Furans Source 2049890

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Don Wheeler	MO 252	2-24-18	0645
Retrieved from Storage:	[signature]	RYAN BURNS		2/26/18	0828

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	Sharon Ullolle	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-3-SD1-IN-1 / TDU (Tenax)	Furans Source 2050080
	18-01494-3-SD1-IN-2 / TDU (Tenax)	Furans Source 2050095
	18-01494-3-SD1-IN-3 / TDU (Tenax)	Furans Source 2049921
	18-01494-3-SD1-IN-4 / TDU (Tenax)	Furans Source 2049828
	18-01494-3-SD1-IN-5 / TDU (Tenax)	Furans Source 2049686
	18-01494-3-SD1-IN-6 / TDU (Tenax)	Furans Source 2049871
	18-01494-3-SD1-IN-7 / TDU (Tenax)	Furans Source 2049823

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Don Woolsey	HO 252	2-24-18	0645
Retrieved from Storage:		RYAN BURNS		2/26/18	0828

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon L Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-22-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-3-SD1-IN-8 / TDU (Tenax)	Furans Source 2050288
	18-01494-6-SD1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01494-6-SD1-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		DON WOOLEY	MO 252	2-24-18	0645
Retrieved from Storage:		RYAN BURNS		2/26/18	0828

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon Llobida	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-2-SD1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046338
	18-01494-2-SD1-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046412
	18-01494-2-SD1-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046870
	18-01494-2-SD1-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046395
	18-01494-2-SD1-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046574
	18-01494-2-SD1-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046340
	18-01494-2-SD1-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046672

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stanfle	Ryan M. Stanfle	M0250	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon Holder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-1-SD1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01494-1-SD1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01494-1-SD1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01494-2-SD1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046283
	18-01494-2-SD1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049388
	18-01494-2-SD1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046383
	18-01494-2-SD1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046564

KDB 2/21/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stenzel	M0252	2-24-18	0600
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon Wolder	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-2-SD1-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046272
	18-01494-2-SD1-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046267
	18-01494-2-SD1-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046348
	18-01494-2-SD1-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046341
	18-01494-2-SD1-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046353
	18-01494-2-SD1-IN-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046345
	18-01494-2-SD1-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044902

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stg	Ryan M. Stagle	M0252	2-24-18	0600
Retrieved from Storage:	S	STEPHEN YUNGI		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon Uhlich	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203008	**COA:** CB20	**Survey No.:** 18-01494 - BY-110 Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01494-2-SD1-IN-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046371
	18-01494-2-SD1-IN-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046429

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-24-18	0600
Retrieved from Storage:		STEPHEN YEARS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Sharon LaMotte	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-1-TL1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G) KDB 2/21/18	Semi-VOC Source
	18-01496-1-TL1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01496-2-TL1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045210
	18-01496-2-TL1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046217
	18-01496-2-TL1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045323
	18-01496-2-TL1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044403
	18-01496-2-TL1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045899

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	LeslieDiaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-2-TL1-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045701
	18-01496-2-TL1-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045843
	18-01496-2-TL1-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045535
	18-01496-2-TL1-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044364
	18-01496-2-TL1-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044272
	18-01496-2-TL1-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045355
	18-01496-2-TL1-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045175

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stangle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-2-TL1-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046258
	18-01496-2-TL1-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044908
	18-01496-2-TL1-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044251
	18-01496-2-TL1-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046263
	18-01496-2-TL1-IN-5 / TDU-VOC (Carbotrap300/PE/G) void RMS 2-23-18	VOC Source
	18-01496-2-TL1-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046232
	18-01496-2-TL1-IN-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044431

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stegle	Ryan M. Stegle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-2-TL1-IN-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source
		2049541

2-24-18 RIMS

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Style	M0252	2-24-18	0700
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-12-TL1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-7 / Charcoal Tube (SKC 226-01) KPB 3/21/18	Pyridines Source
	18-01496-12-TL1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-1-TL1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048922
	18-01496-1-TL1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069305
	18-01496-1-TL1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048931
	18-01496-1-TL1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069521

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stf	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-1-TL1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069501
	18-01496-1-TL1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048920
	18-01496-1-TL1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048888
	18-01496-1-TL1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048929
	18-01496-1-TL1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048952
	18-01496-1-TL1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048884
	18-01496-1-TL1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069311

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0705

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-16-18	1430
Received By:	[signature]	LeshieDiaz	2/26/18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-1-TL1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069292
	18-01496-1-TL1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069313
	18-01496-1-TL1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069604
	18-01496-1-TL1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069516
	18-01496-1-TL1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G) Void KMS 2-23-18	Semi-VOC Source
	18-01496-1-TL1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069293
	18-01496-1-TL1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069471

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stay	Ryan M. Stayl	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Leslie Diaz	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-1-TL1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069350
	18-01496-1-TL1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069243
	18-01496-2-TL1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01496-2-TL1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01496-2-TL1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01496-2-TL1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01496-2-TL1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source

LAD 2-26-18 KDB 2/21/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stayl	Ryan M. Stayl	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN Youngs		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN Youngs	2-26-18	1430
Received By:	Leslee Diaz	Leslee Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01496-5-TL1-IN-7 / XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~ KDB 2/21/18
	~~18-01496-5-TL1-IN-8 / XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~
	18-01496-4-TL1-BA-EF / TDU (Tenax)	Furans Source 2049728
	18-01496-4-TL1-BA-IN / TDU (Tenax)	Furans Source 2054592
	18-01496-4-TL1-BL-EF / TDU (Tenax)	Furans Source 2049727
	18-01496-4-TL1-BL-IN / TDU (Tenax)	Furans Source 2049743
	18-01496-4-TL1-EF-1 / TDU (Tenax)	Furans Source 2054585

