



Analysis of Air-Purifying Respirator (APR) and Powered Air-Purifying Respirator (PAPR) Cartridge Performance Testing on a Hanford AX Tank Farm Exhauster Slipstream

Volume 2 – Raw Analytical Data

July 2020

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the U.S. Department of Energy
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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

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1.0 Introduction

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. To protect workers at Hanford Tank Farms, WRPS tests air-purifying respirator (APR) and powered air-purifying respirator (PAPR) chemical cartridges commonly used at the tank farms. The tests were conducted to determine the period of time the cartridges would provide adequate performance for APRs and PAPRs when workers are exposed to a mixture of Chemicals of Potential Concern (COPC) from any vapors exiting headspaces in the storage tanks. Occupational Safety and Health Administration (OSHA) Standard 29 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 a vapor slipstream from the Hanford AX tank farm exhauster.

Volume 1 of this report documents the testing, data analysis, results, conclusions, and recommendations resulting from the cartridge testing on AX exhauster slipstream vapors. 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.
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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, the raw data are provided in a separate Volume 2. Appendix C in this document (Volume 1) still provides introductory information regarding the content of Volume 2, but to review the complete raw data set, readers are referred to Volume 2.

C.1 Description

This appendix includes raw data of flow rate, temperature, pressure, and humidity, and analytical data for the AX exhauster slipstream data sets. Calculations using this 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 Table F.1 in Appendix F 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 (fresh air versus 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 is also assigned, identifying

the year and a five-digit ID for each of the cartridges tested. For the AX exhauster the survey IDs included 17-05614 for SD1, 17-05613 for SC1, 17-05615 for TL1, and 17-05616 for TL2.

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 17-05616-1-TL2-IN-2 corresponds to a particular cartridge survey (17-05616) identified as the 3M FR57 cartridge with the (TL2), sample media line 1, influent (IN) sample bundle, and the second (2 to 4 hours) sample (2).

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 200 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
AX Exhauster	SCOTT 7422-SC1	AX - Exhauster 127 SC-1.xlsx
AX Exhauster	SCOTT 7422-SD1	AX - Exhauster 127 SD-1.xlsx
AX Exhauster	MSA-TL (TL1)	AX - Exhauster TL 8_25_17.xlsx
AX Exhauster	3M FR-57 (TL2)	AX - Exhauster 3M FR-57 8_26_17.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 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
AX Exhauster	SCOTT 7422-SC1	AX-Exhauster SC1 8-26-17.xlsx
AX Exhauster	SCOTT 7422-SD1	AX-Exhauster SD-1 8-25-17.xlsx
AX Exhauster	MSA-TL (TL1)	AX-Exhauster TL1 GME 8-25-17.xlsx
AX Exhauster	3M FR-57 (TL2)	AX-Exhauster TL2 FR57 8-26-17.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	

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

^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 powered air-purifying respirator test rig only. A thirteenth sample media line was added to the new rig so methanol could be measured using a dedicated sorption tube.

C.3 Experimental Parameters

C.3.1 Flow Rates

SCOTT 7422-SD1 Cartridge (8/25/17) AX Exhauster

Volumes Air Collected (L)

Sample Box Number		Mach. Base 1	Mach. Base 2	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line																		
SVOC	A	3.63	3.93	3.54	3.82	3.63	4.12	3.53	3.52	3.56	3.63	3.64	3.92	3.86	3.70	3.85	3.95	3.79	3.86
VOC	B	4.00	4.01	3.92	3.71	4.38	3.96	3.84	3.69	3.77	3.56	4.01	3.82	3.75	3.95	3.83	3.80	3.69	3.77
Furans	C	4.01	3.86	3.95	3.50	4.25	3.68	3.66	3.65	3.66	3.62	3.83	3.91	3.86	3.91	3.92	3.89	3.83	3.94
Ethylamine	D	11.8	11.9	12.5	12.1	12.3	12.3	12.3	12.3	11.2	12.0	12.0	11.7	12.5	11.9	12.1	11.6	11.9	11.5
Acetonitrile	E	11.7	12.4	11.7	12.7	12.5	12.2	12.1	12.3	11.8	11.7	11.9	11.8	11.9	12.3	11.8	12.2	11.6	12.2
Mercury	F	28.5	29.1	30.8	29.8	30.6	30.1	30.0	30.3	29.3	29.8	29.9	29.4	30.6	29.7	30.2	30.1	30.4	30.5
Ammonia	G	23.3	23.6	23.3	23.4	23.8	23.8	23.5	23.2	23.7	22.6	23.6	23.3	24.0	23.8	23.7	23.1	24.1	23.7
Aldehyde	H	24.4	23.8	24.5	24.3	23.3	25.0	23.6	23.2	24.0	22.6	23.3	24.1	24.2	24.3	24.1	23.5	24.1	23.5
1, 3-Butadiene	I	22.6	24.5	24.3	23.8	23.0	25.0	22.9	24.8	22.8	24.8	23.8	24.0	24.0	23.4	24.0	24.4	24.0	24.0
Pyridine	J	128	125	118	143	116	119	117	137	130	143	127	124	130	124	128	119	128	133
Nitrosamines	K	238	242	253	225	236	228	232	231	239	232	246	239	244	166	244	247	247	247

Flow Rates (ml/min)

Sample Box Number		Mach. Base 1	Mach. Base 2	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line																		
SVOC	A	30.3	32.7	29.5	31.9	30.2	34.3	29.6	29.6	29.7	30.3	30.4	32.7	32.2	30.8	32.1	33.0	31.6	32.2
VOC	B	33.4	33.4	32.7	30.9	36.5	33.0	32.3	31.0	31.4	29.7	33.4	31.9	31.3	32.9	32.0	31.7	30.8	31.5
Furans	C	33.4	32.2	32.9	29.2	35.4	30.6	30.8	30.7	30.5	30.2	32.0	32.6	32.2	32.6	32.7	32.4	31.9	32.9
Ethylamine	D	98.6	99.1	105	101	102	103	103	103	93.5	100	100	97.7	104	99.5	101	96.9	99.1	96.2
Acetonitrile	E	97.2	103	97.7	106	104	101	101	103	98.3	97.7	98.8	98.4	99.1	103	98.0	102	97.1	102
Mercury	F	238	242	256	248	255	251	252	254	244	249	249	245	255	247	252	251	254	254
Ammonia	G	194	197	194	195	198	198	197	195	198	189	197	194	200	199	197	193	201	197
Aldehyde	H	203	198	204	202	194	208	199	195	200	189	194	201	202	203	200	196	201	196
1, 3-Butadiene	I	188	204	203	198	192	208	193	208	190	206	198	200	200	195	200	203	200	200
Pyridine	J	1065	1045	980	1195	964	995	983	1148	1080	1194	1055	1030	1085	1030	1070	990	1070	1108
Nitrosamines	K	1980	2015	2105	1875	1970	1904	1950	1945	1990	1935	2050	1995	2030	1380	2035	2060	2055	2055

SCOTT 7422-SC1 Cartridge (8/26/17) AX Exhauster

Volumes Air Collected (L)

Sample Box Number		Mach. Base 1	Mach. Base 2	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line																		
SVOC	A	4.26	4.26	4.13	4.11	3.98	3.78	4.02	3.86	3.91	3.70	3.76	3.97	4.12	4.04	4.19	3.81	4.00	3.80
VOC	B	4.22	3.96	4.23	3.92	3.90	3.56	4.06	3.44	4.03	3.77	4.05	3.89	4.20	3.78	3.90	3.92	4.06	3.94
Furans	C	3.97	4.21	3.88	3.73	3.95	3.85	3.92	3.84	3.91	3.82	3.98	3.88	3.97	3.84	3.97	3.85	3.88	3.83
Ethylamine	D	12.5	12.1	12.8	11.9	12.4	11.6	11.8	11.9	11.5	11.7	11.9	11.7	11.9	12.0	12.3	11.8	11.9	12.5
Acetonitrile	E	12.4	12.4	12.3	12.4	12.0	12.0	12.0	12.4	11.7	12.3	12.2	12.0	12.7	12.3	11.8	12.0	11.8	11.7
Mercury	F	30.4	29.9	30.9	30.0	29.8	29.8	30.2	29.6	29.3	29.7	29.5	29.9	30.6	29.7	29.6	30.5	30.6	30.2
Ammonia	G	24.6	24.6	24.0	23.4	24.4	23.9	24.3	24.0	24.2	23.8	24.1	23.9	24.0	24.2	23.4	23.8	23.8	24.8
Aldehyde	H	24.2	25.0	23.9	23.3	23.8	24.5	23.8	25.0	23.7	24.6	23.5	24.3	23.4	23.8	24.4	23.5	24.1	23.7
1, 3-Butadiene	I	23.7	24.6	25.1	24.9	23.9	24.2	23.2	23.8	22.5	24.2	24.2	23.6	24.1	23.9	23.6	23.5	23.7	24.2
Pyridine	J	117	124	114	114	120	116	173	118	119	127	124	130	127	131	123	121	120	125
Nitrosamines	K	253	240	247	231	244	227	249	231	249	233	246	244	243	242	242	252	241	251

Flow Rates (ml/min)

Sample Box Number		Mach. Base 1	Mach. Base 2	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line																		
SVOC	A	35.5	35.5	34.4	34.3	33.2	31.5	33.5	32.2	32.6	30.8	31.4	33.1	34	33.7	34.9	31.8	33.4	31.7
VOC	B	35.2	33.0	35.2	32.7	32.5	29.7	33.9	28.7	33.6	31.4	33.7	32.5	35.0	31.5	32.5	32.7	33.8	32.9
Furans	C	33.1	35.1	32.3	31.1	33.0	32.1	32.7	32.0	32.6	31.9	33.2	32.4	33.1	32.0	33.1	32.1	32.3	32.0
Ethylamine	D	104	100.8	107	99.0	103	96.8	98.5	98.8	96.1	97.5	98.8	97.4	99.1	100	103	98.7	99.3	104
Acetonitrile	E	103	103.2	103	103	100	100	100	103	97.3	102	102	99.7	106	103	98.4	100	98.2	97.9
Mercury	F	253	249	258	250	248	248	252	247	244	247	246	249	255	247	247	254	255	252
Ammonia	G	205	205	200	195	203	199	203	200	201	198	201	199	200	202	195	199	198	206
Aldehyde	H	202	208	199	194	199	204	198	208	197	205	196	203	195	198	203	196	201	198
1, 3-Butadiene	I	197	205	209	208	200	202	193	198	187	202	202	196	201	199	197	196	198	202
Pyridine	J	975	1030	952	950	998	967	1439	980	992	1055	1030	1080	1055	1090	1025	1005	1000	1045
Nitrosamines	K	2105	2000	2060	1928	2030	1895	2075	1925	2075	1940	2050	2035	2025	2015	2020	2100	2005	2095

MSA Optifilter TL Cartridge (8/25/17) AX Exhauster

Volumes Air Collected (L)

Sample Box Number		Mach. Base 1	Mach. Base 2	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line																		
SVOC	A	4.02	4.18	3.96	4.29	3.84	4.03	3.82	3.97	3.84	3.90	4.05	4.05	3.96	4.25	3.88	4.13	4.05	3.97
VOC	B	3.92	4.00	3.95	4.31	4.39	3.97	4.17	3.96	3.86	3.75	4.20	3.84	3.99	4.01	3.98	3.81	3.99	3.87
Methanol	C	4.21	4.02	4.67	4.22	4.24	4.09	3.82	3.98	3.71	3.69	3.77	4.09	3.89	4.04	3.93	3.80	4.03	3.85
Furans	D	6.54	6.54	6.05	6.34	6.34	6.26	6.35	6.42	5.87	6.17	6.26	5.76	5.86	6.24	6.09	6.23	5.60	6.21
Ethylamine	E	12.1	13.0	11.8	12.9	12.1	12.7	12.3	11.9	11.8	11.5	11.5	12.3	11.8	12.7	11.8	12.9	11.6	12.9
Acetonitrile	F	10.3	12.6	12.8	11.7	12.6	11.7	12.0	11.6	11.8	11.8	11.7	11.3	11.9	11.8	12.2	11.3	12.2	11.2
Mercury	G	30.6	29.3	30.6	30.5	31.1	30.0	31.0	30.3	30.5	30.5	30.5	30.8	30.2	31.3	30.1	32.1	30.2	32.2
Ammonia	H	24.2	25.9	23.9	24.7	24.2	24.1	24.6	24.2	24.0	24.1	23.8	24.2	24.1	24.1	24.2	24.8	24.2	24.9
Aldehyde	I	24.1	24.6	23.9	24.5	24.9	24.5	24.0	24.3	24.7	24.5	25.2	24.5	24.1	25.1	24.9	25.6	24.8	25.6
1, 3-Butadiene	J	24.5	24.0	23.4	23.4	23.9	23.9	23.9	23.8	24.0	24.2	24.1	24.8	23.8	25.2	24.2	25.9	24.2	26.2
Pyridine	K	128	133	122	124	122	122	119	123	121	122	127	125	125	130	130	127	125	131
Nitrosamines	L	258	241	242	232	238	221	242	239	241	251	253	256	247	252	260	260	253	256

Flow Rates (ml/min)

Sample Box Number		Mach. Base 1	Mach. Base 2	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line																		
SVOC	A	33.5	34.9	33.0	35.8	32.0	33.6	31.9	33.1	32.0	32.5	33.7	33.7	33.0	35.4	32.3	34.4	33.8	33.1
VOC	B	32.7	33.4	33.0	35.9	36.6	33.1	34.8	33.0	32.2	31.2	35.0	32.0	33.3	33.4	33.1	31.8	33.3	32.2
Methanol	C	35.1	33.5	38.9	35.2	35.4	34.1	31.8	33.2	30.9	30.8	31.4	34.1	32.4	33.7	32.8	31.6	33.5	32.1
Furans	D	54.5	54.5	50.5	52.8	52.9	52.2	52.9	53.5	48.9	51.5	52.1	48.0	48.8	52.0	50.7	51.9	46.6	51.7
Ethylamine	E	101	109	98.6	107	101	105	103	99.3	98.7	96.1	96.0	102	98.3	105	98.5	107	96.7	108
Acetonitrile	F	85.8	105	106	97.2	105	97.5	100	97.1	98.4	98.1	97.7	93.9	98.9	98.2	101	94.3	101	93.2
Mercury	G	255	244	255	254	259	250	258	252	254	254	254	256	252	261	251	267	251	269
Ammonia	H	202	216	199	206	201	201	205	201	200	201	199	202	201	201	202	206	202	208
Aldehyde	I	201	205	199	204	208	204	200	202	206	204	210	204	201	209	208	214	207	214
1, 3-Butadiene	J	204	200	195	195	199	199	199	198	200	202	201	207	199	210	202	216	202	219
Pyridine	K	1070	1110	1015	1035	1015	1015	992	1025	1010	1020	1055	1045	1040	1080	1087	1060	1040	1090
Nitrosamines	L	2150	2010	2015	1935	1980	1845	2020	1995	2010	2090	2105	2130	2055	2100	2170	2165	2105	2135

3M FR57 Cartridge (8/26/17) AX Exhauster

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	4.10	4.05	4.29	4.26	4.26	4.22	4.14	3.92	3.78	3.98	4.16	3.96	4.10	4.04	4.24	4.00	4.19	3.92
VOC	B	4.07	4.03	4.19	4.22	4.18	4.06	4.24	4.07	4.15	4.21	3.81	3.98	3.83	4.03	4.09	3.89	4.09	3.73
Methanol	C	3.89	3.94	4.28	4.31	4.16	4.14	4.21	4.17	4.02	4.07	4.08	3.90	4.04	3.89	3.82	3.99	3.88	3.85
Furans	D	6.07	6.00	6.40	6.11	6.42	6.57	6.58	6.22	6.18	6.25	6.03	6.05	5.87	6.20	6.12	6.26	6.10	6.00
Ethylamine	E	11.3	12.2	12.3	12.4	12.4	12.7	12.0	12.1	12.0	12.1	11.4	11.7	11.8	11.8	12.1	12.6	11.9	12.7
Acetonitrile	F	11.5	12.3	12.2	12.3	11.8	12.2	12.0	9.8	12.1	12.1	11.6	12.6	12.3	12.3	12.4	12.4	12.1	12.5
Mercury	G	29.1	29.9	30.0	30.1	30.6	29.7	30.0	29.6	29.9	30.4	29.7	30.8	30.7	30.8	31.2	30.9	30.7	31.3
Ammonia	H	23.1	24.2	24.4	23.9	24.9	23.8	24.2	24.4	24.4	24.4	23.7	24.8	24.3	25.4	24.4	23.8	24.3	24.0
Aldehyde	I	23.5	24.0	24.2	24.1	24.1	23.8	24.3	23.8	24.1	23.8	24.6	24.1	24.5	25.9	23.9	24.6	23.7	24.4
1, 3-Butadiene	J	22.7	22.8	24.1	23.8	23.9	23.4	24.4	23.9	24.4	23.6	24.4	24.1	23.8	25.6	25.0	24.2	23.9	24.4
Pyridine	K	120	125	120	121	119	118	120	119	119	123	121	121	128	131	120	126	124	127
Nitrosamines	L	237	233	243	250	231	229	243	256	260	262	254	253	250	251	233	244	251	238

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	35.7	35.2	35.7	35.5	35.5	35.2	34.5	32.7	31.5	33.1	34.7	33.0	34.2	33.6	35.3	33.3	34.9	32.7
VOC	B	35.4	35.0	34.9	35.2	34.8	33.9	35.4	34.0	34.6	35.1	31.7	33.1	31.9	33.6	34.1	32.5	34.1	31.1
Methanol	C	33.8	34.2	35.7	35.9	34.7	34.5	35.1	34.8	33.5	33.9	34.0	32.5	33.6	32.4	31.9	33.3	32.3	32.1
Furans	D	52.7	52.1	53.3	50.9	53.5	54.8	54.9	51.8	51.5	52.1	50.3	50.4	48.9	51.7	51.0	52.1	50.8	50.0
Ethylamine	E	98.0	106	103	104	103	106	100	101	99.9	101	94.9	97.3	98.6	98.2	101	105	98.8	106
Acetonitrile	F	100	107	102	103	98.6	101	100	81.8	101	101	96.8	105	103	103	103	103	101	104
Mercury	G	253	260	250	251	255	248	250	247	249	254	248	257	256	257	260	258	256	260
Ammonia	H	201	210	204	199	207	198	202	203	203	203	197	206	202	211	203	199	202	200
Aldehyde	I	205	208	201	201	201	199	202	198	201	198	205	201	204	216	199	205	197	203
1, 3-Butadiene	J	198	198	201	198	199	195	203	199	203	196	204	201	199	214	208	202	199	203
Pyridine	K	1046	1090	998	1005	989	984	1000	991	990	1025	1010	1010	1070	1090	1000	1050	1030	1055
Nitrosamines	L	2059	2023	2025	2080	1925	1910	2025	2130	2166	2180	2120	2105	2085	2090	1945	2030	2095	1980

C.3.2 Temperature, Pressure, and Relative Humidity

SCOTT 7422-SD1 Cartridge (8/25/17) AX Exhauster

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	42.1	86.6	45.8	37.7	43	52.6	61.3	67.8	74.4
Temperature	F	74.9	91.3	95.3	97.5	87.4	75.7	72.7	69.4	65.4
Pressure	Torr	737	710.9	715.9	716.4	716.1	717	718	715.6	718.4
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	25.8	41.8	39.7	36.7	50.8	61.9	68	73.7	81.3
Temperature	F	97.5	95.5	96	94.1	79	72.1	69.1	65.6	60.5
Pressure	Torr	736.3	710.2	715.2	716.4	716.9	717.7	718.7	718.2	719.3
NH3	ppm		1	1	0	0	0	0		
VOC	ppm		1610	3.5	2.9	1.5	2	1.2		

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	28.8	38.7	25.7	19.5	19.6	25.3	28.6	30.3	32.2
Temperature	F	70.7	84.5	95.1	101	90.2	79.8	74.9	73.3	69
Pressure	Torr	419.3	434.5	442.4	443.3	439.9	445	439.5	442.1	434.2
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	21.1	26.6	20.8	19	23.5	28.5	30.8	33.4	36.7
Temperature	F	83.3	93.3	99.8	94.1	83.7	75.9	73.5	70.4	65.4
Pressure	Torr	448.3	447.3	451.4	716.4	449.6	446.2	447.2	446.3	445.5
NH3	ppm		1	1	0	0	0	0		
VOC	ppm		0.65	1.1	1.1	0	0.3	0.5		

SCOTT 7422-SC1 Cartridge (8/26/17) AX Exhauster

Influent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	70.1	58.6	36.1	31.9	32.7	40	46.9	55.7	60.2
Temperature	F	63.7	89.3	95.9	99.5	97.8	88.5	81.7	75.2	72.4
Pressure	Torr	738.3	720.3	718.9	718.8	717.8	718.1	717.8	717.8	718
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	42.6	34.2	31.1	30.8	38.1	47.2	53.7	60.4	68.9
Temperature	F	84	98.3	101.3	101.1	90.4	81.5	76.6	71.9	67.6
Pressure	Torr	739	719.9	718.2	717	717.8	718.8	718.1	718.2	718.3
NH3	ppm		1	1	1	4	3	2	2	1
VOC	ppm		3.2	3.8	4.8	0.58	0.38	0.18	0.15	0.12

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	31.1	29.3	22.9	18.6	17	18.5	21.9	24.3	27
Temperature	F	63.3	79.9	94.9	99.5	49.5	98.3	86.3	79.4	75.6
Pressure	Torr	440.2	444.4	447.7	453.9	451.8	454.8	452.8	447.3	445.7
NH3	ppm									
VOC	ppm									

Effluent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	28.9	23.8	18.4	16.8	18	21.3	24.4	28.1	30.7
Temperature	F	73.1	92.4	101.8	103.8	96.6	87.9	81.9	76.1	72.8
Pressure	Torr	449	459.5	461.1	463.3	460.5	459.6	453.9	450.8	450.1
NH3	ppm		0	0	0	2	0	0	1	1
VOC	ppm		1.1	1.6	1.7	0.34	0.26	0.05	0.05	0

MSA Optifilter TL Cartridge (8/25/17) AX Exhauster

Influent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	38.5	68	33.9	39	41.6	54.3	56.4	60.7	64
Temperature	F	76	82.3	91.5	90.8	87.8	76.8	75.4	71.3	68.5
Pressure	Torr	700.1	683.2	692	692	692.3	694.1	692.7	698.6	699.6
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	33.1	41.8	38.7	37.1	48.8	57.2	63.9	65.3	72.3
Temperature	F	78	90.3	91.9	93	80.6	74.6	70.8	67.9	63.2
Pressure	Torr	700.8	682.7	692.4	691.9	693.1	694.4	694.1	699.3	700.5
NH3	ppm		2	1	1	5	4	2	1	1
VOC	ppm		14	9.3	6.1	0.4	0.2	0.3	0.09	0.11

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	43.4	48.1	42.5	37.5	36.6	46.2	51.2	53.9	56.6
Temperature	F	72.4	92.4	88.5	91.4	91.6	81.3	77.5	74.7	71.4
Pressure	Torr	696.7	679.7	688.4	688.4	688.8	690.5	689.2	695.1	696.1
NH3	ppm									
VOC	ppm									

Effluent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	33.1	45.7	30.3	35.8	44.1	50.9	54	56.6	58.8
Temperature	F	77.9	86.7	91.5	93.5	83.6	77.5	74.9	71.3	68.1
Pressure	Torr	697.4	679.2	688.9	688.3	689.5	690.9	690.5	695.8	697
NH3	ppm		2	0	1	3	2	2	2	0
VOC	ppm		2	1.05	0.79	0.06	0.04	0	0	0

3M FR57 Cartridge (8/26/17) AX Exhauster

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	58.9	72.4	89.7	81.3	75.4	82.8	86.3	90.3	90.4
Temperature	°F	83.5	83.5	91.1	84.4	82.1	77.2	72.6	66.8	66.8
Pressure	Torr	783.2	711	710.3	715.7	710.2	710	711.3	710.8	711.6
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	52.8	97.3	91.7	73.1	81.9	87.7	89.3	91.8	92.4
Temperature	°F	83.3	83.8	91.4	82.6	77.9	73.2	66.6	66.5	65
Pressure	Torr	783	710.8	710.5	714.9	710.2	711.2	711.7	711.8	712.2
NH3	ppm		99+							
VOC	ppm		7							

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	31.5	31.9	39.4	31.8	30.1	37.4	39.4	41.5	42.3
Temperature	°F	78.8	83.2	91.6	91.3	88.3	80.5	74.9	68.3	68.9
Pressure	Torr	441.5	446.8	460.8	452	444.7	452.5	446.6	438.3	438.2
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidity	%	20.7	38.5	39.6	27.7	37.7	41.3	42.9	45.4	43.7
Temperature	°F	82.5	92.7	91.8	91.9	81.2	75.9	69.4	69.2	68.2
Pressure	Torr	461.4	459.7	460.8	460.2	455.9	455.3	451.3	451.3	451.3
NH3	ppm		99+							
VOC	ppm		7							

C.4 Raw Data

C.4.1 SVOC and SVOCTIC

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OK. Not checked. See comments on 10/10/17

2017 Cartridge Evaluation Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-BA-EF
 Customer Sample ID: 17-05613-1-SC1-BA-EF

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034331		5891-88-3		2,6,10-Trimethyldecane	NGS	96	<1.2	11	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034331		55-48-7		2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034331		108-39-4M		Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034331		82-52-4		Biphenyl	NGS	89	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034331		78-46-6		Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034331		84-66-2		Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034331		112-40-3		Dodecane	NGS	100	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034331		544-76-3		Hexadecane	NGS	80	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034331		529-59-4		Tetradecane	NGS	100	<1.4	13	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034331		128-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034331		529-50-5		Tridecane	NGS	100	<1.9	26	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034331		528-76-7		Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034331		529-82-9		Pentadecane	NGS	94	<1.1	2.8	n/a	n/a	n/a	n/a	1.1	n/a	J

E - Outside Calibration Range
 Q - Qualitative
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 J - Estimated

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173095
SDG Number:
Customer Sample ID: 17-05613-1-SC1-BA-IN
Customer Sample ID: 17-05613-1-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															
S17T034332			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	6.6	n/a	n/a	n/a	n/a	1.2		n/a,J
S17T034332			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a,U
S17T034332			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a,U
S17T034332			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a,U
S17T034332			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96		n/a,U
S17T034332			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0		n/a,U
S17T034332			112-40-3	Dodecane	NGS	100	<1.5	17	n/a	n/a	n/a	n/a	1.5		n/a
S17T034332			544-78-3	Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a,U
S17T034332			629-59-4	Tetradecane	NGS	100	<1.4	7.6	n/a	n/a	n/a	n/a	1.4		n/a,J
S17T034332			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a,U
S17T034332			629-50-5	Tridecane	NGS	100	<1.9	20	n/a	n/a	n/a	n/a	1.9		n/a
S17T034332			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a,LU
S17T034332			629-62-9	Pentadecane	NGS	94	<1.1	1.6	n/a	n/a	n/a	n/a	1.1		n/a,J

E - Outside Calibration Range
 Q - Qualitative

L - LLS Outside Range

U - Less Than Detection Limit

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-BL-EF
 Customer Sample ID: 17-05613-1-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															
S17T034333			3891-98-3	2,6,10-Trimethylidodecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034333			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034333			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034333			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034333			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034333			94-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034333			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034333			544-76-3	Hexadecane	NGS	90	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034333			629-59-4	Tetradecane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034333			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034333			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034333			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034333			629-62-9	Pentadecane	NGS	94	<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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-BL-IN
 Customer Sample ID: 17-05613-1-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															
S17T034334			3891-98-3	2,6,10-Trimethyldodecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034334			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034334			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a|U
S17T034334			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034334			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96		n/a|U
S17T034334			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034334			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034334			544-76-3	Hexadecane	NGS	90	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034334			629-59-4	Tetradecane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034334			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034334			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034334			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|LU
S17T034334			629-62-9	Pentadecane	NGS	94	<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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-IN-2
 Customer Sample ID: 17-05613-1-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															
S17T034335			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	24	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034335			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034335			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034335			92-52-4	Biphenyl	NGS	99	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034335			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034335			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034335			112-40-3	Dodecane	NGS	100	<1.5	46	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034335			544-76-3	Hexadecane	NGS	90	<1.3	5.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034335			629-59-4	Tetradecane	NGS	100	<1.4	64	n/a	n/a	n/a	n/a	1.4	n/a	E
S17T034335			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034335			629-50-5	Tridecane	NGS	100	<1.9	73	n/a	n/a	n/a	n/a	1.9	n/a	E
S17T034335			629-78-7	Heptadecane	NGS	120	<1.9	5.0	n/a	n/a	n/a	n/a	1.9	n/a	JL
S17T034335			629-62-9	Pentadecane	NGS	94	<1.1	17	n/a	n/a	n/a	n/a	1.1	n/a	

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

U - Less Than Detection Limit

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-IN-3
 Customer Sample ID: 17-05613-1-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															
S177034336			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	26	n/a	n/a	n/a	n/a	1.2	n/a	
S177034336			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034336			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S177034336			92-52-4	Biphenyl	NGS	99	<1.2	2.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034336			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S177034336			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034336			112-40-3	Dodecane	NGS	100	<1.5	54	n/a	n/a	n/a	n/a	1.5	n/a	E
S177034336			544-76-3	Hexadecane	NGS	90	<1.3	3.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034336			629-59-4	Tetradecane	NGS	100	<1.4	71	n/a	n/a	n/a	n/a	1.4	n/a	E
S177034336			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S177034336			629-50-5	Tridecane	NGS	100	<1.9	110	n/a	n/a	n/a	n/a	1.9	n/a	E
S177034336			629-78-7	Heptadecane	NGS	120	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	JL
S177034336			629-62-9	Pentadecane	NGS	94	<1.1	16	n/a	n/a	n/a	n/a	1.1	n/a	

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

U - Less Than Detection Limit

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-IN-4
 Customer Sample ID: 17-05613-1-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															
S17T034337			3891-98-3	2,6,10-Trimethyldodecane	NGS	96	<1.2	31	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034337			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a
S17T034337			105-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	n/a
S17T034337			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034337			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	n/a
S17T034337			84-86-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a
S17T034337			112-40-3	Dodecane	NGS	100	<1.5	45	n/a	n/a	n/a	n/a	1.5	n/a	n/a
S17T034337			544-76-3	Hexadecane	NGS	90	<1.3	1.5	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034337			529-59-4	Tetradecane	NGS	100	<1.4	48	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034337			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	n/a
S17T034337			529-50-5	Tridecane	NGS	100	<1.9	74	n/a	n/a	n/a	n/a	1.9	n/a	n/a
S17T034337			529-78-7	Heptadecane	NGS	120	<1.9	2.0	n/a	n/a	n/a	n/a	1.9	n/a	n/a
S17T034337			529-62-9	Pentadecane	NGS	94	<1.1	10	n/a	n/a	n/a	n/a	1.1	n/a	n/a

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

U - Less Than Detection Limit

L - LL.S Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-IN-5
 Customer Sample ID: 17-05613-1-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															
S17T034338			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	22	n/a	n/a	n/a	n/a	1.2		n/a
S17T034338			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a
S17T034338			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a
S17T034338			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a
S17T034338			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96		n/a
S17T034338			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0		n/a
S17T034338			112-40-3	Dodecane	NGS	100	<1.5	31	n/a	n/a	n/a	n/a	1.5		n/a
S17T034338			544-76-3	Hexadecane	NGS	90	<1.3	2.1	n/a	n/a	n/a	n/a	1.2		n/a
S17T034338			629-59-4	Tetradecane	NGS	100	<1.4	44	n/a	n/a	n/a	n/a	1.4		n/a
S17T034338			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a
S17T034338			629-50-5	Tridecane	NGS	100	<1.9	41	n/a	n/a	n/a	n/a	1.9		n/a
S17T034338			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a
S17T034338			629-62-9	Pentadecane	NGS	94	<1.1	8.3	n/a	n/a	n/a	n/a	1.1		n/a

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

U - Less Than Detection Limit

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-IN-6
 Customer Sample ID: 17-05613-1-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															
S17T034339			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	16	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034339			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034339			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034339			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034339			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034339			84-86-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034339			112-40-3	Dodecane	NGS	100	<1.5	29	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034339			544-76-3	Hexadecane	NGS	90	<1.3	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034339			629-59-4	Tetradecane	NGS	100	<1.4	34	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034339			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034339			629-50-5	Tridecane	NGS	100	<1.9	34	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034339			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034339			629-62-9	Pentadecane	NGS	94	<1.1	6.9	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-IN-7
 Customer Sample ID: 17-05613-1-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															
S17T034340			3891-96-3	2,6,10-Trimethyldodecane	NGS	96	<1.2	19	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034340			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034340			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034340			92-52-4	Biphenyl	NGS	99	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034340			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034340			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034340			112-40-3	Dodecane	NGS	100	<1.5	15	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034340			544-76-3	Hexadecane	NGS	90	<1.3	2.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034340			629-59-4	Tetradecane	NGS	100	<1.4	40	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034340			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034340			629-50-5	Tridecane	NGS	100	<1.9	36	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034340			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034340			629-62-9	Pentadecane	NGS	94	<1.1	10	n/a	n/a	n/a	n/a	1.1	n/a	

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

U - Less Than Detection Limit

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-BA-EF
 Customer Sample ID: 17-05616-1-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															
S17T034321			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	3.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034321			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	QU
S17T034321			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	QU
S17T034321			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034321			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	J
S17T034321			94-86-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034321			112-40-3	Dodecane	NGS	100	<1.5	24	n/a	n/a	n/a	n/a	1.5	n/a	Q
S17T034321			544-76-3	Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034321			629-59-4	Tetradecane	NGS	100	<1.4	6.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034321			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	J
S17T034321			629-60-5	Tridecane	NGS	100	<1.9	16	n/a	n/a	n/a	n/a	1.9	n/a	Q
S17T034321			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034321			629-62-9	Pentadecane	NGS	94	<1.1	2.0	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-BA-IN
 Customer Sample ID: 17-05616-1-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															
S17T034322		3891-98-3		2,6,10-Trimethylidodecane	NGS	96	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034322		95-48-7		2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034322		108-39-4M		Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034322		92-52-4		Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034322		78-46-6		Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034322		84-66-2		Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034322		112-40-3		Dodecane	NGS	100	<1.5	65	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034322		544-76-3		Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034322		529-59-4		Tetradecane	NGS	100	<1.4	5.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034322		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034322		629-50-5		Tridecane	NGS	100	<1.9	13	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034322		629-78-7		Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034322		629-62-9		Pentadecane	NGS	94	<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

U - Less Than Detection Limit

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-BL-EF
 Customer Sample ID: 17-05616-1-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															
S17T034323		3891-98-3		2,6,10-Trimethylidodecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034323		95-48-7		2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034323		108-39-4M		Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034323		92-52-4		Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034323		78-46-6		Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034323		84-66-2		Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034323		112-40-3		Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034323		544-76-3		Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034323		629-59-4		Tetradecane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034323		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034323		629-50-5		Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034323		629-78-7		Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034323		629-62-9		Pentadecane	NGS	94	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

E - Outside Calibration Range
 Q - Qualitative
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-BL-IN
 Customer Sample ID: 17-05616-1-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															
S17T034324			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034324			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034324			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a|U
S17T034324			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034324			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96		n/a|U
S17T034324			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034324			112-40-3	Dodecane	NGS	100	<1.5	2.4	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034324			544-76-3	Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034324			629-59-4	Tetradecane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034324			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034324			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034324			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|LU
S17T034324			629-62-9	Pentadecane	NGS	94	<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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-2
 Customer Sample ID: 17-05616-1-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															
S17T034325			3891-98-3	2,6,10-Trimethyldodecane	NGS	96	<1.2	7.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034325			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034325			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034325			92-52-4	Biphenyl	NGS	99	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034325			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034325			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034325			112-40-3	Dodecane	NGS	100	<1.5	86	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034325			544-76-3	Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034325			629-59-4	Tetradecane	NGS	100	<1.4	12	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034325			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034325			629-50-5	Tridecane	NGS	100	<1.9	31	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034325			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034325			629-62-9	Pentadecane	NGS	94	<1.1	3.4	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-3
 Customer Sample ID: 17-05616-1-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															
S17T034326			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	5.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034326			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034326			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034326			92-82-4	Biphenyl	NGS	99	<1.2	2.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034326			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034326			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034326			112-40-3	Dodecane	NGS	100	<1.5	130	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034326			544-76-3	Hexadecane	NGS	90	<1.3	1.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034326			629-59-4	Tetradecane	NGS	100	<1.4	16	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034326			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034326			629-50-5	Tridecane	NGS	100	<1.9	45	n/a	n/a	n/a	n/a	1.9	n/a	J
S17T034326			629-78-7	Heptadecane	NGS	120	<1.9	2.7	n/a	n/a	n/a	n/a	1.9	n/a	JL
S17T034326			629-62-9	Pentadecane	NGS	94	<1.1	6.3	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-4
 Customer Sample ID: 17-05616-1-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															
S17T034327			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	18	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034327			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034327			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034327			92-52-4	Biphenyl	NGS	99	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034327			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034327			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034327			112-40-3	Dodecane	NGS	100	<1.5	65	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034327			544-76-3	Hexadecane	NGS	90	<1.3	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034327			629-59-4	Tetradecane	NGS	100	<1.4	40	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034327			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034327			629-50-5	Tridecane	NGS	100	<1.9	71	n/a	n/a	n/a	n/a	1.9	n/a	E
S17T034327			629-78-7	Heptadecane	NGS	120	<1.9	2.0	n/a	n/a	n/a	n/a	1.9	n/a	JL
S17T034327			629-62-9	Pentadecane	NGS	94	<1.1	8.2	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-5
 Customer Sample ID: 17-05616-1-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															
S17T034328			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	4.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034328			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034328			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034328			92-52-4	Biphenyl	NGS	99	<1.2	1.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034328			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034328			84-86-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034328			112-40-3	Dodecane	NGS	100	<1.5	87	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034328			544-76-3	Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034328			629-59-4	Tetradecane	NGS	100	<1.4	14	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034328			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034328			629-50-5	Tridecane	NGS	100	<1.9	34	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034328			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	L, U
S17T034328			629-62-9	Pentadecane	NGS	94	<1.1	3.7	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-6
 Customer Sample ID: 17-05616-1-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															
S17T034329			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	6.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034329			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034329			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034329			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034329			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034329			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034329			112-40-3	Dodecane	NGS	100	<1.5	44	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034329			544-76-3	Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034329			629-59-4	Tetradecane	NGS	100	<1.4	14	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034329			128-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034329			629-50-5	Tridecane	NGS	100	<1.9	30	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034329			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	LU
S17T034329			629-62-9	Pentadecane	NGS	94	<1.1	3.2	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173095
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-7
 Customer Sample ID: 17-05616-1-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															
S17T034330			3891-98-3	2,6,10-Trimethyldecane	NGS	96	<1.2	5.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034330			95-48-7	2-Methylphenol	NGS	97	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034330			108-39-4M	Cresol (m & p)	NGS	74	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034330			92-52-4	Biphenyl	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034330			78-46-6	Dibutyl butylphosphonate	NGS	97	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034330			84-66-2	Diethylphthalate	NGS	94	7.6	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034330			112-40-3	Dodecane	NGS	100	<1.5	39	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034330			544-76-3	Hexadecane	NGS	90	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034330			629-59-4	Tetradecane	NGS	100	<1.4	7.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034330			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034330			629-50-5	Tridecane	NGS	100	<1.9	16	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034330			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034330			629-62-9	Pentadecane	NGS	94	<1.1	2.3	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