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steigle	MO 252	2-21-18	0700
Retrieved from Storage:		STEPHEN LEWIS		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN LEWIS	2-26-18	1430
Received By:		Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-4-TL1-EF-2 / TDU (Tenax)	Furans Source 2054718
	18-01496-4-TL1-EF-3 / TDU (Tenax)	Furans Source 2054596
	18-01496-4-TL1-EF-4 / TDU (Tenax)	Furans Source 2054567
	18-01496-4-TL1-EF-5 / TDU (Tenax)	Furans Source 2054712
	18-01496-4-TL1-EF-6 / TDU (Tenax)	Furans Source 2049741
	18-01496-4-TL1-EF-7 / TDU (Tenax)	Furans Source 2054608
	18-01496-4-TL1-EF-8 / TDU (Tenax)	Furans Source 2050237

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stengle	Ryan M Stengle	MO252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-4-TL1-IN-1 / TDU (Tenax)	Furans Source 2049837
	18-01496-4-TL1-IN-2 / TDU (Tenax)	Furans Source 2054589
	18-01496-4-TL1-IN-3 / TDU (Tenax)	Furans Source 2049873
	18-01496-4-TL1-IN-4 / TDU (Tenax)	Furans Source 2049883
	18-01496-4-TL1-IN-5 / TDU (Tenax)	Furans Source 2049834
	18-01496-4-TL1-IN-6 / TDU (Tenax)	Furans Source 2049848
	18-01496-4-TL1-IN-7 / TDU (Tenax)	Furans Source 2049899

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stagl	Ryan M. Stagl	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:	Leslie Diaz	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-4-TL1-IN-8 / TDU (Tenax)	Furans Source 2049705
	18-01496-7-TL1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan A Steffe	MO252	2-24-18	0900
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:		Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-9-TL1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A KDB 2/21/18
	18-01496-9-TL1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-5-TL1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	B M. Stf	Ryan M. Stanglt	M2252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-5-TL1-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-EF-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. S	Ryan M. Steagle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST 2-23-18

Surv 2-22-18 2-26-18

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-26-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-10-TL1-BA-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-BA-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-BA-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-BA-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-BL-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-BL-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-BL-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stayb	M0252	2-24-18	0700
Retrieved from Storage:	[signature]	RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNG	2-26-18	1430
Received By:	[signature]	Leshe Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-11-TL1-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. [illegible]	Ryan M. Steele	M0252	2-24-18	0700
Retrieved from Storage:	[illegible]	RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:	[illegible]	STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	LESLIE DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-10-TL1-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-EF-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stengle	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:		RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	LeslieDiaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-11-TL1-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.S	Ryan M. Stanley	M0252	2-24-18	0700
Retrieved from Storage:		RYAN BUENO		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Leslie DIAZ	22618	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-10-TL1-IN-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. St	Ryan M. Stang	M0252	2-24-18	0700
Retrieved from Storage:		RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-11-TL1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	~~18-01496-6-TL1-BA-EF / Charcoal Tube (SKC-226-09)~~ KDB 2/21/18	~~Acetonitrile Source~~
	~~18-01496-6-TL1-BA-IN / Charcoal Tube (SKC-226-09)~~	~~Acetonitrile Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. S	Ryan M. Stanyle	M0252	2-24-18	0700
Retrieved from Storage:	C R	RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01496-13-TL1-IN-5 / Thermosorb-N (TDX)~~	~~Nitrosamines Source~~
	~~18-01496-13-TL1-IN-6 / Thermosorb-N (TDX)~~ KDB 2/21/18	~~Nitrosamines Source~~
	~~18-01496-13-TL1-IN-7 / Thermosorb-N (TDX)~~	~~Nitrosamines Source~~
	~~18-01496-13-TL1-IN-8 / Thermosorb-N (TDX)~~	~~Nitrosamines Source~~
	18-01496-12-TL1-BA-EF / Charcoal Tube (SKC 226-01) ✓	Pyridines Source
	18-01496-12-TL1-BA-IN / Charcoal Tube (SKC 226-01) ✓	Pyridines Source
	18-01496-12-TL1-BL-EF / Charcoal Tube (SKC 226-01) ✓	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stg	Ryan M Steigh	MO282	2-24-18	070
Retrieved from Storage:	S	STEPHEN KUNZ		2-24-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	RR	RYAN BURNS	2/26/18	1430
Received By:	Leslie Dig	Leslie Dig	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-12-TL1-BL-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-EF-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-EF-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-EF-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-EF-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-EF-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-EF-6 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M Stanley	M025	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-12-TL1-EF-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-EF-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Sf	Ryan M. Stark	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-24-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-12-TL1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-1-TL1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01496-1-TL1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G) KDB 2/21/18	Semi-VOC Source
	18-01496-1-TL1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01496-1-TL1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stagl	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2/26/18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01496-4-TL1-IN-8 / TDU (Tenax)~~ KDB 2/21/18	~~Furans Source~~
	18-01496-7-TL1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN BURNS		2-24-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-25-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2/25/18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-7-TL1-EF-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-EF-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-IN-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	B M.St	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YEAGER		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-7-TL1-IN-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-IN-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-IN-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-IN-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-IN-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-IN-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01496-7-TL1-IN-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stangle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-8-TL1-EF-5 / CISA (SKC 226-29) ✓	NH3 Source
	18-01496-8-TL1-EF-6 / CISA (SKC 226-29) ✓	NH3 Source
	18-01496-8-TL1-EF-7 / CISA (SKC 226-29) ✓	NH3 Source
	18-01496-8-TL1-EF-8 / CISA (SKC 226-29) ✓	NH3 Source
	18-01496-8-TL1-IN-1 / CISA (SKC 226-29) ✓	NH3 Source
	18-01496-8-TL1-IN-2 / CISA (SKC 226-29) ✓	NH3 Source
	18-01496-8-TL1-IN-3 / CISA (SKC 226-29) ✓	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stangle	MO252	2-24-18	0700
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-8-TL1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-01496-13-TL1-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

RDB 2/21/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steyle	1H0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		LESLIE DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-6-TL1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-6 / Charcoal Tube (SKC-226-09) KDB 2/21/18	Acetonitrile Source
	18-01496-6-TL1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-9-TL1-BA-EF / Silica Gel (SKC 226-119) ✓	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-BA-IN / Silica Gel (SKC 226-119) ✓	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-BL-EF / Silica Gel (SKC 226-119) ✓	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stayk	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN REYES		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-9-TL1-BL-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-EF-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-EF-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-EF-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-EF-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-EF-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-EF-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R.M.Stenk	Ryan M. Stenk	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN BURNS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		LeslieDiaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-9-TL1-EF-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-EF-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steyle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN KUNES		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-9-TL1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-5-TL1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stenyk	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN [illegible]		2-26-18	0730

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-5 / Silica Gel (SKC-226-51) KDB 2/21/18	Methanol Source
	18-01496-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-8-TL1-BA-EF / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stf	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:	Leslie Diaz	LESLIE DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-8-TL1-BA-IN / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-BL-EF / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-BL-IN / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-EF-1 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-EF-2 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-EF-3 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-EF-4 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stf	Ryan M. Stengl	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0730

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-5-TL1-EF-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-IN-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-IN-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-IN-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-IN-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-IN-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-IN-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.S	Ryan M. Steagle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-5-TL1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-5-TL1-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01496-4-TL1-BA-EF / TDU (Tenax)	Furans Source
	18-01496-4-TL1-BA-IN / TDU (Tenax)	Furans Source KDB 2/21/18
	18-01496-4-TL1-BL-EF / TDU (Tenax)	Furans Source
	18-01496-4-TL1-BL-IN / TDU (Tenax)	Furans Source
	18-01496-4-TL1-EF-1 / TDU (Tenax)	Furans Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	B M.S	Ryan M. Steele	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNIS	2-26-18	1430
Received By:	Leslie Day	LeslieDAY	2/26/18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-8-TL1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-IN-5 / CISA (SKC 226-29) KDB 2/24/18	NH3 Source
	18-01496-8-TL1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-01496-8-TL1-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-01496-13-TL1-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		DON WOOLERY	MO 252	2-24-18	0645
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Leslie Dirt	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-13-TL1-BL-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-BL-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-EF-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-EF-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-EF-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-EF-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-EF-5 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Don Woolsey	MO 252	2-24-18	0645
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-13-TL1-EF-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-EF-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-EF-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-IN-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-IN-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-IN-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		DON WOOLERY	MO 252	2-24-18	0645
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-13-TL1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-13-TL1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01496-12-TL1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01496-12-TL1-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source

KDB 2/21/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		DON WOOLLEY	MO 252	2-24-18	0645
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:		LESLIE DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
	~~18-01496-8-TL1-BA-EF / CISA (SKC 226-29)~~ ADB 2/21/18	~~NH3 Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. Stayl	Ryan M. Stayl	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-3-TL1-BA-EF / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-BA-IN / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-BL-EF / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-BL-IN / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-EF-1 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-EF-2 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-EF-3 / Silica Gel (SKC-226-51)	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.S	Ryan M. Steyle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1236
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-3-TL1-EF-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-EF-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-EF-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-EF-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-EF-8 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-1 / Silica Gel (SKC-226-51)	Methanol Source
	18-01496-3-TL1-IN-2 / Silica Gel (SKC-226-51)	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stayle	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Leslie Day	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-11-TL1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-10-TL1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-11-TL1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01496-6-TL1-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Strange	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-6-TL1-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-EF-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.St	Ryan M. Stengle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNG	2-26-18	1430
Received By:	Leslie Diaz	Leslie DIAZ	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-6-TL1-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. St	Ryan M. Stayle	M0252	2-24-18	0700
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:	Leslie Diaz	Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01496 - BY-108 Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01496-6-TL1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-6-TL1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01496-9-TL1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-BA-IN / Silica Gel (SKC 226-119) KDB 2/21/18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01496-9-TL1-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stenzel	M0252	2-24-18	0700
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		Leslie Diaz	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-8-SC1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01495-8-SC1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01495-8-SC1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
*	18-01495-4-SC1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
*	18-01495-4-SC1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
*	18-01495-4-SC1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
*	18-01495-4-SC1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stanley	M0252	2-25-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-4-SC1-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-EF-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	RMSK	Ryan M. Stenzel	M0252	2-25-18	0530
Retrieved from Storage:	CR	RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN KUNYS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-4-SC1-EF-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-IN-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-IN-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-IN-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-IN-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-IN-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-IN-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN WOOS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-4-SC1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01495-3-SC1-BA-EF / TDU (Tenax)	Furans Source
	18-01495-3-SC1-BA-IN / TDU (Tenax)	Furans Source EJW 02-21-18
	18-01495-3-SC1-BL-EF / TDU (Tenax)	Furans Source
	18-01495-3-SC1-BL-IN / TDU (Tenax)	Furans Source
	18-01495-3-SC1-EF-1 / TDU (Tenax)	Furans Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stanek	MO252	2-25-18	0530
Retrieved from Storage:	[signature]	RYAN BURNS		2/26/18	0900

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-10-SC1-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-10-SC1-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-10-SC1-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-10-SC1-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stangle	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-9-SC1-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-10-SC1-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-10-SC1-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-10-SC1-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-EF-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stangle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions | **Date Sampled:** 2-24-18

CACN: 203006 | **COA:** CB20 | **Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac

Contact Name: Way, Zachary K | **Phone:** (509)373-4237 | **Turnaround:** N/A

Return Report To: Maxwell, Sally A | **MSIN:** R1-06 | **Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
•	18-01495-10-SC1-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
•	18-01495-9-SC1-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
•	18-01495-10-SC1-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
•	18-01495-9-SC1-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
•	18-01495-10-SC1-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
•	18-01495-9-SC1-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
•	18-01495-10-SC1-IN-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. St [signature]	Ryan M. Stenger	M0252	2-25-18	0530
Retrieved from Storage:	S [signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S [signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	Teresa Forrester [signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203008	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A			**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
*	18-01495-9-SC1-IN-3-A / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-IN-3-B / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-IN-4-A / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-IN-4-B / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-IN-5-A / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-IN-5-B / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-IN-6-A / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Steingle	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNIS	2-26-18	1430
Received By:	[signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203008	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A			**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
*	18-01495-10-SC1-IN-6-B / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-IN-7-A / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-IN-7-B / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-IN-8-A / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-IN-8-B / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
~~*~~	~~18-01495-5-SC1-BA-EF / Charcoal Tube (SKC-226-09)~~ [redacted] SJW 02-21-18	~~Acetonitrile Source~~
~~*~~	~~18-01495-5-SC1-BA-IN / Charcoal Tube (SKC-226-09)~~ [redacted]	~~Acetonitrile Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Steingle	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNIS	2-26-18	1430
Received By:	[signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203008	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A			**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
*	18-01495-9-SC1-BA-EFA / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-BA-EFB / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-BA-INA / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-BA-INB / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-BL-EFA / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-10-SC1-BL-EFB / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source
*	18-01495-9-SC1-BL-INA / Charcoal Tube (SKC-226-37) [redacted]	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Steingle	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNIS	2-26-18	1430
Received By:	[signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203008	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A			**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
~~*~~	~~18-01495-5-SC1-IN-5 / Charcoal Tube (SKC-226-09)~~ [redacted]	~~Acetonitrile Source~~
~~*~~	~~18-01495-5-SC1-IN-6 / Charcoal Tube (SKC-226-09)~~ [redacted] SJW 02-21-18	~~Acetonitrile Source~~
~~*~~	~~18-01495-5-SC1-IN-7 / Charcoal Tube (SKC-226-09)~~ [redacted]	~~Acetonitrile Source~~
~~*~~	~~18-01495-5-SC1-IN-8 / Charcoal Tube (SKC-226-09)~~ [redacted]	~~Acetonitrile Source~~
*	18-01495-8-SC1-BA-EF / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source **Method:** EPA TO-11A
*	18-01495-8-SC1-BA-IN / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source **Method:** EPA TO-11A
*	18-01495-8-SC1-BL-EF / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Steingle	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNIS	2-26-18	1430
Received By:	[signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No	Sample ID/Type/Description	Required Analysis
	18-01495-8-SC1-BL-IN / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-EF-1 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-EF-2 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-EF-3 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-EF-4 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-EF-5 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-EF-6 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Stark	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	STEPHEN YOUNIS	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-8-SC1-EF-7 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-EF-8 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-IN-1 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-IN-2 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-IN-3 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-IN-4 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-IN-5 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Stark	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	STEPHEN YOUNIS	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-8-SC1-IN-6 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-IN-7 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-IN-8 / Silica Gel (SKC 226-119) [redacted]	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-4-SC1-BA-EF / XAD-7-NBD (SKC 226-96) [redacted]	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-BA-IN / XAD-7-NBD (SKC 226-96) [redacted]	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-BL-EF / XAD-7-NBD (SKC 226-96) [redacted]	Dimethylamine/ethylamine/methylamine Source
	18-01495-4-SC1-BL-IN / XAD-7-NBD (SKC 226-96) [redacted]	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Stark	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	STEPHEN YOUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	STEPHEN YOUNIS	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-7-SC1-BA-EF / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-BA-IN / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-BL-EF / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-BL-IN / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-EF-1 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-EF-2 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-EF-3 / CISA (SKC 226-29) [redacted]	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Stark	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	RYAN BURNS		2/26/18	0730

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	RYAN BURNS	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A			
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324			
Laboratory Log No.	Sample ID/Type/Description			Required Analysis	
	18-01495-7-SC1-EF-4 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-EF-5 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-EF-6 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-EF-7 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-EF-8 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-IN-1 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-IN-2 / CISA (SKC 226-29)			NH3 Source	
Special Instructions:					

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:		TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				
Additional Comments:				

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A			
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324			
Laboratory Log No.	Sample ID/Type/Description			Required Analysis	
	18-01495-7-SC1-IN-3 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-IN-4 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-IN-5 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-IN-6 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-IN-7 / CISA (SKC 226-29)			NH3 Source	
	18-01495-7-SC1-IN-8 / CISA (SKC 226-29)			NH3 Source	
	~~18-01495-12-SC1-BA-EF / Thermosorb-N (TDA)~~			~~Nitrosamines Source~~	
Special Instructions:					

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:		TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				
Additional Comments:				

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A			
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324			
Laboratory Log No.	Sample ID/Type/Description			Required Analysis	
	~~18-01495-3-SC1-IN-8 / TDU (Tenax)~~			~~Furans Source~~	
	18-01495-6-SC1-BA-EF / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-BA-IN / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-BL-EF / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-BL-IN / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-EF-1 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-EF-2 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
Special Instructions:					

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0917

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN BURNS	2-26-18	1430
Received By:		TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				
Additional Comments:				

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A			
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324			
Laboratory Log No.	Sample ID/Type/Description			Required Analysis	
	18-01495-6-SC1-EF-3 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-EF-4 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-EF-5 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-EF-6 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-EF-7 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-EF-8 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
	18-01495-6-SC1-IN-1 / Hydrar (SKC 226-17-1A)			Hg-Elemental Source	
Special Instructions:					

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:		RYAN BURNS		2/26/18	0917

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN BURNS	2-26-18	1430
Received By:		TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				
Additional Comments:				