L - LLS Outside Range

E - Outside Calibration Range
 Q - Qualitative

OK. Done 11/6/17

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173096
SDG Number:
Customer Sample ID: 17-05613-1-SC1-EF-1
Customer Sample ID: 17-05613-1-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															
S17T034351		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034351		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034351		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034351		92-52-4		Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034351		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034351		94-66-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034351		112-40-3		Dodecane	NGS	99	<0.62	28	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034351		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034351		629-59-4		Tetradecane	NGS	97	<2.1	15	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034351		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034351		629-50-5		Tridecane	NGS	100	<0.72	26	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034351		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034351		629-62-9		Pentadecane	NGS	98	<1.8	3.9	n/a	n/a	n/a	n/a	1.8	n/a	J

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

T - Tentatively Identified Compound

E - Outside Calibration Range

N - Named TIC
 J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-EF-2
 Customer Sample ID: 17-05613-1-SC1-EF-2

Sample#	R	Alt	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034352		389T-98-3		2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034352		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034352		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034352		92-52-4		Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034352		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034352		84-66-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034352		112-40-3		Dodecane	NGS	99	<0.62	36	n/a	n/a	n/a	n/a	0.62	n/a	n/a|U
S17T034352		544-76-3		Hexadecane	NGS	98	<1.9	3.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|J
S17T034352		629-59-4		Tetradecane	NGS	97	<2.1	27	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034352		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|U
S17T034352		629-50-5		Tridecane	NGS	100	<0.72	48	n/a	n/a	n/a	n/a	0.72	n/a	n/a|U
S17T034352		629-78-7		Heptadecane	NGS	91	<4.1	6.3	n/a	n/a	n/a	n/a	4.1	n/a	n/a|J
S17T034352		629-62-9		Pentadecane	NGS	98	<1.8	7.4	n/a	n/a	n/a	n/a	1.8	n/a	n/a|J

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

T - Tentatively Identified Compound

E - Outside Calibration Range

N - Named TIC
 J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-EF-3
 Customer Sample ID: 17-05613-1-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															
S17T034353			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034353			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034353			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034353			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034353			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034353			94-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034353			112-40-3	Dodecane	NGS	99	<0.62	40	n/a	n/a	n/a	n/a	0.62	n/a	n/a
S17T034353			544-76-3	Hexadecane	NGS	98	<1.9	6.0	n/a	n/a	n/a	n/a	1.9	n/a	n/a|J
S17T034353			829-59-4	Tetradecane	NGS	97	<2.1	49	n/a	n/a	n/a	n/a	2.1	n/a	n/a
S17T034353			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|U
S17T034353			829-50-5	Tridecane	NGS	100	<0.72	66	n/a	n/a	n/a	n/a	0.72	n/a	n/a|E
S17T034353			829-78-7	Heptadecane	NGS	91	<4.1	8.0	n/a	n/a	n/a	n/a	4.1	n/a	n/a|J
S17T034353			829-62-9	Pentadecane	NGS	98	<1.8	12	n/a	n/a	n/a	n/a	1.8	n/a	n/a

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-EF-4
 Customer Sample ID: 17-05613-1-SC1-EF-4

Sample#	R	AW	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det.Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034354			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034354			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034354			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034354			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034354			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034354			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034354			112-40-3	Dodecane	NGS	99	<0.62	62	n/a	n/a	n/a	n/a	0.62	n/a	n/a|E
S17T034354			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034354			629-59-4	Tetradecane	NGS	97	<2.1	38	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034354			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|U
S17T034354			629-50-5	Tridecane	NGS	100	<0.72	62	n/a	n/a	n/a	n/a	0.72	n/a	n/a|E
S17T034354			629-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	n/a|U
S17T034354			629-62-9	Pentadecane	NGS	98	<1.8	6.2	n/a	n/a	n/a	n/a	1.8	n/a	n/a|J

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-EF-5
 Customer Sample ID: 17-05613-1-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															
S17T034355			3891-98-3	2,6,10-Trimethyldodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034355			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034355			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034355			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034355			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034355			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034355			112-40-3	Dodecane	NGS	99	<0.62	37	n/a	n/a	n/a	n/a	0.62	n/a	n/a
S17T034355			544-76-3	Hexadecane	NGS	98	<1.9	4.3	n/a	n/a	n/a	n/a	1.9	n/a	n/a|J
S17T034355			829-59-4	Tetradecane	NGS	97	<2.1	12	n/a	n/a	n/a	n/a	2.1	n/a	n/a
S17T034355			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|U
S17T034355			829-50-5	Tridecane	NGS	100	<0.72	18	n/a	n/a	n/a	n/a	0.72	n/a	n/a
S17T034355			829-78-7	Heptadecane	NGS	91	<4.1	4.8	n/a	n/a	n/a	n/a	4.1	n/a	n/a|J
S17T034355			829-62-9	Pentadecane	NGS	98	<1.8	7.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|J

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-EF-6
 Customer Sample ID: 17-05613-1-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															
S17T034356			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034356			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034356			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034356			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034356			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034356			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034356			112-40-3	Dodecane	NGS	99	<0.62	20	n/a	n/a	n/a	n/a	0.62	n/a	n/a
S17T034356			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034356			629-59-4	Tetradecane	NGS	97	<2.1	49	n/a	n/a	n/a	n/a	2.1	n/a	n/a
S17T034356			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|U
S17T034356			629-50-5	Tridecane	NGS	100	<0.72	54	n/a	n/a	n/a	n/a	0.72	n/a	n/a|E
S17T034356			629-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	n/a|U
S17T034356			629-62-9	Pentadecane	NGS	98	<1.8	8.1	n/a	n/a	n/a	n/a	1.8	n/a	n/a|J

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-EF-7
 Customer Sample ID: 17-05613-1-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															
S17T034357			3891-98-3	2,6,10-Trimethylidodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034357			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034357			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034357			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034357			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034357			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034357			112-40-3	Dodecane	NGS	99	<0.62	15	n/a	n/a	n/a	n/a	0.62	n/a	n/a|U
S17T034357			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034357			829-59-4	Tetradecane	NGS	97	<2.1	16	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034357			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|U
S17T034357			629-50-5	Tridecane	NGS	100	<0.72	22	n/a	n/a	n/a	n/a	0.72	n/a	n/a|U
S17T034357			629-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	n/a|U
S17T034357			629-62-9	Pentadecane	NGS	98	<1.8	3.4	n/a	n/a	n/a	n/a	1.8	n/a	n/a|J

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-EF-8
 Customer Sample ID: 17-05613-1-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															
S17T034358		3891-98-3		2,6,10-Trimethylidodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034358		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034358		108-39-4M		Cresol (m & p)	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034358		92-52-4		Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034358		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034358		84-86-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034358		112-40-3		Dodecane	NGS	99	<0.62	16	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034358		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034358		629-59-4		Tetradecane	NGS	97	<2.1	6.5	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034358		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034358		629-50-5		Tridecane	NGS	100	<0.72	10	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034358		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034358		629-62-9		Pentadecane	NGS	98	<1.8	3.1	n/a	n/a	n/a	n/a	1.8	n/a	J

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05613-1-SC1-IN-1

Customer Sample ID: 17-05613-1-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															
S17T034359			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034359			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034359			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034359			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034359			78-48-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034359			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034359			112-40-3	Dodecane	NGS	99	<0.62	35	n/a	n/a	n/a	n/a	0.62	n/a	
S17T034359			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034359			829-59-4	Tetradecane	NGS	97	<2.1	28	n/a	n/a	n/a	n/a	2.1	n/a	
S17T034359			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034359			629-50-5	Tridecane	NGS	100	<0.72	40	n/a	n/a	n/a	n/a	0.72	n/a	
S17T034359			629-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034359			629-62-9	Pentadecane	NGS	98	<1.8	6.9	n/a	n/a	n/a	n/a	1.8	n/a	J

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05613-1-SC1-IN-8
 Customer Sample ID: 17-05613-1-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															
S17T034360		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034360		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034360		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034360		92-52-4		Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034360		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034360		84-66-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034360		112-40-3		Dodecane	NGS	99	<0.62	16	n/a	n/a	n/a	n/a	0.62	n/a	
S17T034360		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034360		629-59-4		Tetradecane	NGS	97	<2.1	40	n/a	n/a	n/a	n/a	2.1	n/a	
S17T034360		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034360		629-50-5		Tridecane	NGS	100	<0.72	34	n/a	n/a	n/a	n/a	0.72	n/a	
S17T034360		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034360		629-62-9		Pentadecane	NGS	98	<1.8	6.3	n/a	n/a	n/a	n/a	1.8	n/a	J

N - Named TIC
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 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-1
 Customer Sample ID: 17-05616-1-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															
S17T034341			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034341			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034341			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034341			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034341			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034341			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034341			112-40-3	Dodecane	NGS	99	<0.62	49	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034341			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034341			829-59-4	Tetradecane	NGS	97	<2.1	9.3	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034341			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034341			829-50-5	Tridecane	NGS	100	<0.72	19	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034341			829-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034341			829-62-9	Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-2
 Customer Sample ID: 17-05616-1-TL2-EF-2

Sample#	R	Alt#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034342			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034342			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034342			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034342			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034342			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034342			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034342			112-40-3	Dodecane	NGS	99	<0.62	85	n/a	n/a	n/a	n/a	0.62	n/a	E
S17T034342			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034342			629-59-4	Tetradecane	NGS	97	<2.1	12	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034342			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034342			629-50-5	Tridecane	NGS	100	<0.72	22	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034342			629-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034342			629-62-9	Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-3
 Customer Sample ID: 17-05616-1-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															
S17T034343		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034343		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034343		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034343		92-52-4		Biphenyl	NGS	95	<2.1	2.2	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034343		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034343		84-86-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034343		112-40-3		Dodecane	NGS	99	<0.62	100	n/a	n/a	n/a	n/a	0.62	n/a	E
S17T034343		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034343		629-59-4		Tetradecane	NGS	97	<2.1	12	n/a	n/a	n/a	n/a	2.1	n/a	
S17T034343		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034343		629-50-5		Tridecane	NGS	100	<0.72	25	n/a	n/a	n/a	n/a	0.72	n/a	
S17T034343		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034343		629-62-9		Pentadecane	NGS	98	<1.8	10	n/a	n/a	n/a	n/a	1.8	n/a	

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-4
 Customer Sample ID: 17-05616-1-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															
S17T034344		3891-98-3		2,6,10-Trimethyldodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034344		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034344		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034344		92-52-4		Biphenyl	NGS	95	<2.1	2.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034344		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034344		84-86-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034344		112-40-3		Dodecane	NGS	99	<0.62	65	n/a	n/a	n/a	n/a	0.62	n/a	E
S17T034344		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034344		629-59-4		Tetradecane	NGS	97	<2.1	29	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034344		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034344		629-50-5		Tridecane	NGS	100	<0.72	45	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034344		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034344		629-62-9		Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-5
 Customer Sample ID: 17-05616-1-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															
S17T034345		3891-98-3		2,6,10-Trimethyl(dodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034345		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034345		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034345		92-52-4		Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034345		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034345		84-86-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034345		112-40-3		Dodecane	NGS	99	<0.62	50	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034345		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034345		629-59-4		Tetradecane	NGS	97	<2.1	26	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034345		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034345		629-50-5		Tridecane	NGS	100	<0.72	39	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034345		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034345		629-62-9		Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-6
 Customer Sample ID: 17-05616-1-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															
S17T034346			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034346			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034346			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034346			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034346			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034346			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034346			112-40-3	Dodecane	NGS	99	<0.62	46	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034346			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034346			629-59-4	Tetradecane	NGS	97	<2.1	7.9	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034346			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034346			629-50-5	Tridecane	NGS	100	<0.72	15	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034346			629-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034346			629-62-9	Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

NA = Not Analyzed, ND = Not Detected
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T - Tentatively Identified Compound

E - Outside Calibration Range

N - Named TIC
 J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-7
 Customer Sample ID: 17-05616-1-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															
S17T034347		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034347		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034347		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034347		92-52-4		Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034347		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034347		84-86-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034347		112-40-3		Dodecane	NGS	99	<0.62	36	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034347		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034347		629-59-4		Tetradecane	NGS	97	<2.1	9.7	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034347		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034347		629-50-5		Tridecane	NGS	100	<0.72	16	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034347		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034347		629-62-9		Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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T - Tentatively Identified Compound

E - Outside Calibration Range

N - Named TIC
 J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-EF-8
 Customer Sample ID: 17-05616-1-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															
S17T034348			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034348			95-48-7	2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034348			108-39-4M	Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034348			92-52-4	Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034348			78-46-6	Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034348			84-66-2	Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034348			112-40-3	Dodecane	NGS	99	<0.62	35	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034348			544-76-3	Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034348			629-59-4	Tetradecane	NGS	97	<2.1	6.1	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034348			126-73-8	Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034348			629-50-5	Tridecane	NGS	100	<0.72	10	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034348			629-78-7	Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034348			629-62-9	Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-1
 Customer Sample ID: 17-05616-1-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															
S17T034349		3891-98-3		2,6,10-Trimethylidodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034349		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034349		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034349		92-52-4		Biphenyl	NGS	95	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034349		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034349		84-86-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034349		112-40-3		Dodecane	NGS	99	<0.62	61	n/a	n/a	n/a	n/a	0.62	n/a	E
S17T034349		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034349		629-59-4		Tetradecane	NGS	97	<2.1	7.8	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034349		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034349		629-50-5		Tridecane	NGS	100	<0.72	15	n/a	n/a	n/a	n/a	0.72	n/a	
S17T034349		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034349		629-62-9		Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

N - Named TIC
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:
 Customer Sample ID: 17-05616-1-TL2-IN-8
 Customer Sample ID: 17-05616-1-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															
S17T034350		3891-98-3		2,6,10-Trimethyldodecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034350		95-48-7		2-Methylphenol	NGS	88	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034350		108-39-4M		Cresol (m & p)	NGS	86	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034350		92-52-4		Biphenyl	NGS	95	<2.1	2.3	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034350		78-46-6		Dibutyl butylphosphonate	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034350		84-86-2		Diethylphthalate	NGS	97	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034350		112-40-3		Dodecane	NGS	99	<0.62	31	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034350		544-76-3		Hexadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034350		629-59-4		Tetradecane	NGS	97	<2.1	9.5	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034350		126-73-8		Tributyl phosphate	NGS	110	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	U
S17T034350		629-50-5		Tridecane	NGS	100	<0.72	7.7	n/a	n/a	n/a	n/a	0.72	n/a	J
S17T034350		629-78-7		Heptadecane	NGS	91	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034350		629-62-9		Pentadecane	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

N - Named TIC
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*OK. - 11/16/17
 J. M. - 11/16/17*

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173096
 SDG Number:

Customer Sample ID: 17-05613-1-SC1-EF-1
 Customer Sample ID: 17-05613-1-SC1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034351				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	250	JNT
S17T034351				Cyclohexane, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	38	JNT
S17T034351				Cyclohexane, 1-methyl-4-(1-met	7705-14-8	4.99	NGS	19	JNT
S17T034351				2,6-Dimethyldecane	13150-81-7	5.24	NGS	46	JNT
S17T034351				Acetophenone	98-86-2	5.31	NGS	29	JNT
S17T034351				1-Octanol, 2-butyl-	3913-02-8	5.41	NGS	29	JNT
S17T034351				2,3-Dimethyldecane	17312-44-6	5.52	NGS	33	JNT
S17T034351				Undecane	1120-21-4	5.59	NGS	120	JNT
S17T034351				Hexyl octyl ether	17071-54-4	5.64	NGS	40	JNT
S17T034351				Undecane, 4-methyl-	2980-69-0	5.70	NGS	12	JNT
S17T034351				Undecane, 2,6-dimethyl-	17301-23-4	5.71	NGS	12	JNT
S17T034351				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	130	JNT
S17T034351				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	25	JNT
S17T034351				Undecane, 2-methyl-	7045-71-8	7.10	NGS	6.2	JNT
S17T034351				Dodecamethylcyclohexasiloxane	540-97-6	7.20	NGS	28	JNT
S17T034351			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034351			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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

**2017 Cartridge Evaluation
 Data Summary of All Results**

**Sample Group: 20173096
 SDG Number:**

**Customer Sample ID: 17-05613-1-SC1-EF-2
 Customer Sample ID: 17-05613-1-SC1-EF-2**

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034352				Cyclotetrasiloxane, octamethyl	556-67-2	4.50	NGS	310	JNT
S17T034352				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.99	NGS	64	JNT
S17T034352				Decane, 2,4,6-trimethyl-	62108-27-4	5.20	NGS	130	JNT
S17T034352				2,6-Dimethyldecane	13150-81-7	5.24	NGS	48	JNT
S17T034352				Acetophenone	98-86-2	5.32	NGS	33	JNT
S17T034352				Undecane	1120-21-4	5.59	NGS	120	JNT
S17T034352				3,3-Dimethylhexane	563-16-6	5.64	NGS	50	JNT
S17T034352				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	140	JNT
S17T034352				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	30	JNT
S17T034352				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	37	JNT
S17T034352				Propanoic acid, 2-methyl-, 1-(	74381-40-1	9.31	NGS	34	JNT
S17T034352			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034352			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05613-1-SC1-EF-3

Customer Sample ID: 17-05613-1-SC1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034353				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	340	JNT
S17T034353				1-Hexanol, 2-ethyl-	104-76-7	4.94	NGS	25	JNT
S17T034353				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	79	JNT
S17T034353				Decane, 2,4,6-trimethyl-	82108-27-4	5.24	NGS	49	JNT
S17T034353				Acetophenone	98-86-2	5.31	NGS	34	JNT
S17T034353				2,3-Dimethyldecane	17312-44-6	5.52	NGS	25	JNT
S17T034353				Undecane	1120-21-4	5.59	NGS	140	JNT
S17T034353				Hexyl octyl ether	17071-54-4	5.64	NGS	49	JNT
S17T034353				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	140	JNT
S17T034353				Undecane, 2,6-dimethyl-	17301-23-4	6.05	NGS	8.6	JNT
S17T034353				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	35	JNT
S17T034353				Dodecamethylcyclohexasiloxane	540-87-6	7.21	NGS	34	JNT
S17T034353				Undecane, 2-methyl-	7045-71-8	7.40	NGS	22	JNT
S17T034353				Tridecane, 3-methyl-	6418-41-3	7.72	NGS	14	JNT
S17T034353				Propanoic acid, 2-methyl-, 1-(	74381-40-1	9.31	NGS	34	JNT
S17T034353				Hexadecanoic acid (9CI)	57-10-3	11.54	NGS	32	JNT
S17T034353			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034353			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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

**2017 Cartridge Evaluation
 Data Summary of All Results**

**Sample Group: 20173096
 SDG Number:**

**Customer Sample ID: 17-05613-1-SC1-EF-4
 Customer Sample ID: 17-05613-1-SC1-EF-4**

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034354				Cyclotetrasiloxane, octamethyl	556-87-2	4.49	NGS	330	JNT
S17T034354				Cyclohexene, 1-methyl-4-(1-met	7705-14-8	4.98	NGS	140	JNT
S17T034354				Decane, 2,4,6-trimethyl-	62108-27-4	5.23	NGS	27	JNT
S17T034354				Acetophenone	98-86-2	5.31	NGS	18	JNT
S17T034354				Undecane	1120-21-4	5.58	NGS	85	JNT
S17T034354				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	120	JNT
S17T034354				Undecane, 2,6-dimethyl-	17301-23-4	6.54	NGS	9.0	JNT
S17T034354				Dodecane, 2,7,10-trimethyl-	74845-98-0	7.04	NGS	43	JNT
S17T034354				10-Methylnonadecane	58862-82-5	7.21	NGS	32	JNT
S17T034354				2,6-Dimethyldecane	13150-81-7	7.40	NGS	29	JNT
S17T034354				Undecane, 2-methyl-	7045-71-8	7.48	NGS	15	JNT
S17T034354			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034354			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:

Customer Sample ID: 17-05613-1-SC1-EF-5
 Customer Sample ID: 17-05613-1-SC1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034355				Cyclotetrasiloxane, octamethyl	556-87-2	4.49	NGS	280	JNT
S17T034355				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	68	JNT
S17T034355				3,3-Dimethylhexane	563-16-6	5.23	NGS	33	JNT
S17T034355				Acetophenone	98-86-2	5.31	NGS	21	JNT
S17T034355				Undecane	1120-21-4	5.59	NGS	100	JNT
S17T034355				2,6-Dimethyldecane	13150-81-7	5.63	NGS	34	JNT
S17T034355				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	170	JNT
S17T034355				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	37	JNT
S17T034355				Decane, 2,4,6-trimethyl-	52108-27-4	7.15	NGS	8.1	JNT
S17T034355				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	61	JNT
S17T034355				Undecane, 2-methyl-	7045-71-8	7.40	NGS	23	JNT
S17T034355			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034355			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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 U - Less Than Detection Limit

**2017 Cartridge Evaluation
 Data Summary of All Results**

**Sample Group: 20173096
 SDG Number:**

**Customer Sample ID: 17-05613-1-SC1-EF-6
 Customer Sample ID: 17-05613-1-SC1-EF-6**

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034356				Cyclotetrasiloxane, octamethyl	556-87-2	4.48	NGS	170	JNT
S17T034356				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	72	JNT
S17T034356				Decane, 2,4,6-trimethyl-	62108-27-4	5.23	NGS	16	JNT
S17T034356				Acetophenone	98-86-2	5.31	NGS	12	JNT
S17T034356				2,6-Dimethyldecane	13150-81-7	5.58	NGS	36	JNT
S17T034356				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	93	JNT
S17T034356				Undecane, 3,7-dimethyl-	17301-29-0	7.40	NGS	15	JNT
S17T034356				Hexadecanoic acid (9CI)	57-10-3	11.53	NGS	29	JNT
S17T034356			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034356			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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 U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:

Customer Sample ID: 17-05613-1-SC1-EF-7
 Customer Sample ID: 17-05613-1-SC1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034357				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	130	JNT
S17T034357				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	37	JNT
S17T034357				2,6-Dimethyldecane	13150-81-7	5.18	NGS	34	JNT
S17T034357				Acetophenone	98-86-2	5.31	NGS	7.7	JNT
S17T034357				Decane, 2,4,6-trimethyl-	52108-27-4	5.58	NGS	33	JNT
S17T034357				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	69	JNT
S17T034357			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034357			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05613-1-SC1-EF-8

Customer Sample ID: 17-05613-1-SC1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034358				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	100	JNT
S17T034358				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	41	JNT
S17T034358				2,6-Dimethyldecane	13150-81-7	5.18	NGS	25	JNT
S17T034358				Decane, 2,4,6-trimethyl-	62108-27-4	5.58	NGS	32	JNT
S17T034358				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	78	JNT
S17T034358			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034358			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:

Customer Sample ID: 17-05613-1-SC1-IN-1
 Customer Sample ID: 17-05613-1-SC1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034359				Acetic acid	64-19-7	2.71	NGS	130	JNT
S17T034359				Acetamide	60-35-5	3.24	NGS	26	JNT
S17T034359				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	350	JNT
S17T034359				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.97	NGS	55	JNT
S17T034359				Decane, 2,4,6-trimethyl-	52108-27-4	5.24	NGS	67	JNT
S17T034359				Acetophenone	98-96-2	5.31	NGS	36	JNT
S17T034359				2,3-Dimethyldecane	17312-44-6	5.52	NGS	37	JNT
S17T034359				Undecane	1120-21-4	5.59	NGS	180	JNT
S17T034359				2,6-Dimethyldecane	13150-81-7	5.63	NGS	29	JNT
S17T034359				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	110	JNT
S17T034359				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	23	JNT
S17T034359				Propanoic acid, 2-methyl-, 1-(	74381-40-1	9.31	NGS	29	JNT
S17T034359			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034359			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05613-1-SC1-IN-8

Customer Sample ID: 17-05613-1-SC1-IN-8

Sample#	R	AI#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S177034360				Acetic acid	64-19-7	2.66	NGS	140	JNT
S177034360				3-Heptanone	106-35-4	3.62	NGS	18	JNT
S177034360				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	150	JNT
S177034360				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.97	NGS	38	JNT
S177034360				Acetophenone	98-86-2	5.31	NGS	8.8	JNT
S177034360				Decane, 2,4,6-trimethyl-	62108-27-4	5.58	NGS	36	JNT
S177034360				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	64	JNT
S177034360				Tridecane, 3-methyl-	6418-41-3	7.71	NGS	14	JNT
S177034360				Hexadecanoic acid (9CI)	57-10-3	11.52	NGS	35	JNT
S177034360			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S177034360			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05616-1-TL2-EF-1

Customer Sample ID: 17-05616-1-TL2-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S177034341				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	280	JNT
S177034341				1-Hexene, 3,5-dimethyl-	7423-69-0	4.94	NGS	26	JNT
S177034341				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	130	JNT
S177034341				Decane, 2,4,6-trimethyl-	62108-27-4	5.18	NGS	69	JNT
S177034341				2,6-Dimethyldecane	13150-81-7	5.23	NGS	28	JNT
S177034341				Undecane	1120-21-4	5.58	NGS	90	JNT
S177034341				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	130	JNT
S177034341				Undecane, 2,6-dimethyl-	17301-23-4	6.05	NGS	9.1	JNT
S177034341				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	32	JNT
S177034341				Undecane, 3,7-dimethyl-	17301-29-0	7.40	NGS	22	JNT
S177034341			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S177034341			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
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E - Outside Calibration Range

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 U - Less Than Detection Limit

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05616-1-TL2-EF-2

Customer Sample ID: 17-05616-1-TL2-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034342				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	340	JNT
S17T034342				2-Oxo-4-phenyl-6-(4-chlorophen	24030-13-5	4.52	NGS	28	JNT
S17T034342				1-Hexene, 3,5-dimethyl-	7423-69-0	4.95	NGS	29	JNT
S17T034342				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	130	JNT
S17T034342				Decane, 2,4,6-trimethyl-	52108-27-4	5.19	NGS	150	JNT
S17T034342				2,6-Dimethyldecane	13150-81-7	5.24	NGS	57	JNT
S17T034342				Acetophenone	98-86-2	5.31	NGS	26	JNT
S17T034342				2,3-Dimethyldecane	17312-44-6	5.52	NGS	35	JNT
S17T034342				Undecane	1120-21-4	5.59	NGS	210	JNT
S17T034342				Heptane, 2,4,6-trimethyl-	2613-61-8	5.64	NGS	41	JNT
S17T034342				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	160	JNT
S17T034342				Undecane, 2,6-dimethyl-	17301-23-4	6.54	NGS	8.2	JNT
S17T034342				1,2-Benzisothiazole	272-16-2	6.73	NGS	32	JNT
S17T034342				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.05	NGS	46	JNT
S17T034342				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	35	JNT
S17T034342				Undecane, 2-methyl-	7045-71-8	7.40	NGS	32	JNT
S17T034342				Undecane, 3,7-dimethyl-	17301-29-0	7.48	NGS	16	JNT
S17T034342			BLINK	Chrysene-D12	1719-03-6	14.14	NGS	10	JNT
S17T034342			BLINK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated
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 U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05616-1-TL2-EF-3

Customer Sample ID: 17-05616-1-TL2-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S177034343				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	330	JNT
S177034343				Phenol	108-95-2	4.53	NGS	45	JNT
S177034343				1-Hexene, 3,5-dimethyl-	7423-69-0	4.95	NGS	40	JNT
S177034343				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	150	JNT
S177034343				Decane, 2,4,6-trimethyl-	62108-27-4	5.19	NGS	130	JNT
S177034343				2,6-Dimethyldecane	13150-81-7	5.24	NGS	55	JNT
S177034343				Acetophenone	98-86-2	5.32	NGS	52	JNT
S177034343				1-Octanol, 2-butyl-	3913-02-8	5.41	NGS	25	JNT
S177034343				2,3-Dimethyldecane	17312-44-6	5.52	NGS	42	JNT
S177034343				Undecane	1120-21-4	5.60	NGS	210	JNT
S177034343				Heptane, 2,4,6-trimethyl-	2613-61-8	5.64	NGS	35	JNT
S177034343				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	140	JNT
S177034343				Undecane, 3-methyl-	1002-43-3	6.19	NGS	10	JNT
S177034343				Undecane, 2,6-dimethyl-	17301-23-4	6.54	NGS	9.5	JNT
S177034343				1,2-Benzisothiazole	272-16-2	6.74	NGS	44	JNT
S177034343				Unknown-1		7.05	NGS	46	JT
S177034343				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.11	NGS	14	JNT
S177034343				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	36	JNT
S177034343			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S177034343			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:

Customer Sample ID: 17-05616-1-TL2-EF-4
 Customer Sample ID: 17-05616-1-TL2-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034344				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	170	JNT
S17T034344				Heptane, 5-ethyl-2,2,3-trimeth	62199-06-8	4.94	NGS	31	JNT
S17T034344				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	47	JNT
S17T034344				3,3-Dimethylhexane	563-16-6	5.01	NGS	44	JNT
S17T034344				Decane, 2,4,6-trimethyl-	52108-27-4	5.19	NGS	74	JNT
S17T034344				2,6-Dimethyldecane	13150-81-7	5.24	NGS	45	JNT
S17T034344				2,3-Dimethyldecane	17312-44-6	5.28	NGS	29	JNT
S17T034344				2,5,6-Trimethyldecane	62108-23-0	5.32	NGS	34	JNT
S17T034344				Unknown-1		5.42	NGS	110	JT
S17T034344				Octane, 4-ethyl-	15869-86-0	5.48	NGS	88	JNT
S17T034344				Hexyl octyl ether	17071-54-4	5.53	NGS	36	JNT
S17T034344				1-Octanol, 2-butyl-	3913-02-8	5.55	NGS	37	JNT
S17T034344				Undecane	1120-21-4	5.60	NGS	140	JNT
S17T034344				Unknown-2		5.65	NGS	45	JT
S17T034344				Undecane, 4,6-dimethyl-	17312-82-2	5.70	NGS	32	JNT
S17T034344				Undecane, 2,6-dimethyl-	17301-23-4	5.73	NGS	42	JNT
S17T034344				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	150	JNT
S17T034344				1,2-Benzisothiazole	272-16-2	6.74	NGS	37	JNT
S17T034344				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	41	JNT
S17T034344				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	40	JNT
S17T034344				1-Iodo-2-methylundecane	73105-67-6	7.40	NGS	30	JNT
S17T034344			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034344			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

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

T - Tentatively Identified Compound

E - Outside Calibration Range

N - Named TIC
 J - Estimated

**2017 Cartridge Evaluation
 Data Summary of All Results**

**Sample Group: 20173096
 SDG Number:**

**Customer Sample ID: 17-05616-1-TL2-EF-5
 Customer Sample ID: 17-05616-1-TL2-EF-5**

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034345				Cyclotrisiloxane, hexamethyl-	541-05-9	2.97	NGS	27	JNT
S17T034345				Styrene	100-42-5	3.78	NGS	49	JNT
S17T034345				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	230	JNT
S17T034345				Decane	124-18-5	4.68	NGS	12	JNT
S17T034345				1-Hexene, 3,5-dimethyl-	7423-69-0	4.94	NGS	25	JNT
S17T034345				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	100	JNT
S17T034345				Decane, 2,4,6-trimethyl-	62108-27-4	5.18	NGS	62	JNT
S17T034345				2,6-Dimethyldecane	13150-81-7	5.23	NGS	22	JNT
S17T034345				Acetophenone	98-86-2	5.31	NGS	16	JNT
S17T034345				Undecane	1120-21-4	5.58	NGS	89	JNT
S17T034345				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	130	JNT
S17T034345				1,2-Benzisothiazole	272-16-2	6.73	NGS	35	JNT
S17T034345				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	29	JNT
S17T034345				Undecane, 2-methyl-	7045-71-8	7.40	NGS	22	JNT
S17T034345				Undecane, 2,6-dimethyl-	17301-23-4	7.99	NGS	19	JNT
S17T034345			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034345			BLNK	Perylene-D12	1620-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096
 SDG Number:

Customer Sample ID: 17-05616-1-TL2-EF-6
 Customer Sample ID: 17-05616-1-TL2-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034346				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	88	JNT
S17T034346				Heptane, 5-ethyl-2,2,3-trimeth	62199-06-8	4.94	NGS	30	JNT
S17T034346				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	38	JNT
S17T034346				1-Octanol, 2-butyl-	3913-02-8	5.01	NGS	42	JNT
S17T034346				3,3-Dimethylhexane	563-16-6	5.19	NGS	47	JNT
S17T034346				2,3-Dimethyldecane	17312-44-6	5.24	NGS	40	JNT
S17T034346				Octane, 4-ethyl-	15869-86-0	5.27	NGS	29	JNT
S17T034346				2,5,6-Trimethyldecane	62108-23-0	5.32	NGS	28	JNT
S17T034346				2,6-Dimethyldecane	13150-81-7	5.42	NGS	110	JNT
S17T034346				Unknown-1		5.48	NGS	90	JT
S17T034346				Heptane, 3-ethyl-2-methyl-	14676-29-0	5.51	NGS	28	JNT
S17T034346				Nonane, 4-methyl-	17301-84-9	5.55	NGS	45	JNT
S17T034346				Undecane	1120-21-4	5.60	NGS	130	JNT
S17T034346				Hexyl octyl ether	17071-54-4	5.64	NGS	32	JNT
S17T034346				Decane, 2,4,6-trimethyl-	62108-27-4	5.70	NGS	35	JNT
S17T034346				Undecane, 2,6-dimethyl-	17301-23-4	5.73	NGS	46	JNT
S17T034346				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	120	JNT
S17T034346				1,2-Benzisothiazole	272-16-2	6.73	NGS	32	JNT
S17T034346				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	26	JNT
S17T034346			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034346			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

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

**2017 Cartridge Evaluation
 Data Summary of All Results**

**Sample Group: 20173096
 SDG Number:**

**Customer Sample ID: 17-05616-1-TL2-EF-7
 Customer Sample ID: 17-05616-1-TL2-EF-7**

Sample#	R	As#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034347				Cyclotetrasiloxane, octamethyl	556-87-2	4.48	NGS	120	JNT
S17T034347				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	63	JNT
S17T034347				Decane, 2,4,6-trimethyl-	62108-27-4	5.18	NGS	36	JNT
S17T034347				Acetophenone	98-86-2	5.31	NGS	8.2	JNT
S17T034347				2,6-Dimethyldecane	13150-81-7	5.58	NGS	48	JNT
S17T034347				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	91	JNT
S17T034347				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	22	JNT
S17T034347				Undecane, 3,7-dimethyl-	17301-29-0	7.40	NGS	14	JNT
S17T034347				Hexadecanoic acid (9CI)	57-10-3	11.53	NGS	27	JNT
S17T034347			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034347			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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

**2017 Cartridge Evaluation
 Data Summary of All Results**

**Sample Group: 20173096
 SDG Number:**

**Customer Sample ID: 17-05616-1-TL2-EF-8
 Customer Sample ID: 17-05616-1-TL2-EF-8**

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034348				Cyclotetrasiloxane, octamethyl	556-87-2	4.48	NGS	120	JNT
S17T034348				Decane	124-18-5	4.68	NGS	9.8	JNT
S17T034348				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	76	JNT
S17T034348				Decane, 2,4,6-trimethyl-	62108-27-4	5.23	NGS	19	JNT
S17T034348				Undecane	1120-21-4	5.58	NGS	85	JNT
S17T034348				Undecane, 2,6-dimethyl-	17301-23-4	5.71	NGS	8.7	JNT
S17T034348				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	100	JNT
S17T034348				Tridecane, 3-methyl-	6418-41-3	6.98	NGS	11	JNT
S17T034348				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	24	JNT
S17T034348				Hexadecanoic acid (9CI)	57-10-3	11.55	NGS	54	JNT
S17T034348			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034348			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
 J - Estimated

E - Outside Calibration Range

T - Tentatively Identified Compound

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173096

SDG Number:

Customer Sample ID: 17-05616-1-TL2-IN-1

Customer Sample ID: 17-05616-1-TL2-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034349				Trimethyl(4-(1,1,3,3-tetramet	78721-87-6	2.97	NGS	44	JNT
S17T034349				Acetamide	60-35-5	3.08	NGS	37	JNT
S17T034349				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	490	JNT
S17T034349				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	58	JNT
S17T034349				Cyclohexene, 1-methyl-4-(1-met	7705-14-8	5.00	NGS	59	JNT
S17T034349				Decane, 2,4,6-trimethyl-	62108-27-4	5.23	NGS	50	JNT
S17T034349				Acetophenone	98-86-2	5.32	NGS	24	JNT
S17T034349				2,3-Dimethyldecane	17312-44-6	5.52	NGS	28	JNT
S17T034349				Undecane	1120-21-4	5.59	NGS	180	JNT
S17T034349				2,6-Dimethyldecane	13150-81-7	5.64	NGS	32	JNT
S17T034349				Undecane, 2,6-dimethyl-	17301-23-4	5.71	NGS	6.9	JNT
S17T034349				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	110	JNT
S17T034349				1,2-Benzisothiazole	272-16-2	6.73	NGS	26	JNT
S17T034349				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	34	JNT
S17T034349				Dodecamethylcyclohexasiloxane	540-97-6	7.20	NGS	27	JNT
S17T034349			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S17T034349			BLNK	Perylene-D12	1520-98-3	15.90	NGS	6.2	JNT

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 J - Estimated

E - Outside Calibration Range

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 U - Less Than Detection Limit

**2017 Cartridge Evaluation
 Data Summary of All Results**

**Sample Group: 20173096
 SDG Number:**

**Customer Sample ID: 17-05616-1-TL2-IN-8
 Customer Sample ID: 17-05616-1-TL2-IN-8**

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S177034350				Cyclotetrasiloxane, octamethyl	556-87-2	4.48	NGS	140	JNT
S177034350				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	32	JNT
S177034350				Hexyl octyl ether	17071-54-4	5.00	NGS	32	JNT
S177034350				2,6-Dimethyldecane	13150-81-7	5.23	NGS	36	JNT
S177034350				Octane, 4-ethyl-	15869-86-0	5.40	NGS	51	JNT
S177034350				2,3-Dimethyldecane	17312-44-6	5.46	NGS	56	JNT
S177034350				Decane, 2,4,6-trimethyl-	62108-27-4	5.52	NGS	32	JNT
S177034350				Undecane	1120-21-4	5.59	NGS	130	JNT
S177034350				3,3-Dimethylhexane	563-16-6	5.64	NGS	32	JNT
S177034350				Undecane, 2,6-dimethyl-	17301-23-4	5.72	NGS	21	JNT
S177034350				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	97	JNT
S177034350				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	23	JNT
S177034350				Tridecane, 2-methyl-	1560-96-9	7.20	NGS	16	JNT
S177034350				Undecane, 3,7-dimethyl-	17301-29-0	7.40	NGS	14	JNT
S177034350			BLNK	Chrysene-D12	1719-03-5	14.14	NGS	10	JNT
S177034350			BLNK	Perylene-D12	1520-96-3	15.90	NGS	6.2	JNT

N - Named TIC
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 U - Less Than Detection Limit

Denise Hansen
Kim Hansen
 11-15-2017

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173097
SDG Number:
Customer Sample ID: 17-05614-1-SD1-BA-EF
Customer Sample ID: 17-05614-1-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															
S17T034371			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.2	12	n/a	n/a	n/a	n/a	1.2	n/a	n/a|Y
S17T034371			95-48-7	2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|UY
S17T034371			108-39-4M	Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	n/a|UY
S17T034371			92-62-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	n/a|UY
S17T034371			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	n/a|UY
S17T034371			84-66-2	Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|UY
S17T034371			112-40-3	Dodecane	NGS	100	<1.5	22	n/a	n/a	n/a	n/a	1.5	n/a	n/a|Y
S17T034371			544-76-3	Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	n/a|UY
S17T034371			629-59-4	Tetradecane	NGS	110	<1.4	18	n/a	n/a	n/a	n/a	1.4	n/a	n/a|Y
S17T034371			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	n/a|UY
S17T034371			629-50-5	Tridecane	NGS	98	<1.9	32	n/a	n/a	n/a	n/a	1.9	n/a	n/a|Y
S17T034371			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a UY
S17T034371			629-62-9	Pentadecane	NGS	100	<1.1	4.1	n/a	n/a	n/a	n/a	1.1	n/a	n/a UY

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J - Estimated

Y - Comment

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-BA-IN
 Customer Sample ID: 17-05614-1-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															
S17T034372		3891-98-3		2,6,10-Trimethyl(dodecane	NGS	100	<1.2	7.5	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034372		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	JY
S17T034372		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	JY
S17T034372		92-52-4		Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034372		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	JY
S17T034372		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	JY
S17T034372		112-40-3		Dodecane	NGS	100	<1.5	27	n/a	n/a	n/a	n/a	1.5	n/a	JY
S17T034372		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	JY
S17T034372		629-59-4		Tetradecane	NGS	110	<1.4	12	n/a	n/a	n/a	n/a	1.4	n/a	JY
S17T034372		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	JY
S17T034372		629-50-5		Tridecane	NGS	98	<1.9	29	n/a	n/a	n/a	n/a	1.9	n/a	JY
S17T034372		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	JY
S17T034372		629-62-9		Pentadecane	NGS	100	<1.1	3.1	n/a	n/a	n/a	n/a	1.1	n/a	JY

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-BL-EF
 Customer Sample ID: 17-05614-1-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 SYOA #2															
S17T034373			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034373			95-48-7	2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034373			108-39-4M	Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S17T034373			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034373			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	UY
S17T034373			84-66-2	Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034373			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034373			544-76-3	Hexadecane	NGS	100	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034373			629-59-4	Tetradecane	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034373			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034373			629-50-5	Tridecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034373			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034373			629-62-9	Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-BL-IN
 Customer Sample ID: 17-05614-1-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															
S17T034374		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034374		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034374		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S17T034374		92-52-4		Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034374		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	UY
S17T034374		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034374		112-40-3		Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034374		544-76-3		Hexadecane	NGS	100	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034374		629-59-4		Tetradecane	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034374		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034374		629-50-5		Tridecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034374		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034374		629-62-9		Pentadecane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-2
 Customer Sample ID: 17-05614-1-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															
S17T034375		3891-98-3		2,6,10-Trimethyl(dodecane	NGS	100	<1.2	22	n/a	n/a	n/a	n/a	1.2	n/a	Y
S17T034375		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034375		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S17T034375		92-52-4		Biphenyl	NGS	100	<1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034375		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	UY
S17T034375		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034375		112-40-3		Dodecane	NGS	100	<1.5	38	n/a	n/a	n/a	n/a	1.5	n/a	Y
S17T034375		544-76-3		Hexadecane	NGS	100	<1.3	5.7	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034375		629-59-4		Tetradecane	NGS	110	<1.4	57	n/a	n/a	n/a	n/a	1.4	n/a	EY
S17T034375		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034375		629-50-5		Tridecane	NGS	98	<1.9	73	n/a	n/a	n/a	n/a	1.9	n/a	EY
S17T034375		629-78-7		Heptadecane	NGS	110	<1.9	4.7	n/a	n/a	n/a	n/a	1.9	n/a	JY
S17T034375		629-62-9		Pentadecane	NGS	100	<1.1	16	n/a	n/a	n/a	n/a	1.1	n/a	Y

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-3
 Customer Sample ID: 17-05614-1-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															
S17T034376		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	26	n/a	n/a	n/a	n/a	1.2	n/a	Y
S17T034376		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034376		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S17T034376		92-52-4		Biphenyl	NGS	100	<1.2	1.9	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034376		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	UY
S17T034376		84-66-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034376		112-40-3		Dodecane	NGS	100	<1.5	36	n/a	n/a	n/a	n/a	1.5	n/a	Y
S17T034376		544-76-3		Hexadecane	NGS	100	<1.3	2.5	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034376		629-59-4		Tetradecane	NGS	110	<1.4	56	n/a	n/a	n/a	n/a	1.4	n/a	EY
S17T034376		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034376		529-50-5		Tridecane	NGS	98	<1.9	70	n/a	n/a	n/a	n/a	1.9	n/a	EY
S17T034376		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034376		529-62-9		Pentadecane	NGS	100	<1.1	13	n/a	n/a	n/a	n/a	1.1	n/a	Y

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-4
 Customer Sample ID: 17-05614-1-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															
S17T034377		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	26	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034377		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034377		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034377		92-52-4		Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034377		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034377		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034377		112-40-3		Dodecane	NGS	100	<1.5	30	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034377		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034377		629-59-4		Tetradecane	NGS	110	<1.4	43	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034377		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034377		629-50-5		Tridecane	NGS	98	<1.9	64	n/a	n/a	n/a	n/a	1.9	n/a	E
S17T034377		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034377		629-62-9		Pentadecane	NGS	100	<1.1	7.1	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-5
 Customer Sample ID: 17-05614-1-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															
S17T034378		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	17	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034378		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034378		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034378		82-52-4		Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034378		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034378		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034378		112-40-3		Dodecane	NGS	100	<1.5	20	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034378		544-76-3		Hexadecane	NGS	100	<1.3	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034378		629-59-4		Tetradecane	NGS	110	<1.4	34	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034378		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034378		629-50-5		Tridecane	NGS	98	<1.9	31	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034378		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034378		629-62-9		Pentadecane	NGS	100	<1.1	8.2	n/a	n/a	n/a	n/a	1.1	n/a	J

U - Less Than Detection Limit
 Y - Comment
 J - Estimated
 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-6
 Customer Sample ID: 17-05614-1-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															
S17T034379		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	13	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034379		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034379		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034379		92-52-4		Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034379		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034379		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034379		112-40-3		Dodecane	NGS	100	<1.5	22	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034379		544-76-3		Hexadecane	NGS	100	<1.3	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034379		629-59-4		Tetradecane	NGS	110	<1.4	27	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034379		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034379		629-50-5		Tridecane	NGS	98	<1.9	24	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034379		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034379		629-62-9		Pentadecane	NGS	100	<1.1	6.4	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-7
 Customer Sample ID: 17-05614-1-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															
S17T034380		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	18	n/a	n/a	n/a	n/a	1.2	n/a	
S17T034380		96-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034380		106-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034380		92-52-4		Biphenyl	NGS	100	<1.2	1.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034380		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034380		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034380		112-40-3		Dodecane	NGS	100	<1.5	14	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034380		544-76-3		Hexadecane	NGS	100	<1.3	2.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034380		629-59-4		Tetradecane	NGS	110	<1.4	33	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034380		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034380		629-50-5		Tridecane	NGS	98	<1.9	32	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034380		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034380		629-62-9		Pentadecane	NGS	100	<1.1	10	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-BA-EF
 Customer Sample ID: 17-05615-1-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spt Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034361		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034361		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034361		106-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034361		92-52-4		Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034361		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034361		84-66-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034361		112-40-3		Dodecane	NGS	100	<1.5	39	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034361		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034361		529-59-4		Tetradecane	NGS	110	<1.4	7.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034361		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034361		529-50-5		Tridecane	NGS	98	<1.9	18	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034361		529-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034361		529-62-9		Pentadecane	NGS	100	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-BA-IN
 Customer Sample ID: 17-05615-1-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															
S17T034362		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034362		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034362		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034362		92-52-4		Biphenyl	NGS	100	<1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034362		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034362		94-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034362		112-40-3		Dodecane	NGS	100	<1.5	58	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034362		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034362		629-59-4		Tetradecane	NGS	110	<1.4	5.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034362		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034362		629-50-5		Tridecane	NGS	98	<1.9	11	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034362		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034362		629-62-9		Pentadecane	NGS	100	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J

U - Less Than Detection Limit
 Y - Comment
 J - Estimated
 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-BL-EF
 Customer Sample ID: 17-05615-1-TL1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034363			3891-98-3	2,6,10-Trimethyldecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034363			95-48-7	2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034363			108-39-4M	Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034363			92-52-4	Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034363			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034363			84-66-2	Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034363			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034363			544-76-3	Hexadecane	NGS	100	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034363			629-59-4	Tetradecane	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034363			126-73-8	Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034363			629-50-5	Tridecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034363			629-78-7	Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034363			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
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-BL-IN
 Customer Sample ID: 17-05615-1-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															
S17T034364		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034364		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034364		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034364		92-52-4		Biphenyl	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034364		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034364		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034364		112-40-3		Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034364		544-76-3		Hexadecane	NGS	100	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034364		629-59-4		Tetradecane	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034364		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034364		629-50-5		Tridecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034364		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034364		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
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-2
 Customer Sample ID: 17-05615-1-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															
S17T034365		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	9.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034365		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034365		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034365		92-52-4		Biphenyl	NGS	100	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034365		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034365		84-66-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034365		112-40-3		Dodecane	NGS	100	<1.5	78	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034365		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034365		629-59-4		Tetradecane	NGS	110	<1.4	13	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034365		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034365		629-50-5		Tridecane	NGS	98	<1.9	31	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034365		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034365		629-62-9		Pentadecane	NGS	100	<1.1	4.0	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-3
 Customer Sample ID: 17-05615-1-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															
S17T034366		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	8.5	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034366		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	JY
S17T034366		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	JY
S17T034366		92-52-4		Biphenyl	NGS	100	<1.2	1.9	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034366		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	JY
S17T034366		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	JY
S17T034366		112-40-3		Dodecane	NGS	100	<1.5	86	n/a	n/a	n/a	n/a	1.5	n/a	EY
S17T034366		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	JY
S17T034366		629-59-4		Tetradecane	NGS	110	<1.4	11	n/a	n/a	n/a	n/a	1.4	n/a	JY
S17T034366		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	JY
S17T034366		629-50-5		Tridecane	NGS	98	<1.9	27	n/a	n/a	n/a	n/a	1.9	n/a	JY
S17T034366		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	JY
S17T034366		629-62-9		Pentadecane	NGS	100	<1.1	4.0	n/a	n/a	n/a	n/a	1.1	n/a	JY

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-4
 Customer Sample ID: 17-05615-1-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 SVOA #2															
S17T034367		3891-98-3		2,6,10-Trimethyl(dodecane	NGS	100	<1.2	14	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034367		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034367		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034367		92-52-4		Biphenyl	NGS	100	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034367		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034367		84-66-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034367		112-40-3		Dodecane	NGS	100	<1.5	39	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034367		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034367		829-59-4		Tetradecane	NGS	110	<1.4	31	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034367		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034367		629-50-5		Tridecane	NGS	98	<1.9	44	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034367		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034367		629-62-9		Pentadecane	NGS	100	<1.1	5.6	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-5
 Customer Sample ID: 17-05615-1-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															
S17T034368		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	8.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034368		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	J
S17T034368		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034368		92-52-4		Biphenyl	NGS	100	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034368		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034368		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034368		112-40-3		Dodecane	NGS	100	<1.5	58	n/a	n/a	n/a	n/a	1.5	n/a	E
S17T034368		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034368		629-59-4		Tetradecane	NGS	110	<1.4	12	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034368		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034368		629-50-5		Tridecane	NGS	98	<1.9	20	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034368		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034368		629-62-9		Pentadecane	NGS	100	<1.1	3.1	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-6
 Customer Sample ID: 17-05615-1-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															
S17T034369		3891-98-3		2,6,10-Trimethyldecane	NGS	100	<1.2	11	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034369		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034369		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034369		92-52-4		Biphenyl	NGS	100	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034369		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S17T034369		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034369		112-40-3		Dodecane	NGS	100	<1.5	36	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034369		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034369		629-59-4		Tetradecane	NGS	110	<1.4	19	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034369		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034369		629-50-5		Tridecane	NGS	98	<1.9	23	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034369		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034369		629-62-9		Pentadecane	NGS	100	<1.1	4.2	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173097
 SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-7
 Customer Sample ID: 17-05615-1-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															
S17T034370		3891-98-3		2,6,10-Trimethyldodecane	NGS	100	<1.2	6.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034370		95-48-7		2-Methylphenol	NGS	83	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034370		108-39-4M		Cresol (m & p)	NGS	69	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034370		92-52-4		Biphenyl	NGS	100	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034370		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034370		84-86-2		Diethylphthalate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034370		112-40-3		Dodecane	NGS	100	<1.5	30	n/a	n/a	n/a	n/a	1.5	n/a	
S17T034370		544-76-3		Hexadecane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034370		629-59-4		Tetradecane	NGS	110	<1.4	9.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034370		126-73-8		Tributyl phosphate	NGS	120	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034370		629-50-5		Tridecane	NGS	98	<1.9	12	n/a	n/a	n/a	n/a	1.9	n/a	
S17T034370		629-78-7		Heptadecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034370		629-62-9		Pentadecane	NGS	100	<1.1	2.7	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

J - Estimated

Y - Comment

U - Less Than Detection Limit

2017 Cartridge Evaluation
28-nov-2017 16:15:39

Verification Sample Comments

Sample: S17T034391 Group: 20173098
Y flag: Tube clean certification was not verified; verification tube was cleaned before analysis performed to verify clean batch kak 11/28/17
Sample: S17T034392 Group: 20173098
Y flag: Tube clean certification was not verified; verification tube was cleaned before analysis performed to verify clean batch kak 11/28/17
Sample: S17T034393 Group: 20173098
Y flag: Tube clean certification was not verified; verification tube was cleaned before analysis performed to verify clean batch kak 11/28/17
Sample: S17T034394 Group: 20173098
Y flag: Tube clean certification was not verified; verification tube was cleaned before analysis performed to verify clean batch kak 11/28/17
Sample: S17T034395 Group: 20173098
Y flag: Tube clean certification was not verified; verification tube was cleaned before analysis performed to verify clean batch kak 11/28/17
Sample: S17T034396 Group: 20173098
Y flag: Tube clean certification was not verified; verification tube was cleaned before analysis performed to verify clean batch kak 11/28/17
Sample: S17T034399 Group: 20173098
Y flag: Tube clean certification was not verified; verification tube was cleaned before analysis performed to verify clean batch kak 11/28/17

2017 Cartridge Evaluation
 Data Summary of All Results

11-28-17
 Daniel Hansen
 Daniel Hansen

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-1
 Customer Sample ID: 17-05614-1-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 SVCA #2															
S177034391			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S177034391			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S177034391			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S177034391			32-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S177034391			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S177034391			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	UY
S177034391			112-40-3	Dodecane	NGS	100	<0.82	33	n/a	n/a	n/a	n/a	0.62	n/a	Y
S177034391			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S177034391			529-59-4	Tetradecane	NGS	120	<2.1	20	n/a	n/a	n/a	n/a	2.1	n/a	UY
S177034391			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LUY
S177034391			529-50-5	Tridecane	NGS	100	<0.72	30	n/a	n/a	n/a	n/a	0.72	n/a	Y
S177034391			529-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	UY
S177034391			529-62-9	Pentadecane	NGS	110	<1.8	6.4	n/a	n/a	n/a	n/a	1.8	n/a	JY

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-2
 Customer Sample ID: 17-05614-1-SD1-EF-2

Sample#	R	AW	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S17T034392				VAPOR-TDU SVOA #2											
S17T034392			3891-98-3	2,6,10-Trimethyldodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034392			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034392			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034392			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034392			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034392			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	UY
S17T034392			112-40-3	Dodecane	NGS	100	<0.62	43	n/a	n/a	n/a	n/a	0.62	n/a	Y
S17T034392			544-76-3	Hexadecane	NGS	100	<1.9	4.2	n/a	n/a	n/a	n/a	1.9	n/a	Y
S17T034392			629-59-4	Tetradecane	NGS	120	<2.1	31	n/a	n/a	n/a	n/a	2.1	n/a	Y
S17T034392			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	UY
S17T034392			629-50-5	Tridecane	NGS	100	<0.72	53	n/a	n/a	n/a	n/a	0.72	n/a	EY
S17T034392			629-78-7	Heptadecane	NGS	120	<4.1	5.5	n/a	n/a	n/a	n/a	4.1	n/a	JY
S17T034392			629-62-9	Pentadecane	NGS	110	<1.8	9.2	n/a	n/a	n/a	n/a	1.8	n/a	JY

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-3
 Customer Sample ID: 17-05614-1-SD1-EF-3

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVQA #2															
S17T034393			3891-98-3	2,6,10-Trimethylidodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034393			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034393			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034393			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034393			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034393			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	UY
S17T034393			112-40-3	Dodecane	NGS	100	<0.62	32	n/a	n/a	n/a	n/a	0.62	n/a	Y
S17T034393			544-76-3	Hexadecane	NGS	100	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	Y
S17T034393			629-59-4	Tetradecane	NGS	120	<2.1	35	n/a	n/a	n/a	n/a	2.1	n/a	Y
S17T034393			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	UY
S17T034393			629-50-5	Tridecane	NGS	100	<0.72	51	n/a	n/a	n/a	n/a	0.72	n/a	EY
S17T034393			629-78-7	Heptadecane	NGS	120	<4.1	5.7	n/a	n/a	n/a	n/a	4.1	n/a	Y
S17T034393			629-62-9	Pentadecane	NGS	110	<1.8	10	n/a	n/a	n/a	n/a	1.8	n/a	Y

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-4
 Customer Sample ID: 17-05614-1-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 SYQA #2															
S17T034394			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034394			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034394			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034394			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034394			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034394			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	UY
S17T034394			112-40-3	Dodecane	NGS	100	<0.62	39	n/a	n/a	n/a	n/a	0.62	n/a	Y
S17T034394			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034394			629-59-4	Tetradecane	NGS	120	<2.1	23	n/a	n/a	n/a	n/a	2.1	n/a	Y
S17T034394			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LUY
S17T034394			629-50-5	Tridecane	NGS	100	<0.72	39	n/a	n/a	n/a	n/a	0.72	n/a	Y
S17T034394			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	UY
S17T034394			629-62-9	Pentadecane	NGS	110	<1.8	4.0	n/a	n/a	n/a	n/a	1.8	n/a	JY

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

E - Outside Calibration Range
 T - Tentatively Identified Compound

N - Named TIC
 J - Estimated

Q - Qualitative
 Y - Comment

2017 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05614-1-SD1-EF-5
Customer Sample ID: 17-05614-1-SD1-EF-5

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034395			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034395			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034395			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034395			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034395			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034395			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	UY
S17T034395			112-40-3	Dodecane	NGS	100	<0.62	24	n/a	n/a	n/a	n/a	0.62	n/a	Y
S17T034395			544-76-3	Hexadecane	NGS	100	<1.9	2.8	n/a	n/a	n/a	n/a	1.9	n/a	JY
S17T034395			629-59-4	Tetradecane	NGS	120	<2.1	7.8	n/a	n/a	n/a	n/a	2.1	n/a	JY
S17T034395			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LUY
S17T034395			629-50-5	Tridecane	NGS	100	<0.72	11	n/a	n/a	n/a	n/a	0.72	n/a	Y
S17T034395			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	UY
S17T034395			629-62-9	Pentadecane	NGS	110	<1.8	5.8	n/a	n/a	n/a	n/a	1.8	n/a	JY

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-6
 Customer Sample ID: 17-05614-1-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															
S17T034396			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034396			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034396			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034396			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034396			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034396			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	UY
S17T034396			112-40-3	Dodecane	NGS	100	<0.62	16	n/a	n/a	n/a	n/a	0.62	n/a	Y
S17T034396			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034396			629-59-4	Tetradecane	NGS	120	<2.1	34	n/a	n/a	n/a	n/a	2.1	n/a	Y
S17T034396			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LUY
S17T034396			629-50-5	Tridecane	NGS	100	<0.72	40	n/a	n/a	n/a	n/a	0.72	n/a	Y
S17T034396			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	UY
S17T034396			629-62-9	Pentadecane	NGS	110	<1.8	6.1	n/a	n/a	n/a	n/a	1.8	n/a	JY

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 MA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-7
 Customer Sample ID: 17-05614-1-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															
S17T034397			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034397			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034397			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034397			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034397			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034397			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034397			112-40-3	Dodecane	NGS	100	<0.62	14	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034397			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034397			629-59-4	Tetradecane	NGS	120	<2.1	14	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034397			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S17T034397			629-50-5	Tridecane	NGS	100	<0.72	19	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034397			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034397			629-62-9	Pentadecane	NGS	110	<1.8	3.9	n/a	n/a	n/a	n/a	1.8	n/a	J

Q - Qualitative
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 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-8
 Customer Sample ID: 17-05614-1-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															
S17T034398			3891-98-3	2,6,10-Trimethyl(dodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034398			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034398			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034398			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034398			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034398			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034398			112-40-3	Dodecane	NGS	100	<0.62	13	n/a	n/a	n/a	n/a	0.62	n/a	
S17T034398			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034398			629-59-4	Tetradecane	NGS	120	<2.1	5.4	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034398			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S17T034398			629-50-5	Tridecane	NGS	100	<0.72	9.0	n/a	n/a	n/a	n/a	0.72	n/a	J
S17T034398			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034398			629-62-9	Pentadecane	NGS	110	<1.8	2.6	n/a	n/a	n/a	n/a	1.8	n/a	J

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

E - Outside Calibration Range
 T - Tentatively Identified Compound

N - Named TIC
 J - Estimated

Q - Qualitative
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-1
 Customer Sample ID: 17-05614-1-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															
S17T034399			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034399			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034399			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034399			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034399			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034399			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	UY
S17T034399			112-40-3	Dodecane	NGS	100	<0.62	34	n/a	n/a	n/a	n/a	0.62	n/a	Y
S17T034399			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034399			629-59-4	Tetradecane	NGS	120	<2.1	28	n/a	n/a	n/a	n/a	2.1	n/a	Y
S17T034399			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LUY
S17T034399			629-50-5	Tridecane	NGS	100	<0.72	43	n/a	n/a	n/a	n/a	0.72	n/a	Y
S17T034399			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	UY
S17T034399			529-62-9	Pentadecane	NGS	110	<1.8	8.4	n/a	n/a	n/a	n/a	1.8	n/a	JY

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-8
 Customer Sample ID: 17-05614-1-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAFOR-TDU SVOA #2															
S17T034400			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a U
S17T034400			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U
S17T034400			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U
S17T034400			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a U
S17T034400			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U
S17T034400			84-86-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5		n/a U
S17T034400			112-40-3	Dodecane	NGS	100	<0.62	10	n/a	n/a	n/a	n/a	0.62		n/a
S17T034400			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a U
S17T034400			629-59-4	Tetradecane	NGS	120	<2.1	25	n/a	n/a	n/a	n/a	2.1		n/a
S17T034400			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8		n/a LU
S17T034400			629-50-5	Tridecane	NGS	100	<0.72	21	n/a	n/a	n/a	n/a	0.72		n/a
S17T034400			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1		n/a U
S17T034400			629-62-9	Pentadecane	NGS	110	<1.8	4.6	n/a	n/a	n/a	n/a	1.8		n/a J

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-1
 Customer Sample ID: 17-05615-1-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															
S17T034381		3891-98-3		2,6,10-Trimethyldecane	NGS	120	<1.9	5.3	n/a	n/a	n/a	n/a	1.9		n/a J
S17T034381		95-48-7		2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U
S17T034381		108-39-4M		Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U
S17T034381		92-52-4		Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a U
S17T034381		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U
S17T034381		84-66-2		Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5		n/a U
S17T034381		112-40-3		Dodecane	NGS	100	<0.62	59	n/a	n/a	n/a	n/a	0.62		n/a E
S17T034381		544-76-3		Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a U
S17T034381		629-59-4		Tetradecane	NGS	120	<2.1	11	n/a	n/a	n/a	n/a	2.1		n/a U
S17T034381		126-73-8		Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8		n/a LU
S17T034381		629-50-5		Tridecane	NGS	100	<0.72	22	n/a	n/a	n/a	n/a	0.72		n/a U
S17T034381		629-78-7		Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1		n/a U
S17T034381		629-62-9		Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

E - Outside Calibration Range
 T - Tentatively Identified Compound

N - Named TIC
 J - Estimated

Q - Qualitative
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-2
 Customer Sample ID: 17-05615-1-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															
S17T034382			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034382			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|QU
S17T034382			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|QU
S17T034382			92-52-4	Biphenyl	NGS	120	<2.1	2.2	n/a	n/a	n/a	n/a	2.1		n/a|J
S17T034382			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034382			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5		n/a|U
S17T034382			112-40-3	Dodecane	NGS	100	<0.62	69	n/a	n/a	n/a	n/a	0.62		n/a|E
S17T034382			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034382			629-59-4	Tetradecane	NGS	120	<2.1	12	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034382			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8		n/a|LU
S17T034382			629-50-5	Tridecane	NGS	100	<0.72	16	n/a	n/a	n/a	n/a	0.72		n/a|U
S17T034382			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1		n/a|U
S17T034382			629-62-9	Pentadecane	NGS	110	<1.8	7.9	n/a	n/a	n/a	n/a	1.8		n/a|J

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-3
 Customer Sample ID: 17-05615-1-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															
S17T034383			3891-98-3	2,6,10-Trimethyldodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034383			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034383			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034383			92-52-4	Biphenyl	NGS	120	<2.1	2.2	n/a	n/a	n/a	n/a	2.1	n/a	n/a|J
S17T034383			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034383			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034383			112-40-3	Dodecane	NGS	100	<0.62	74	n/a	n/a	n/a	n/a	0.62	n/a	n/a|E
S17T034383			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034383			629-59-4	Tetradecane	NGS	120	<2.1	11	n/a	n/a	n/a	n/a	2.1	n/a	n/a
S17T034383			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|LU
S17T034383			629-50-5	Tridecane	NGS	100	<0.72	16	n/a	n/a	n/a	n/a	0.72	n/a	n/a
S17T034383			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	n/a U
S17T034383			629-62-9	Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a U

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 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 MA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-4
 Customer Sample ID: 17-05615-1-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															
S17T034384			3891-98-3	2,6,10-Trimethyl(dodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034384			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034384			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034384			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034384			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034384			84-56-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034384			112-40-3	Dodecane	NGS	100	<0.62	44	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034384			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034384			629-59-4	Tetradecane	NGS	120	<2.1	18	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034384			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S17T034384			629-50-5	Tridecane	NGS	100	<0.72	29	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034384			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034384			629-62-9	Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

Q - Qualitative
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 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-5
 Customer Sample ID: 17-05615-1-TL1-EF-5

Sample#	R	IA#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034385			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034385			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034385			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034385			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034385			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034385			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034385			112-40-3	Dodecane	NGS	100	<0.62	34	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034385			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034385			629-59-4	Tetradecane	NGS	120	<2.1	17	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034385			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S17T034385			629-50-5	Tridecane	NGS	100	<0.72	25	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034385			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034385			629-62-9	Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

Q - Qualitative
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 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-6
 Customer Sample ID: 17-05615-1-TL1-EF-6

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S17T034386		3891-98-3		2,6,10-Trimethylidodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034386		95-48-7		2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034386		108-39-4M		Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034386		92-52-4		Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034386		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034386		84-56-2		Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034386		112-40-3		Dodecane	NGS	100	<0.62	40	n/a	n/a	n/a	n/a	0.62	n/a	n/a|U
S17T034386		544-76-3		Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034386		629-59-4		Tetradecane	NGS	120	<2.1	6.5	n/a	n/a	n/a	n/a	2.1	n/a	n/a|J
S17T034386		126-73-8		Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|LU
S17T034386		629-50-5		Tridecane	NGS	100	<0.72	9.3	n/a	n/a	n/a	n/a	0.72	n/a	n/a|J
S17T034386		629-78-7		Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	n/a|U
S17T034386		629-62-9		Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a U

Q - Qualitative
 Y - Comment
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 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-7
 Customer Sample ID: 17-05615-1-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															
S17T034387		3891-98-3		2,6,10-Trimethylidodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034387		95-48-7		2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034387		108-39-4M		Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034387		92-52-4		Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034387		78-46-6		Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034387		84-66-2		Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034387		112-40-3		Dodecane	NGS	100	<0.62	32	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034387		544-76-3		Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034387		629-59-4		Tetradecane	NGS	120	<2.1	9.7	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034387		126-73-8		Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S17T034387		629-50-5		Tridecane	NGS	100	<0.72	14	n/a	n/a	n/a	n/a	0.72	n/a	U
S17T034387		629-78-7		Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034387		629-62-9		Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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N - Named TIC
 J - Estimated

Q - Qualitative
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-8
 Customer Sample ID: 17-05615-1-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															
S17T034388			3891-98-3	2,6,10-Trimethyldecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034388			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034388			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034388			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034388			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034388			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034388			112-40-3	Dodecane	NGS	100	<0.62	25	n/a	n/a	n/a	n/a	0.62	n/a	n/a|U
S17T034388			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034388			629-59-4	Tetradecane	NGS	120	<2.1	4.4	n/a	n/a	n/a	n/a	2.1	n/a	n/a|J
S17T034388			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|LU
S17T034388			629-50-5	Tridecane	NGS	100	<0.72	8.3	n/a	n/a	n/a	n/a	0.72	n/a	n/a|J
S17T034388			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	n/a U
S17T034388			629-62-9	Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a U

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N - Named TIC
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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098

Customer Group or SDG Number:

Customer Sample ID: 17-05615-1-TL1-IN-1

Customer Sample ID: 17-05615-1-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 SVOA #2															
S17T034389			3891-98-3	2,6,10-Trimethyltridecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034389			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034389			106-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a|U
S17T034389			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a|U
S17T034389			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a|U
S17T034389			84-66-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	n/a|U
S17T034389			112-40-3	Dodecane	NGS	100	<0.62	63	n/a	n/a	n/a	n/a	0.62	n/a	n/a|E
S17T034389			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a|U
S17T034389			629-59-4	Tetradecane	NGS	120	<2.1	12	n/a	n/a	n/a	n/a	2.1	n/a	n/a
S17T034389			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	n/a|LU
S17T034389			629-50-5	Tridecane	NGS	100	<0.72	13	n/a	n/a	n/a	n/a	0.72	n/a	n/a
S17T034389			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	n/a U
S17T034389			629-62-9	Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-8
 Customer Sample ID: 17-05615-1-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															
S17T034390			3891-98-3	2,6,10-Trimethyl(dodecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034390			95-48-7	2-Methylphenol	NGS	82	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034390			108-39-4M	Cresol (m & p)	NGS	81	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034390			92-52-4	Biphenyl	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034390			78-46-6	Dibutyl butylphosphonate	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034390			84-86-2	Diethylphthalate	NGS	130	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034390			112-40-3	Dodecane	NGS	100	<0.62	25	n/a	n/a	n/a	n/a	0.62	n/a	U
S17T034390			544-76-3	Hexadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034390			629-59-4	Tetradecane	NGS	120	<2.1	6.3	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034390			126-73-8	Tributyl phosphate	NGS	120	<4.8	<4.8	n/a	n/a	n/a	n/a	4.8	n/a	LU
S17T034390			629-50-5	Tridecane	NGS	100	<0.72	6.7	n/a	n/a	n/a	n/a	0.72	n/a	J
S17T034390			629-78-7	Heptadecane	NGS	120	<4.1	<4.1	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034390			629-62-9	Pentadecane	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-1
 Customer Sample ID: 17-05614-1-SD1-EF-1

Daniel Hansen / Jennifer Hansen / 11-28-17

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU			SYOA #2						
S177034391				Cyclotetrasiloxane, octamethyl	556-67-2	4.50	NGS	540	JNTY
S177034391				D-Limonene	5989-27-5	4.98	NGS	49	JNTY
S177034391				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.99	NGS	33	JNTY
S177034391				Unknown-1		5.19	NGS	160	JTY
S177034391				3,3-Dimethylhexane	563-16-6	5.24	NGS	58	JNTY
S177034391				Acetophenone	98-86-2	5.31	NGS	24	JNTY
S177034391				Cyclohexane, 2-propyl-1,1,3-tr	81983-70-2	5.37	NGS	28	JNTY
S177034391				Octane, 2,3,6,7-tetramethyl-	52670-34-5	5.52	NGS	28	JNTY
S177034391				Undecane	1120-21-4	5.59	NGS	120	JNTY
S177034391				Hexyl octyl ether	17071-54-4	5.64	NGS	44	JNTY
S177034391				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	190	JNTY
S177034391				Hexadecane, 2,6,11,15-tetramet	504-44-9	7.04	NGS	27	JNTY
S177034391				Dodecamethylcyclohexasiloxane	549-97-6	7.20	NGS	34	JNTY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-2
 Customer Sample ID: 17-05614-1-SD1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034392				Cyclotetrasiloxane, octamethyl	556-67-2	4.50	NGS	530	JNTY
S17T034392				D-Limonene	5989-27-5	4.98	NGS	58	JNTY
S17T034392				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	5.00	NGS	34	JNTY
S17T034392				3-Ethyl-3-methylheptane	17302-01-1	5.19	NGS	180	JNTY
S17T034392				Octane, 2,3,6,7-tetramethyl-	52670-34-5	5.24	NGS	63	JNTY
S17T034392				Acetophenone	98-86-2	5.31	NGS	29	JNTY
S17T034392				Cyclohexane, 2-propyl-1,1,3-tr	81983-70-2	5.37	NGS	29	JNTY
S17T034392				2,3-Dimethyldecane	17312-44-6	5.52	NGS	26	JNTY
S17T034392				Undecane	1120-21-4	5.59	NGS	150	JNTY
S17T034392				3,3-Dimethylhexane	563-16-6	5.64	NGS	37	JNTY
S17T034392				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	180	JNTY
S17T034392				Unknown-1		7.04	NGS	33	JTY
S17T034392				Dodecamethylcyclohexasiloxane	540-87-6	7.21	NGS	35	JNTY
S17T034392				Decane, 2,3,5,6-tetramethyl-	192823-15-7	7.24	NGS	27	JNTY
S17T034392				Unknown-2		9.31	NGS	47	JTY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-3
 Customer Sample ID: 17-05614-1-SD1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034393				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	420	JNTY
S17T034393				D-Limonene	5989-27-5	4.98	NGS	86	JNTY
S17T034393				Unknown-1		5.19	NGS	150	JTY
S17T034393				Octane, 2,3,6,7-tetramethyl-	52670-34-5	5.23	NGS	51	JNTY
S17T034393				Acetophenone	98-96-2	5.31	NGS	27	JNTY
S17T034393				1-Octanol, 2-butyl-	3913-02-8	5.37	NGS	26	JNTY
S17T034393				2,3-Dimethyldecane	17312-44-6	5.52	NGS	25	JNTY
S17T034393				2,6-Dimethyldecane	13160-81-7	5.59	NGS	110	JNTY
S17T034393				Hexyl octyl ether	17071-54-4	5.63	NGS	37	JNTY
S17T034393				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	150	JNTY
S17T034393				Dodecamethylcyclohexasiloxane	540-97-6	7.20	NGS	27	JNTY
S17T034393				Heptadecane, 2,6-dimethyl-	54105-67-8	7.24	NGS	28	JNTY
S17T034393				Propanoic acid, 2-methyl-, 1-(74381-40-1	9.31	NGS	34	JNTY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-4
 Customer Sample ID: 17-05614-1-SD1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034394				Cyclohexasiloxane, octamethyl	556-67-2	4.49	NGS	270	JNTY
S17T034394				D-Limonene	5989-27-5	4.98	NGS	110	JNTY
S17T034394				2,6-Dimethyldecane	13150-81-7	5.18	NGS	46	JNTY
S17T034394				Acetophenone	98-96-2	5.31	NGS	12	JNTY
S17T034394				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.58	NGS	62	JNTY
S17T034394				Tridecane, 6-methyl-	13287-21-3	5.71	NGS	11	JNTY
S17T034394				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	120	JNTY
S17T034394				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.04	NGS	29	JNTY

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 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-5
 Customer Sample ID: 17-05614-1-SD1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU			SVOA #2						
S17T034395				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	260	JNTY
S17T034395				D-Limonene	5989-27-5	4.98	NGS	61	JNTY
S17T034395				Unknown-1		5.18	NGS	67	JTY
S17T034395				2,6-Dimethyldecane	13150-81-7	5.23	NGS	25	JNTY
S17T034395				Acetophenone	98-96-2	5.31	NGS	18	JNTY
S17T034395				3,3-Dimethylhexane	563-16-6	5.58	NGS	63	JNTY
S17T034395				Hexyl octyl ether	17071-54-4	5.63	NGS	25	JNTY
S17T034395				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	160	JNTY
S17T034395				Dodecane,2,6,11-trimethyl-	31295564	7.03	NGS	25	JNTY
S17T034395				Dodecamethylcyclohexasiloxane	540-97-6	7.20	NGS	32	JNTY

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 U - Less Than Detection Limit
 L - LLS Outside Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05614-1-SD1-EF-6
Customer Sample ID: 17-05614-1-SD1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU		SVOA #2							
S17T034396				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	160	JNTY
S17T034396				D-Limonene	5989-27-5	4.98	NGS	66	JNTY
S17T034396				2,6-Dimethyldecane	13150-81-7	5.18	NGS	32	JNTY
S17T034396				Acetophenone	98-96-2	5.31	NGS	7.2	JNTY
S17T034396				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	84	JNTY

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-EF-7
 Customer Sample ID: 17-05614-1-SD1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034397				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	140	JNT
S17T034397				D-Limonene	5989-27-5	4.97	NGS	44	JNT
S17T034397				2,6-Dimethyldecane	13150-81-7	5.18	NGS	37	JNT
S17T034397				Acetophenone	98-96-2	5.31	NGS	8.4	JNT
S17T034397				2,3-Dimethyldecane	17312-44-6	5.58	NGS	35	JNT
S17T034397				Tridecane, 6-methyl-	13287-21-3	5.71	NGS	8.5	JNT
S17T034397				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	85	JNT