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324		

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-6-SC1-IN-2 / Hydrar (SKC 226-17-1A) [redacted]	Hg-Elemental Source
	18-01495-6-SC1-IN-3 / Hydrar (SKC 226-17-1A) [redacted]	Hg-Elemental Source
	18-01495-6-SC1-IN-4 / Hydrar (SKC 226-17-1A) [redacted]	Hg-Elemental Source
	18-01495-6-SC1-IN-5 / Hydrar (SKC 226-17-1A) [redacted]	Hg-Elemental Source
	18-01495-6-SC1-IN-6 / Hydrar (SKC 226-17-1A) [redacted]	Hg-Elemental Source
	18-01495-6-SC1-IN-7 / Hydrar (SKC 226-17-1A) [redacted]	Hg-Elemental Source
	18-01495-6-SC1-IN-8 / Hydrar (SKC 226-17-1A) [redacted]	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Steagle	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	RYAN BURNS		2/26/18	0917

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	STEPHEN YOUNG	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324		

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-7-SC1-IN-3 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-IN-4 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-IN-5 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-IN-6 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-IN-7 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-7-SC1-IN-8 / CISA (SKC 226-29) [redacted]	NH3 Source
	18-01495-12-SC1-BA-EF / Thermosorb-N (TDX) [redacted]	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Steagle	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	STEPHEN YOUNG		2-26-18	0720

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	RYAN BURNS	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324		

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-12-SC1-BA-IN / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-BL-EF / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-BL-IN / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-EF-1 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-EF-2 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-EF-3 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-EF-4 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Steagle	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	STEPHEN YOUNG		2-26-18	0720

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	RYAN BURNS	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				**Date Sampled:** 2-24-18	
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324		

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-12-SC1-EF-5 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-EF-6 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-EF-7 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-EF-8 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-IN-1 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-IN-2 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source
	18-01495-12-SC1-IN-3 / Thermosorb-N (TDX) [redacted]	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[redacted]	Ryan M. Steagle	M0252	2-25-18	0530
Retrieved from Storage:	[redacted]	STEPHEN YOUNG		2-26-18	0720

	Signature	Printed Name	Date	Time
Relinquished By:	[redacted]	RYAN BURNS	2-26-18	1430
Received By:	[redacted]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-12-SC1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-12-SC1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-12-SC1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-12-SC1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-12-SC1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-11-SC1-BA-EF / Charcoal Tube (SKC 226-01) DJW 03-21-18	Pyridines Source
	18-01495-11-SC1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stagl	Ryan M. Stagl	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	R R	RYAN BURNS	2.26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-5-SC1-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-EF-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stagle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YUMI		2-26-18	0720

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-5-SC1-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stryk	Ryan M. Stryk	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-5-SC1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-8-SC1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source Method: EPA TO-11A
	18-01495-8-SC1-BA-IN / Silica Gel (SKC 226-119) EMJ 03-21-18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01495-8-SC1-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Str	Ryan M. Strayle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-10-SC1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-IN-7-A / Charcoal Tube (SKC-226-37) 03-21-18	1,3-Butadiene Source
	18-01495-10-SC1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-9-SC1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-10-SC1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01495-5-SC1-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01495-5-SC1-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Steagle	M0252	2-25-18	0530
Retrieved from Storage:	S	Stephen Yeuds		2-26-18	0710

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-11-SC1-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-BL-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-EF-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-EF-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-EF-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-EF-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-EF-5 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stl	Ryan M Stangle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN JENKINS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-11-SC1-EF-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-EF-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-EF-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-4 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stangle	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-28-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-11-SC1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-1-SC1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01495-1-SC1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01495-1-SC1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source

FAW 02-21-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stengle	Ryan M Stengle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN KUNES		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-12-SC1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-12-SC1-IN-5 / Thermosorb-N (TDX) SJW 03-21-18	Nitrosamines Source
	18-01495-12-SC1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-12-SC1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-12-SC1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01495-11-SC1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stanyle	M0252	2-25-18	0530
Retrieved from Storage:		STEPHEN YUMI		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:		TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01495-4-SC1-IN-7 / XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~ EJW 02-21-18
	18-01495-4-SC1-IN-8 / ~~XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~
	18-01495-3-SC1-BA-EF / TDU (Tenax)	Furans Source 2054720
	18-01495-3-SC1-BA-IN / TDU (Tenax)	Furans Source 2054603
	18-01495-3-SC1-BL-EF / TDU (Tenax)	Furans Source 2054725
	18-01495-3-SC1-BL-IN / TDU (Tenax)	Furans Source 2049882
	18-01495-3-SC1-EF-1 / TDU (Tenax)	Furans Source 2054728

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stayle	M0252	~~2-25-18~~	0530
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-3-SC1-EF-2 / TDU (Tenax)	Furans Source 205459/
	18-01495-3-SC1-EF-3 / TDU (Tenax)	Furans Source 2049755
	18-01495-3-SC1-EF-4 / TDU (Tenax)	Furans Source 2049774
	18-01495-3-SC1-EF-5 / TDU (Tenax)	Furans Source 2050236
	18-01495-3-SC1-EF-6 / TDU (Tenax)	Furans Source 2049922
	18-01495-3-SC1-EF-7 / TDU (Tenax)	Furans Source 2049900
	18-01495-3-SC1-EF-8 / TDU (Tenax)	Furans Source 204969/

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	M0252	2-25-18	0530
Retrieved from Storage:	[signature]	STEPHEN KUHNS		2-26-18	0710