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05614-1-SD1-EF-8
Customer Sample ID: 17-05614-1-SD1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034398				Cyclotrisiloxane, hexamethyl-	541-05-9	2.97	NGS	25	JNT
S17T034398				Styrene	100-42-5	3.71	NGS	11	JNT
S17T034398				Cyclotetrasiloxane, octamethyl	566-67-2	4.48	NGS	140	JNT
S17T034398				D-Limonene	5989-27-5	4.98	NGS	47	JNT
S17T034398				2,6-Dimethyldecane	13150-81-7	5.18	NGS	30	JNT
S17T034398				Acetophenone	98-86-2	5.31	NGS	7.9	JNT
S17T034398				2,3-Dimethyldecane	17312-44-6	5.58	NGS	26	JNT
S17T034398				Tridecane, 6-methyl-	13287-21-3	5.71	NGS	7.0	JNT
S17T034398				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	82	JNT

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05614-1-SD1-IN-1
 Customer Sample ID: 17-05614-1-SD1-IN-1

Sample#	R	AF	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034399				Cyclotrisiloxane, hexamethyl-	541-05-9	2.97	NGS	37	JNTY
S17T034399				3-Heptanone	106-35-4	3.62	NGS	5.7	JNTY
S17T034399				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	610	JNTY
S17T034399				Undecane, 2,6-dimethyl-	17301-23-4	4.68	NGS	5.9	JNTY
S17T034399				D-Limonene	5989-27-5	4.97	NGS	47	JNTY
S17T034399				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.99	NGS	32	JNTY
S17T034399				2,6-Dimethyldecane	13150-81-7	5.19	NGS	190	JNTY
S17T034399				Octane, 2,3,6,7-tetramethyl-	52670-34-5	5.24	NGS	71	JNTY
S17T034399				Acetophenone	98-96-2	5.31	NGS	26	JNTY
S17T034399				Cyclohexane, 2-propyl-1,1,3-tr	81983-70-2	5.37	NGS	32	JNTY
S17T034399				2,3-Dimethyldecane	17312-44-6	5.52	NGS	36	JNTY
S17T034399				Undecane	1120-21-4	5.59	NGS	180	JNTY
S17T034399				Hexyl octyl ether	17071-54-4	5.63	NGS	36	JNTY
S17T034399				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	170	JNTY
S17T034399				Dodecamethylcyclohexasiloxane	540-97-6	7.20	NGS	29	JNTY
S17T034399				Heptadecane, 2,6-dimethyl-	54105-67-8	7.23	NGS	26	JNTY
S17T034399				Unknown-1		9.31	NGS	38	JTY

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 Y - Comment

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 J - Estimated

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NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05614-1-SD1-IN-8
Customer Sample ID: 17-05614-1-SD1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034400				3-Heptanone	106-35-4	3.61	NGS	13	JNT
S17T034400				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	130	JNT
S17T034400				D-Limonene	5989-27-5	4.97	NGS	30	JNT
S17T034400				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	59	JNT
S17T034400				Dodecane, 2,6,11-trimethyl-	31295-56-4	6.43	NGS	6.8	JNT

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-1
 Customer Sample ID: 17-05615-1-TL1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034381				Cyclotetrasiloxane, octamethyl	556-87-2	4.50	NGS	450	JNT
S17T034381				1-Hexanol, 2-ethyl-	104-76-7	4.94	NGS	27	JNT
S17T034381				D-Limonene	5989-27-5	4.98	NGS	140	JNT
S17T034381				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.19	NGS	81	JNT
S17T034381				2,6-Dimethyldecane	13150-81-7	5.23	NGS	29	JNT
S17T034381				Acetophenone	98-86-2	5.31	NGS	16	JNT
S17T034381				Benzene, 4-ethenyl-1,2-dimethyl	27831-13-6	5.52	NGS	27	JNT
S17T034381				Undecane	1120-21-4	5.59	NGS	99	JNT
S17T034381				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	160	JNT
S17T034381				Octane, 2,3,6,7-tetramethyl-	52670345	7.04	NGS	40	JNT
S17T034381				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	35	JNT
S17T034381				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.40	NGS	26	JNT

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E - Outside Calibration Range
 T - Tentatively Identified Compound

N - Named TIC
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Q - Qualitative
 Y - Comment

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05615-1-TL1-EF-2
Customer Sample ID: 17-05615-1-TL1-EF-2

SampleID	R	AF	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034382				Acetamide	60-35-5	3.10	NGS	40 JNT	
S17T034382				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	1.3E+03 JNT	
S17T034382				1-Hexanol, 2-ethyl-	104-76-7	4.94	NGS	86 JNT	
S17T034382				Cyclohexene, 4-ethenyl-1,4-dim	1743-61-9	5.00	NGS	130 JNT	
S17T034382				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.18	NGS	300 JNT	
S17T034382				Unknown-1		5.23	NGS	100 JT	
S17T034382				2,6-Dimethyldecane	13150-81-7	5.26	NGS	49 JNT	
S17T034382				Acetophenone	98-86-2	5.31	NGS	67 JNT	
S17T034382				2-Hexyl-1-octanol	19780-79-1	5.34	NGS	48 JNT	
S17T034382				1-Octanol, 2-butyl-	3913-02-8	5.37	NGS	75 JNT	
S17T034382				1-Decanol, 2-ethyl-	21078-65-9	5.41	NGS	81 JNT	
S17T034382				Hexyl octyl ether	17071-54-4	5.46	NGS	33 JNT	
S17T034382				2-Ethyl-1-dodecanol	19780-33-7	5.48	NGS	41 JNT	
S17T034382				2,3-Dimethyldecane	17312-44-6	5.52	NGS	160 JNT	
S17T034382				Decane, 2,4,6-trimethyl-	62108-27-4	5.59	NGS	520 JNT	
S17T034382				Unknown-2		5.64	NGS	32 JT	
S17T034382				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	150 JNT	
S17T034382				Undecane, 3-methyl-	1002-43-3	6.19	NGS	11 JNT	
S17T034382				Undecane, 2,6-dimethyl-	17301-23-4	6.54	NGS	8.8 JNT	
S17T034382				1,2-Benzisothiazole	272-16-2	6.73	NGS	33 JNT	
S17T034382				Octane, 2,3,6,7-tetramethyl-	52670-34-5	7.04	NGS	43 JNT	
S17T034382				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	39 JNT	
S17T034382				Hexadecane, 2,6,11,15-tetramet	504-44-9	7.40	NGS	31 JNT	

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-3
 Customer Sample ID: 17-05615-1-TL1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flag
VAPOR-TDU SVCA #2									
S17T034383				Acetamide	60-35-5	3.12	NGS	28 JNT	
S17T034383				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	570 JNT	
S17T034383				Oxirane, [[2-ethylhexyl]oxy]m	2461-15-6	4.94	NGS	34 JNT	
S17T034383				D-Limonene	9889-27-5	4.98	NGS	83 JNT	
S17T034383				Cyclohexane, 1-methyl-5-(1-met-	1461-27-4	5.00	NGS	48 JNT	
S17T034383				Octane, 2,3,6,7-tetramethyl-	52670-34-5	5.19	NGS	160 JNT	
S17T034383				3,3-Dimethylhexane	563-16-6	5.23	NGS	56 JNT	
S17T034383				Acetophenone	99-86-2	5.31	NGS	27 JNT	
S17T034383				5-Ethyl-1-nonane	19780-74-6	5.37	NGS	30 JNT	
S17T034383				2,3-Dimethyldecane	17312-44-6	5.52	NGS	45 JNT	
S17T034383				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.59	NGS	210 JNT	
S17T034383				Hexyl octyl ether	17071-54-4	5.64	NGS	44 JNT	
S17T034383				Decamethylcyclopentasiloxane	541-02-6	5.88	NGS	160 JNT	
S17T034383				Undecane, 3-methyl-	1002-43-3	6.19	NGS	9.3 JNT	
S17T034383				Undecane, 2,6-dimethyl-	17301-23-4	6.54	NGS	6.8 JNT	
S17T034383				1,2-Benzisothiazole	272-16-2	6.73	NGS	41 JNT	
S17T034383				Unknown-1		7.04	NGS	42 JT	
S17T034383				Dodecamethylcyclohexasiloxane	540-97-6	7.21	NGS	32 JNT	
S17T034383				Hexadecane, 2,6,11,15-tetramet	504-44-9	7.40	NGS	28 JNT	

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05615-1-TL1-EF-4
Customer Sample ID: 17-05615-1-TL1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU			SVCA #2						
S17T034384				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	290	JNT
S17T034384				D-Limonene	5989-27-5	4.98	NGS	74	JNT
S17T034384				3,3-Dimethylhexane	563-16-6	5.18	NGS	66	JNT
S17T034384				Acetophenone	96-86-2	5.31	NGS	9.4	JNT
S17T034384				Undecane	1120-21-4	5.58	NGS	56	JNT
S17T034384				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	120	JNT
S17T034384				Undecane, 2,6-dimethyl-	17301-23-4	6.53	NGS	4.8	JNT
S17T034384				1,2-Benzisothiazole	272-16-2	6.72	NGS	26	JNT
S17T034384				Unknown-1		7.04	NGS	31	JT

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05615-1-TL1-EF-5
Customer Sample ID: 17-05615-1-TL1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU			SVOA #2						
S17T034385				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	190	JNT
S17T034385				D-Limonene	5989-27-5	4.98	NGS	75	JNT
S17T034385				2,6-Dimethyloleane	13150-81-7	5.18	NGS	35	JNT
S17T034385				Undecane	1120-21-4	5.58	NGS	47	JNT
S17T034385				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	110	JNT
S17T034385				1,2-Benzisothiazole	272-16-2	6.72	NGS	25	JNT

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173098
Customer Group or SDG Number:
Customer Sample ID: 17-05615-1-TL1-EF-6
Customer Sample ID: 17-05615-1-TL1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU			SVOA #2						
S17T034386				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	160	JNT
S17T034386				D-Limonene	5989-27-5	4.98	NGS	45	JNT
S17T034386				Cyclohexene, 4-ethenyl-1,4-dim	1743-61-9	4.99	NGS	27	JNT
S17T034386				2,6-Dimethyldecane	13150-81-7	5.18	NGS	34	JNT
S17T034386				Undecane	1120-21-4	5.59	NGS	87	JNT
S17T034386				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	110	JNT

Q - Qualitative
 Y - Comment

N - Named TIC
 J - Estimated

E - Outside Calibration Range
 T - Tentatively Identified Compound

NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-7
 Customer Sample ID: 17-05615-1-TL1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-IDU SVOA #2									
S17T034387				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	140	JNT
S17T034387				D-Limonene	5989-27-5	4.98	NGS	42	JNT
S17T034387				Dodecane, 2,6,11-trimethyl-	31295-56-4	5.16	NGS	9.8	JNT
S17T034387				Hexane, 3,3-dimethyl-	563166	5.18	NGS	47	JNT
S17T034387				2,6-Dimethyldecane	13150-81-7	5.23	NGS	27	JNT
S17T034387				Tetracontane, 3,5,24-trimethyl	55162-61-3	5.34	NGS	33	JNT
S17T034387				Decane, 2,4,6-trimethyl-	62108-27-4	5.38	NGS	20	JNT
S17T034387				Heptadecane, 2,6-dimethyl-	54105-67-8	5.41	NGS	54	JNT
S17T034387				Decane, 2,3,5,8-tetramethyl-	192823-15-7	5.46	NGS	56	JNT
S17T034387				1-Decanol, 2-ethyl-	21078-65-9	5.54	NGS	28	JNT
S17T034387				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.58	NGS	92	JNT
S17T034387				Hexyl octyl ether	17071-54-4	5.63	NGS	26	JNT
S17T034387				Dodecane, 2,5-dimethyl-	56292-65-0	5.72	NGS	27	JNT
S17T034387				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	110	JNT

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - ILS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-EF-8
 Customer Sample ID: 17-05615-1-TL1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034388				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	95	JNT
S17T034388				2,5,6-Trimethyldecane	62108-23-0	4.94	NGS	29	JNT
S17T034388				D-Limonene	5989-27-5	4.98	NGS	37	JNT
S17T034388				Decane, 2,4,6-trimethyl-	62108-27-4	5.13	NGS	11	JNT
S17T034388				Heptadecane, 2,6-dimethyl-	54105-67-8	5.19	NGS	72	JNT
S17T034388				Unknown-1		5.24	NGS	34	JT
S17T034388				Heptane, 5-ethyl-2,3-trimeth	62199-06-8	5.27	NGS	31	JNT
S17T034388				Dodecane, 2,6,11-trimethyl-	31295-56-4	5.35	NGS	51	JNT
S17T034388				Decane, 2,3,5,8-tetramethyl-	192823-15-7	5.41	NGS	100	JNT
S17T034388				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.47	NGS	92	JNT
S17T034388				Tetracontane, 3,5,24-trimethyl	55162-61-3	5.51	NGS	27	JNT
S17T034388				Decane, 2,3,4-trimethyl-	62238-15-7	5.55	NGS	46	JNT
S17T034388				Dodecane, 2,6,10-trimethyl-	3891983	5.60	NGS	120	JNT
S17T034388				2,3-Dimethyldecane	17312-44-6	5.64	NGS	34	JNT
S17T034388				2,6-Dimethyldecane	13150-81-7	5.67	NGS	27	JNT
S17T034388				Undecane, 2,6-dimethyl-	17301-23-4	5.70	NGS	36	JNT
S17T034388				Decane, 2,6,8-trimethyl-	62108263	5.73	NGS	48	JNT
S17T034388				Decamethylcyclopentasiloxane	541-02-6	5.85	NGS	110	JNT
S17T034388				Undecane, 3-methyl-	1002-43-3	6.19	NGS	7.4	JNT

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 L - LLS Outside Range

N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-1
 Customer Sample ID: 17-05615-1-TL1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S17T034389				Cyclotetrasiloxane, octamethyl	556-67-2	4.49	NGS	560	JNT
S17T034389				Decane	124-18-5	4.68	NGS	11	JNT
S17T034389				1-Hexanol, 2-ethyl-	104-76-7	4.94	NGS	46	JNT
S17T034389				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	4.98	NGS	55	JNT
S17T034389				Cyclobutane, 1,2-bis(1-methyl-	19465-02-2	5.00	NGS	52	JNT
S17T034389				Oxane, 2,3,6,7-tetramethyl-	52670-34-5	5.19	NGS	130	JNT
S17T034389				2,6-Dimethyldecane	13150-81-7	5.23	NGS	44	JNT
S17T034389				Dodecane, 2,6, 10-trimethyl-	3891983	5.27	NGS	16	JNT
S17T034389				Acetophenone	98-86-2	5.31	NGS	18	JNT
S17T034389				1-Octanol, 2-butyl-	3913-02-8	5.37	NGS	25	JNT
S17T034389				5-Iodo-nonane	59456-19-8	5.52	NGS	41	JNT
S17T034389				Decane, 2,4,6-trimethyl-	62108-27-4	5.59	NGS	170	JNT
S17T034389				3,3-Dimethylhexane	563-16-6	5.64	NGS	33	JNT
S17T034389				Decamethylcyclopentasiloxane	541-02-6	5.86	NGS	160	JNT
S17T034389				Undecane, 3-methyl-	1002-43-3	6.19	NGS	8.5	JNT
S17T034389				Undecane, 2,6-dimethyl-	17301-23-4	6.54	NGS	5.5	JNT
S17T034389				Decane, 2,3,5,8-tetramethyl-	192823-15-7	7.04	NGS	36	JNT
S17T034389				Dodecamethylcyclohexasiloxane	540-97-6	7.20	NGS	31	JNT

Q - Qualitative
 Y - Comment
 N - Named TIC
 J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 U - Less Than Detection Limit
 L - LLS Outside Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173098
 Customer Group or SDG Number:
 Customer Sample ID: 17-05615-1-TL1-IN-8
 Customer Sample ID: 17-05615-1-TL1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR:TDU SVOA #2									
S17T034390				Cyclotrisiloxane, hexamethyl-	541-05-9	2.96	NGS	28	JNT
S17T034390				3-Heptanone	106-35-4	3.61	NGS	12	JNT
S17T034390				Cyclotetrasiloxane, octamethyl	556-67-2	4.48	NGS	180	JNT
S17T034390				D-Limonene	9899-27-5	4.97	NGS	52	JNT
S17T034390				3,3-Dimethylhexane	563-16-6	5.18	NGS	56	JNT
S17T034390				Acetophenone	98-96-2	5.31	NGS	7.4	JNT
S17T034390				2,6-Dimethyldecane	13150-81-7	5.58	NGS	72	JNT
S17T034390				Decamethylcyclopentasiloxane	541-02-6	5.84	NGS	90	JNT

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 L - LLS Outside Range

C.4.2 VOC and VOCTIC

DSRComment 3.0.13
DSR.Jar v. 3.0.13

VOA 20173091a Comments

2017 Cartridge Evaluation
29-nov-2017 07:36:11

Verification Sample Comments

Sample: S17T034251 Group: 20173091
Y flag: Sample tube was in a clean certification batch where the analyzed
tube did not meet acceptance criteria (>2XMDL for acetonitrile) kak 11/7/17
Sample: S17T034257 Group: 20173091
Y flag: Sample tube was in a clean certification batch where the analyzed
tube did not meet acceptance criteria (>2XMDL for acetonitrile) kak 11/7/17
Sample: S17T034258 Group: 20173091
Y flag: Acetonitrile - Detector saturation; reported result is a rough
estimate, kak 11/7/17

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-1
 Customer Sample ID: 17-05613-2-SC1-EF-1

James Hansen
Daniel Hansen
 11-29-17

Sample#	R	AW	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034251			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034251			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034251			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034251			75-35-4	1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S17T034251			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034251			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034251			106-46-7	1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034251			123-91-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034251			71-36-3	1-Butanol	NGS	94	<2.2	3.8	n/a	n/a	n/a	n/a	2.2	n/a	JY
S17T034251			111-70-6	1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S17T034251			71-23-8	1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034251			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S17T034251			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034251			78-93-3	2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S17T034251			110-43-0	2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034251			591-78-6	2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034251			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034251			78-94-4	3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S17T034251			106-35-4	3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034251			106-68-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY
S17T034251			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034251			108-10-1	4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034251			67-64-1	Acetone	NGS	100	<6.7	17	n/a	n/a	n/a	n/a	6.7	n/a	Y
S17T034251			75-05-8	Acetonitrile	NGS	99	<3.3	85	n/a	n/a	n/a	n/a	3.3	n/a	Y
S17T034251			98-86-2	Acetophenone	NGS	94	<4.0	13	n/a	n/a	n/a	n/a	4.0	n/a	Y
S17T034251			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S17T034251			107-18-6	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-1
 Customer Sample ID: 17-05613-2-SC1-EF-1

Sample#	R	AW	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR: TDU VOA #2															
S177034251			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	UY
S177034251			71-43-2	Benzene	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S177034251			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	UY
S177034251			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S177034251			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S177034251			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S177034251			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034251			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	UY
S177034251			57-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034251			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S177034251			124-18-5	Decane	NGS	96	<2.3	8.8	n/a	n/a	n/a	n/a	2.3	n/a	JY
S177034251			54-17-5	Ethanol	NGS	88	<4.1	31	n/a	n/a	n/a	n/a	4.1	n/a	Y
S177034251			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034251			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034251			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S177034251			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S177034251			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S177034251			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S177034251			75-09-2	Methylene Chloride	NGS	83	<3.0	3.5	n/a	n/a	n/a	n/a	3.0	n/a	JY
S177034251			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S177034251			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S177034251			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034251			107-12-0	Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S177034251			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S177034251			100-42-5	Styrene	NGS	98	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	JY
S177034251			127-18-4	Tetrachloroethene	NGS	98	<1.6	9.6	n/a	n/a	n/a	n/a	1.6	n/a	JY
S177034251			108-88-3	Toluene	NGS	98	<1.4	2.8	n/a	n/a	n/a	n/a	1.4	n/a	JY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-1
 Customer Sample ID: 17-05613-2-SC1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034251			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S177034251			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S177034251			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S177034251			129-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S177034251			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S177034251			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY

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 NA = Not Analyzed, ND = Not Detected
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-2
 Customer Sample ID: 17-05613-2-SC1-EF-2

Sample#	R #	AW	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034252			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034252			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034252			75-35-4	1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034252			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034252			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034252			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
S177034252			123-91-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034252			71-38-3	1-Butanol	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S177034252			111-70-6	1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S177034252			71-23-8	1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S177034252			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034252			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034252			78-93-3	2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S177034252			110-43-0	2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034252			591-78-6	2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034252			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034252			78-94-4	3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S177034252			106-35-4	3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			106-68-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034252			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			108-10-1	4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034252			67-64-1	Acetone	NGS	100	<6.7	25	n/a	n/a	n/a	n/a	6.7	n/a	
S177034252			75-05-8	Acetonitrile	NGS	99	<3.3	72	n/a	n/a	n/a	n/a	3.3	n/a	
S177034252			98-96-2	Acetophenone	NGS	94	<4.0	17	n/a	n/a	n/a	n/a	4.0	n/a	
S177034252			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034252			107-18-6	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-2
 Customer Sample ID: 17-05613-2-SC1-EF-2

Sample#	R	AP	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034252			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034252			71-43-2	Benzene	NGS	98	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034252			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034252			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034252			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034252			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034252			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034252			67-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S177034252			124-18-5	Decane	NGS	96	<2.3	5.0	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034252			64-17-5	Ethanol	NGS	88	<4.1	140	n/a	n/a	n/a	n/a	4.1	n/a	
S177034252			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034252			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034252			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034252			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034252			75-09-2	Methylene Chloride	NGS	83	<3.0	3.2	n/a	n/a	n/a	n/a	3.0	n/a	J
S177034252			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034252			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034252			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034252			107-12-0	Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034252			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034252			100-42-5	Styrene	NGS	98	<1.4	1.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034252			127-18-4	Tetrachloroethene	NGS	98	<1.6	11	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034252			108-88-3	Toluene	NGS	98	<1.4	2.8	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-2
 Customer Sample ID: 17-05613-2-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 VOA #2															
S177034252			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S177034252			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S177034252			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S177034252			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S177034252			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S177034252			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-3

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034253		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034253		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034253		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034253		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034253		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034253		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034253		108-46-7		1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034253		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034253		71-36-3		1-Butanol	NGS	94	<2.2	5.2	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034253		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034253		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034253		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034253		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034253		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034253		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034253		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034253		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034253		78-94-4		3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034253		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034253		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034253		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034253		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034253		57-84-1		Acetone	NGS	100	<6.7	19	n/a	n/a	n/a	n/a	6.7	n/a	
S17T034253		75-05-8		Acetonitrile	NGS	99	<3.3	96	n/a	n/a	n/a	n/a	3.3	n/a	
S17T034253		98-86-2		Acetophenone	NGS	94	<4.0	18	n/a	n/a	n/a	n/a	4.0	n/a	
S17T034253		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034253		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-3
 Customer Sample ID: 17-05613-2-SC1-EF-3

Sample#	R	A#	CAS #	Analysis	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034253			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S177034253			71-43-2	Benzene	NGS	98	<1.2	1.4	n/a	n/a	n/a	n/a	1.2		n/a/J
S177034253			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S177034253			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034253			109-74-0	Bulananitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S177034253			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034253			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034253			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S177034253			67-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034253			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S177034253			124-18-5	Decane	NGS	96	<2.3	6.6	n/a	n/a	n/a	n/a	2.3		n/a/J
S177034253			84-17-5	Ethanol	NGS	88	<4.1	300	n/a	n/a	n/a	n/a	4.1		n/a/U
S177034253			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034253			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034253			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S177034253			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S177034253			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S177034253			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S177034253			75-09-2	Methylene Chloride	NGS	83	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S177034253			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S177034253			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S177034253			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034253			107-12-0	Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S177034253			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S177034253			100-42-5	Styrene	NGS	98	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S177034253			127-18-4	Tetrachloroethene	NGS	98	<1.6	12	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034253			108-88-3	Toluene	NGS	98	<1.4	3.0	n/a	n/a	n/a	n/a	1.4		n/a/J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-3

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034253			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034253			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034253			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034253			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034253			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034253			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-4
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034254			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034254			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034254			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034254			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034254			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034254			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034254			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
S17T034254			123-91-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034254			71-36-3	1-Butanol	NGS	94	<2.2	8.6	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034254			111-70-6	1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034254			71-23-8	1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034254			106-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034254			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034254			78-93-3	2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034254			110-43-0	2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034254			591-78-6	2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034254			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034254			78-94-4	3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034254			106-35-4	3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034254			106-88-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034254			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034254			108-10-1	4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034254			67-64-1	Acetone	NGS	100	<6.7	35	n/a	n/a	n/a	n/a	6.7	n/a	
S17T034254			75-05-8	Acetonitrile	NGS	99	<3.3	86	n/a	n/a	n/a	n/a	3.3	n/a	
S17T034254			98-96-2	Acetoptenone	NGS	94	<4.0	10	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034254			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034254			107-18-6	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-4
 Customer Sample ID: 17-05613-2-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 VOA #2														
S17T034254		107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a/U
S17T034254		71-43-2	Benzene	NGS	98	<1.2	1.5	n/a	n/a	n/a	n/a	n/a	1.2	n/a/J
S17T034254		100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	n/a	1.7	n/a/U
S17T034254		123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	n/a	1.5	n/a/U
S17T034254		109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	n/a	1.9	n/a/U
S17T034254		56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	n/a	1.3	n/a/U
S17T034254		108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a/U
S17T034254		75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	n/a	4.5	n/a/U
S17T034254		57-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a/U
S17T034254		110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	n/a	2.7	n/a/U
S17T034254		124-18-5	Decane	NGS	96	<2.3	5.4	n/a	n/a	n/a	n/a	n/a	2.3	n/a/J
S17T034254		54-17-5	Ethanol	NGS	88	<4.1	750	n/a	n/a	n/a	n/a	n/a	4.1	n/a
S17T034254		141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a/U
S17T034254		100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a/U
S17T034254		110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	n/a	4.2	n/a/U
S17T034254		110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	n/a	2.0	n/a/U
S17T034254		528-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a	1.2	n/a/U
S17T034254		126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	n/a	1.1	n/a/U
S17T034254		75-09-2	Methylene Chloride	NGS	83	<3.0	<3.0	n/a	n/a	n/a	n/a	n/a	3.0	n/a/U
S17T034254		91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	n/a	2.1	n/a/U
S17T034254		98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	n/a	1.8	n/a/U
S17T034254		110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a/U
S17T034254		107-12-0	Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	n/a	2.1	n/a/U
S17T034254		110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a	1.2	n/a/U
S17T034254		100-42-5	Styrene	NGS	98	<1.4	2.3	n/a	n/a	n/a	n/a	n/a	1.4	n/a/J
S17T034254		127-18-4	Tetrachloroethene	NGS	98	<1.6	12	n/a	n/a	n/a	n/a	n/a	1.6	n/a
S17T034254		108-88-3	Toluene	NGS	98	<1.4	3.7	n/a	n/a	n/a	n/a	n/a	1.4	n/a/J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-4

Customer Sample ID: 17-05613-2-SC1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034254		79-01-6		Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034254		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034254		10061-01-5		cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034254		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034254		142-82-5		n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034254		10061-02-6		trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

J - Estimated
 E - Outside Calibration Range

T - Tentatively Identified Compound
 U - Less Than Detection Limit

Y - Comment

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 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-5

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034255		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034255		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034255		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034255		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034255		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034255		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
S17T034255		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034255		71-36-3		1-Butanol	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a|U
S17T034255		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034255		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034255		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034255		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034255		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034255		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034255		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034255		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034255		78-94-4		3-Buten-2-one	NGS	95	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034255		106-36-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034255		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034255		67-64-1		Acetone	NGS	100	<6.7	27	n/a	n/a	n/a	n/a	6.7		n/a
S17T034255		75-05-8		Acetonitrile	NGS	99	<3.3	780	n/a	n/a	n/a	n/a	3.3		n/a|E
S17T034255		98-86-2		Acetophenone	NGS	94	<4.0	16	n/a	n/a	n/a	n/a	4.0		n/a
S17T034255		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034255		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-5
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034255		107-06-1		Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034255		71-43-2		Benzene	NGS	98	<1.2	1.2	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034255		100-47-0		Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034255		123-72-8		Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034255		109-74-0		Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034255		56-23-5		Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034255		108-90-7		Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		75-00-3		Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034255		67-66-3		Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		110-82-7		Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034255		124-18-5		Decane	NGS	96	<2.3	9.8	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034255		64-17-5		Ethanol	NGS	88	<4.1	88.0	n/a	n/a	n/a	n/a	4.1		n/a|E
S17T034255		141-78-6		Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		100-41-4		Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		110-00-9		Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034255		110-54-3		Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034255		628-73-9		Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034255		126-98-7		Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034255		75-09-2		Methylene Chloride	NGS	83	<3.0	4.7	n/a	n/a	n/a	n/a	3.0		n/a|J
S17T034255		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034255		98-96-3		Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034255		110-59-8		Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		107-12-0		Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034255		110-86-1		Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034255		100-42-5		Styrene	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034255		127-18-4		Tetrachloroethene	NGS	98	<1.6	9.2	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034255		106-88-3		Toluene	NGS	98	<1.4	3.4	n/a	n/a	n/a	n/a	1.4		n/a J

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 U - Less Than Detection Limit

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 E - Outside Calibration Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173091
SDG Number:
Customer Sample ID: 17-05613-2-SC1-EF-5
Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034255			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034255			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034255			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034255			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034255			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034255			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

29 - Nov - 2017 7:40:27
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-6
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034256		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034256		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034256		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034256		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034256		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034256		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
S17T034256		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034256		71-36-3		1-Butanol	NGS	94	<2.2	8.4	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034256		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034256		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034256		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034256		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034256		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034256		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034256		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034256		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034256		78-94-4		3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034256		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034256		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034256		67-64-1		Acetone	NGS	100	<6.7	27	n/a	n/a	n/a	n/a	6.7	n/a	
S17T034256		75-05-8		Acetonitrile	NGS	99	<3.3	85	n/a	n/a	n/a	n/a	3.3	n/a	
S17T034256		98-86-2		Acetophenone	NGS	94	<4.0	5.3	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034256		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034256		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-6

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034256		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034256		71-43-2		Benzene	NGS	98	<1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034256		100-47-0		Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034256		123-72-8		Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034256		109-74-0		Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034256		56-23-5		Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034256		108-90-7		Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		75-00-3		Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034256		67-86-3		Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		110-82-7		Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034256		124-18-5		Decane	NGS	96	<2.3	5.5	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034256		84-17-5		Ethanol	NGS	88	<4.1	900	n/a	n/a	n/a	n/a	4.1	n/a	E
S17T034256		141-78-6		Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		100-41-4		Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		110-00-9		Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034256		110-54-3		Hexane	NGS	98	<2.0	2.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034256		628-73-9		Hexanenitrile	NGS	87	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034256		126-98-7		Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034256		75-09-2		Methylene Chloride	NGS	83	<3.0	3.4	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034256		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034256		98-95-3		Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034256		110-59-8		Pentanenitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034256		107-12-0		Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034256		110-86-1		Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034256		100-42-5		Styrene	NGS	98	<1.4	1.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034256		127-18-4		Tetrachloroethene	NGS	98	<1.6	6.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034256		108-88-3		Toluene	NGS	98	<1.4	3.3	n/a	n/a	n/a	n/a	1.4	n/a	J

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Y - Comment

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 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-6
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034256			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034256			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	2.2	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034256			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034256			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034256			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034256			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-7

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034257		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034257		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034257		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S17T034257		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034257		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034257		106-46-7		1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034257		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034257		71-36-3		1-Butanol	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S17T034257		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S17T034257		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034257		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S17T034257		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034257		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S17T034257		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034257		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034257		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034257		78-94-4		3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S17T034257		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY
S17T034257		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034257		67-64-1		Acetone	NGS	100	<6.7	8.4	n/a	n/a	n/a	n/a	6.7	n/a	UY
S17T034257		75-05-8		Acetonitrile	NGS	99	<3.3	170	n/a	n/a	n/a	n/a	3.3	n/a	UY
S17T034257		98-86-2		Acetophenone	NGS	94	<4.0	5.6	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034257		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S17T034257		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-7
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034257		107-06-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	UY
S17T034257		71-43-2		Benzene	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034257		100-47-0		Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	UY
S17T034257		123-72-8		Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034257		109-74-0		Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034257		56-23-5		Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034257		108-90-7		Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		75-00-3		Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	UY
S17T034257		67-66-3		Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		110-82-7		Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034257		124-18-5		Decane	NGS	96	<2.3	2.4	n/a	n/a	n/a	n/a	2.3	n/a	JY
S17T034257		64-17-5		Ethanol	NGS	88	<4.1	740	n/a	n/a	n/a	n/a	4.1	n/a	JY
S17T034257		141-78-6		Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		100-41-4		Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		110-00-9		Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S17T034257		110-54-3		Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034257		628-73-9		Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034257		126-98-7		Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S17T034257		75-09-2		Methylene Chloride	NGS	83	<3.0	9.0	n/a	n/a	n/a	n/a	3.0	n/a	JY
S17T034257		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034257		98-95-3		Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034257		110-59-8		Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		107-12-0		Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034257		110-86-1		Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034257		100-42-5		Styrene	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034257		127-18-4		Tetrachloroethene	NGS	98	<1.6	5.2	n/a	n/a	n/a	n/a	1.6	n/a	JY
S17T034257		108-88-3		Toluene	NGS	98	<1.4	1.5	n/a	n/a	n/a	n/a	1.4	n/a	JY

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 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-7

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034257			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|UY
S17T034257			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	2.7	n/a	n/a	n/a	n/a	1.6		n/a|UY
S17T034257			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|UY
S17T034257			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|UY
S17T034257			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|UY
S17T034257			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a UY

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Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-8

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034258		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034258		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034258		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034258		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034258		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034258		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034258		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
S17T034258		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034258		71-36-3		1-Butanol	NGS	94	<2.2	5.0	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034258		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034258		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034258		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034258		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034258		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034258		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034258		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034258		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034258		78-94-4		3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034258		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034258		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034258		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034258		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034258		67-64-1		Acetone	NGS	100	<6.7	<6.7	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034258		75-05-8		Acetonitrile	NGS	99	<3.3	2.1E+03	n/a	n/a	n/a	n/a	3.3	n/a	EY
S17T034258		98-86-2		Acetophenone	NGS	94	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034258		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034258		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 U - Less Than Detection Limit

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-EF-8
 Customer Sample ID: 17-05613-2-SC1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Dat Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034258			107-05-1	Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034258			71-43-2	Benzene	NGS	98	<1.2	<-1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034258			100-47-0	Benzonitrile	NGS	98	<1.7	<-1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034258			123-72-8	Butanal	NGS	94	<1.5	<-1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034258			109-74-0	Butanenitrile	NGS	95	<1.9	<-1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034258			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<-1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034258			108-90-7	Chlorobenzene	NGS	95	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034258			75-00-3	Chloroethane	NGS	100	<4.5	<-4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034258			67-86-3	Chloroform	NGS	99	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034258			110-82-7	Cyclohexane	NGS	99	<2.7	<-2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034258			124-18-5	Decane	NGS	96	<2.3	3.8	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034258			64-17-5	Ethanol	NGS	88	<4.1	620	n/a	n/a	n/a	n/a	4.1		n/a
S17T034258			141-78-6	Ethyl acetate	NGS	100	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034258			100-41-4	Ethylbenzene	NGS	97	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034258			110-00-9	Furan	NGS	85	<4.2	<-4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034258			110-54-3	Hexane	NGS	98	<2.0	<-2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034258			628-73-9	Hexanenitrile	NGS	97	<1.2	<-1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034258			126-98-7	Methacrylonitrile	NGS	95	<1.1	<-1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034258			75-09-2	Methylene Chloride	NGS	83	<3.0	<-3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034258			91-20-3	Naphthalene	NGS	100	<2.1	<-2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034258			98-95-3	Nitrobenzene	NGS	94	<1.8	<-1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034258			110-59-8	Pentanitrile	NGS	95	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034258			107-12-0	Propanenitrile	NGS	98	<2.1	<-2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034258			110-86-1	Pyridine	NGS	96	<1.2	<-1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034258			100-42-5	Styrene	NGS	98	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034258			127-18-4	Tetrachloroethene	NGS	98	<1.6	3.5	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034258			108-88-3	Toluene	NGS	98	<1.4	1.7	n/a	n/a	n/a	n/a	1.4		n/a J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-8

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034258		79-01-6		Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034258		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	3.3	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034258		10061-01-5		cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034258		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034258		142-82-5		n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034258		10061-02-6		trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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NA = Not Analyzed, ND = Not Detected
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-1
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034259		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034259		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034259		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034259		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034259		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034259		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034259		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
S17T034259		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034259		71-36-3		1-Butanol	NGS	94	<2.2	54	n/a	n/a	n/a	n/a	2.2	n/a	
S17T034259		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034259		71-23-8		1-Propanol	NGS	95	<4.0	11	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034259		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034259		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034259		78-93-3		2-Butanone	NGS	98	<2.6	14	n/a	n/a	n/a	n/a	2.6	n/a	
S17T034259		110-43-0		2-Heptanone	NGS	98	<1.6	3.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034259		591-78-6		2-Hexanone	NGS	97	<1.6	3.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034259		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034259		78-94-1		3-Buten-2-one	NGS	96	<2.3	4.3	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034259		105-35-4		3-Heptanone	NGS	96	<1.4	54	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034259		108-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034259		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034259		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	1.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034259		57-64-1		Acetone	NGS	100	<6.7	4.0	n/a	n/a	n/a	n/a	6.7	n/a	E
S17T034259		75-05-8		Acetonitrile	NGS	99	<3.3	83	n/a	n/a	n/a	n/a	3.3	n/a	
S17T034259		98-86-2		Acetophenone	NGS	94	<4.0	13	n/a	n/a	n/a	n/a	4.0	n/a	
S17T034259		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034259		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-1
 Customer Sample ID: 17-05613-2-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 VOA #2															
S177034259			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034259			71-43-2	Benzene	NGS	98	<1.2	3.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034259			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034259			123-72-8	Butanal	NGS	94	<1.5	7.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034259			109-74-0	Butanenitrile	NGS	95	<1.9	6.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034259			56-23-5	Carbon tetrachloride	NGS	95	<1.3	1.5	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034259			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034259			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034259			87-86-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034259			110-82-7	Cyclohexane	NGS	99	<2.7	2.8	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034259			124-18-5	Decane	NGS	96	<2.3	6.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034259			64-17-5	Ethanol	NGS	88	<4.1	1.9E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034259			141-78-6	Ethyl acetate	NGS	100	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034259			100-41-4	Ethylbenzene	NGS	97	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034259			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034259			110-54-3	Hexane	NGS	98	<2.0	4.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034259			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034259			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034259			75-09-2	Methylene Chloride	NGS	83	<3.0	5.4	n/a	n/a	n/a	n/a	3.0	n/a	J
S177034259			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034259			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034259			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034259			107-12-0	Propanenitrile	NGS	96	<2.1	7.7	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034259			110-96-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034259			100-42-5	Styrene	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034259			127-18-4	Tetrachloroethene	NGS	98	<1.6	5.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034259			108-88-3	Toluene	NGS	98	<1.4	6.9	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-IN-1