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2-26-18	1430
Received By:	[signature]	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-3-SC1-IN-1 / TDU (Tenax)	Furans Source 2049747
	18-01495-3-SC1-IN-2 / TDU (Tenax)	Furans Source 2049851
	18-01495-3-SC1-IN-3 / TDU (Tenax)	Furans Source 2050225
	18-01495-3-SC1-IN-4 / TDU (Tenax)	Furans Source 2049825
	18-01495-3-SC1-IN-5 / TDU (Tenax)	Furans Source 2049697
	18-01495-3-SC1-IN-6 / TDU (Tenax)	Furans Source 2050086
	18-01495-3-SC1-IN-7 / TDU (Tenax)	Furans Source 2049758

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stgl	Ryan M. Stengl	MO252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forreste	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-3-SC1-IN-8 / TDU (Tenax)	Furans Source 2049926
	18-01495-6-SC1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01495-6-SC1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01495-6-SC1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01495-6-SC1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01495-6-SC1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01495-6-SC1-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

SJW 03-21-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.S.H	Ryan M. Stemple	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-1-SC1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048832
	18-01495-1-SC1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2067965
	18-01495-1-SC1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08589
	18-01495-1-SC1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08643
	18-01495-1-SC1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048936
	18-01495-1-SC1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048860
	18-01495-1-SC1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048921

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	B M. Stf	Ryan M. Steagle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2.26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2.26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-1-SC1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066094
	18-01495-1-SC1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049072
	18-01495-1-SC1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069285
	18-01495-1-SC1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08420
	18-01495-1-SC1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048833
	18-01495-1-SC1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049006
	18-01495-1-SC1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048862

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stengl	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-1-SC1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048843
	18-01495-1-SC1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2045244
	18-01495-1-SC1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049063
	18-01495-2-SC1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01495-2-SC1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01495-2-SC1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01495-2-SC1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Steagle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions					**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac			
Contact Name: Way, Zachary K		**Phone:** (509)373-4237		**Turnaround:** N/A	
Return Report To: Maxwell, Sally A			**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-11-SC1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-11-SC1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01495-1-SC1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049022
	18-01495-1-SC1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069457
	18-01495-1-SC1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069439

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stfl	Ryan M. Stanyle	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN KNIGHT		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-1-SC1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01495-1-SC1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01495-1-SC1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01495-2-SC1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046418
	18-01495-2-SC1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046393
	18-01495-2-SC1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045201
	18-01495-2-SC1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049550

EJW 03-21-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Strayle	M0252	2-25-18	0530
Retrieved from Storage:		STEPHEN BURNS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-25-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-2-SC1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049472
	18-01495-2-SC1-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045761
	18-01495-2-SC1-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045743
	18-01495-2-SC1-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049523
	18-01495-2-SC1-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source A020958
	18-01495-2-SC1-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049393
	18-01495-2-SC1-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2050031

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stark	M0252	2-25-18	0530
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-2-SC1-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source A036689
	18-01495-2-SC1-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049381
	18-01495-2-SC1-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045066
	18-01495-2-SC1-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049645
	18-01495-2-SC1-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049644
	18-01495-2-SC1-IN-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source A036670
	18-01495-2-SC1-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049631

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stk	Ryan M. Stk	M0252	2-25-18	0530
Retrieved from Storage:	S	STEPHEN BURNS		2-26-18	0720

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:	Teresa Forreste	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01495 - BY-110 Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01495-2-SC1-IN-7 / TDU-VOC (Carbotrap300/PE/G) —	VOC Source 2049506
	18-01495-2-SC1-IN-8 / TDU-VOC (Carbotrap300/PE/G) —	VOC Source A036695
	RMS 2-25-18	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	RMS	Ryan M. Stangle	MO252	2-25-18	0530
Retrieved from Storage:	Stephen Young	Stephen Young		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	R R	RYAN BURNS	2-26-18	1430
Received By:	Teresa Forrester	TERESA FORRESTER	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-8-TL2-BA-EF / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stemple	M0252	2-24-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DN Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-8-TL2-BA-IN / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-BL-EF / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-BL-IN / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-EF-1 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-EF-2 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-EF-3 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-EF-4 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stayl	Ryan M. Stayle	M0252	2-25-18	0615
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DN Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-8-TL2-EF-5 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-EF-6 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-EF-7 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-EF-8 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-1 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-2 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-3 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stgl	Ryan M. Stegle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0710

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2-26-18	1430
Received By:		D Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-8-TL2-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-01497-13-TL2-BA-EF / Thermosorb-N (TDX) E/W 02-21-18	Nitrosamines Source
	18-01497-13-TL2-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. Stagle	Ryan M. Stagle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		D. Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-7-TL2-IN-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-IN-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-IN-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-IN-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-IN-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-IN-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-IN-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stagle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN [illegible]		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-7-TL2-EF-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-IN-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stayte	M1252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	D. Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01497-4-TL2-IN-8 / TDU (Tenax)~~ RJW 03-21-18	~~Furans Source~~
	18-01497-7-TL2-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stf	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		D Brandon	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-13-TL2-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-6 / Thermosorb-N (TDX) EJW 02-21-18	Nitrosamines Source
	18-01497-13-TL2-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-12-TL2-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	O. Swanson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-12-TL2-BL-IN / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-EF-1 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-EF-2 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-EF-3 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-EF-4 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-EF-5 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-EF-6 / Charcoal Tube (SKC 226-01) —	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R. M. Stangle	Ryan M. Stangle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	Ryan Byers	2/26/18	1430
Received By:	[signature]	DL Swanson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-12-TL2-EF-7 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-EF-8 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-IN-1 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-IN-2 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-IN-3 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-IN-4 / Charcoal Tube (SKC 226-01) —	Pyridines Source
	18-01497-12-TL2-IN-5 / Charcoal Tube (SKC 226-01) —	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stengle	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DV Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-12-TL2-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-1-TL2-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01497-1-TL2-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G) EJW 02-21-18	Semi-VOC Source
	18-01497-1-TL2-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01497-1-TL2-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steagle	M0252	2-24-18	0515
Retrieved from Storage:		STEPHEN YUNIS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DA Brandon	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-3-TL2-BA-EF / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-BA-IN / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-BL-EF / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-BL-IN / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-EF-1 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-EF-2 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-EF-3 / Silica Gel (SKC-226-51) —	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	Ryan Burns	2/26/18	1430
Received By:	[signature]	DeSampler	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-3-TL2-EF-4 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-EF-5 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-EF-6 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-EF-7 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-EF-8 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-IN-1 / Silica Gel (SKC-226-51) —	Methanol Source
	18-01497-3-TL2-IN-2 / Silica Gel (SKC-226-51) —	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M Stengle	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	R B	RYAN BURNS	2/26/18	1430
Received By:	DS	DR Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-01497-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
	~~18-01497-8-TL2-BA-EF / CISA (SKC 226-29)~~ SJW 08-21-18	~~NH3 Source~~

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stgl	Ryan M. Stengl	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DN Brenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-6-TL2-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-9-TL2-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-BA-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

SJW 02-21-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Steagle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN HOWS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		[illegible] Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-6-TL2-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stegl	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-6-TL2-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-EF-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stg	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN Yokings		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Branson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-11-TL2-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-6-TL2-BA-EF / Charcoal Tube (SKC-226-09) —	Acetonitrile Source
	18-01497-6-TL2-BA-IN / Charcoal Tube (SKC-226-09) —	Acetonitrile Source

S/N 02-21-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stg	Ryan M. Stagle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN JENNINGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-11-TL2-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stanyk	M0252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN Youngs		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	OR Swanson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-10-TL2-BA-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-BA-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-BA-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-BA-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-BL-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-BL-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-BL-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN JOHNES		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Brumfield	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-10-TL2-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-EF-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengl	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN BURNS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:			2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-11-TL2-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan MSF	Ryan M.S Fargle	M0252	2-25-18	0515
Retrieved from Storage:				2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		D R Exonson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-10-TL2-IN-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-11-TL2-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-10-TL2-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-11-TL2-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-01497-6-TL2-BA-EF / Charcoal Tube (SKC-226-09) SJW 03-21-18	Acetonitrile Source
	18-01497-6-TL2-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stenglt	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DL Swanson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A	**MSIN:** R1-06		**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-8-TL2-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-01497-8-TL2-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-01497-13-TL2-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

SJW 02-21-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	MO252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2-26-18	1430
Received By:	[signature]	D. Swanson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions | **Date Sampled:** 2-24-18

CACN: 203006 | **COA:** CB20 | **Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac

Contact Name: Way, Zachary K | **Phone:** (509)373-4237 | **Turnaround:** N/A

Return Report To: Maxwell, Sally A | **MSIN:** R1-06 | **Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-13-TL2-BL-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-BL-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-EF-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-EF-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-EF-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-EF-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-EF-5 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.S[illegible]	Ryan M. Stangle	M0252	2-25-18	05:15
Retrieved from Storage:	[illegible]	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[illegible]	RYAN BURNS	2/26/18	1430
Received By:	[illegible]	Dr Srenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-13-TL2-EF-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-EF-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-EF-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stanyk	M0252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	[signature] Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-13-TL2-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-13-TL2-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-01497-12-TL2-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source

SJW 03-21-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M2252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-25-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-6-TL2-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-6 / Charcoal Tube (SKC-226-09) EJW 03-31-18	Acetonitrile Source
	18-01497-6-TL2-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-6-TL2-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-01497-9-TL2-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-BA-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.S	Ryan M. Steagle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DN Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-9-TL2-BL-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-EF-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-EF-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-EF-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-EF-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-EF-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-EF-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ryan M. Stark	Ryan M. Stark	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Dr Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-9-TL2-EF-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-EF-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Lynn M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	2-25-18 Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/26/18	1430
Received By:	[signature]	Don Sronson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-9-TL2-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-5-TL2-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Strengke	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		D. Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-4-TL2-IN-8 / TDU (Tenax)	Furans Source 2049737
	18-01497-7-TL2-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-01497-7-TL2-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stangl	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN Young		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DR Swanson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-4-TL2-EF-2 / TDU (Tenax) ✓	Furans Source 2049826
	18-01497-4-TL2-EF-3 / TDU (Tenax) ✓	Furans Source 2050082
	18-01497-4-TL2-EF-4 / TDU (Tenax) ✓	Furans Source 2049746
	18-01497-4-TL2-EF-5 / TDU (Tenax) ✓	Furans Source 2049841
	18-01497-4-TL2-EF-6 / TDU (Tenax) ✓	Furans Source 2049827
	18-01497-4-TL2-EF-7 / TDU (Tenax) ✓	Furans Source 2049832
	18-01497-4-TL2-EF-8 / TDU (Tenax) ✓	Furans Source 2049812

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stangle	MO 252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNG	MO 252 2-26-18	2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DL Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-01497-5-TL2-IN-7 / XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~ SJW 02-21-18
	~~18-01497-5-TL2-IN-8 / XAD-7-NBD (SKC 226-96)~~	~~Dimethylamine/ethylamine/methylamine Source~~
	18-01497-4-TL2-BA-EF / TDU (Tenax) ✓	Furans Source 2049730
	18-01497-4-TL2-BA-IN / TDU (Tenax) ✓	Furans Source 2049726
	18-01497-4-TL2-BL-EF / TDU (Tenax) ✓	Furans Source 2049881
	18-01497-4-TL2-BL-IN / TDU (Tenax) ✓	Furans Source 2049690
	18-01497-4-TL2-EF-1 / TDU (Tenax) ✓	Furans Source 2054583

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stangle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN KLUGS		2-26-18	0730