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034259			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034259			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	92	n/a	n/a	n/a	n/a	1.6		n/a
S17T034259			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034259			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034259			142-82-5	n-Heptane	NGS	94	<1.5	5.3	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034259			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-8
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034260		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034260		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034260		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034260		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034260		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034260		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034260		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
S17T034260		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034260		71-36-3		1-Butanol	NGS	94	<2.2	25	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034260		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034260		71-23-8		1-Propanol	NGS	95	<4.0	8.2	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034260		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034260		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034260		78-93-3		2-Butanone	NGS	98	<2.6	11	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034260		110-43-0		2-Heptanone	NGS	98	<1.6	2.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034260		591-78-6		2-Hexanone	NGS	97	<1.6	3.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034260		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034260		78-94-4		3-Buten-2-one	NGS	96	<2.3	3.2	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034260		106-35-4		3-Heptanone	NGS	96	<1.4	49	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034260		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034260		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034260		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	1.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034260		67-64-1		Acetone	NGS	100	<6.7	140	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034260		75-05-8		Acetonitrile	NGS	99	<3.3	100	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034260		98-86-2		Acetophenone	NGS	94	<4.0	5.2	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034260		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034260		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-8
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034260			107-05-1	Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034260			71-43-2	Benzene	NGS	98	<1.2	3.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034260			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034260			123-72-8	Butanal	NGS	94	<1.5	6.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034260			109-74-0	Butanenitrile	NGS	95	<1.9	6.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S17T034260			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034260			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034260			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034260			67-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034260			110-82-7	Cyclohexane	NGS	99	<2.7	2.7	n/a	n/a	n/a	n/a	2.7	n/a	J
S17T034260			124-18-5	Decane	NGS	96	<2.3	2.3	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034260			64-17-5	Ethanol	NGS	88	<4.1	1.8E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S17T034260			141-78-6	Ethyl acetate	NGS	100	<1.4	3.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034260			100-41-4	Ethylbenzene	NGS	97	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034260			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034260			110-54-3	Hexane	NGS	98	<2.0	5.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034260			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034260			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034260			75-09-2	Methylene Chloride	NGS	83	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034260			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034260			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034260			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034260			107-12-0	Propanenitrile	NGS	98	<2.1	7.0	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034260			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034260			100-42-5	Styrene	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034260			127-18-4	Tetrachloroethene	NGS	98	<1.6	9.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034260			108-88-3	Toluene	NGS	98	<1.4	11	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-8
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034260		79-01-6		Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034260		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	140	n/a	n/a	n/a	n/a	1.6		n/a
S17T034260		10061-01-5		cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034260		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034260		142-82-5		n-Heptane	NGS	94	<1.5	6.9	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034260		10061-02-6		trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-1
 Customer Sample ID: 17-05616-2-TL2-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOK-TDU VOA #2															
S17T034241		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034241		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034241		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034241		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034241		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034241		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034241		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
S17T034241		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034241		71-36-3		1-Butanol	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a|U
S17T034241		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034241		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034241		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034241		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034241		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034241		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034241		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034241		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034241		78-94-4		3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034241		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034241		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034241		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034241		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034241		67-64-1		Acetone	NGS	100	<6.7	15	n/a	n/a	n/a	n/a	6.7		n/a
S17T034241		75-05-8		Acetonitrile	NGS	99	<3.3	1.7E+03	n/a	n/a	n/a	n/a	3.3		n/a|E
S17T034241		98-96-2		Acetophenone	NGS	94	<4.0	7.1	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034241		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034241		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-1
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034241			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034241			71-43-2	Benzene	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034241			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034241			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034241			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034241			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034241			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034241			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034241			67-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034241			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034241			124-18-5	Decane	NGS	96	<2.3	6.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034241			84-17-5	Ethanol	NGS	88	<4.1	6.1	n/a	n/a	n/a	n/a	4.1	n/a	J
S17T034241			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034241			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034241			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034241			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034241			528-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034241			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034241			75-09-2	Methylene Chloride	NGS	83	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034241			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034241			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034241			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034241			107-12-0	Propanenitrile	NGS	96	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034241			110-86-1	Pyridine	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034241			100-42-5	Styrene	NGS	98	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034241			127-18-4	Tetrachloroethene	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034241			108-88-3	Toluene	NGS	98	<1.4	2.6	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-1
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034241		79-01-6		Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034241		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034241		10061-01-5		cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034241		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034241		142-82-5		n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034241		10061-02-6		trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-2
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034242			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034242			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034242			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034242			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034242			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034242			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034242			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
S17T034242			123-91-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034242			71-36-3	1-Butanol	NGS	94	<2.2	6.8	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034242			111-70-6	1-Heptanol	NGS	96	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034242			71-23-8	1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034242			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034242			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034242			78-93-3	2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034242			110-43-0	2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034242			591-78-6	2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034242			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034242			78-94-4	3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034242			106-35-4	3-Heptanone	NGS	96	<1.4	6.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034242			106-68-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034242			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034242			108-10-1	4-Methyl-2-pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034242			67-64-1	Acetone	NGS	100	<6.7	28	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034242			75-05-8	Acetonitrile	NGS	99	<3.3	1.9E+03	n/a	n/a	n/a	n/a	3.3	n/a	E
S17T034242			98-86-2	Acetophenone	NGS	94	<4.0	12	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034242			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034242			107-18-5	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-2
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034242			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034242			71-43-2	Benzene	NGS	98	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034242			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034242			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034242			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034242			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034242			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034242			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034242			67-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034242			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034242			124-18-5	Decane	NGS	96	<2.3	8.4	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034242			64-17-5	Ethanol	NGS	88	<4.1	47	n/a	n/a	n/a	n/a	4.1	n/a	
S17T034242			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034242			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034242			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034242			110-54-3	Hexane	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034242			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034242			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034242			75-09-2	Methylene Chloride	NGS	83	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034242			61-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034242			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034242			110-69-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034242			107-12-0	Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034242			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034242			100-42-5	Styrene	NGS	98	<1.4	2.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034242			127-18-4	Tetrachloroethene	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034242			108-88-3	Toluene	NGS	98	<1.4	4.1	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-2

Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034242			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034242			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034242			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034242			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034242			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034242			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-3
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034243			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034243			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034243			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034243			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034243			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034243			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034243			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
S17T034243			123-81-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034243			71-36-3	1-Butanol	NGS	94	<2.2	8.4	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034243			111-70-6	1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034243			71-23-8	1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034243			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034243			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034243			78-93-3	2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034243			110-43-0	2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034243			591-78-6	2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034243			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034243			78-94-4	3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034243			106-35-4	3-Heptanone	NGS	96	<1.4	5.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034243			106-88-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034243			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034243			108-10-1	4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034243			67-64-1	Acetone	NGS	100	<6.7	34	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034243			75-05-8	Acetonitrile	NGS	99	<3.3	230	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034243			98-86-2	Acetophenone	NGS	94	<4.0	18	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034243			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034243			107-18-6	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-3
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034243			107-05-1	Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034243			71-43-2	Benzene	NGS	98	<1.2	1.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034243			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034243			123-72-8	Butanal	NGS	94	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034243			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034243			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034243			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034243			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034243			67-86-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034243			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034243			124-18-5	Decane	NGS	96	<2.3	2.4	n/a	n/a	n/a	n/a	2.3	n/a	
S17T034243			64-17-5	Ethanol	NGS	88	<4.1	2.90	n/a	n/a	n/a	n/a	4.1	n/a	
S17T034243			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034243			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034243			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034243			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034243			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034243			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034243			75-09-2	Methylene Chloride	NGS	83	<3.0	3.2	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034243			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034243			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034243			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034243			107-12-0	Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034243			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034243			100-42-5	Styrene	NGS	98	<1.4	4.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034243			127-18-4	Tetrachloroethene	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034243			108-88-3	Toluene	NGS	98	<1.4	4.3	n/a	n/a	n/a	n/a	1.4	n/a	J

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Y - Comment

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 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-3
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034243			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034243			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034243			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034243			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034243			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034243			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

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 N - Named TIC

Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-4
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034244			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034244			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034244			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034244			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034244			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034244			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034244			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
S17T034244			123-91-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034244			71-36-3	1-Butanol	NGS	94	<2.2	37	n/a	n/a	n/a	n/a	2.2		n/a
S17T034244			111-70-6	1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034244			71-23-8	1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034244			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034244			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034244			78-93-3	2-Butanone	NGS	98	<2.6	2.9	n/a	n/a	n/a	n/a	2.6		n/a|J
S17T034244			110-43-0	2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034244			591-78-6	2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034244			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034244			78-84-4	3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034244			106-35-4	3-Heptanone	NGS	96	<1.4	1.6	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034244			106-68-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034244			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034244			108-10-1	4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034244			67-64-1	Acetone	NGS	100	<6.7	66	n/a	n/a	n/a	n/a	6.7		n/a
S17T034244			75-05-8	Acetonitrile	NGS	99	<3.3	220	n/a	n/a	n/a	n/a	3.3		n/a
S17T034244			98-86-2	Acetophenone	NGS	94	<4.0	15	n/a	n/a	n/a	n/a	4.0		n/a
S17T034244			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034244			107-18-6	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-4

Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034244			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	n/a
S17T034244			71-43-2	Benzene	NGS	98	<1.2	2.6	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034244			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	n/a
S17T034244			125-72-8	Butanal	NGS	94	<1.5	2.1	n/a	n/a	n/a	n/a	1.5	n/a	n/a
S17T034244			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a
S17T034244			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	n/a
S17T034244			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034244			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	n/a
S17T034244			67-86-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034244			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	n/a
S17T034244			124-18-5	Decane	NGS	96	<2.3	12	n/a	n/a	n/a	n/a	2.3	n/a	n/a
S17T034244			64-17-5	Ethanol	NGS	88	<4.1	730	n/a	n/a	n/a	n/a	4.1	n/a	n/a
S17T034244			141-78-6	Ethyl acetate	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034244			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034244			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	n/a
S17T034244			110-54-3	Hexane	NGS	98	<2.0	4.6	n/a	n/a	n/a	n/a	2.0	n/a	n/a
S17T034244			528-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034244			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	n/a
S17T034244			75-09-2	Methylene Chloride	NGS	83	<3.0	14	n/a	n/a	n/a	n/a	3.0	n/a	n/a
S17T034244			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a
S17T034244			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a
S17T034244			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034244			107-12-0	Propanenitrile	NGS	88	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	n/a
S17T034244			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034244			100-42-5	Styrene	NGS	98	<1.4	2.9	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034244			127-18-4	Tetrachloroethene	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S17T034244			108-88-3	Toluene	NGS	98	<1.4	6.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-4

Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034244		79-01-6		Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034244		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034244		10061-01-5		cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034244		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034244		142-82-5		n-Heptane	NGS	94	<1.5	1.5	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034244		10061-02-6		trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 N - Named TIC

Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detector Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-5
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034245			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034245			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034245			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034245			75-35-4	1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034245			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034245			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034245			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
S17T034245			123-91-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034245			71-36-3	1-Butanol	NGS	94	<2.2	9.5	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034245			111-70-6	1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034245			71-23-8	1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034245			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034245			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034245			78-93-3	2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034245			110-43-0	2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034245			591-78-6	2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034245			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034245			78-94-4	3-Butan-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034245			106-35-4	3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034245			106-68-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034245			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034245			108-10-1	4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034245			67-64-1	Acetone	NGS	100	<6.7	30	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034245			75-05-8	Acetonitrile	NGS	99	<3.3	210	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034245			98-86-2	Acetophenone	NGS	94	<4.0	8.5	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034245			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034245			107-18-6	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-5
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034245			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034245			71-43-2	Benzene	NGS	98	<1.2	1.3	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034245			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034245			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034245			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034245			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034245			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034245			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034245			67-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034245			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034245			124-18-5	Decane	NGS	96	<2.3	15	n/a	n/a	n/a	n/a	2.3		n/a
S17T034245			64-17-5	Ethanol	NGS	88	<4.1	730	n/a	n/a	n/a	n/a	4.1		n/a
S17T034245			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034245			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034245			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034245			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034245			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034245			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034245			75-09-2	Methylene Chloride	NGS	83	<3.0	7.9	n/a	n/a	n/a	n/a	3.0		n/a/J
S17T034245			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034245			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034245			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034245			107-12-0	Propanenitrile	NGS	96	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034245			110-88-1	Pyridine	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034245			100-42-5	Styrene	NGS	98	<1.4	3.8	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034245			127-18-4	Tetrachloroethene	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034245			108-88-3	Toluene	NGS	98	<1.4	3.0	n/a	n/a	n/a	n/a	1.4		n/a/J

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 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-5
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034245			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034245			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034245			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034245			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034245			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034245			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 E - Outside Calibration Range

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-6

Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034246		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034246		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034246		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034246		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034246		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034246		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034246		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
S17T034246		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034246		71-36-3		1-Butanol	NGS	94	<2.2	2.4	n/a	n/a	n/a	n/a	2.2		n/a|J
S17T034246		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034246		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034246		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034246		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034246		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034246		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034246		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034246		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034246		78-94-4		3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034246		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034246		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034246		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034246		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034246		67-64-1		Acetone	NGS	100	<6.7	21	n/a	n/a	n/a	n/a	6.7		n/a|U
S17T034246		75-05-8		Acetonitrile	NGS	99	<3.3	200	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034246		98-86-2		Acetophenone	NGS	94	<4.0	6.8	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034246		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034246		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-6
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034246			107-05-1	Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034246			71-43-2	Benzene	NGS	98	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034246			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034246			123-72-8	Butanal	NGS	94	<1.5	<-1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034246			109-74-0	Butanenitrile	NGS	95	<1.9	<-1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034246			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<-1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034246			108-90-7	Chlorobenzene	NGS	95	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034246			75-00-3	Chloroethane	NGS	100	<4.5	<-4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034246			67-86-3	Chloroform	NGS	99	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034246			110-82-7	Cyclohexane	NGS	99	<2.7	<-2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034246			124-18-5	Decane	NGS	96	<2.3	9.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034246			64-17-5	Ethanol	NGS	88	<4.1	610	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034246			141-78-6	Ethyl acetate	NGS	100	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034246			100-41-4	Ethylbenzene	NGS	97	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034246			110-00-9	Furan	NGS	85	<4.2	<-4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034246			110-54-3	Hexane	NGS	98	<2.0	2.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034246			628-73-9	Hexanenitrile	NGS	97	<1.2	<-1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034246			126-98-7	Methacrylonitrile	NGS	95	<1.1	<-1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034246			75-09-2	Methylene Chloride	NGS	83	<3.0	<-3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034246			91-20-3	Naphthalene	NGS	100	<2.1	<-2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034246			98-95-3	Nitrobenzene	NGS	94	<1.8	<-1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034246			110-59-8	Pentanitrile	NGS	95	<1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034246			107-12-0	Propanenitrile	NGS	96	<2.1	<-2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034246			110-86-1	Pyridine	NGS	98	<1.2	<-1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034246			100-42-5	Styrene	NGS	98	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034246			127-18-4	Tetrachloroethene	NGS	98	<1.6	<-1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034246			108-88-3	Toluene	NGS	98	<1.4	7.8	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-6
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034246			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034246			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034246			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034246			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034246			142-82-5	n-Heptane	NGS	94	<1.5	2.0	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034246			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

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 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-7
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034247		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034247		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034247		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034247		75-35-4		1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034247		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034247		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034247		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
S17T034247		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034247		71-36-3		1-Butanol	NGS	94	<2.2	20	n/a	n/a	n/a	n/a	2.2		n/a|J
S17T034247		111-70-6		1-Heptanol	NGS	88	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034247		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034247		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034247		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034247		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034247		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034247		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034247		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034247		78-94-4		3-Butan-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034247		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034247		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034247		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034247		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034247		67-64-1		Acetone	NGS	100	<6.7	31	n/a	n/a	n/a	n/a	6.7		n/a
S17T034247		75-05-8		Acetonitrile	NGS	99	<3.3	57	n/a	n/a	n/a	n/a	3.3		n/a
S17T034247		98-86-2		Acetophenone	NGS	94	<4.0	5.9	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034247		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034247		107-18-5		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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 U - Less Than Detection Limit

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-7
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034247			107-05-1	Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034247			71-43-2	Benzene	NGS	98	<1.2	1.7	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034247			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034247			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034247			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034247			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034247			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034247			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034247			67-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034247			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034247			124-18-5	Decane	NGS	96	<2.3	6.5	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034247			64-17-5	Ethanol	NGS	88	<4.1	620	n/a	n/a	n/a	n/a	4.1		n/a
S17T034247			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034247			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034247			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034247			110-54-3	Hexane	NGS	98	<2.0	3.5	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034247			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034247			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034247			75-09-2	Methylene Chloride	NGS	83	<3.0	8.8	n/a	n/a	n/a	n/a	3.0		n/a/J
S17T034247			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034247			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034247			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034247			107-12-0	Propanenitrile	NGS	96	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034247			110-86-1	Pyridine	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034247			100-42-5	Styrene	NGS	98	<1.4	1.9	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034247			127-18-4	Tetrachloroethene	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034247			108-88-3	Toluene	NGS	98	<1.4	4.1	n/a	n/a	n/a	n/a	1.4		n/a/J

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 E - Outside Calibration Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173091
SDG Number:
Customer Sample ID: 17-05616-2-TL2-EF-7
Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034247			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034247			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034247			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034247			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034247			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034247			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-8

Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034248		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	n/a
S17T034248		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034248		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a
S17T034248		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	n/a
S17T034248		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S17T034248		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	n/a
S17T034248		106-46-7		1,4-Dichlorobenzene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	n/a
S17T034248		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	n/a
S17T034248		71-36-3		1-Butanol	NGS	94	<2.2	14	n/a	n/a	n/a	n/a	2.2	n/a	n/a
S17T034248		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	n/a
S17T034248		71-23-8		1-Propanol	NGS	95	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	n/a
S17T034248		106-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	n/a
S17T034248		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a
S17T034248		78-93-3		2-Butanone	NGS	98	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	n/a
S17T034248		110-43-0		2-Heptanone	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S17T034248		591-78-6		2-Hexanone	NGS	97	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S17T034248		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S17T034248		78-94-4		3-Buten-2-one	NGS	96	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	n/a
S17T034248		106-35-4		3-Heptanone	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034248		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	n/a
S17T034248		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S17T034248		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S17T034248		67-64-1		Acetone	NGS	100	<6.7	18	n/a	n/a	n/a	n/a	6.7	n/a	n/a
S17T034248		75-05-8		Acetonitrile	NGS	99	<3.3	150	n/a	n/a	n/a	n/a	3.3	n/a	n/a
S17T034248		98-86-2		Acetophenone	NGS	94	<4.0	5.1	n/a	n/a	n/a	n/a	4.0	n/a	n/a
S17T034248		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	n/a
S17T034248		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-8
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034248			107-05-1	Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034248			71-43-2	Benzene	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034248			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034248			123-72-8	Butanal	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034248			109-74-0	Butanenitrile	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034248			56-23-5	Carbon tetrachloride	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034248			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034248			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034248			87-86-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034248			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034248			124-18-5	Decane	NGS	96	<2.3	12	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034248			64-17-5	Ethanol	NGS	88	<4.1	580	n/a	n/a	n/a	n/a	4.1		n/a|U
S17T034248			141-78-6	Ethyl acetate	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034248			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034248			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034248			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034248			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034248			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034248			75-09-2	Methylene Chloride	NGS	83	<3.0	5.5	n/a	n/a	n/a	n/a	3.0		n/a|J
S17T034248			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034248			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034248			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034248			107-12-0	Propanenitrile	NGS	98	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034248			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034248			100-42-5	Styrene	NGS	98	<1.4	2.5	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034248			127-18-4	Tetrachloroethene	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034248			108-88-3	Toluene	NGS	98	<1.4	3.0	n/a	n/a	n/a	n/a	1.4		n/a J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-EF-8
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034248			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034248			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034248			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034248			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034248			142-82-5	n-Heptane	NGS	94	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034248			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-1
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034249		79-34-5		1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034249		79-00-5		1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034249		75-34-3		1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034249		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034249		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034249		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034249		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
S17T034249		123-91-1		1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034249		71-36-3		1-Butanol	NGS	94	<2.2	33	n/a	n/a	n/a	n/a	2.2	n/a	
S17T034249		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034249		71-23-8		1-Propanol	NGS	95	<4.0	6.4	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034249		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034249		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034249		78-93-3		2-Butanone	NGS	98	<2.6	17	n/a	n/a	n/a	n/a	2.6	n/a	
S17T034249		110-43-0		2-Heptanone	NGS	98	<1.6	2.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034249		591-78-6		2-Hexanone	NGS	97	<1.6	3.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034249		534-22-5		2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034249		78-94-4		3-Buten-2-one	NGS	96	<2.3	4.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034249		106-35-4		3-Heptanone	NGS	96	<1.4	43	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034249		106-68-3		3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034249		105-42-0		4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034249		108-10-1		4-Methyl-2-Pentanone	NGS	92	<1.6	2.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034249		57-64-1		Acetone	NGS	100	<6.7	410	n/a	n/a	n/a	n/a	6.7	n/a	E
S17T034249		75-05-8		Acetonitrile	NGS	99	<3.3	100	n/a	n/a	n/a	n/a	3.3	n/a	
S17T034249		98-86-2		Acetophenone	NGS	94	<4.0	9.1	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034249		107-13-1		Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034249		107-18-6		Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-1
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034249			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034249			71-43-2	Benzene	NGS	98	<1.2	3.8	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034249			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034249			123-72-8	Butanal	NGS	94	<1.5	7.8	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034249			109-74-0	Butanenitrile	NGS	95	<1.9	7.4	n/a	n/a	n/a	n/a	1.9		n/a|J
S17T034249			56-23-5	Carbon tetrachloride	NGS	95	<1.3	1.5	n/a	n/a	n/a	n/a	1.3		n/a|J
S17T034249			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034249			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034249			67-86-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034249			110-82-7	Cyclohexane	NGS	99	<2.7	2.7	n/a	n/a	n/a	n/a	2.7		n/a|J
S17T034249			124-18-5	Decane	NGS	96	<2.3	14	n/a	n/a	n/a	n/a	2.3		n/a
S17T034249			64-17-5	Ethanol	NGS	88	<4.1	2.0E+03	n/a	n/a	n/a	n/a	4.1		n/a|E
S17T034249			141-78-6	Ethyl acetate	NGS	100	<1.4	3.6	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034249			100-41-4	Ethylbenzene	NGS	97	<1.4	1.6	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034249			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034249			110-54-3	Hexane	NGS	98	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034249			628-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034249			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034249			75-09-2	Methylene Chloride	NGS	83	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034249			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034249			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034249			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034249			107-12-0	Propanenitrile	NGS	98	<2.1	7.8	n/a	n/a	n/a	n/a	2.1		n/a|J
S17T034249			110-86-1	Pyridine	NGS	96	<1.2	1.3	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034249			100-42-5	Styrene	NGS	98	<1.4	3.4	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034249			127-18-4	Tetrachloroethene	NGS	98	<1.6	5.4	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034249			108-88-3	Toluene	NGS	98	<1.4	8.0	n/a	n/a	n/a	n/a	1.4		n/a J

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 U - Less Than Detection Limit

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-1
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034249			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034249			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	100	n/a	n/a	n/a	n/a	1.6	n/a	
S17T034249			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034249			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034249			142-82-5	n-Heptane	NGS	94	<1.5	6.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034249			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-8
 Customer Sample ID: 17-05616-2-TL2-IN-8

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034250			79-34-5	1,1,2,2-Tetrachloroethane	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034250			79-00-5	1,1,2-Trichloroethane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034250			75-34-3	1,1-Dichloroethane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S177034250			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S177034250			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034250			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034250			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
S177034250			123-91-1	1,4-Dioxane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034250			71-36-3	1-Butanol	NGS	94	<2.2	48	n/a	n/a	n/a	n/a	2.2		n/a
S177034250			111-70-6	1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S177034250			71-23-8	1-Propanol	NGS	95	<4.0	9.3	n/a	n/a	n/a	n/a	4.0		n/a/J
S177034250			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S177034250			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S177034250			78-93-3	2-Butanone	NGS	98	<2.6	12	n/a	n/a	n/a	n/a	2.6		n/a
S177034250			110-43-0	2-Heptanone	NGS	98	<1.6	2.7	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034250			591-78-6	2-Hexanone	NGS	97	<1.6	3.3	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034250			534-22-5	2-Methylfuran	NGS	92	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S177034250			78-94-4	3-Buten-2-one	NGS	96	<2.3	3.5	n/a	n/a	n/a	n/a	2.3		n/a/J
S177034250			106-35-4	3-Heptanone	NGS	96	<1.4	46	n/a	n/a	n/a	n/a	1.4		n/a
S177034250			106-68-3	3-Octanone	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S177034250			105-42-0	4-Methyl-2-hexanone	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034250			108-10-1	4-Methyl-2-Pentanone	NGS	92	<1.6	1.8	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034250			67-64-1	Acetone	NGS	100	<6.7	200	n/a	n/a	n/a	n/a	6.7		n/a
S177034250			75-05-8	Acetonitrile	NGS	99	<3.3	270	n/a	n/a	n/a	n/a	3.3		n/a
S177034250			98-86-2	Acetophenone	NGS	94	<4.0	5.5	n/a	n/a	n/a	n/a	4.0		n/a/J
S177034250			107-13-1	Acrylonitrile	NGS	98	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S177034250			107-18-6	Allyl Alcohol	NGS	88	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-8
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034250			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034250			71-43-2	Benzene	NGS	98	<1.2	3.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034250			100-47-0	Benzonitrile	NGS	98	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034250			123-72-8	Butanal	NGS	94	<1.5	8.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034250			109-74-0	Butanenitrile	NGS	95	<1.9	6.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S17T034250			56-23-5	Carbon tetrachloride	NGS	95	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S17T034250			108-90-7	Chlorobenzene	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034250			75-00-3	Chloroethane	NGS	100	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034250			57-66-3	Chloroform	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034250			110-82-7	Cyclohexane	NGS	99	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034250			124-18-5	Decane	NGS	96	<2.3	11	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034250			54-17-5	Ethanol	NGS	88	<4.1	1.6E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S17T034250			141-78-6	Ethyl acetate	NGS	100	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034250			100-41-4	Ethylbenzene	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034250			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034250			110-54-3	Hexane	NGS	98	<2.0	5.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034250			528-73-9	Hexanenitrile	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034250			126-98-7	Methacrylonitrile	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034250			75-09-2	Methylene Chloride	NGS	83	<3.0	8.3	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034250			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034250			98-95-3	Nitrobenzene	NGS	94	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034250			110-59-8	Pentanitrile	NGS	95	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034250			107-12-0	Propanenitrile	NGS	98	<2.1	7.4	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034250			110-86-1	Pyridine	NGS	96	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034250			100-42-5	Styrene	NGS	98	<1.4	2.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034250			127-18-4	Tetrachloroethene	NGS	98	<1.6	7.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034250			108-88-3	Toluene	NGS	98	<1.4	6.1	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-8
 Customer Sample ID: 17-05616-2-TL2-IN-8

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034250			79-01-6	Trichloroethene	NGS	89	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034250			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	140	n/a	n/a	n/a	n/a	1.6		n/a
S17T034250			10061-01-5	cis-1,3-Dichloropropene	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034250			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034250			142-82-5	n-Heptane	NGS	94	<1.5	5.1	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034250			10061-02-6	trans-1,3-Dichloropropene	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-1
 Customer Sample ID: 17-05613-2-SC1-EF-1

Daniel Hansen
James D Hansen
 11-29-17

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034251				Methyl formate	107-31-3	5.79	NGS	74	JNTY
S17T034251				Acetic acid	64-19-7	11.30	NGS	5.7	JNTY
S17T034251				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	28	JNTY
S17T034251				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	200	JNTY
S17T034251				Limonene	138-86-3	25.36	NGS	71	JNTY
S17T034251				Decane, 3,7-dimethyl-	17312-54-8	25.62	NGS	160	JNTY
S17T034251				Undecane, 3,7-dimethyl-	17301-29-0	25.74	NGS	58	JNTY
S17T034251				Hexanoic acid, 2-ethyl-	149-57-5	26.29	NGS	39	JNTY
S17T034251				Undecane	1120-21-4	26.33	NGS	45	JNTY
S17T034251				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	180	JNTY
S17T034251				Undecane, 5,7-dimethyl-	17312-83-3	26.58	NGS	71	JNTY
S17T034251				Silane, trichlorodocosyl-	7325-84-0	26.64	NGS	49	JNTY
S17T034251				Unknown-1		26.71	NGS	53	JTY
S17T034251				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.83	NGS	280	JNTY
S17T034251				Oxirane, decyl-	2855-19-8	27.53	NGS	28	JNTY
S17T034251				Undecane, 3-methyl-	1002-43-3	27.77	NGS	12	JNTY
S17T034251				Heptadecane, 2,6-dimethyl-	54105-67-8	28.26	NGS	52	JNTY
S17T034251				Unknown-2		28.61	NGS	32	JTY
S17T034251				Octane, 2,3,6,7-tetramethyl-	52670-34-5	29.93	NGS	80	JNTY
S17T034251				Unknown-3		30.08	NGS	97	JTY
S17T034251				Unknown-4		30.74	NGS	27	JTY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-2
 Customer Sample ID: 17-05613-2-SC1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034252				Methyl formate	107-31-3	5.79	NGS	50	JNT
S17T034252				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	32	JNT
S17T034252				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	230	JNT
S17T034252				Limonene	138-86-3	25.39	NGS	99	JNT
S17T034252				Dodecane, 2,7,10-trimethyl-	74645-98-0	25.64	NGS	190	JNT
S17T034252				Undecane, 4-methyl-	2980-69-0	25.76	NGS	72	JNT
S17T034252				2,6-Dimethyl-5-trifluoroacetox	61896-67-2	26.11	NGS	27	JNT
S17T034252				Hexanoic acid, 2-ethyl-	149-57-5	26.31	NGS	62	JNT
S17T034252				Undecane, 2,6-dimethyl-	17301-23-4	26.34	NGS	43	JNT
S17T034252				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	200	JNT
S17T034252				Decane, 3,7-dimethyl-	17312-54-8	26.59	NGS	83	JNT
S17T034252				1-Octanol, 2-butyl-	9913-02-8	26.64	NGS	63	JNT
S17T034252				3,3-Dimethylhexane	563-16-6	26.71	NGS	54	JNT
S17T034252				Benzaldehyde, 2,5-bis(trimeth	56114-69-3	26.83	NGS	330	JNT
S17T034252				2-Octylcyclopropene-1-heptanol	54487-85-5	27.52	NGS	28	JNT
S17T034252				Hydroxylamine, O-decyl-	29812-79-1	28.25	NGS	62	JNT
S17T034252				Unknown-1		28.59	NGS	26	JT
S17T034252				Unknown-2		29.90	NGS	75	JT
S17T034252				Heptadecane, 2,6-dimethyl-	54105-67-8	30.08	NGS	120	JNT
S17T034252				Unknown-3		30.72	NGS	32	JT

J - Estimated
 E - Outside Calibration Range
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 NA = Not Analyzed, ND = Not Detected
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-3
 Customer Sample ID: 17-05613-2-SC1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034253				Methyl formate	107-31-3	5.80	NGS	37	JNT
S17T034253				Cyclotrisiloxane, hexamethyl-	541-05-9	19.34	NGS	33	JNT
S17T034253				Cyclooctasiloxane, octamethyl	556-67-2	23.60	NGS	230	JNT
S17T034253				Limonene	138-86-3	25.35	NGS	100	JNT
S17T034253				Undecane, 3,7-dimethyl-	17301-29-0	25.60	NGS	180	JNT
S17T034253				Decane, 2,4,6-trimethyl-	62108-27-4	25.73	NGS	64	JNT
S17T034253				Heptanoic acid, 2-ethyl-	3274-29-1	26.29	NGS	61	JNT
S17T034253				Undecane, 2,6-dimethyl-	17301-23-4	26.32	NGS	43	JNT
S17T034253				3,3-Dimethylhexane	563-16-6	26.46	NGS	190	JNT
S17T034253				Octane, 2,3,6,7-tetraethyl-	52670-34-5	26.57	NGS	81	JNT
S17T034253				Hexyl octyl ether	17071-54-4	26.63	NGS	85	JNT
S17T034253				Undecane, 5,7-dimethyl-	17312-83-3	26.71	NGS	55	JNT
S17T034253				Benzaldehyde, 2,4-bis(trimethyl-	33617-38-8	26.82	NGS	330	JNT
S17T034253				Pentadecanal-	2765-11-9	27.53	NGS	32	JNT
S17T034253				Undecane, 3-methyl-	1002-43-3	27.76	NGS	14	JNT
S17T034253				2,6-Dimethyldecane	13150-81-7	28.25	NGS	66	JNT
S17T034253				9-Octadecenal, (Z)-	2423-10-1	28.60	NGS	30	JNT
S17T034253				Unknown-1		29.85	NGS	62	JT
S17T034253				Unknown-2		29.92	NGS	68	JT
S17T034253				Heptadecane, 2,6-dimethyl-	54105-67-8	30.08	NGS	150	JNT
S17T034253				Unknown-3		30.73	NGS	35	JT

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 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-4
 Customer Sample ID: 17-05613-2-SC1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034254				Methyl formate	107-31-3	5.84	NGS	51	JNT
S17T034254				2-butenal	4170303	11.16	NGS	5.5	JNT
S17T034254				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	30	JNT
S17T034254				Hydroxylamine, O-decyl-	29812-79-1	19.54	NGS	29	JNT
S17T034254				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	210	JNT
S17T034254				Limonene	138-86-3	25.36	NGS	200	JNT
S17T034254				Decane, 3,7-dimethyl-	17312-54-8	25.62	NGS	98	JNT
S17T034254				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.74	NGS	36	JNT
S17T034254				Hexanoic acid, 2-ethyl-	149-57-5	26.29	NGS	28	JNT
S17T034254				Undecane	1120-21-4	26.34	NGS	32	JNT
S17T034254				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	100	JNT
S17T034254				Undecane, 4-methyl-	2980-69-0	26.58	NGS	43	JNT
S17T034254				1-Octanol, 2-butyl-	3919-02-8	26.64	NGS	44	JNT
S17T034254				Decane, 2,6,8-trimethyl-	62108-26-3	26.72	NGS	31	JNT
S17T034254				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.83	NGS	380	JNT
S17T034254				9-Octadecene, 1-methoxy-, (E)-	56847-01-9	27.53	NGS	30	JNT
S17T034254				Undecane, 3-methyl-	1002-43-3	27.77	NGS	15	JNT
S17T034254				Heptadecane, 2,6-dimethyl-	54105-67-8	28.26	NGS	110	JNT
S17T034254				Unknown-1		28.61	NGS	33	JT
S17T034254				Unknown-2		29.87	NGS	43	JT
S17T034254				Unknown-3		29.93	NGS	130	JT
S17T034254				Tetradecane	629-59-4	30.10	NGS	160	JNT
S17T034254				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.37	NGS	27	JNT
S17T034254				Heptafluorobutyric acid, n-oct	400-57-7	30.47	NGS	30	JNT
S17T034254				1-Iodo-2-methylundecane	73105-67-6	30.74	NGS	84	JNT
S17T034254				Tetracontane, 3,5,24-trimethyl	55162-61-3	30.93	NGS	30	JNT

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 E - Outside Calibration Range
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**2017 Cartridge Evaluation
Data Summary of All Results**

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-4

NA = Not Analyzed, ND = Not Detected
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Y - Comment

T - Tentatively Identified Compound
U - Less Than Detection Limit

J - Estimated
E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-5
 Customer Sample ID: 17-05613-2-SC1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034255				Methyl formate	107-31-3	5.79	NGS	120	JNT
S17T034255				Cyclotrisiloxane, hexamethyl-	541-05-9	19.35	NGS	58	JNT
S17T034255				Hydroxylamine, O-decyl-	29812-79-1	19.54	NGS	35	JNT
S17T034255				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	340	JNT
S17T034255				Limonene	138-86-3	25.36	NGS	72	JNT
S17T034255				Decane, 3,7-dimethyl-	17312-54-8	25.61	NGS	300	JNT
S17T034255				Dodecane, 2,7,10-trimethyl-	74645-98-0	25.74	NGS	110	JNT
S17T034255				2,6-Dimethyl-6-trifluoroacetox	61986-67-2	26.10	NGS	49	JNT
S17T034255				Unknown-1		26.31	NGS	50	JT
S17T034255				Undecane	1120-21-4	26.33	NGS	88	JNT
S17T034255				Undecane, 4-methyl-	2980-89-0	26.42	NGS	32	JNT
S17T034255				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	260	JNT
S17T034255				Dodecane	112-40-3	26.58	NGS	130	JNT
S17T034255				1-Octanol, 2-butyl-	3913-02-8	26.64	NGS	25	JNT
S17T034255				Octane, 2,3,6,7-tetramethyl-	52670-34-5	26.71	NGS	71	JNT
S17T034255				Benzaldehyde, 2,5-bis(trimeth	56114-69-3	26.83	NGS	380	JNT
S17T034255				2-Hexyl-1-octanol	19780-79-1	27.45	NGS	27	JNT
S17T034255				cis-9,10-Epoxyoctadecan-1-ol	13980-12-6	27.53	NGS	48	JNT
S17T034255				5-Ethyldecane	17302-36-2	27.77	NGS	27	JNT
S17T034255				2,6-Dimethyldecane	13160-81-7	28.26	NGS	110	JNT
S17T034255				Heptadecane, 2,6,10,15-tetrame	54833-48-6	29.93	NGS	140	JNT
S17T034255				1,2,3,4,5-Cyclopentanepentol	56772-25-9	30.08	NGS	82	JNT
S17T034255				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.74	NGS	61	JNT

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Y - Comment

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 U - Less Than Detection Limit

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-6

Customer Sample ID: 17-05613-2-SC1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034256				Methyl formate	107-31-3	5.79	NGS	130	JNT
S17T034256				Cycloletrasiloxane, octamethyl	556-67-2	23.61	NGS	100	JNT
S17T034256				Cyclohexene, 1-methyl-5-(1-met	1461-27-4	25.36	NGS	91	JNT
S17T034256				Decane, 3,7-dimethyl-	17312-54-8	25.61	NGS	42	JNT
S17T034256				Undecane	1120-21-4	26.32	NGS	32	JNT
S17T034256				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	41	JNT
S17T034256				Undecanal	112-44-7	26.63	NGS	30	JNT
S17T034256				Benzaldehyde, 2,5-bis(trimeth	56114-69-3	26.82	NGS	210	JNT
S17T034256				Heptadecane, 2,6-dimethyl-	54105-67-8	28.25	NGS	33	JNT
S17T034256				Decane, 2,6,8-trimethyl-	52108-26-3	30.09	NGS	80	JNT

J - Estimated
 E - Outside Calibration Range

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 U - Less Than Detection Limit