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DL Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-4-TL2-IN-1 / TDU (Tenax) ✓	Furans Source 2049853
	18-01497-4-TL2-IN-2 / TDU (Tenax) ✓	Furans Source 2049780
	18-01497-4-TL2-IN-3 / TDU (Tenax) ✓	Furans Source 2049687
	18-01497-4-TL2-IN-4 / TDU (Tenax) ✓	Furans Source 2050231
	18-01497-4-TL2-IN-5 / TDU (Tenax) ✓	Furans Source 2049889
	18-01497-4-TL2-IN-6 / TDU (Tenax) ✓	Furans Source 2049840
	18-01497-4-TL2-IN-7 / TDU (Tenax) ✓	Furans Source 2049820

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stengl	Ryan M.Stengl	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		D Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-1-TL2-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049013
	18-01497-1-TL2-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08657
	18-01497-1-TL2-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L13135
	18-01497-1-TL2-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L13210
	18-01497-1-TL2-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L13205
	18-01497-1-TL2-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2045080
	18-01497-1-TL2-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2045213

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stgl	Ryan M.Stangle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		[illegible] Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-1-TL2-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2069286
	18-01497-1-TL2-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source L08466
	18-01497-1-TL2-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2049055
	18-01497-1-TL2-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2049019
	18-01497-1-TL2-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2045120
	18-01497-1-TL2-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2045240
	18-01497-1-TL2-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2066104

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stagle	Ryan M. Stagle	MO052	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	RYAN BURNS	2/24/18	1430
Received By:	[signature]	Dan Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-1-TL2-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2066246
	18-01497-1-TL2-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2049008
	18-01497-2-TL2-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01497-2-TL2-BA-IN / TDU-VOC (Carbotrap300/PE/G) S/W 02-21-18	VOC Source
	18-01497-2-TL2-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01497-2-TL2-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-01497-2-TL2-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stgl	Ryan M.Stayle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN Young		2-25-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		DL Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-12-TL2-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-12-TL2-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-01497-1-TL2-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2069329
	18-01497-1-TL2-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2069513
	18-01497-1-TL2-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source L08463
	18-01497-1-TL2-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G) ✓	Semi-VOC Source 2049025

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R.M.Stf	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN KNUDS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		RYAN BURNS	2/26/18	1430
Received By:		Dan Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-2-TL2-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045122
	18-01497-2-TL2-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049610
	18-01497-2-TL2-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049396
	18-01497-2-TL2-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source AG20992
	18-01497-2-TL2-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2047149
	18-01497-2-TL2-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049497
	18-01497-2-TL2-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source AO36660

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stangle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1430
Received By:		DW Stenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-2-TL2-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049391
	18-01497-2-TL2-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045415
	18-01497-2-TL2-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045071
	18-01497-2-TL2-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045903
	18-01497-2-TL2-IN-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049548
	18-01497-2-TL2-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source A036686
	18-01497-2-TL2-IN-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2050165

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stgl	Ryan M. Stergle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:		DA Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-2-TL2-IN-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2050017

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stangle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNGS	2-26-18	1450
Received By:		ORDOMAN	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-1-TL2-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G) EJW 02-21-18	Semi-VOC Source
	18-01497-1-TL2-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-01497-2-TL2-BA-EF / TDU-VOC (Carbotrap300/PE/G) —	VOC Source 2046135
	18-01497-2-TL2-BA-IN / TDU-VOC (Carbotrap300/PE/G) —	VOC Source 2044411
	18-01497-2-TL2-BL-EF / TDU-VOC (Carbotrap300/PE/G) —	VOC Source 2044286
	18-01497-2-TL2-BL-IN / TDU-VOC (Carbotrap300/PE/G) —	VOC Source A036704
	18-01497-2-TL2-EF-1 / TDU-VOC (Carbotrap300/PE/G) —	VOC Source 2049540

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M.Stfk	Ryan M. Stanfe	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:		C.N. Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-08	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-9-TL2-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A BJW 03-21-18
	18-01497-9-TL2-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-9-TL2-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-01497-5-TL2-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	R M. Stg	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	S	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	S	STEPHEN YOUNGS	2-26-18	1430
Received By:		DN Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-5-TL2-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-EF-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	Dr Sorenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-5-TL2-EF-8 / XAD-7-NBD (SKC 226-96) —	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-IN-1 / XAD-7-NBD (SKC 226-96) —	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-IN-2 / XAD-7-NBD (SKC 226-96) —	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-IN-3 / XAD-7-NBD (SKC 226-96) —	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-IN-4 / XAD-7-NBD (SKC 226-96) —	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-IN-5 / XAD-7-NBD (SKC 226-96) —	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-IN-6 / XAD-7-NBD (SKC 226-96) —	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Ryan M. Stangle	M0252	2-25-18	0515
Retrieved from Storage:	[signature]	STEPHEN YOUNGS		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	STEPHEN YOUNGS	2-26-18	1430
Received By:	[signature]	Dan Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 2-24-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-01497 - BY-108 Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-01497-5-TL2-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-5-TL2-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-01497-4-TL2-BA-EF / TDU (Tenax)	Furans Source
	18-01497-4-TL2-BA-IN / TDU (Tenax)	Furans Source 3/W 03-21-18
	18-01497-4-TL2-BL-EF / TDU (Tenax)	Furans Source
	18-01497-4-TL2-BL-IN / TDU (Tenax)	Furans Source
	18-01497-4-TL2-EF-1 / TDU (Tenax)	Furans Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Ryan M. Stengle	M0252	2-25-18	0515
Retrieved from Storage:		STEPHEN YOUNG		2-26-18	0700

	Signature	Printed Name	Date	Time
Relinquished By:		STEPHEN YOUNG	2-26-18	1430
Received By:		D Swenson	2-26-18	1430
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

Pacific Northwest
NATIONAL LABORATORY

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P.O. Box 999
Richland, WA 99352
1-888-375-PNNL (7665)

U.S. DEPARTMENT OF
ENERGY