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-7
 Customer Sample ID: 17-05613-2-SC1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034257				Methyl formate	107-31-3	5.79	NGS	210	JNTY
S17T034257				Tetradecane	629-59-4	19.51	NGS	32	JNTY
S17T034257				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	100	JNTY
S17T034257				Limonene	138-86-3	25.36	NGS	55	JNTY
S17T034257				3,3-Dimethylhexane	563-16-6	25.61	NGS	56	JNTY
S17T034257				2,6-Dimethyldecane	13150-81-7	26.47	NGS	51	JNTY
S17T034257				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.83	NGS	160	JNTY
S17T034257				Heptadecane, 2,6-dimethyl-	54105-67-8	28.25	NGS	27	JNTY
S17T034257				Unknown-1		29.92	NGS	35	JTY
S17T034257				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.09	NGS	52	JNTY

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Y - Comment

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 U - Less Than Detection Limit

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05613-2-SC1-EF-8

Customer Sample ID: 17-05613-2-SC1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034258				Methyl formate	107-31-3	5.81	NGS	280	JNT
S17T034258				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	68	JNT
S17T034258				Limonene	138-86-3	25.36	NGS	57	JNT
S17T034258				Tridecane	629-50-5	25.61	NGS	34	JNT
S17T034258				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	31	JNT
S17T034258				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.83	NGS	130	JNT
S17T034258				Heptadecane, 2,6-dimethyl-	54105-67-8	28.25	NGS	27	JNT
S17T034258				Unknown-1		29.92	NGS	35	JT
S17T034258				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.09	NGS	41	JNT

J - Estimated
 E - Outside Calibration Range

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 U - Less Than Detection Limit

Y - Comment

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 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-IN-1
 Customer Sample ID: 17-05613-2-SC1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034259				Methyl formate	107-31-3	5.81	NGS	72	JNT
S17T034259				isopropyl Alcohol	67-63-0	7.55	NGS	35	JNT
S17T034259				2-butenal	4170303	11.13	NGS	5.1	JNT
S17T034259				Acetic acid	64-19-7	11.82	NGS	230	JNT
S17T034259				Cyclohexane, hexamethyl-	541-05-9	19.35	NGS	35	JNT
S17T034259				Cyclohexane, octamethyl	556-67-2	23.61	NGS	180	JNT
S17T034259				Limonene	138-86-3	25.36	NGS	73	JNT
S17T034259				3,3-Dimethylhexane	563-16-6	25.61	NGS	150	JNT
S17T034259				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.74	NGS	58	JNT
S17T034259				Heptanoic acid, 2-ethyl-	3274-29-1	26.29	NGS	42	JNT
S17T034259				Undecane	1120-21-4	26.33	NGS	47	JNT
S17T034259				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	170	JNT
S17T034259				Undecane, 4,7-dimethyl-	17301-32-5	26.58	NGS	76	JNT
S17T034259				Undecane, 5,7-dimethyl-	17312-83-3	26.71	NGS	73	JNT
S17T034259				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.83	NGS	240	JNT
S17T034259				2-Ethyl-1-dodecanol	19780-33-7	27.13	NGS	31	JNT
S17T034259				Oxirane, decyl-	2855-19-8	27.52	NGS	27	JNT
S17T034259				Heptadecane, 2,6-dimethyl-	54105-67-8	28.25	NGS	47	JNT
S17T034259				Unknown-1		29.92	NGS	70	JT
S17T034259				Tridecane	629-50-5	30.09	NGS	89	JNT
S17T034259				Unknown-2		30.74	NGS	25	JT

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Y - Comment

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 U - Less Than Detection Limit

J - Estimated
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05613-2-SC1-IN-8
 Customer Sample ID: 17-05613-2-SC1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S177034260				Methyl formate	107-31-3	5.78	NGS	310	JNT
S177034260				Methyl Acetate	79-20-9	9.14	NGS	36	JNT
S177034260				2-butenal	4170303	11.11	NGS	5.6	JNT
S177034260				Acetic acid	64-19-7	11.76	NGS	220	JNT
S177034260				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	94	JNT
S177034260				Limonene	138-86-3	25.39	NGS	54	JNT
S177034260				Undecane, 4,7-dimethyl-	17301-32-5	25.65	NGS	47	JNT
S177034260				Undecane, 4-methyl-	2980-69-0	26.51	NGS	49	JNT
S177034260				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.87	NGS	120	JNT
S177034260				Heptadecane, 2,6-dimethyl-	54105-67-8	28.30	NGS	29	JNT
S177034260				Unknown-1		29.90	NGS	26	JT
S177034260				Unknown-2		29.95	NGS	44	JT
S177034260				Pentadecane, 7-methyl-	6165-40-8	30.12	NGS	64	JNT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-1

Customer Sample ID: 17-05616-2-TL2-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034241				Cyclotrisiloxane, hexamethyl-	541-05-9	19.30	NGS	37	JNT
S17T034241				Cyclotetrasiloxane, octamethyl	556-67-2	23.58	NGS	180	JNT
S17T034241				D-Limonene	5989-27-5	25.33	NGS	130	JNT
S17T034241				3,3-Dimethylhexane	563-16-6	25.57	NGS	87	JNT
S17T034241				Undecane, 5,7-dimethyl-	17312-83-3	25.70	NGS	28	JNT
S17T034241				Undecane	1120-21-4	26.30	NGS	27	JNT
S17T034241				Decane, 3,7-dimethyl-	17312-54-8	26.44	NGS	82	JNT
S17T034241				2,3-Dimethyldecane	17312-44-6	26.54	NGS	35	JNT
S17T034241				Undecanal	112-44-7	26.60	NGS	31	JNT
S17T034241				Decane, 2,4,6-trimethyl-	62108-27-4	26.68	NGS	29	JNT
S17T034241				Unknown-1		26.80	NGS	310	JT
S17T034241				Undecane, 3-methyl-	1002-43-3	27.73	NGS	13	JNT
S17T034241				Dodecane	112-40-3	28.22	NGS	67	JNT
S17T034241				Decane, 2,3,5,8-tetramethyl-	192823-15-7	29.89	NGS	72	JNT
S17T034241				Unknown-2		30.05	NGS	79	JT
S17T034241				Heptadecane, 2,6-dimethyl-	54105-67-8	30.70	NGS	38	JNT

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Y - Comment

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J - Estimated
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-2

Customer Sample ID: 17-05616-2-TL2-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034242				Cyclotrisiloxane, hexamethyl-	541-05-9	19.34	NGS	39	JNT
S17T034242				Cyclotetrasiloxane, octamethyl	556-67-2	23.60	NGS	240	JNT
S17T034242				D-Limonene	5989-27-5	25.37	NGS	150	JNT
S17T034242				Undecane	1120-21-4	25.63	NGS	170	JNT
S17T034242				Dodecane, 2,7,10-trimethyl-	74645-98-0	25.75	NGS	64	JNT
S17T034242				Hexanoic acid, 2-ethyl-	149-57-5	26.29	NGS	37	JNT
S17T034242				Tetradecane, 1-iodo-	19218-94-1	26.33	NGS	43	JNT
S17T034242				Unknown-1		26.47	NGS	170	JT
S17T034242				3,3-Dimethylhexane	563-16-6	26.57	NGS	73	JNT
S17T034242				Undecane, 4-methyl-	2980-69-0	26.71	NGS	49	JNT
S17T034242				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.82	NGS	380	JNT
S17T034242				2-Hexyl-1-octanol	19780-79-1	27.43	NGS	27	JNT
S17T034242				Oxirane, decyl-	2655-19-8	27.51	NGS	34	JNT
S17T034242				Decane, 2,4,6-trimethyl-	62108-27-4	27.58	NGS	17	JNT
S17T034242				Undecane, 3-methyl-	1002-43-3	27.74	NGS	22	JNT
S17T034242				Heptadecane, 2,6-dimethyl-	54105-67-8	28.23	NGS	93	JNT
S17T034242				Unknown-2		28.44	NGS	26	JT
S17T034242				Unknown-3		28.31	NGS	38	JT
S17T034242				Undecane, 2-methyl-	7045-71-8	29.89	NGS	93	JNT
S17T034242				1,2-Benzisothiazole	272-16-2	30.02	NGS	130	JNT
S17T034242				1-Iodo-2-methylundecane	73105-67-6	30.70	NGS	43	JNT

NA = Not Analyzed, ND = Not Detected
 N - Named TIC

Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-3
 Customer Sample ID: 17-05616-2-TL2-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034243				Cyclotrisiloxane, hexamethyl-	541-05-9	19.34	NGS	42	JNT
S17T034243				Cyclotetrasiloxane, octamethyl	556-67-2	23.60	NGS	230	JNT
S17T034243				Hydroxylamine, O-decyl-	29812-79-1	24.31	NGS	31	JNT
S17T034243				D-Limonene	5989-27-5	25.35	NGS	160	JNT
S17T034243				Decane, 2,4,6-trimethyl-	62108-27-4	25.60	NGS	180	JNT
S17T034243				2,6-Dimethyldecane	13150-81-7	25.72	NGS	65	JNT
S17T034243				1-Octene, 3,7-dimethyl-	4984-01-4	26.08	NGS	26	JNT
S17T034243				Hexanoic acid, 2-ethyl-	149-57-5	26.28	NGS	49	JNT
S17T034243				Undecane	1120-21-4	26.32	NGS	73	JNT
S17T034243				3,3-Dimethylhexane	563-16-6	26.45	NGS	190	JNT
S17T034243				Undecane, 4,7-dimethyl-	17301-32-5	26.56	NGS	120	JNT
S17T034243				Unknown-1		26.62	NGS	25	JT
S17T034243				Undecane, 5,7-dimethyl-	17312-83-3	26.70	NGS	81	JNT
S17T034243				Benzaldehyde, 2,5-bis(trimethyl-	56114-69-3	26.81	NGS	440	JNT
S17T034243				1-Octanol, 2-butyl-	3913-02-8	27.43	NGS	31	JNT
S17T034243				1,2-Epoxyundecane	17322-97-3	27.52	NGS	37	JNT
S17T034243				Undecane, 4-methyl-	2980-69-0	27.60	NGS	20	JNT
S17T034243				Undecane, 3-methyl-	1002-43-3	27.75	NGS	36	JNT
S17T034243				Dodecane	112-40-3	28.25	NGS	120	JNT
S17T034243				Ethylene diacrylate	2274-11-5	28.46	NGS	69	JNT
S17T034243				2-Hexyl-1-octanol	19780-79-1	28.55	NGS	29	JNT
S17T034243				1-Octanol, 3,7-dimethyl-	106-21-8	29.23	NGS	32	JNT
S17T034243				2-Propenoic acid, octyl ester	2499-59-4	29.33	NGS	110	JNT
S17T034243				2-Propenoic acid, tridecyl est	3076-04-8	29.54	NGS	30	JNT
S17T034243				Heptadecane, 2,6-dimethyl-	54105-67-8	29.75	NGS	20	JNT
S17T034243				Heptadecane, 2,6,10,15-tetrame	54833-48-6	29.91	NGS	120	JNT

J - Estimated
 E - Outside Calibration Range
 T - Tentatively Identified Compound
 U - Less Than Detection Limit
 Y - Comment
 NA = Not Analyzed, ND = Not Detected
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-3

Customer Sample ID: 17-05616-2-TL2-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034243				1,2-Benzisothiazole	272-16-2	30.04	NGS	130	JNT
S17T034243				1,2,3,4,5-Cyclopentanepentol	56772-25-9	30.05	NGS	76	JNT
S17T034243				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.19	NGS	26	JNT
S17T034243				1-Iodo-2-methylundecane	73105-67-6	30.35	NGS	26	JNT
S17T034243				1-Decanol, 2-hexyl-	2425-77-6	30.45	NGS	32	JNT
S17T034243				Hexadecane, 2,6,11,15-tetramet	504-44-9	30.72	NGS	74	JNT
S17T034243				Octadecane, 2,6-dimethyl-	75163-97-2	30.91	NGS	25	JNT

J - Estimated
 E - Outside Calibration Range

T - Tentatively Identified Compound
 U - Less Than Detection Limit

Y - Comment

NA = Not Analyzed, ND = Not Detected
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091

SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-4

Customer Sample ID: 17-05616-2-TL2-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034244				Methyl formate	107-31-3	5.79	NGS	56	JNT
S17T034244				Acetic acid	64-19-7	11.34	NGS	10	JNT
S17T034244				Cyclofrsiloxane, hexamethyl-	541-05-9	19.35	NGS	43	JNT
S17T034244				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	170	JNT
S17T034244				2,5,6-Trimethyldecane	62108-23-0	24.94	NGS	26	JNT
S17T034244				Limonene	138-86-3	25.35	NGS	140	JNT
S17T034244				Decane, 3,7-dimethyl-	17312-54-8	25.61	NGS	85	JNT
S17T034244				Dodecane, 2,6,11-trimethyl-	31295-56-4	25.72	NGS	37	JNT
S17T034244				Undecane, 3,5-dimethyl-	17312-81-1	25.95	NGS	39	JNT
S17T034244				Heptadecane, 2,6-dimethyl-	54105-67-8	26.02	NGS	49	JNT
S17T034244				1-Octanol, 2-butyl-	3913-02-8	26.17	NGS	30	JNT
S17T034244				2,6-Dimethyldecane	13150-81-7	26.28	NGS	82	JNT
S17T034244				Dodecane, 2,7,10-trimethyl-	74645-98-0	26.32	NGS	100	JNT
S17T034244				3,3-Dimethylhexane	563-16-6	26.41	NGS	62	JNT
S17T034244				Decane, 2,4,6-trimethyl-	62108-27-4	26.46	NGS	190	JNT
S17T034244				1-Undecene, 4-methyl-	74630-39-0	26.56	NGS	66	JNT
S17T034244				Decane, 2,6,8-trimethyl-	62108-26-3	26.71	NGS	200	JNT
S17T034244				Benzaldehyde, 2,4-bis(trimethyl)	33617-38-8	26.82	NGS	440	JNT
S17T034244				Tetracontane, 3,5,24-trimethyl	55162-61-3	26.94	NGS	44	JNT
S17T034244				Ociane, 3,4,5,6-tetramethyl-	62185-21-1	27.11	NGS	150	JNT
S17T034244				Tridecane, 6-methyl-	13287-21-3	27.21	NGS	41	JNT
S17T034244				Ociane, 4-ethyl-	15869-86-0	27.44	NGS	39	JNT
S17T034244				2,3-Dimethyldecane	17312-44-6	27.51	NGS	68	JNT
S17T034244				1-Iodo-2-methylundecane	73105-67-6	27.60	NGS	20	JNT
S17T034244				Undecane, 2,3-dimethyl-	17312-77-5	27.76	NGS	30	JNT
S17T034244				Dodecane	112-40-3	28.25	NGS	91	JNT

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U - Less Than Detection Limit

J - Estimated

E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-4
 Customer Sample ID: 17-05616-2-TL2-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034244				2-Dodecene, (E)-	7206-13-5	28.47	NGS	37	JNT
S17T034244				2-Hexyl-1-octanol	19780-79-1	28.56	NGS	30	JNT
S17T034244				2-Propenoic acid, octyl ester	2499-59-4	29.33	NGS	76	JNT
S17T034244				Unknown-1		29.91	NGS	73	JT
S17T034244				1,2-Benzisothiazole	272-16-2	30.04	NGS	110	JNT
S17T034244				1,2,3,4,5-Cyclopentanepentol	56772-25-9	30.06	NGS	68	JNT
S17T034244				Tetradecane, 2,6,10-trimethyl-	14905-56-7	30.73	NGS	47	JNT

J - Estimated
 E - Outside Calibration Range

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 U - Less Than Detection Limit

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-5
 Customer Sample ID: 17-05616-2-TL2-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034245				Methyl formate	107-31-3	5.78	NGS	55	JNT
S17T034245				Cyclotrisiloxane, hexamethyl-	541-05-9	19.35	NGS	30	JNT
S17T034245				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	140	JNT
S17T034245				Limonene	138-86-3	25.36	NGS	120	JNT
S17T034245				3,3-Dimethylhexane	563-16-6	25.61	NGS	68	JNT
S17T034245				Decane, 2,4,6-trimethyl-	52108-27-4	25.73	NGS	25	JNT
S17T034245				Tridecane	529-50-5	26.33	NGS	46	JNT
S17T034245				Dodecane	112-40-3	26.47	NGS	89	JNT
S17T034245				Hydroxylamine, O-decyl-	29812-79-1	26.57	NGS	44	JNT
S17T034245				Unknown-1		26.71	NGS	40	JT
S17T034245				Benzaldehyde, 2,4-bis(trimethyl	33617-38-8	26.82	NGS	300	JNT
S17T034245				1-Undecene, 4-methyl-	74630-39-0	27.12	NGS	27	JNT
S17T034245				2-Hydroxyhexadecyl butanoate	77899-01-5	27.52	NGS	32	JNT
S17T034245				Undecane, 2-methyl-	7045-71-8	27.61	NGS	13	JNT
S17T034245				Undecane	1120-21-4	28.25	NGS	76	JNT
S17T034245				Unknown-2		29.34	NGS	45	JT
S17T034245				Decane, 2,3,5,8-tetramethyl-	192823-15-7	29.92	NGS	74	JNT
S17T034245				1,2-Benzisothiazole	272-16-2	30.05	NGS	91	JNT
S17T034245				Unknown-3		30.06	NGS	72	JT
S17T034245				Unknown-4		30.73	NGS	40	JT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-6
 Customer Sample ID: 17-05616-2-TL2-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034246				Cyclotetrasiloxane, octamethyl	556-67-2	23.60	NGS	110	JNT
S17T034246				Limonene	138-86-3	25.35	NGS	98	JNT
S17T034246				Decane, 2,4,6-trimethyl-	82108-27-4	25.60	NGS	74	JNT
S17T034246				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.73	NGS	27	JNT
S17T034246				Undecane	1120-21-4	26.32	NGS	34	JNT
S17T034246				3,3-Dimethylhexane	563-16-6	26.46	NGS	86	JNT
S17T034246				Undecane, 4-methyl-	2980-69-0	26.56	NGS	44	JNT
S17T034246				Unknown-1		26.71	NGS	27	JT
S17T034246				Benzaldehyde, 2,5-bis(trimethyl-)	56114-69-3	26.82	NGS	240	JNT
S17T034246				Dodecane	112-40-3	28.25	NGS	60	JNT
S17T034246				1-Octanol, 2-butyl-	3913-02-8	28.47	NGS	32	JNT
S17T034246				1-Octene, 3,7-dimethyl-	4984-01-4	29.33	NGS	49	JNT
S17T034246				Unknown-2		29.91	NGS	72	JT
S17T034246				1,2-Benzisothiazole	272-16-2	30.04	NGS	83	JNT
S17T034246				Unknown-3		30.07	NGS	27	JT
S17T034246				Tetradecane, 2,6,10-trimethyl-	14905-56-7	30.73	NGS	34	JNT

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-7
 Customer Sample ID: 17-05616-2-TL2-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034247				Methyl formate	107-31-3	5.79	NGS	190	JNT
S17T034247				Acetic acid	64-19-7	11.33	NGS	8.2	JNT
S17T034247				Cycloisiloxane, octamethyl	556-67-2	23.61	NGS	71	JNT
S17T034247				Limonene	138-86-3	25.36	NGS	74	JNT
S17T034247				Decane, 3,7-dimethyl-	17312-54-8	25.61	NGS	45	JNT
S17T034247				Decane, 2,6,8-trimethyl-	62108-26-3	25.72	NGS	25	JNT
S17T034247				Decane, 2,6,7-trimethyl-	62108-25-2	25.96	NGS	29	JNT
S17T034247				Undecane, 4,6-dimethyl-	17312-82-2	26.02	NGS	31	JNT
S17T034247				2,6-Dimethyldecane	13150-81-7	26.28	NGS	41	JNT
S17T034247				Dodecane, 2,7,10-trimethyl-	74645-98-0	26.33	NGS	80	JNT
S17T034247				Heptadecane, 2,6-dimethyl-	54105-67-8	26.42	NGS	30	JNT
S17T034247				Undecane	1120-21-4	26.47	NGS	110	JNT
S17T034247				Decane, 2,4,6-trimethyl-	62108-27-4	26.58	NGS	35	JNT
S17T034247				Hydroxylamine, O-decyl-	29812-79-1	26.65	NGS	30	JNT
S17T034247				Undecane, 2,6-dimethyl-	17301-23-4	26.72	NGS	34	JNT
S17T034247				Benzaldehyde, 2,4-bis(trimethyl-	33617-38-8	26.83	NGS	240	JNT
S17T034247				Decane, 2,6,6-trimethyl-	62108-24-1	26.95	NGS	27	JNT
S17T034247				Octane, 5-ethyl-2-methyl-	62016-18-6	27.13	NGS	72	JNT
S17T034247				2,3-Dimethyldecane	17312-44-6	27.52	NGS	31	JNT
S17T034247				Undecane, 3-methyl-	1002-43-3	27.77	NGS	14	JNT
S17T034247				Dodecane	112-40-3	28.25	NGS	38	JNT
S17T034247				1-Heptanol, 6-methyl-	1653-40-3	29.33	NGS	28	JNT
S17T034247				Unknown-1		29.92	NGS	42	JT
S17T034247				Unknown-2		30.07	NGS	62	JT

NA = Not Analyzed, ND = Not Detected
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Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-EF-8
 Customer Sample ID: 17-05616-2-TL2-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034248				Methyl formate	107-31-3	5.81	NGS	220	JNT
S17T034248				Unknown-1		11.31	NGS	5.4	JT
S17T034248				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	75	JNT
S17T034248				Limonene	138-86-3	25.36	NGS	81	JNT
S17T034248				3,3-Dimethylhexane	563-16-6	25.61	NGS	59	JNT
S17T034248				Undecane	1120-21-4	26.33	NGS	52	JNT
S17T034248				Decane, 3,7-dimethyl-	17312-54-8	26.47	NGS	110	JNT
S17T034248				Undecane, 4-methyl-	2980-89-0	26.58	NGS	37	JNT
S17T034248				Undecane, 4,6-dimethyl-	17312-82-2	26.72	NGS	44	JNT
S17T034248				Benzaldehyde, 2,4-bis(trimethyl-	33617-38-8	26.83	NGS	210	JNT
S17T034248				2,6-Dimethyldecane	13150-81-7	27.13	NGS	40	JNT
S17T034248				1,2-Epoxyundecane	17322-97-3	27.53	NGS	26	JNT
S17T034248				Undecane, 3-methyl-	1002-43-3	27.77	NGS	14	JNT
S17T034248				Dodecane	112-40-3	28.25	NGS	50	JNT
S17T034248				Unknown-2		29.93	NGS	65	JT
S17T034248				Heptadecane, 2,6-dimethyl-	54105-67-8	30.08	NGS	61	JNT
S17T034248				1-Iodo-2-methylundecane	73105-67-6	30.74	NGS	28	JNT

J - Estimated
 E - Outside Calibration Range

T - Tentatively Identified Compound
 U - Less Than Detection Limit

Y - Comment

NA = Not Analyzed, ND = Not Detected
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-IN-1
 Customer Sample ID: 17-05616-2-TL2-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034249				Methyl formate	107-31-3	5.79	NGS	89	JNT
S17T034249				Isopropyl Alcohol	67-63-0	7.54	NGS	30	JNT
S17T034249				2-butenal	4170303	11.12	NGS	6.5	JNT
S17T034249				Acetic acid	64-19-7	11.79	NGS	210	JNT
S17T034249				Cyclotrisiloxane, hexamethyl-	541-05-9	19.35	NGS	39	JNT
S17T034249				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	210	JNT
S17T034249				Limonene	138-86-3	25.36	NGS	100	JNT
S17T034249				3,3-Dimethylhexane	563-16-6	25.60	NGS	120	JNT
S17T034249				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.73	NGS	43	JNT
S17T034249				Undecane	1120-21-4	26.33	NGS	51	JNT
S17T034249				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	110	JNT
S17T034249				Undecane, 4,7-dimethyl-	17301-32-5	26.57	NGS	52	JNT
S17T034249				Undecane, 5,7-dimethyl-	17312-83-3	26.71	NGS	33	JNT
S17T034249				Benzaldehyde, 2,5-bis(trimethyl	56114-69-3	26.83	NGS	290	JNT
S17T034249				2,6-Dimethyldecane	13150-81-7	28.25	NGS	77	JNT
S17T034249				1-Octanol, 2-butyl-	3913-02-8	28.47	NGS	36	JNT
S17T034249				Isooctanol	26952-21-6	29.33	NGS	62	JNT
S17T034249				Unknown-1		29.92	NGS	93	JT
S17T034249				Unknown-2		30.05	NGS	66	JT
S17T034249				Unknown-3		30.07	NGS	39	JT
S17T034249				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.74	NGS	40	JNT

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Y - Comment

T - Tentatively Identified Compound
 U - Less Than Detection Limit

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173091
 SDG Number:

Customer Sample ID: 17-05616-2-TL2-IN-8
 Customer Sample ID: 17-05616-2-TL2-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034250				Methyl formate	107-31-3	5.84	NGS	250	JNT
S17T034250				Isopropyl Alcohol	67-63-0	7.59	NGS	29	JNT
S17T034250				Methyl Acetate	79-20-9	9.19	NGS	29	JNT
S17T034250				2-butenal	4170303	11.17	NGS	6.2	JNT
S17T034250				Acetic acid	64-19-7	11.81	NGS	210	JNT
S17T034250				3-Hexanone, 5-methyl-	623-56-3	21.64	NGS	37	JNT
S17T034250				Cycloolefinsiloxane, octamethyl	556-67-2	23.61	NGS	82	JNT
S17T034250				Cyclohexene, 4-ethenyl-1,4-dim	1743-61-9	25.36	NGS	59	JNT
S17T034250				Decane, 3,7-dimethyl-	17312-54-8	25.62	NGS	73	JNT
S17T034250				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.74	NGS	29	JNT
S17T034250				Decane, 2,6,8-trimethyl-	52108-26-3	26.03	NGS	30	JNT
S17T034250				2,6-Dimethyldecane	13150-81-7	26.29	NGS	35	JNT
S17T034250				Undecane	1120-21-4	26.33	NGS	76	JNT
S17T034250				Decane, 2,4,6-trimethyl-	62108-27-4	26.47	NGS	140	JNT
S17T034250				Undecane, 4-methyl-	2980-69-0	26.58	NGS	48	JNT
S17T034250				Undecane, 3,5-dimethyl-	17312-81-1	26.71	NGS	100	JNT
S17T034250				Benzaldehyde, 2,4-bis(trimethyl	33617-38-8	26.83	NGS	230	JNT
S17T034250				Tetracontane, 3,5,24-trimethyl	55162-61-3	26.95	NGS	27	JNT
S17T034250				Undecane, 5,7-dimethyl-	17312-83-3	27.13	NGS	76	JNT
S17T034250				1-Undecene, 4-methyl-	74630-39-0	27.52	NGS	33	JNT
S17T034250				Dodecane	112-40-3	28.25	NGS	47	JNT
S17T034250				Unknown-1		29.92	NGS	47	JT
S17T034250				Unknown-2		30.06	NGS	26	JT
S17T034250				Unknown-3		30.08	NGS	28	JT
S17T034250				Unknown-4		30.74	NGS	26	JT

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DSRComment 3.0.13
DSR.Jar v. 3.0.13

VOA 20173092 Comments

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16-nov-2017 13:58:28

Verification Sample Comments
Sample: S17T034272 Group: 20173092
Y = Signal saturation for Ethanol
Sample: S17T034279 Group: 20173092
Y = Tube Certification Failure

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*OK. Software NGS limits
 Software NGS limits
 Software NGS limits*

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-1
 Customer Sample ID: 17-05614-2-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															
S17T034261		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034261		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034261		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034261		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034261		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034261		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034261		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034261		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034261		71-36-3		1-Butanol	NGS	99	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034261		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034261		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034261		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034261		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034261		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034261		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034261		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034261		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034261		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034261		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034261		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034261		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
S17T034261		108-10-1		4-Methyl-2-pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034261		67-64-1		Acetone	NGS	100	<6.7	13	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034261		75-05-8		Acetonitrile	NGS	100	<3.3	23	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034261		98-86-2		Acetophenone	NGS	100	<4.0	13	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034261		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034261		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-1
 Customer Sample ID: 17-05614-2-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															
S17T034261			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034261			71-43-2	Benzene	NGS	100	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034261			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034261			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034261			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034261			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034261			109-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034261			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034261			67-86-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034261			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034261			124-18-5	Decane	NGS	100	<2.3	13	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034261			64-17-5	Ethanol	NGS	95	6.7	20	n/a	n/a	n/a	n/a	4.1	n/a	J
S17T034261			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034261			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034261			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034261			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034261			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034261			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034261			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034261			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034261			98-95-3	Nitrobenzene	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034261			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034261			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034261			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034261			100-42-5	Styrene	NGS	100	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034261			127-18-4	Tetrachloroethene	NGS	100	<1.6	12	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034261			106-88-3	Toluene	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-1

Customer Sample ID: 17-05614-2-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															
S17T034261		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034261		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034261		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034261		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034261		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034261		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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J - Estimated
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-2
 Customer Sample ID: 17-05614-2-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															
S17T034262		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034262		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034262		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034262		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034262		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034262		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034262		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034262		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034262		71-36-3		1-Butanol	NGS	99	<2.2	10	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034262		111-70-6		1-Heptanol	NGS	99	<3.9	4.2	n/a	n/a	n/a	n/a	3.9	n/a	J
S17T034262		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034262		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034262		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034262		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034262		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034262		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034262		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034262		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034262		106-35-4		3-Heptanone	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034262		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034262		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
S17T034262		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034262		67-64-1		Acetone	NGS	100	<6.7	39	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034262		75-05-8		Acetonitrile	NGS	100	<3.3	68	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034262		98-86-2		Acetophenone	NGS	100	<4.0	19	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034262		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034262		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-2
 Customer Sample ID: 17-05614-2-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															
S17T034262			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034262			71-43-2	Benzene	NGS	100	<1.2	2.0	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034262			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034262			123-72-8	Butanal	NGS	100	<1.5	2.2	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034262			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034262			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034262			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034262			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034262			57-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034262			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034262			124-18-5	Decane	NGS	100	<2.3	9.0	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034262			64-17-5	Ethanol	NGS	95	6.7	290	n/a	n/a	n/a	n/a	4.1		n/a|U
S17T034262			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034262			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034262			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034262			110-54-3	Hexane	NGS	100	<2.0	3.7	n/a	n/a	n/a	n/a	2.0		n/a|J
S17T034262			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034262			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034262			75-09-2	Methylene Chloride	NGS	89	<3.0	8.8	n/a	n/a	n/a	n/a	3.0		n/a|J
S17T034262			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034262			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034262			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034262			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034262			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034262			100-42-5	Styrene	NGS	100	<1.4	2.3	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034262			127-18-4	Tetrachloroethene	NGS	100	<1.6	14	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034262			108-88-3	Toluene	NGS	100	<1.4	3.1	n/a	n/a	n/a	n/a	1.4		n/a|J

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

U - Less Than Detection Limit
 T - Tentatively Identified Compound

Y - Comment
 B - Blank Contamination

J - Estimated
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-2

Customer Sample ID: 17-05614-2-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															
S17T034262		79-01-6		Trichloroethylene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034262		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034262		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034262		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034262		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034262		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 E - Outside Calibration Range

U - Less Than Detection Limit
 T - Tentatively Identified Compound

Y - Comment
 B - Blank Contamination

J - Estimated
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-3
 Customer Sample ID: 17-05614-2-SD1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rac %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034263		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034263		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034263		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034263		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034263		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034263		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034263		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034263		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034263		71-36-3		1-Butanol	NGS	99	<2.2	4.6	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034263		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034263		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034263		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034263		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034263		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034263		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034263		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034263		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034263		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034263		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034263		106-88-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034263		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
S17T034263		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034263		67-64-1		Acetone	NGS	100	<6.7	33	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034263		75-05-8		Acetonitrile	NGS	100	<3.3	31	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034263		98-86-2		Acetophenone	NGS	100	<4.0	16	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034263		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034263		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 E - Outside Calibration Range
 N/A = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-3
 Customer Sample ID: 17-05614-2-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															
S17T034263		107-05-1		Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034263		71-43-2		Benzene	NGS	100	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034263		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034263		123-72-8		Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034263		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034263		56-23-5		Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034263		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034263		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034263		67-86-3		Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034263		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034263		124-18-5		Decane	NGS	100	<2.3	8.0	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034263		64-17-5		Ethanol	NGS	95	6.7	580	n/a	n/a	n/a	n/a	4.1	n/a	J
S17T034263		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034263		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034263		110-00-9		Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034263		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034263		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034263		126-98-7		Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034263		75-09-2		Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034263		91-20-3		Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034263		98-95-3		Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034263		110-59-8		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034263		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034263		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034263		100-42-5		Styrene	NGS	100	<1.4	1.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034263		127-18-4		Tetrachloroethane	NGS	100	<1.6	12	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034263		108-88-3		Toluene	NGS	100	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J

J - Estimated
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 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-3
 Customer Sample ID: 17-05614-2-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															
S17T034263		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034263		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034263		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034263		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034263		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034263		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

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 B - Blank Contamination
 U - Less Than Detection Limit
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-4
 Customer Sample ID: 17-05614-2-SD1-EF-4

Sample#	R	A#	CAS #	Analysis	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rac %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034264		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034264		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034264		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034264		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034264		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034264		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034264		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034264		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034264		71-36-3		1-Butanol	NGS	99	<2.2	3.0	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034264		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034264		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034264		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034264		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034264		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034264		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034264		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034264		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034264		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034264		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034264		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034264		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
S17T034264		108-10-1		4-Methyl-2-pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034264		67-64-1		Acetone	NGS	100	<6.7	34	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034264		75-05-8		Acetonitrile	NGS	100	<3.3	38	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034264		98-86-2		Acetophenone	NGS	100	<4.0	4.4	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034264		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034264		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-4
 Customer Sample ID: 17-05614-2-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															
S17T034264			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034264			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034264			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034264			123-72-8	Butanal	NGS	100	<1.5	1.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034264			105-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034264			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034264			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034264			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034264			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034264			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034264			124-18-5	Decane	NGS	100	<2.3	3.4	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034264			64-17-5	Ethanol	NGS	95	6.7	640	n/a	n/a	n/a	n/a	4.1	n/a	
S17T034264			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034264			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034264			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034264			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034264			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034264			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034264			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034264			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034264			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034264			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034264			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034264			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034264			100-42-5	Styrene	NGS	100	<1.4	2.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034264			127-18-4	Tetrachloroethene	NGS	100	<1.6	7.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034264			108-88-3	Toluene	NGS	100	<1.4	2.1	n/a	n/a	n/a	n/a	1.4	n/a	J

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092
SDG Number:
Customer Sample ID: 17-05614-2-SD1-EF-4
Customer Sample ID: 17-05614-2-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															
S17T034264		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034264		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034264		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034264		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034264		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034264		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-5
 Customer Sample ID: 17-05614-2-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															
S17T034265		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034265		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034265		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034265		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034265		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034265		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034265		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034265		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034265		71-36-3		1-Butanol	NGS	99	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a|U
S17T034265		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034265		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034265		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034265		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034265		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034265		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034265		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034265		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034265		78-84-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034265		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034265		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034265		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
S17T034265		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034265		67-84-1		Acetone	NGS	100	<6.7	19	n/a	n/a	n/a	n/a	6.7		n/a|
S17T034265		75-05-8		Acetonitrile	NGS	100	<3.3	35	n/a	n/a	n/a	n/a	3.3		n/a|
S17T034265		98-86-2		Acetophenone	NGS	100	<4.0	10	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034265		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034265		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-5
 Customer Sample ID: 17-05614-2-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															
S17T034265			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034265			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034265			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034265			123-72-8	Butanal	NGS	100	<1.5	1.8	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034265			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034265			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034265			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034265			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034265			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034265			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034265			124-18-5	Decane	NGS	100	<2.3	7.7	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034265			64-17-5	Ethanol	NGS	95	6.7	740	n/a	n/a	n/a	n/a	4.1		n/a/U
S17T034265			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034265			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034265			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034265			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034265			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034265			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034265			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034265			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034265			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034265			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034265			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034265			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034265			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034265			127-18-4	Tetrachloroethene	NGS	100	<1.6	5.5	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034265			108-88-3	Toluene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092
SDG Number:
Customer Sample ID: 17-05614-2-SD1-EF-5
Customer Sample ID: 17-05614-2-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															
S17T034265			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034265			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	1.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034265			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034265			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034265			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034265			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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J - Estimated
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-6
 Customer Sample ID: 17-05614-2-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															
S17T034266		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034266		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034266		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034266		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034266		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034266		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034266		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034266		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034266		71-36-3		1-Butanol	NGS	99	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a|U
S17T034266		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034266		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034266		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034266		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034266		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034266		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034266		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034266		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034266		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034266		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034266		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034266		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
S17T034266		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034266		67-64-1		Acetone	NGS	100	<6.7	18	n/a	n/a	n/a	n/a	6.7		n/a|U
S17T034266		75-05-8		Acetonitrile	NGS	100	<3.3	27	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034266		98-96-2		Acetophenone	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034266		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034266		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-6
 Customer Sample ID: 17-05614-2-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															
S17T034266		107-05-1		Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034266		71-43-2		Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034266		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034266		123-72-8		Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034266		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034266		56-23-5		Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034266		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034266		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034266		57-86-3		Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034266		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034266		124-18-5		Decane	NGS	100	<2.3	4.4	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034266		64-17-5		Ethanol	NGS	95	6.7	780	n/a	n/a	n/a	n/a	4.1		n/a/U
S17T034266		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034266		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034266		110-00-9		Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034266		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034266		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034266		126-98-7		Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034266		75-09-2		Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034266		91-20-3		Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034266		98-95-3		Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034266		110-59-6		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034266		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034266		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034266		100-42-5		Styrene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034266		127-18-4		Tetrachloroethene	NGS	100	<1.6	4.6	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034266		108-88-3		Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U

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U - Less Than Detection Limit

T - Tentatively Identified Compound

Y - Comment

B - Blank Contamination

J - Estimated

N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-6
 Customer Sample ID: 17-05614-2-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															
S17T034266		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/aU
S17T034266		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	2.7	n/a	n/a	n/a	n/a	1.6		n/aJ
S17T034266		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/aU
S17T034266		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/aU
S17T034266		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/aU
S17T034266		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/aU

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U - Less Than Detection Limit
 T - Tentatively Identified Compound

Y - Comment
 B - Blank Contamination

J - Estimated
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-7
 Customer Sample ID: 17-05614-2-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															
S17T034267		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034267		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034267		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034267		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034267		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034267		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034267		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034267		71-36-3		1-Butanol	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034267		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034267		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034267		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034267		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034267		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034267		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034267		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034267		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034267		78-84-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034267		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034267		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
S17T034267		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034267		67-64-1		Acetone	NGS	100	<6.7	17	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034267		75-05-8		Acetonitrile	NGS	100	<3.3	24	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034267		98-96-2		Acetophenone	NGS	100	<4.0	4.8	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034267		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034267		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 NA - Not Analyzed, ND = Not Detected
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-7
 Customer Sample ID: 17-05614-2-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															
S17T034267			107-05-1	Allyl Chloride	NGS	83	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034267			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034267			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034267			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034267			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034267			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034267			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034267			57-86-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034267			124-18-5	Decane	NGS	100	<2.3	2.9	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034267			64-17-5	Ethanol	NGS	95	6.7	860	n/a	n/a	n/a	n/a	4.1	n/a	E
S17T034267			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034267			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034267			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034267			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034267			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034267			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034267			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034267			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034267			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034267			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034267			127-18-4	Tetrachloroethene	NGS	100	<1.6	3.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034267			106-88-3	Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-7
 Customer Sample ID: 17-05614-2-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															
S17T034267		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034267		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	6.1	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034267		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034267		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034267		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034267		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 N - Named TIC
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 B - Blank Contamination
 U - Less Than Detection Limit
 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-8
 Customer Sample ID: 17-05614-2-SD1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rac %	Dut Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034268			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034268			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034268			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034268			75-35-4	1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034268			107-06-2	1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034268			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034268			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034268			123-91-1	1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034268			71-36-3	1-Butanol	NGS	99	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a|U
S17T034268			111-70-6	1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034268			71-23-8	1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034268			108-47-4	2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034268			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034268			78-93-3	2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034268			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034268			591-78-6	2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034268			534-22-5	2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034268			78-94-4	3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034268			106-35-4	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034268			106-68-3	3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034268			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
S17T034268			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034268			57-84-1	Acetone	NGS	100	<6.7	25	n/a	n/a	n/a	n/a	6.7		n/a|U
S17T034268			75-05-8	Acetonitrile	NGS	100	<3.3	28	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034268			98-96-2	Acetophenone	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034268			107-13-1	Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034268			107-18-6	Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-8
 Customer Sample ID: 17-05614-2-SD1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Ont Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034268			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034268			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034268			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034268			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034268			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034268			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034268			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034268			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034268			57-86-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034268			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034268			124-18-5	Decane	NGS	100	<2.3	3.4	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034268			54-17-5	Ethanol	NGS	95	6.7	560	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034268			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034268			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034268			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034268			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034268			528-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034268			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034268			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034268			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034268			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034268			110-59-8	Penanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034268			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034268			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034268			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034268			127-18-4	Tetrachloroethene	NGS	100	<1.5	3.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034268			108-88-3	Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-8
 Customer Sample ID: 17-05614-2-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															
S17T034268			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034268			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	22	n/a	n/a	n/a	n/a	1.6		n/a
S17T034268			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034268			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034268			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034268			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-1
 Customer Sample ID: 17-05614-2-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															
S17T034269		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034269		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034269		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034269		75-35-4		1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034269		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034269		542-75-6		1,3-Dichloropropene (Total)	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034269		106-46-7		1,4-Dichlorobenzene	NGS	99	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S17T034269		123-91-1		1,4-Dioxane	NGS	99	<2.2	4.1	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034269		71-36-3		1-Butanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034269		111-70-6		1-Heptanol	NGS	100	<4.0	9.8	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034269		71-23-8		1-Propanol	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034269		108-47-4		2,4-Dimethylpyridine	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034269		1708-29-8		2,5-Dihydrofuran	NGS	110	<2.6	1.1	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034269		78-93-3		2-Butanone	NGS	100	<1.6	2.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034269		110-43-0		2-Heptanone	NGS	100	<1.6	3.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034269		591-78-6		2-Hexanone	NGS	100	<2.3	<1.2	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034269		534-22-5		2-Methylfuran	NGS	97	<4.1	4.1	n/a	n/a	n/a	n/a	4.1	n/a	J
S17T034269		78-94-4		3-Buten-2-one	NGS	100	<1.4	3.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034269		106-68-3		3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034269		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
S17T034269		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	1.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034269		67-64-1		Acetone	NGS	100	<6.7	390	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034269		75-05-8		Acetonitrile	NGS	100	<3.3	52	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034269		98-96-2		Acetophenone	NGS	100	<4.0	12	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034269		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034269		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-1
 Customer Sample ID: 17-05614-2-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															
S17T034269		107-06-1		Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034269		71-43-2		Benzene	NGS	100	<1.2	3.5	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034269		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034269		123-72-8		Butanal	NGS	100	<1.5	6.4	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034269		109-74-0		Butanenitrile	NGS	100	<1.9	6.1	n/a	n/a	n/a	n/a	1.9		n/a|J
S17T034269		56-23-5		Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034269		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034269		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034269		67-86-3		Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034269		110-82-7		Cyclohexane	NGS	100	<2.7	4.4	n/a	n/a	n/a	n/a	2.7		n/a|J
S17T034269		124-18-5		Decane	NGS	100	<2.3	10	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034269		64-17-5		Ethanol	NGS	95	6.7	1.6E+03	n/a	n/a	n/a	n/a	4.1		n/a|E
S17T034269		141-78-6		Ethyl acetate	NGS	110	<1.4	1.7	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034269		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034269		110-00-9		Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034269		110-54-3		Hexane	NGS	100	<2.0	3.1	n/a	n/a	n/a	n/a	2.0		n/a|J
S17T034269		528-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034269		126-98-7		Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034269		75-09-2		Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034269		91-20-3		Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034269		98-95-3		Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034269		110-59-8		Pentanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034269		107-12-0		Propanenitrile	NGS	100	<2.1	7.7	n/a	n/a	n/a	n/a	2.1		n/a|J
S17T034269		110-86-1		Pyridine	NGS	100	<1.2	1.2	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034269		100-42-5		Styrene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034269		127-18-4		Tetrachloroethene	NGS	100	<1.6	4.7	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034269		106-88-3		Toluene	NGS	100	<1.4	5.8	n/a	n/a	n/a	n/a	1.4		n/a J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-IN-1

Customer Sample ID: 17-05614-2-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 YOA #2															
S17T034269		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034269		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	81	n/a	n/a	n/a	n/a	1.6		n/a
S17T034269		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034269		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034269		142-82-5		n-Heptane	NGS	97	<1.5	4.3	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034269		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

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 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-8
 Customer Sample ID: 17-05614-2-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 YOA #2															
S17T034270		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034270		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034270		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034270		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034270		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034270		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034270		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034270		123-81-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034270		71-36-3		1-Bulanol	NGS	99	<2.2	44	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034270		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034270		71-23-8		1-Propanol	NGS	100	<4.0	15	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034270		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034270		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034270		78-93-3		2-Butanone	NGS	110	<2.6	23	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034270		110-43-0		2-Heptanone	NGS	100	<1.6	2.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034270		591-78-6		2-Hexanone	NGS	100	<1.6	3.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034270		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034270		78-94-4		3-Buten-2-one	NGS	100	<2.3	4.0	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034270		106-35-4		3-Heptanone	NGS	100	<1.4	49	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034270		106-66-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034270		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
S17T034270		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	1.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034270		67-64-1		Acetone	NGS	100	<6.7	370	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034270		75-05-8		Acetonitrile	NGS	100	<3.3	18	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034270		98-86-2		Acetophenone	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034270		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034270		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-8
 Customer Sample ID: 17-05614-2-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															
S17T034270			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034270			71-43-2	Benzene	NGS	100	<1.2	3.6	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034270			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034270			123-72-8	Butanal	NGS	100	<1.5	12	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034270			109-74-0	Butanenitrile	NGS	100	<1.9	11	n/a	n/a	n/a	n/a	1.9		n/a|J
S17T034270			56-23-5	Carbon tetrachloride	NGS	100	<1.3	1.6	n/a	n/a	n/a	n/a	1.3		n/a|J
S17T034270			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034270			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034270			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034270			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034270			124-18-5	Decane	NGS	100	<2.3	3.4	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034270			64-17-5	Ethanol	NGS	95	6.7	830	n/a	n/a	n/a	n/a	4.1		n/a|E
S17T034270			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034270			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034270			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034270			110-54-3	Hexane	NGS	100	<2.0	5.5	n/a	n/a	n/a	n/a	2.0		n/a|J
S17T034270			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034270			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034270			75-09-2	Methylene Chloride	NGS	89	<3.0	6.2	n/a	n/a	n/a	n/a	3.0		n/a|J
S17T034270			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034270			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034270			110-59-8	Pentanitrile	NGS	100	<1.4	2.6	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034270			107-12-0	Propanenitrile	NGS	100	<2.1	11	n/a	n/a	n/a	n/a	2.1		n/a|J
S17T034270			110-86-1	Pyridine	NGS	100	<1.2	1.3	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034270			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034270			127-18-4	Tetrachloroethene	NGS	100	<1.6	7.0	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034270			108-88-3	Toluene	NGS	100	<1.4	6.1	n/a	n/a	n/a	n/a	1.4		n/a J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-IN-8

Customer Sample ID: 17-05614-2-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															
S17T034270		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034270		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	85	n/a	n/a	n/a	n/a	1.6		n/a
S17T034270		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034270		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034270		142-82-5		n-Heptane	NGS	97	<1.5	6.0	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034270		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-1
 Customer Sample ID: 17-05615-2-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															
S17T034271		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034271		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034271		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034271		75-35-4		1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034271		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034271		542-75-6		1,3-Dichloropropene (Total)	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034271		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034271		123-91-1		1,4-Dioxane	NGS	99	<2.2	10	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034271		71-36-3		1-Butanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034271		111-70-6		1-Heptanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034271		71-23-8		1-Propanol	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034271		108-47-4		2,4-Dimethylpyridine	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034271		1708-29-8		2,5-Dihydrofuran	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034271		78-93-3		2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034271		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034271		591-78-6		2-Hexanone	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034271		534-22-5		2-Methylfuran	NGS	97	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034271		78-94-4		3-Buten-2-one	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034271		106-35-4		3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034271		106-68-3		3-Octanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034271		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
S17T034271		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034271		57-64-1		Acetone	NGS	100	<6.7	57	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034271		75-05-8		Acetonitrile	NGS	100	<3.3	160	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034271		98-96-2		Acetophenone	NGS	100	<4.0	8.4	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034271		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034271		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-1
 Customer Sample ID: 17-05615-2-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															
S17T034271			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034271			71-43-2	Benzene	NGS	100	<1.2	1.6	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034271			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034271			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034271			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034271			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034271			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034271			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034271			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034271			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034271			124-18-5	Decane	NGS	100	<2.3	11	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034271			64-17-5	Ethanol	NGS	95	6.7	21	n/a	n/a	n/a	n/a	4.1		n/a|J
S17T034271			141-78-6	Ethyl acetate	NGS	110	<1.4	1.7	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034271			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034271			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034271			110-54-3	Hexane	NGS	100	<2.0	2.5	n/a	n/a	n/a	n/a	2.0		n/a|J
S17T034271			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034271			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034271			75-09-2	Methylene Chloride	NGS	89	<3.0	5.5	n/a	n/a	n/a	n/a	3.0		n/a|J
S17T034271			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034271			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034271			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034271			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034271			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034271			100-42-5	Styrene	NGS	100	<1.4	3.1	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034271			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034271			108-88-3	Toluene	NGS	100	<1.4	3.9	n/a	n/a	n/a	n/a	1.4		n/a J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-1
 Customer Sample ID: 17-05615-2-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															
S17T034271			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034271			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034271			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034271			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034271			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034271			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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 NA = Not Analyzed, ND = Not Detected
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-2
 Customer Sample ID: 17-05615-2-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Dot Limit	Cnt Er %	Qual Flags
VAPOR-TDU VOA #2															
S17T034272		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034272		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034272		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034272		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034272		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034272		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034272		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034272		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034272		71-36-3		1-Butanol	NGS	99	<2.2	40	n/a	n/a	n/a	n/a	2.2		n/a
S17T034272		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034272		71-23-8		1-Propanol	NGS	100	<4.0	11	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034272		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034272		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034272		78-93-3		2-Butanone	NGS	110	<2.5	22	n/a	n/a	n/a	n/a	2.5		n/a
S17T034272		110-43-0		2-Heptanone	NGS	100	<1.8	4.1	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034272		591-78-6		2-Hexanone	NGS	100	<1.6	4.2	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034272		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034272		78-94-4		3-Buten-2-one	NGS	100	<2.3	5.6	n/a	n/a	n/a	n/a	2.3		n/a/U
S17T034272		106-35-4		3-Heptanone	NGS	100	<1.4	60	n/a	n/a	n/a	n/a	1.4		n/a
S17T034272		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034272		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
S17T034272		108-10-1		4-Methyl-2-pentanone	NGS	96	<1.6	3.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034272		87-84-1		Acetone	NGS	100	<6.7	880	n/a	n/a	n/a	n/a	6.7		n/a/E
S17T034272		75-05-8		Acetonitrile	NGS	100	<3.3	180	n/a	n/a	n/a	n/a	3.3		n/a
S17T034272		98-86-2		Acetophenone	NGS	100	<4.0	12	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034272		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034272		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-2
 Customer Sample ID: 17-05615-2-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAFOR-TDU VOA #2															
S17T034272			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034272			71-43-2	Benzene	NGS	100	<1.2	3.6	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034272			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034272			123-72-8	Butanal	NGS	100	<1.5	9.0	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034272			109-74-0	Butanenitrile	NGS	100	<1.9	9.6	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034272			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034272			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034272			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034272			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034272			110-82-7	Cyclohexane	NGS	100	<2.7	6.9	n/a	n/a	n/a	n/a	2.7		n/a/J
S17T034272			124-18-5	Decane	NGS	100	<2.3	13	n/a	n/a	n/a	n/a	2.3		n/a
S17T034272			64-17-5	Ethanol	NGS	95	6.7	2.2E+03	n/a	n/a	n/a	n/a	4.1		n/a/EY
S17T034272			141-78-6	Ethyl acetate	NGS	110	<1.4	3.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034272			100-41-4	Ethylbenzene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034272			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034272			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034272			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034272			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034272			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034272			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034272			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034272			110-59-8	Pentanitrile	NGS	100	<1.4	2.6	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034272			107-12-0	Propanenitrile	NGS	100	<2.1	11	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034272			110-86-1	Pyridine	NGS	100	<1.2	1.5	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034272			100-42-5	Styrene	NGS	100	<1.4	3.2	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034272			127-18-4	Tetrachloroethane	NGS	100	<1.6	7.6	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034272			108-88-3	Toluene	NGS	100	<1.4	6.1	n/a	n/a	n/a	n/a	1.4		n/a/J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-2
 Customer Sample ID: 17-05615-2-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															
S17T034272			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034272			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	110	n/a	n/a	n/a	n/a	1.6	n/a	
S17T034272			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034272			123-86-4	n-Butyl acetate	NGS	110	<1.6	1.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034272			142-82-5	n-Heptane	NGS	97	<1.5	4.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034272			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-3
 Customer Sample ID: 17-05615-2-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															
S17T034273		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034273		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034273		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034273		75-35-4		1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034273		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034273		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034273		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034273		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034273		71-36-3		1-Butanol	NGS	99	<2.2	34	n/a	n/a	n/a	n/a	2.2		n/a
S17T034273		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034273		71-23-8		1-Propanol	NGS	100	<4.0	7.0	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034273		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034273		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034273		78-93-3		2-Butanone	NGS	110	<2.8	14	n/a	n/a	n/a	n/a	2.8		n/a
S17T034273		110-43-0		2-Heptanone	NGS	100	<1.6	3.8	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034273		591-78-6		2-Hexanone	NGS	100	<1.6	4.0	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034273		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034273		78-94-4		3-Buten-2-one	NGS	100	<2.3	4.1	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034273		106-35-4		3-Heptanone	NGS	100	<1.4	55	n/a	n/a	n/a	n/a	1.4		n/a
S17T034273		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034273		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
S17T034273		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	4.3	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034273		67-84-1		Acetone	NGS	100	<6.7	680	n/a	n/a	n/a	n/a	6.7		n/a|E
S17T034273		75-05-8		Acetonitrile	NGS	100	<3.3	56	n/a	n/a	n/a	n/a	3.3		n/a
S17T034273		98-96-2		Acetophenone	NGS	100	<4.0	12	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034273		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034273		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-3
 Customer Sample ID: 17-05615-2-TL1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Dot Limit	Cnt Er %	Qual Flags
VAPOR-TDU VOA #2															
S17T034273			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034273			71-43-2	Benzene	NGS	100	<1.2	3.3	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034273			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034273			123-72-8	Butanal	NGS	100	<1.5	5.3	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034273			109-74-0	Butanenitrile	NGS	100	<1.9	8.4	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034273			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034273			106-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034273			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034273			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034273			110-82-7	Cyclohexane	NGS	100	<2.7	5.5	n/a	n/a	n/a	n/a	2.7		n/a/J
S17T034273			124-18-5	Decane	NGS	100	<2.3	23	n/a	n/a	n/a	n/a	2.3		n/a
S17T034273			64-17-5	Ethanol	NGS	95	6.7	1.8E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034273			141-78-6	Ethyl acetate	NGS	110	<1.4	3.9	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034273			100-41-4	Ethylbenzene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034273			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034273			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034273			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034273			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034273			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034273			91-20-3	Naphthalene	NGS	110	<2.1	2.2	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034273			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034273			110-59-8	Pentanitrile	NGS	100	<1.4	2.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034273			107-12-0	Propanenitrile	NGS	100	<2.1	9.8	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034273			110-86-1	Pyridine	NGS	100	<1.2	1.4	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034273			100-42-5	Styrene	NGS	100	<1.4	4.4	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034273			127-18-4	Tetrachloroethene	NGS	100	<1.6	7.0	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034273			106-88-3	Toluene	NGS	100	<1.4	5.5	n/a	n/a	n/a	n/a	1.4		n/a/J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-3
 Customer Sample ID: 17-05615-2-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															
S17T034273			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034273			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	100	n/a	n/a	n/a	n/a	1.6	n/a	
S17T034273			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034273			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034273			142-82-5	n-Heptane	NGS	97	<1.5	3.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034273			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-4
 Customer Sample ID: 17-05615-2-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															
S17T034274		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034274		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034274		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034274		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034274		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034274		542-75-6		1,3-Dichloropropene (Total)	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034274		106-46-7		1,4-Dichlorobenzene	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034274		123-91-1		1,4-Dioxane	NGS	99	<2.2	5.0	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034274		71-36-3		1-Butanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034274		111-70-5		1-Heptanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034274		71-23-8		1-Propanol	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034274		108-47-4		2,4-Dimethylpyridine	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034274		1708-29-8		2,5-Dihydrofuran	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034274		78-93-3		2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034274		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034274		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034274		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034274		106-88-3		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034274		105-42-0		4-Methyl-2-hexanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034274		108-10-1		4-Methyl-2-Pentanone	NGS	100	<6.7	44	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034274		57-64-1		Acetone	NGS	100	<3.3	45	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034274		75-05-8		Acetonitrile	NGS	100	<4.0	7.9	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034274		98-96-2		Acetophenone	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034274		107-13-1		Acrylonitrile	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034274		107-18-6		Allyl Alcohol	NGS										

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-4
 Customer Sample ID: 17-05615-2-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															
S17T034274			107-06-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034274			71-43-2	Benzene	NGS	100	<1.2	1.4	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034274			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034274			123-72-8	Butanal	NGS	100	<1.5	3.1	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034274			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034274			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034274			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034274			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034274			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034274			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a|U
S17T034274			124-18-5	Decane	NGS	100	<2.3	4.8	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034274			64-17-5	Ethanol	NGS	95	6.7	390	n/a	n/a	n/a	n/a	4.1		n/a|
S17T034274			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034274			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034274			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034274			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034274			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034274			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034274			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034274			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034274			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034274			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034274			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034274			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034274			100-42-5	Styrene	NGS	100	<1.4	1.9	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034274			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034274			108-88-3	Toluene	NGS	100	<1.4	2.5	n/a	n/a	n/a	n/a	1.4		n/a J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-4
 Customer Sample ID: 17-05615-2-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															
S17T034274			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034274			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034274			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034274			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034274			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034274			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-5
 Customer Sample ID: 17-05615-2-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															
S17T034275		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034275		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034275		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034275		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034275		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034275		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034275		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034275		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034275		71-36-3		1-Butanol	NGS	99	<2.2	8.7	n/a	n/a	n/a	n/a	2.2		n/a|J
S17T034275		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034275		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034275		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034275		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034275		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034275		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034275		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034275		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034275		78-84-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034275		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034275		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034275		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
S17T034275		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034275		57-64-1		Acetone	NGS	100	<6.7	32	n/a	n/a	n/a	n/a	6.7		n/a
S17T034275		75-05-8		Acetonitrile	NGS	100	<3.3	34	n/a	n/a	n/a	n/a	3.3		n/a
S17T034275		98-86-2		Acetophenone	NGS	100	<4.0	5.4	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034275		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034275		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-5
 Customer Sample ID: 17-05615-2-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															
S17T034275		107-05-1		Allyl Chloride	NGS	93	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034275		71-43-2		Benzene	NGS	100	<1.2	1.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034275		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034275		123-72-8		Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034275		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034275		66-23-5		Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034275		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034275		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034275		67-66-3		Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034275		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034275		124-18-5		Decane	NGS	100	<2.3	14	n/a	n/a	n/a	n/a	2.3		n/a
S17T034275		64-17-5		Ethanol	NGS	95	6.7	500	n/a	n/a	n/a	n/a	4.1		n/a
S17T034275		141-78-6		Ethyl acetate	NGS	110	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034275		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034275		110-00-9		Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034275		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034275		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034275		126-98-7		Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034275		75-09-2		Methylene Chloride	NGS	89	<3.0	3.4	n/a	n/a	n/a	n/a	3.0		n/a/J
S17T034275		91-20-3		Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034275		98-95-3		Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034275		110-59-5		Pentanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034275		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034275		110-88-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034275		100-42-5		Styrene	NGS	100	<1.4	3.7	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034275		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034275		108-88-3		Toluene	NGS	100	<1.4	2.6	n/a	n/a	n/a	n/a	1.4		n/a/J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-5

Customer Sample ID: 17-05615-2-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															
S17T034275		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034275		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034275		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034275		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034275		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034275		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

U - Less Than Detection Limit
 T - Tentatively Identified Compound

Y - Comment
 B - Blank Contamination

J - Estimated
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-6
 Customer Sample ID: 17-05615-2-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															
S17T034276		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034276		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034276		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034276		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034276		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034276		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034276		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034276		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034276		71-36-3		1-Butanol	NGS	99	<2.2	12	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034276		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034276		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034276		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034276		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034276		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034276		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034276		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034276		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034276		78-84-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034276		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034276		106-88-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034276		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
S17T034276		108-10-1		4-Methyl-2-pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034276		67-84-1		Acetone	NGS	100	<6.7	33	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034276		75-05-8		Acetonitrile	NGS	100	<3.3	170	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034276		98-86-2		Acetophenone	NGS	100	<4.0	5.4	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034276		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034276		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 B - Blank Contamination

J - Estimated
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-6
 Customer Sample ID: 17-05615-2-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															
S17T034276		107-05-1		Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034276		71-43-2		Benzene	NGS	100	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034276		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034276		123-72-8		Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034276		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034276		56-23-5		Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034276		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034276		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034276		67-66-3		Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034276		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034276		124-18-5		Decane	NGS	100	<2.3	10	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034276		64-17-5		Ethanol	NGS	95	6.7	570	n/a	n/a	n/a	n/a	4.1	n/a	
S17T034276		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034276		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034276		110-00-9		Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034276		110-54-3		Hexane	NGS	100	<2.0	4.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034276		528-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034276		126-98-7		Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034276		75-09-2		Methylene Chloride	NGS	89	<3.0	7.0	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034276		91-20-3		Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034276		98-95-3		Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034276		110-59-8		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034276		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034276		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034276		100-42-5		Styrene	NGS	100	<1.4	2.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034276		127-18-4		Tetrachloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034276		108-88-3		Toluene	NGS	100	<1.4	3.6	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-6
 Customer Sample ID: 17-05615-2-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															
S17T034276		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034276		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034276		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034276		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034276		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034276		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 T - Tentatively Identified Compound
 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-7
 Customer Sample ID: 17-05615-2-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															
S17T034277		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034277		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034277		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034277		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034277		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034277		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034277		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034277		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034277		71-36-3		1-Butanol	NGS	99	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S17T034277		111-70-5		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034277		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034277		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034277		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034277		78-93-3		2-Butanone	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034277		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034277		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034277		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034277		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034277		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034277		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034277		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
S17T034277		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034277		67-84-1		Acetone	NGS	100	<6.7	13	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034277		75-05-8		Acetonitrile	NGS	100	<3.3	46	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034277		98-86-2		Acetophenone	NGS	100	<4.0	4.1	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034277		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034277		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 B - Blank Contamination
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 NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-7
 Customer Sample ID: 17-05615-2-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															
S17T034277			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034277			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034277			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034277			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034277			108-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034277			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034277			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034277			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034277			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034277			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034277			124-18-5	Decane	NGS	100	<2.3	3.9	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034277			64-17-5	Ethanol	NGS	95	6.7	620	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034277			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034277			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034277			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034277			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034277			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034277			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034277			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034277			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034277			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034277			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034277			107-12-0	Propanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034277			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034277			100-42-5	Styrene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034277			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034277			105-88-3	Toluene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-7
 Customer Sample ID: 17-05615-2-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															
S17T034277		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034277		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034277		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034277		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034277		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034277		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-8
 Customer Sample ID: 17-05615-2-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															
S17T034278		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034278		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034278		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034278		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034278		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034278		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034278		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034278		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034278		71-36-3		1-Bulanol	NGS	99	<2.2	7.6	n/a	n/a	n/a	n/a	2.2		n/a|J
S17T034278		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034278		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034278		109-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034278		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034278		78-93-3		2-Butanone	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034278		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034278		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034278		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034278		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a|U
S17T034278		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034278		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034278		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
S17T034278		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034278		57-64-1		Acetone	NGS	100	<6.7	35	n/a	n/a	n/a	n/a	6.7		n/a
S17T034278		75-05-8		Acetonitrile	NGS	100	<3.7	42	n/a	n/a	n/a	n/a	3.7		n/a
S17T034278		98-86-2		Acetophenone	NGS	100	<4.0	4.1	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034278		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034278		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-8
 Customer Sample ID: 17-05615-2-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															
S17T034278			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034278			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034278			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034278			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034278			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034278			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034278			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034278			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034278			67-86-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034278			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034278			124-18-5	Decane	NGS	100	<2.3	11	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034278			64-17-5	Ethanol	NGS	95	6.7	640	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034278			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034278			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034278			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034278			110-54-3	Hexane	NGS	100	<2.0	2.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034278			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034278			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034278			75-09-2	Methylene Chloride	NGS	89	<3.0	5.2	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034278			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034278			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034278			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034278			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034278			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034278			100-42-5	Styrene	NGS	100	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034278			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034278			108-88-3	Toluene	NGS	100	<1.4	2.7	n/a	n/a	n/a	n/a	1.4	n/a	J

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092
SDG Number:
Customer Sample ID: 17-05615-2-TL1-EF-8
Customer Sample ID: 17-05615-2-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															
S17T034278			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034278			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	3.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034278			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034278			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034278			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034278			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-1
 Customer Sample ID: 17-05615-2-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															
S17T034279		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|UY
S17T034279		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|UY
S17T034279		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|UY
S17T034279		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|UY
S17T034279		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|UY
S17T034279		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|UY
S17T034279		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|UY
S17T034279		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|UY
S17T034279		71-36-3		1-Butanol	NGS	99	<2.2	4.3	n/a	n/a	n/a	n/a	2.2		n/a|Y
S17T034279		111-70-6		1-Heptanol	NGS	99	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|UY
S17T034279		71-23-8		1-Propanol	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|UY
S17T034279		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|UY
S17T034279		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|UY
S17T034279		78-93-3		2-Butanone	NGS	110	<2.6	6.9	n/a	n/a	n/a	n/a	2.6		n/a|Y
S17T034279		110-43-0		2-Heptanone	NGS	100	<1.6	2.2	n/a	n/a	n/a	n/a	1.6		n/a|Y
S17T034279		591-78-6		2-Hexanone	NGS	100	<1.6	3.2	n/a	n/a	n/a	n/a	1.6		n/a|Y
S17T034279		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|UY
S17T034279		78-94-4		3-Buten-2-one	NGS	100	<2.3	2.6	n/a	n/a	n/a	n/a	2.3		n/a|Y
S17T034279		106-35-4		3-Heptanone	NGS	100	<1.4	26	n/a	n/a	n/a	n/a	1.4		n/a|Y
S17T034279		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|UY
S17T034279		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|UY
S17T034279		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.1	n/a	n/a	n/a	n/a	1.6		n/a|UY
S17T034279		67-64-1		Acetone	NGS	100	<6.7	250	n/a	n/a	n/a	n/a	6.7		n/a|Y
S17T034279		75-05-8		Acetonitrile	NGS	100	<3.3	68	n/a	n/a	n/a	n/a	3.3		n/a|Y
S17T034279		98-96-2		Acetophenone	NGS	100	<4.0	8.5	n/a	n/a	n/a	n/a	4.0		n/a|Y
S17T034279		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a UY
S17T034279		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a UY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-1
 Customer Sample ID: 17-05615-2-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															
S17T034279			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			71-43-2	Benzene	NGS	100	<1.2	3.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			123-72-8	Butanal	NGS	100	<1.5	4.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			109-74-0	Butanenitrile	NGS	100	<1.9	4.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			110-82-7	Cyclohexane	NGS	100	<2.7	4.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			124-18-5	Decane	NGS	100	<2.3	18	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			64-17-5	Ethanol	NGS	95	6.7	1.5E+03	n/a	n/a	n/a	n/a	n/a	n/a	n/a|EY
S17T034279			141-78-6	Ethyl acetate	NGS	110	<1.4	2.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			100-41-4	Ethylbenzene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			110-54-3	Hexane	NGS	100	<2.0	2.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			75-09-2	Methylene Chloride	NGS	89	<3.0	<3.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			110-59-8	Pentanitrile	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			107-12-0	Propanenitrile	NGS	100	<2.1	4.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			110-86-1	Pyridine	NGS	100	<1.2	1.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			100-42-5	Styrene	NGS	100	<1.4	5.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a|UY
S17T034279			127-18-4	Tetrachloroethene	NGS	100	<1.6	3.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a UY
S17T034279			108-88-3	Toluene	NGS	100	<1.4	7.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a UY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-1
 Customer Sample ID: 17-05615-2-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															
S17T034279			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|UY
S17T034279			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	45	n/a	n/a	n/a	n/a	1.6		n/a|Y
S17T034279			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|UY
S17T034279			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|UY
S17T034279			142-82-5	n-Heptane	NGS	97	<1.5	4.8	n/a	n/a	n/a	n/a	1.5		n/a|UY
S17T034279			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a UY

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J - Estimated
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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-8
 Customer Sample ID: 17-05615-2-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															
S17T034280		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034280		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034280		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034280		75-35-4		1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034280		107-06-2		1,2-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034280		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034280		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034280		123-91-1		1,4-Dioxane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034280		71-36-3		1-Butanol	NGS	99	<2.2	28	n/a	n/a	n/a	n/a	2.2		n/a
S17T034280		111-70-6		1-Heptanol	NGS	98	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034280		71-23-8		1-Propanol	NGS	100	<4.0	9.8	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034280		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034280		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034280		78-93-3		2-Butanone	NGS	110	<2.8	11	n/a	n/a	n/a	n/a	2.6		n/a|J
S17T034280		110-43-0		2-Heptanone	NGS	100	<1.6	2.2	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034280		591-78-6		2-Hexanone	NGS	100	<1.6	3.1	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034280		534-22-5		2-Methylfuran	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034280		78-94-4		3-Buten-2-one	NGS	100	<2.3	2.6	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034280		106-35-4		3-Heptanone	NGS	100	<1.4	37	n/a	n/a	n/a	n/a	1.4		n/a
S17T034280		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034280		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
S17T034280		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.5	1.8	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034280		67-84-1		Acetone	NGS	100	<6.7	270	n/a	n/a	n/a	n/a	6.7		n/a
S17T034280		75-05-8		Acetonitrile	NGS	100	<3.3	43	n/a	n/a	n/a	n/a	3.3		n/a
S17T034280		98-86-2		Acetophenone	NGS	100	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034280		107-13-1		Acrylonitrile	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034280		107-18-6		Allyl Alcohol	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-8
 Customer Sample ID: 17-05615-2-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															
S17T034280			107-05-1	Allyl Chloride	NGS	93	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034280			71-43-2	Benzene	NGS	100	<1.2	4.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034280			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034280			123-72-8	Butanal	NGS	100	<1.5	7.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034280			109-74-0	Butanenitrile	NGS	100	<1.9	6.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S17T034280			56-23-5	Carbon tetrachloride	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034280			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034280			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034280			67-66-3	Chloroform	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034280			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034280			124-18-5	Decane	NGS	100	<2.3	7.3	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034280			64-17-5	Ethanol	NGS	95	6.7	720	n/a	n/a	n/a	n/a	4.1	n/a	J
S17T034280			141-78-6	Ethyl acetate	NGS	110	<1.4	3.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034280			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034280			110-00-9	Furan	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034280			110-54-3	Hexane	NGS	100	<2.0	4.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034280			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034280			126-98-7	Methacrylonitrile	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034280			75-08-2	Methylene Chloride	NGS	89	<3.0	9.8	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034280			91-20-3	Naphthalene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034280			98-95-3	Nitrobenzene	NGS	99	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034280			110-59-8	Pentanitrile	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034280			107-12-0	Propanenitrile	NGS	100	<2.1	8.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034280			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034280			100-42-5	Styrene	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034280			127-18-4	Tetrachloroethene	NGS	100	<1.6	5.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034280			108-88-3	Toluene	NGS	100	<1.4	7.0	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-8

Customer Sample ID: 17-05615-2-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															
S17T034280			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034280			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	120	n/a	n/a	n/a	n/a	1.6	n/a	
S17T034280			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034280			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034280			142-82-5	n-Heptane	NGS	97	<1.5	4.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034280			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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*OK. To Have Keston
 Review*

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092
SDG Number:
Customer Sample ID: 17-05614-2-SD1-EF-1
Customer Sample ID: 17-05614-2-SD1-EF-1

Sample#	R	AI#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034261				Methyl formate	107313	5.79	NGS	120	BJNT
S17T034261				Acetic acid	64-19-7	11.41	NGS	22	JNT
S17T034261				Cyclotrisiloxane, hexamethyl-	541-05-9	19.35	NGS	60	JNT
S17T034261				Cyclotetrasiloxane, octamethyl	558-87-2	23.61	NGS	420	JNT
S17T034261				D-Limonene	5989-27-5	25.36	NGS	120	JNT
S17T034261				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.61	NGS	230	JNT
S17T034261				Nonane	111-84-2	25.73	NGS	82	JNT
S17T034261				5-Ethyl-1-nonene	19780-74-6	26.09	NGS	31	JNT
S17T034261				2,6-Dimethyldecane	13150-81-7	26.33	NGS	54	JNT
S17T034261				Undecane	1120-21-4	26.46	NGS	160	JNT
S17T034261				Decane, 3,7-dimethyl-	17312-54-8	26.57	NGS	74	JNT
S17T034261				Undecanal	112-44-7	26.63	NGS	28	JNT
S17T034261				Decane, 2,4,6-trimethyl-	52108-27-4	26.71	NGS	27	JNT
S17T034261				Unknown-1		26.82	NGS	400	JT
S17T034261				Undecane, 2-methyl-	7045718	27.61	NGS	10	JNT
S17T034261				Undecane, 3-methyl-	1002-43-3	27.76	NGS	13	JNT
S17T034261				Dodecane	112403	28.25	NGS	58	JNT
S17T034261				Undecane, 2,6-dimethyl-	17301234	28.57	NGS	7.3	JNT
S17T034261				Unknown-2		29.92	NGS	71	JT
S17T034261				Unknown-3		30.05	NGS	40	JT
S17T034261				Tridecane	529505	30.08	NGS	65	JNT
S17T034261				Dodecane, 4,6-dimethyl-	61141728	30.74	NGS	35	JNT
S17T034261			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034261			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-2
 Customer Sample ID: 17-05614-2-SD1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034262				Methyl formate	107313	5.80	NGS	72	BJNT
S17T034262				Acetic acid	64-19-7	11.40	NGS	16	JNT
S17T034262				Cyclotrisiloxane, hexamethyl-	541-05-9	19.35	NGS	53	JNT
S17T034262				Cyclotrisiloxane, octamethyl	566-67-2	23.61	NGS	380	JNT
S17T034262				D-Limonene	5989-27-5	25.36	NGS	140	JNT
S17T034262				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.61	NGS	240	JNT
S17T034262				Decane, 3,7-dimethyl-	17312-54-8	25.74	NGS	91	JNT
S17T034262				2,6-Dimethyldecane	13150-81-7	26.33	NGS	88	JNT
S17T034262				2,3-Dimethyldecane	17312-44-6	26.44	NGS	61	JNT
S17T034262				Undecane	1120-21-4	26.47	NGS	230	JNT
S17T034262				Decane, 2,4,6-trimethyl-	62108-27-4	26.58	NGS	95	JNT
S17T034262				Hexyl octyl ether	17071-54-4	26.64	NGS	40	JNT
S17T034262				Undecane, 4-methyl-	2980-69-0	26.71	NGS	92	JNT
S17T034262				Unknown-1		26.83	NGS	450	JT
S17T034262				Unknown-4	None	27.12	NGS	52	JT
S17T034262				Unknown-5	None	27.53	NGS	40	JT
S17T034262				Dodecane	112-40-3	28.26	NGS	82	JNT
S17T034262				Undecane, 2,6-dimethyl-	17301234	28.58	NGS	7.3	JNT
S17T034262				Unknown-2		29.88	NGS	38	JT
S17T034262				Unknown-3		29.92	NGS	100	JT
S17T034262				Tridecane	529-50-5	30.09	NGS	150	JNT
S17T034262				Dodecane, 2,6,11-trimethyl-	31295564	30.74	NGS	45	JNT
S17T034262			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034262			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-3
 Customer Sample ID: 17-05614-2-SD1-EF-3

Sample#	R	AF	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034263				Unknown-4	None	5.80	NGS	31	JT
S17T034263				Methyl formate	107313	5.80	NGS	61	BJNT
S17T034263				Acetic acid	64-19-7	11.32	NGS	5.3	JNT
S17T034263				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	34	JNT
S17T034263				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	320	JNT
S17T034263				D-Limonene	5989-27-5	25.36	NGS	120	JNT
S17T034263				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.61	NGS	240	JNT
S17T034263				3,3-Dimethylhexane	563-16-6	25.74	NGS	84	JNT
S17T034263				Hexanoic acid, 2-ethyl-	149-57-5	26.30	NGS	38	JNT
S17T034263				2,6-Dimethyldecane	13150-81-7	26.33	NGS	57	JNT
S17T034263				2,3-Dimethyldecane	17312-44-6	26.43	NGS	26	JNT
S17T034263				Undecane	1120214	26.47	NGS	160	JNT
S17T034263				Decane, 2,4,6-trimethyl-	52108-27-4	26.58	NGS	88	JNT
S17T034263				Undecanal	112-44-7	26.64	NGS	64	JNT
S17T034263				Undecane, 4-methyl-	2980-69-0	26.71	NGS	60	JNT
S17T034263				Unknown-1		26.83	NGS	400	JT
S17T034263				Unknown-5	None	27.53	NGS	38	JT
S17T034263				Undecane, 2-methyl-	7045-71-8	27.61	NGS	14	JNT
S17T034263				Undecane, 3-methyl-	1002433	27.77	NGS	14	JNT
S17T034263				Dodecane	112403	28.25	NGS	76	JNT
S17T034263				Undecane, 2,6-dimethyl-	17301234	28.58	NGS	10	JNT
S17T034263				Unknown-2		29.88	NGS	44	JT
S17T034263				Unknown-3		29.92	NGS	95	JT
S17T034263				Tridecane	529-50-5	30.09	NGS	150	JNT
S17T034263				Dodecane, 4,6-dimethyl-	51141728	30.74	NGS	46	JNT
S17T034263			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-3

Customer Sample ID: 17-05614-2-SD1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
S177034263			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-4

Customer Sample ID: 17-05614-2-SD1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S177034264				Methyl formate	107313	5.81	NGS	80	BJNT
S177034264				Cyclotrisiloxane, hexamethyl-	541-05-9	19.35	NGS	27	JNT
S177034264				Cyclotetrasiloxane, octamethyl	556-57-2	23.61	NGS	210	JNT
S177034264				D-Limonene	5989-27-5	25.36	NGS	160	JNT
S177034264				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.61	NGS	41	JNT
S177034264				Undecane	1120214	26.46	NGS	35	JNT
S177034264				Decane, 2,4,6-trimethyl-	62108-27-4	26.57	NGS	15	JNT
S177034264				Undecanal	112-44-7	26.63	NGS	30	JNT
S177034264				Unknown-1		26.83	NGS	280	JT
S177034264				Undecane, 2-methyl-	7045718	27.61	NGS	9.1	JNT
S177034264				Undecane, 3-methyl-	1002433	27.76	NGS	8.9	JNT
S177034264				Dodecane	112-40-3	28.25	NGS	62	JNT
S177034264				Undecane, 2,6-dimethyl-	17301234	28.58	NGS	10	JNT
S177034264				Unknown-3		29.88	NGS	44	JT
S177034264				Unknown-2	None	29.92	NGS	84	JT
S177034264				Tridecane	629505	30.09	NGS	95	JNT
S177034264				Dodecane, 2,7,10-trimethyl-	7464980	30.74	NGS	41	JNT
S177034264			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S177034264			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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Y - Comment
 B - Blank Contamination

J - Estimated
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-EF-5
 Customer Sample ID: 17-05614-2-SD1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034265				Methyl formate	107313	5.79	NGS	150	BJNT
S17T034265				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	59	JNT
S17T034265				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	380	JNT
S17T034265				D-Limonene	5989-27-5	25.36	NGS	55	JNT
S17T034265				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.61	NGS	230	JNT
S17T034265				Unknown-1		25.74	NGS	93	JT
S17T034265				5-Ethyl-1-nonene	19780-74-6	26.10	NGS	34	JNT
S17T034265				Hexanoic acid, 2-ethyl-	149-57-5	26.30	NGS	25	JNT
S17T034265				2,6-Dimethyldecane	13150-81-7	26.33	NGS	62	JNT
S17T034265				2,3-Dimethyldecane	17312-44-6	26.44	NGS	35	JNT
S17T034265				Undecane	1120-21-4	26.47	NGS	170	JNT
S17T034265				Decane, 2,4,6-trimethyl-	62108-27-4	26.58	NGS	66	JNT
S17T034265				Undecane, 4-methyl-	2980-69-0	26.71	NGS	31	JNT
S17T034265				Unknown-2		26.83	NGS	300	JT
S17T034265				Unknown-3	None	27.53	NGS	37	JT
S17T034265				Undecane, 2-methyl-	7045718	27.61	NGS	16	JNT
S17T034265				Undecane, 3-methyl-	1002-43-3	27.77	NGS	20	JNT
S17T034265				Dodecane	112-40-3	28.26	NGS	74	JNT
S17T034265				Undecane, 2,6-dimethyl-	17301234	28.57	NGS	9.3	JNT
S17T034265				Methanamine	100970	29.89	NGS	11	JNT
S17T034265				Dodecane, 4-methyl-	6117971	29.93	NGS	90	JNT
S17T034265				Unknown-4		30.08	NGS	53	JT
S17T034265				Dodecane, 4,6-dimethyl-	61141728	30.36	NGS	16	JNT
S17T034265				Dodecane, 2,6,11-trimethyl-	31295564	30.74	NGS	40	JNT
S17T034265			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034265			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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**2017 Cartridge Evaluation
Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-5

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

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-6

Customer Sample ID: 17-05614-2-SD1-EF-6

Sample#	R	As#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034266				Methyl formate	107313	5.81	NGS	230	BJNT
S17T034266				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	130	JNT
S17T034266				D-Limonene	5989-27-5	25.36	NGS	100	JNT
S17T034266				Octane, 2,3,6,7-tetramethyl-	52670345	25.62	NGS	43	JNT
S17T034266				Undecane	1120214	26.47	NGS	19	JNT
S17T034266				Decane, 2,4,6-trimethyl-	62108-27-4	26.58	NGS	10	JNT
S17T034266				Undecanal	112-44-7	26.64	NGS	29	JNT
S17T034266				Unknown-1		26.83	NGS	190	JT
S17T034266				Dodecane	112-40-3	28.26	NGS	27	JNT
S17T034266				Undecane, 2,6-dimethyl-	17301234	28.59	NGS	5.8	JNT
S17T034266				Dodecane, 4,6-dimethyl-	61141728	29.93	NGS	20	JNT
S17T034266				Tridecane	629505	30.11	NGS	74	JNT
S17T034266				Dodecane, 2,6,11-trimethyl-	31295664	30.74	NGS	16	JNT
S17T034266			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034266			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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 B - Blank Contamination

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-7

Customer Sample ID: 17-05614-2-SD1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034267				Methyl formate	107313	5.81	NGS	200	BJNT
S17T034267				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	110	JNT
S17T034267				D-Limonene	5989-27-5	25.37	NGS	62	JNT
S17T034267				Octane, 5-ethyl-2-methyl-	62016-18-6	25.62	NGS	68	JNT
S17T034267				Undecane	1120214	26.47	NGS	37	JNT
S17T034267				Decane, 2,4,6-trimethyl-	62108-27-4	26.59	NGS	21	JNT
S17T034267				Nonanal	124-19-6	26.84	NGS	29	JNT
S17T034267				Unknown-1		26.83	NGS	150	JT
S17T034267				Dodecane	112403	28.26	NGS	26	JNT
S17T034267				Dodecane, 4-methyl-	6117971	29.93	NGS	38	JNT
S17T034267				Dodecane, 2,6,11-trimethyl-	31295564	30.10	NGS	58	JNT
S17T034267			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034267			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-EF-8

Customer Sample ID: 17-05614-2-SD1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034268				Methyl formate	107313	5.78	NGS	46	BJNT
S17T034268				Unknown-1		10.17	NGS	160	JT
S17T034268				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	86	JNT
S17T034268				D-Limonene	5989-27-5	25.37	NGS	56	JNT
S17T034268				Decane, 3,7-dimethyl-	17312-54-8	25.62	NGS	35	JNT
S17T034268				Undecane	1120214	26.47	NGS	24	JNT
S17T034268				Decane, 2,4,6-trimethyl-	62108-27-4	26.59	NGS	8.3	JNT
S17T034268				Unknown-2		26.83	NGS	120	JT
S17T034268				Dodecane	112403	28.26	NGS	21	JNT
S17T034268				Unknown-3		29.88	NGS	38	JT
S17T034268				Unknown-4		29.92	NGS	35	JT
S17T034268				Tetradecane	629-59-4	30.10	NGS	29	JNT
S17T034268			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034268			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092
SDG Number:
Customer Sample ID: 17-05614-2-SD1-IN-1
Customer Sample ID: 17-05614-2-SD1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034269				Methyl formate	107313	5.79	NGS	210	BJNT
S17T034269				Unknown-1		7.54	NGS	27	JT
S17T034269				Methyl Acetate	79-20-9	9.15	NGS	28	JNT
S17T034269				Unknown-2		10.02	NGS	53	JT
S17T034269				Acetic acid	64-19-7	11.80	NGS	220	JNT
S17T034269				Cyclotrisiloxane, hexamethyl-	541-06-9	19.36	NGS	87	JNT
S17T034269				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	390	JNT
S17T034269				D-Limonene	5989-27-5	25.37	NGS	120	JNT
S17T034269				Octane, 2,3,6,7-tetramethyl-	52870-34-5	25.62	NGS	220	JNT
S17T034269				Decane, 3,7-dimethyl-	17312-54-8	25.75	NGS	78	JNT
S17T034269				Unknown-4	None	26.11	NGS	26	JT
S17T034269				Hexanoic acid, 2-ethyl-	149-57-5	26.30	NGS	30	JNT
S17T034269				2,6-Dimethyldecane	13150-81-7	26.34	NGS	45	JNT
S17T034269				Undecane	1120-21-4	26.47	NGS	140	JNT
S17T034269				Decane, 2,4,6-trimethyl-	62108-27-4	26.59	NGS	59	JNT
S17T034269				Undecane, 2-methyl-	7045718	26.72	NGS	26	JNT
S17T034269				Unknown-3		26.83	NGS	380	JT
S17T034269				Hydroxylamine, O-decyl-	29812-79-1	27.62	NGS	9.7	JNT
S17T034269				Undecane, 3-methyl-	1002-43-3	27.77	NGS	12	JNT
S17T034269				Dodecane	112403	28.27	NGS	61	JNT
S17T034269				Dodecane, 4,6-dimethyl-	51141728	29.93	NGS	62	JNT
S17T034269				Benzothiazole	95169	30.08	NGS	41	JNT
S17T034269				Tridecane	629505	30.11	NGS	89	JNT
S17T034269				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.74	NGS	35	JNT
S17T034269			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034269			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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**2017 Cartridge Evaluation
Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-IN-1

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B - Blank Contamination

J - Estimated
N - Named TIC

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05614-2-SD1-IN-3

Customer Sample ID: 17-05614-2-SD1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034270				Unknown-1		7.61	NGS	33	JT
S17T034270				Methyl Acetate	79-20-9	9.21	NGS	26	JNT
S17T034270				Unknown-2		10.17	NGS	72	JT
S17T034270				Acetic acid	64-19-7	13.15	NGS	130	JNT
S17T034270				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	95	JNT
S17T034270				D-Limonene	5989-27-5	25.39	NGS	49	JNT
S17T034270				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.64	NGS	34	JNT
S17T034270				2,6-Dimethyldecane	13150-81-7	26.31	NGS	36	JNT
S17T034270				2,3-Dimethyldecane	17312-44-6	26.35	NGS	67	JNT
S17T034270				Undecane	1120-21-4	26.49	NGS	47	JNT
S17T034270				Undecane, 4-methyl-	2980-69-0	26.71	NGS	29	JNT
S17T034270				Undecane, 2,6-dimethyl-	17301-23-4	26.73	NGS	54	JNT
S17T034270				Unknown-3		26.83	NGS	150	JT
S17T034270				Decane, 2,3,5,8-tetramethyl-	192823-15-7	27.13	NGS	52	JNT
S17T034270				Dodecane	112403	28.25	NGS	20	JNT
S17T034270				Unknown-4		29.87	NGS	32	JT
S17T034270				Unknown-5		29.89	NGS	33	JT
S17T034270				Tridecane	629505	30.08	NGS	43	JNT
S17T034270			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034270			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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J - Estimated
 N - Named TIC

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-1
 Customer Sample ID: 17-05615-2-TL1-EF-1

Sample#	R	AF	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034271				Methyl formate	107313	5.81	NGS	160	BJNT
S17T034271				Acetic acid	64-19-7	11.38	NGS	11	JNT
S17T034271				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	66	JNT
S17T034271				Cyclotetrasiloxane, octamethyl	558-87-2	23.61	NGS	400	JNT
S17T034271				D-Limonene	5989-27-5	25.36	NGS	190	JNT
S17T034271				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.61	NGS	100	JNT
S17T034271				3,3-Dimethylhexane	563-16-6	25.74	NGS	35	JNT
S17T034271				2,6-Dimethyldecane	13150-81-7	26.34	NGS	52	JNT
S17T034271				Undecane	1120-21-4	26.47	NGS	82	JNT
S17T034271				Decane, 2,4,6-trimethyl-	62108-27-4	26.68	NGS	34	JNT
S17T034271				Undecane, 2-methyl-	7045718	26.72	NGS	47	JNT
S17T034271				Unknown-1		26.83	NGS	460	JT
S17T034271				Unknown-2		27.62	NGS	12	JT
S17T034271				Undecane, 3-methyl-	1002-43-3	27.77	NGS	17	JNT
S17T034271				Dodecane	112-40-3	28.26	NGS	92	JNT
S17T034271				Undecane, 2,6-dimethyl-	17301234	28.56	NGS	14	JNT
S17T034271				Unknown-3		29.93	NGS	110	JT
S17T034271				Unknown-4		30.08	NGS	110	JT
S17T034271				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.74	NGS	59	JNT
S17T034271			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034271			BLNK	Methyl Alcohol	57-56-1	8.22	NGS	30	JNT

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 N - Named TIC

Y - Comment
 B - Blank Contamination

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 T - Tentatively Identified Compound

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 E - Outside Calibration Range

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-2

Customer Sample ID: 17-05615-2-TL1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034272				Methyl formate	107313	5.80	NGS	52	B,JNT
S17T034272				Isopropyl Alcohol	67-63-0	7.55	NGS	38	JNT
S17T034272				Unknown-1		10.05	NGS	33	JT
S17T034272				Acetic acid	64-19-7	11.83	NGS	250	JNT
S17T034272				Formamide	75-12-7	15.69	NGS	35	JNT
S17T034272				Acetamide	60-35-5	17.83	NGS	30	JNT
S17T034272				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	74	JNT
S17T034272				Cyclotetrasiloxane, octamethyl	568-67-2	23.62	NGS	380	JNT
S17T034272				D-Limonene	5989-27-5	25.37	NGS	160	JNT
S17T034272				Decane, 3,7-dimethyl-	17312-54-8	25.63	NGS	180	JNT
S17T034272				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.75	NGS	63	JNT
S17T034272				Heptanoic acid, 2-ethyl-	3274-29-1	26.31	NGS	28	JNT
S17T034272				2,6-Dimethyldecane	13150-81-7	26.35	NGS	59	JNT
S17T034272				2,3-Dimethyldecane	17312-44-6	26.44	NGS	26	JNT
S17T034272				Undecane	1120-21-4	26.48	NGS	160	JNT
S17T034272				Decane, 2,4,6-trimethyl-	52108-27-4	26.59	NGS	76	JNT
S17T034272				Undecane, 4-methyl-	2980-69-0	26.73	NGS	55	JNT
S17T034272				Unknown-2		26.83	NGS	430	JT
S17T034272				Undecane, 5-methyl-	1632708	27.46	NGS	25	JNT
S17T034272				Unknown-3		27.55	NGS	37	JT
S17T034272				Undecane, 2-methyl-	7045718	27.62	NGS	21	JNT
S17T034272				Undecane, 3-methyl-	1002-43-3	27.77	NGS	23	JNT
S17T034272				Dodecane	112-40-3	28.27	NGS	120	JNT
S17T034272				Unknown-5	None	28.49	NGS	26	JT
S17T034272				Undecane, 2,6-dimethyl-	17301234	28.58	NGS	17	JNT
S17T034272				Ethylene diacrylate	2274-11-5	29.36	NGS	57	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-2

Customer Sample ID: 17-05615-2-TL1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034272				Dodecane, 2,7,10-trimethyl-	74645980	29.78	NGS	26	JNT
S17T034272				Heptadecane, 2,6-dimethyl-	54105-67-8	29.78	NGS	26	JNT
S17T034272				Decane, 2,3,5,8-tetramethyl-	192823-15-7	29.93	NGS	140	JNT
S17T034272				1,2-Benzisothiazole	272-16-2	30.07	NGS	160	JNT
S17T034272				Dodecane, 4,6-dimethyl-	61141728	30.21	NGS	26	JNT
S17T034272				Unknown-4		30.75	NGS	76	JT
S17T034272			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034272			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-3
 Customer Sample ID: 17-05615-2-TL1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034273				Methyl formate	107313	5.79	NGS	35	BJNT
S17T034273				Isopropyl Alcohol	67-63-0	7.55	NGS	26	JNT
S17T034273				Unknown-1		10.04	NGS	25	JT
S17T034273				Acetic acid	64-19-7	11.83	NGS	240	JNT
S17T034273				Formamide	75-12-7	15.69	NGS	51	JNT
S17T034273				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	56	JNT
S17T034273				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	300	JNT
S17T034273				D-Limonene	5989-27-5	25.36	NGS	140	JNT
S17T034273				Decane, 3,7-dimethyl-	17312-64-8	25.62	NGS	150	JNT
S17T034273				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.75	NGS	67	JNT
S17T034273				Butanoic acid, 2,2-diethyl-	813-58-1	26.31	NGS	30	JNT
S17T034273				2,6-Dimethyldecane	13150-81-7	26.34	NGS	61	JNT
S17T034273				Undecane, 4,7-dimethyl-	17301-32-5	26.47	NGS	140	JNT
S17T034273				Decane, 2,4,6-trimethyl-	62108-27-4	26.59	NGS	67	JNT
S17T034273				Undecane, 4-methyl-	2980-69-0	26.72	NGS	70	JNT
S17T034273				Unknown-2		26.83	NGS	370	JT
S17T034273				2-Hexyl-1-octanol	19780-79-1	27.45	NGS	26	JNT
S17T034273				Unknown-3		27.54	NGS	35	JT
S17T034273				Undecane, 2-methyl-	7045718	27.61	NGS	17	JNT
S17T034273				Undecane, 3-methyl-	1002433	27.77	NGS	25	JNT
S17T034273				Dodecane	112-40-3	28.26	NGS	100	JNT
S17T034273				2-Dodecene, (E)-	7206-13-5	28.49	NGS	57	JNT
S17T034273				Undecane, 2,6-dimethyl-	17301234	28.58	NGS	24	JNT
S17T034273				2-Propenoic acid, octyl ester	2499-59-4	29.35	NGS	70	JNT
S17T034273				Unknown-4		29.93	NGS	120	JT
S17T034273				1,2-Benzisothiazole	272-16-2	30.06	NGS	150	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-3

Customer Sample ID: 17-05615-2-TL1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034273				Dodecane, 4,6-dimethyl-	61141728	30.74	NGS	68	JNT
S17T034273			BLNK	Methyl formate	107-31-3	5.78	NGS	26	B,JNT
S17T034273			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-4

Customer Sample ID: 17-05615-2-TL1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034274				Methyl formate	107313	5.81	NGS	69	BJNT
S17T034274				Cyclotrisiloxane, hexamethyl-	541-05-9	19.35	NGS	38	JNT
S17T034274				Cyclotetrasiloxane, octamethyl	556-67-2	23.61	NGS	240	JNT
S17T034274				D-Limonene	5989-27-5	25.36	NGS	140	JNT
S17T034274				Decane, 3,7-dimethyl-	17312-54-8	25.61	NGS	75	JNT
S17T034274				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.74	NGS	27	JNT
S17T034274				Hydroxylamine, O-decyl-	29812-79-1	26.33	NGS	26	JNT
S17T034274				Undecane	1120214	26.47	NGS	62	JNT
S17T034274				Decane, 2,4,6-trimethyl-	52108-27-4	26.57	NGS	30	JNT
S17T034274				Undecane, 4-methyl-	2980-69-0	26.71	NGS	24	JNT
S17T034274				Undecane, 2-methyl-	7045718	26.71	NGS	24	JNT
S17T034274				Unknown-1		26.83	NGS	320	JT
S17T034274				1-Iodo-2-methylundecane	73105-67-6	27.61	NGS	11	JNT
S17T034274				Undecane, 3-methyl-	1002433	27.76	NGS	13	JNT
S17T034274				Dodecane	112-40-3	28.25	NGS	70	JNT
S17T034274				Ethylene diacrylate	2274-11-5	28.47	NGS	35	JNT
S17T034274				Undecane, 2,6-dimethyl-	17301234	28.57	NGS	17	JNT
S17T034274				2-Propenoic acid, octyl ester	2499-59-4	29.34	NGS	62	JNT
S17T034274				Methanamine	100970	29.87	NGS	9.9	JNT
S17T034274				Decane, 2,3,5,8-tetramethyl-	192823-15-7	29.93	NGS	110	JNT
S17T034274				Benzo[h]azole	95169	30.05	NGS	130	JNT
S17T034274				Tridecane	629505	30.07	NGS	91	JNT
S17T034274				Tridecane, 3-methyl-	6418-41-3	30.20	NGS	15	JNT
S17T034274				Dodecane, 4,6-dimethyl-	61141728	30.36	NGS	20	JNT
S17T034274				Tetradecane	629694	30.74	NGS	58	JNT
S17T034274			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-4

Customer Sample ID: 17-05615-2-TL1-EF-4

Sample#	R	AI	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S177034274		BLNK		Methyl Alcohol	57-56-1	8.22	NGS	30	JNT

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 N - Named TIC

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-EF-5
 Customer Sample ID: 17-05615-2-TL1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034275				Methyl formate	107313	5.78	NGS	200	BJNT
S17T034275				Acetic acid	64-19-7	11.33	NGS	6.3	JNT
S17T034275				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	150	JNT
S17T034275				D-Limonene	5989-27-5	25.36	NGS	110	JNT
S17T034275				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.62	NGS	51	JNT
S17T034275				2,6-Dimethyldecane	13150-81-7	26.34	NGS	44	JNT
S17T034275				Undecane	1120214	26.47	NGS	69	JNT
S17T034275				Decane, 2,4,6-trimethyl-	62108-27-4	26.58	NGS	21	JNT
S17T034275				Unknown-1		26.83	NGS	240	JT
S17T034275				Undecane, 2-methyl-	7045718	27.61	NGS	8.7	JNT
S17T034275				Undecane, 3-methyl-	1002433	27.77	NGS	9.9	JNT
S17T034275				Dodecane	112-40-3	28.26	NGS	55	JNT
S17T034275				Undecane, 2,6-dimethyl-	17301234	28.58	NGS	6.5	JNT
S17T034275				Dodecane, 4,6-dimethyl-	61141728	29.93	NGS	53	JNT
S17T034275				1,2-Benzisothiazole	272-16-2	30.06	NGS	49	JNT
S17T034275				Tridecane	629505	30.09	NGS	47	JNT
S17T034275				Tetradecane	626594	30.74	NGS	31	JNT
S17T034275			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034275			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-6

Customer Sample ID: 17-05615-2-TL1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034276				Methyl formate	107313	5.80	NGS	210	BJNT
S17T034276				Acetic acid	64-19-7	11.34	NGS	7.3	JNT
S17T034276				Cyclotrisiloxane, octamethyl	556-67-2	23.62	NGS	110	JNT
S17T034276				D-Limonene	5989-27-5	25.36	NGS	95	JNT
S17T034276				Decane, 3,7-dimethyl-	17312-54-8	25.62	NGS	57	JNT
S17T034276				2,6-Dimethyldecane	13150-81-7	25.74	NGS	25	JNT
S17T034276				Undecane	1120-21-4	26.34	NGS	61	JNT
S17T034276				2,3-Dimethyldecane	17312-44-6	26.47	NGS	86	JNT
S17T034276				Decane, 2,4,6-trimethyl-	62108-27-4	26.58	NGS	34	JNT
S17T034276				Nonane, 3-methyl-5-propyl-	31081182	26.72	NGS	42	JNT
S17T034276				Unknown-1		26.83	NGS	210	JT
S17T034276				Unknown-3	None	27.13	NGS	43	JT
S17T034276				Undecane, 2-methyl-	7045718	27.62	NGS	8.4	JNT
S17T034276				Undecane, 3-methyl-	1002433	27.77	NGS	14	JNT
S17T034276				Dodecane	112-40-3	28.26	NGS	48	JNT
S17T034276				Ethylene diacrylate	2274-11-5	28.48	NGS	29	JNT
S17T034276				Undecane, 2,6-dimethyl-	17301234	28.58	NGS	12	JNT
S17T034276				2-Propenoic acid, octyl ester	2499-59-4	29.34	NGS	33	JNT
S17T034276				Methanamine	100970	29.89	NGS	14	JNT
S17T034276				Dodecane, 4,6-dimethyl-	61141728	29.93	NGS	64	JNT
S17T034276				Unknown-2		30.05	NGS	130	JT
S17T034276				Dodecane, 2,6,11-trimethyl-	31295564	30.74	NGS	27	JNT
S17T034276			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034276			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-7

Customer Sample ID: 17-05615-2-TL1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034277				Methyl formate	107313	5.78	NGS	200	B,NT
S17T034277				Methyl Acetate	79-20-9	9.15	NGS	25	JNT
S17T034277				Cyclotetrasiloxane, octamethyl	558-67-2	23.61	NGS	100	JNT
S17T034277				D-Limonene	5989-27-5	25.36	NGS	75	JNT
S17T034277				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.60	NGS	46	JNT
S17T034277				Undecane	1120-21-4	26.33	NGS	21	JNT
S17T034277				Decane, 2,4,6-trimethyl-	62108-27-4	26.46	NGS	54	JNT
S17T034277				Unknown-1		26.82	NGS	160	JT
S17T034277				Undecane, 2-methyl-	7045718	27.61	NGS	6.7	JNT
S17T034277				Undecane, 3-methyl-	1002433	27.76	NGS	8.4	JNT
S17T034277				Dodecane	112-40-3	28.25	NGS	36	JNT
S17T034277				Undecane, 2,6-dimethyl-	17301234	28.57	NGS	5.3	JNT
S17T034277				Ethylene diacrylate	2274-11-5	29.34	NGS	32	JNT
S17T034277				Methanamine	100970	29.88	NGS	14	JNT
S17T034277				Decane, 2,3,5,8-tetramethyl-	192823-15-7	29.92	NGS	51	JNT
S17T034277				Benzothiazole	95169	30.06	NGS	31	JNT
S17T034277				Tridecane	6289505	30.08	NGS	37	JNT
S17T034277				Dodecane, 4,6-dimethyl-	61141728	30.20	NGS	8.6	JNT
S17T034277				Dodecane, 2,6,11-trimethyl-	31295564	30.74	NGS	25	JNT
S17T034277			BLNK	Methyl formate	107-31-3	5.78	NGS	26	B,NT
S17T034277			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-EF-8

Customer Sample ID: 17-05615-2-TL1-EF-8

Sample#	R	AI#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034278				Methyl formate	107313	5.84	NGS	300	BJNT
S17T034278				Methyl Acetate	79-20-9	9.19	NGS	32	JNT
S17T034278				Cyclotrisiloxane, octamethyl	566-67-2	23.61	NGS	82	JNT
S17T034278				Heptane, 5-ethyl-2,2,3-trimeth	62199-06-8	24.95	NGS	7.2	JNT
S17T034278				D-Limonene	5989-27-5	25.36	NGS	80	JNT
S17T034278				Octane, 6-ethyl-2-methyl-	62016197	25.62	NGS	57	JNT
S17T034278				Decane, 3,7-dimethyl-	17312-54-8	25.74	NGS	28	JNT
S17T034278				Undecane, 3,5-dimethyl-	17312-81-1	26.03	NGS	17	JNT
S17T034278				2,3-Dimethyldecane	17312-44-6	26.33	NGS	48	JNT
S17T034278				Undecane	1120-21-4	26.47	NGS	80	JNT
S17T034278				Decane, 2,4,6-trimethyl-	62108-27-4	26.56	NGS	32	JNT
S17T034278				Undecane, 4-methyl-	2980-69-0	26.71	NGS	29	JNT
S17T034278				Unknown-2		26.83	NGS	160	JT
S17T034278				Unknown-1	None	27.13	NGS	35	JT
S17T034278				Undecane, 2-methyl-	7045718	27.61	NGS	7.7	JNT
S17T034278				Undecane, 3-methyl-	1002433	27.77	NGS	9.5	JNT
S17T034278				Dodecane	112-40-3	28.25	NGS	39	JNT
S17T034278				Dodecane, 2,6,10-trimethyl-	3891983	29.75	NGS	10	JNT
S17T034278				Methanamine	100970	29.88	NGS	11	
S17T034278				Dodecane, 4,6-dimethyl-	61141728	29.92	NGS	42	JNT
S17T034278				Unknown-3	None	30.08	NGS	41	JT
S17T034278				Dodecane, 2,6,11-trimethyl-	31295564	30.74	NGS	18	JNT
S17T034278				Tetradecane, 2-methyl-	1560-95-8	30.74	NGS	18	JNT
S17T034278			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034278			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

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**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-1

Customer Sample ID: 17-05615-2-TL1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034279				Methyl formate	107313	5.84	NGS	88	BJNTY
S17T034279				Unknown-1		10.07	NGS	36	JTY
S17T034279				Acetic acid	64-19-7	11.88	NGS	260	JNTY
S17T034279				Formamide	75-12-7	15.69	NGS	46	JNTY
S17T034279				Cyclotrisiloxane, hexamethyl-	541-05-9	19.36	NGS	92	JNTY
S17T034279				Cyclotetrasiloxane, octamethyl	556-67-2	23.62	NGS	360	JNTY
S17T034279				D-Limonene	5989-27-5	25.36	NGS	120	JNTY
S17T034279				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.61	NGS	120	JNTY
S17T034279				Decane, 3,7-dimethyl-	17312-54-8	25.74	NGS	43	JNTY
S17T034279				Undecane	1120-21-4	26.33	NGS	43	JNTY
S17T034279				Octane, 5-ethyl-2-methyl-	62016-18-6	26.47	NGS	110	JNTY
S17T034279				2,3-Dimethyldecane	17312-44-6	26.58	NGS	44	JNTY
S17T034279				Decane, 2,4,6-trimethyl-	52108-27-4	26.71	NGS	38	JNTY
S17T034279				Unknown-2		26.83	NGS	320	JTY
S17T034279				Undecane, 2-methyl-	7045718	27.61	NGS	12	JNTY
S17T034279				Undecane, 3-methyl-	1002433	27.76	NGS	19	JNTY
S17T034279				Dodecane	112403	28.25	NGS	66	JNTY
S17T034279				Unknown-3	None	28.48	NGS	41	JTY
S17T034279				Undecane, 2,6-dimethyl-	17301234	28.57	NGS	8.9	JNTY
S17T034279				Ethylene diacrylate	2274-11-5	29.33	NGS	61	JNTY
S17T034279				Dodecane, 4-methyl-	6117971	29.92	NGS	63	JNTY
S17T034279				Benzothiazole	95-16-9	30.05	NGS	53	JNTY
S17T034279				Dodecane, 4,6-dimethyl-	61141728	30.07	NGS	30	JNTY
S17T034279				Decane, 2,3,5,8-tetramethyl-	192823-15-7	30.74	NGS	27	JNTY
S17T034279			BLNK	Methyl formate	107-31-3	5.78	NGS	26	BJNT
S17T034279			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

U - Less Than Detection Limit
 T - Tentatively Identified Compound

Y - Comment
 B - Blank Contamination

J - Estimated
 N - Named TIC

16-Nov-2017 14:0303
DSRTICHardcopy 3.0.13a
DSR-Jan v. 3.0.13a

**2017 Cartridge Evaluation
Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-1

NA = Not Analyzed, ND = Not Detected
E - Outside Calibration Range

U - Less Than Detection Limit
T - Tentatively Identified Compound

Y - Comment
B - Blank Contamination

J - Estimated
N - Named TIC

16-Nov-2017 14:0303
 DSRTICHardcopy 3.0.13a
 DSR-Jar v. 3.0.13a

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173092

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-8

Customer Sample ID: 17-05615-2-TL1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S17T034280				Methyl Acetate	79-20-9	9.17	NGS	36	JNT
S17T034280				Hydroxyacetic acid, hydrazide	3530-14-1	10.14	NGS	84	JNT
S17T034280				Acetic acid	64-19-7	12.96	NGS	90	JNT
S17T034280				Cyclotrisiloxane, octamethyl	566-87-2	23.61	NGS	110	JNT
S17T034280				D-Limonene	5989-27-5	25.39	NGS	50	JNT
S17T034280				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.64	NGS	52	JNT
S17T034280				Undecane	1120-21-4	26.35	NGS	29	JNT
S17T034280				Decane, 3,7-dimethyl-	17312-54-8	26.48	NGS	61	JNT
S17T034280				Unknown-1		26.83	NGS	140	JT
S17T034280				Undecane, 2-methyl-	7045718	27.61	NGS	6.2	JNT
S17T034280				Undecane, 3-methyl-	1002433	27.76	NGS	6.8	JNT
S17T034280				Dodecane	112403	28.25	NGS	35	JNT
S17T034280				Methanamine	100-97-0	29.87	NGS	8.7	JNT
S17T034280				Dodecane, 4-methyl-	6117971	29.90	NGS	52	JNT
S17T034280				Unknown-2		30.07	NGS	44	JT
S17T034280				1-Iodo-2-methylundecane	73105-67-6	30.35	NGS	7.8	JNT
S17T034280				Dodecane, 4,6-dimethyl-	61141728	30.72	NGS	22	JNT
S17T034280			BLNK	Methyl formate	107-31-3	5.78	NGS	26	B,JNT
S17T034280			BLNK	Methyl Alcohol	67-56-1	8.22	NGS	30	JNT

NA = Not Analyzed, ND = Not Detected
 E - Outside Calibration Range

U - Less Than Detection Limit
 T - Tentatively Identified Compound

Y - Comment
 B - Blank Contamination

J - Estimated
 N - Named TIC

DSRComment 3.0.13
DSR.Jar v. 3.0.13

VOA 20173093 Comments

2017 Cartridge Evaluation
27-nov-2017 16:39:27

Verification Sample Comments

Sample: S17T034282 Group: 20173093
Y = Tube certification failed
Sample: S17T034284 Group: 20173093
Y = Tube certification failed
Sample: S17T034285 Group: 20173093
Y = Tube certification failed
Sample: S17T034295 Group: 20173093
Y = Signal saturation for Ethanol

Page 1

Page 1

*OK -
 Dorman-Mckinnon
 11/27/17*

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BA-EF
 Customer Sample ID: 17-05614-2-SD1-BA-EF

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034291			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034291			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034291			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S177034291			75-35-4	1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S177034291			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034291			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034291			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034291			123-91-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034291			71-36-3	1-Butanol	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a/U
S177034291			111-70-6	1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S177034291			71-23-8	1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S177034291			108-47-4	2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S177034291			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S177034291			78-93-3	2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a/U
S177034291			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034291			591-78-6	2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034291			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S177034291			78-84-4	3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S177034291			106-35-4	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034291			106-68-3	3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S177034291			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
S177034291			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034291			67-64-1	Acetone	NGS	100	<6.7	<6.7	n/a	n/a	n/a	n/a	6.7		n/a/U
S177034291			75-05-8	Acetonitrile	NGS	99	<3.3	13	n/a	n/a	n/a	n/a	3.3		n/a
S177034291			98-86-2	Acetophenone	NGS	98	<4.0	4.1	n/a	n/a	n/a	n/a	4.0		n/a/J
S177034291			107-13-1	Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S177034291			107-18-6	Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

NA = Not Analyzed, ND = Not Detected

Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BA-EF
 Customer Sample ID: 17-05614-2-SD1-BA-EF

Sample#	R	AB	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Roc %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034291			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a,U
S17T034291			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a,U
S17T034291			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a,U
S17T034291			123-72-8	Butanal	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a,U
S17T034291			109-74-0	Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a,U
S17T034291			56-23-5	Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a,U
S17T034291			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a,U
S17T034291			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a,U
S17T034291			87-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a,U
S17T034291			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a,U
S17T034291			124-18-5	Decane	NGS	100	<2.3	5.0	n/a	n/a	n/a	n/a	2.3		n/a,J
S17T034291			54-17-5	Ethanol	NGS	93	<4.1	12	n/a	n/a	n/a	n/a	4.1		n/a,U
S17T034291			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a,U
S17T034291			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a,U
S17T034291			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a,U
S17T034291			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a,U
S17T034291			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a,U
S17T034291			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a,U
S17T034291			75-09-2	Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a,U
S17T034291			51-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a,U
S17T034291			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a,U
S17T034291			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a,U
S17T034291			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a,U
S17T034291			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a,U
S17T034291			100-42-5	Styrene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4		n/a,J
S17T034291			127-18-4	Tetrachloroethene	NGS	100	<1.6	6.6	n/a	n/a	n/a	n/a	1.6		n/a,J
S17T034291			108-88-3	Toluene	NGS	100	<1.4	2.1	n/a	n/a	n/a	n/a	1.4		n/a,J

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 Y - Comment
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BA-EF
 Customer Sample ID: 17-05614-2-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034291		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034291		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034291		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034291		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034291		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034291		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BA-IN
 Customer Sample ID: 17-05614-2-SD1-BA-IN

Sample#	R	AP	CAS #	Analysis	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034292			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034292			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034292			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S177034292			75-35-4	1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S177034292			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034292			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034292			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034292			123-91-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034292			71-36-3	1-Butanol	NGS	90	<2.2	2.3	n/a	n/a	n/a	n/a	2.2		n/a/J
S177034292			111-70-6	1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S177034292			71-23-8	1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S177034292			108-47-4	2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S177034292			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S177034292			78-93-3	2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a/U
S177034292			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034292			591-78-6	2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034292			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S177034292			78-94-4	3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S177034292			106-35-4	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034292			106-68-3	3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S177034292			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
S177034292			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034292			87-64-1	Acetone	NGS	100	<6.7	37	n/a	n/a	n/a	n/a	6.7		n/a
S177034292			75-05-8	Acetonitrile	NGS	99	<3.3	140	n/a	n/a	n/a	n/a	3.3		n/a
S177034292			88-86-2	Acetophenone	NGS	98	<4.0	5.6	n/a	n/a	n/a	n/a	4.0		n/a/J
S177034292			107-13-1	Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S177034292			107-18-6	Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BA-IN
 Customer Sample ID: 17-05614-2-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															
S17T034292			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034292			71-43-2	Benzene	NGS	100	<1.2	6.8	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034292			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034292			123-72-8	Butanal	NGS	99	<1.5	1.8	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034292			109-74-0	Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034292			56-23-5	Carbon tetrachloride	NGS	97	<1.3	1.6	n/a	n/a	n/a	n/a	1.3		n/a/J
S17T034292			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034292			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034292			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034292			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034292			124-18-5	Decane	NGS	100	<2.3	8.4	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034292			64-17-5	Ethanol	NGS	93	<4.1	17	n/a	n/a	n/a	n/a	4.1		n/a/U
S17T034292			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034292			100-41-4	Ethylbenzene	NGS	100	<1.4	1.8	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034292			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034292			110-54-3	Hexane	NGS	100	<2.0	4.7	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034292			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034292			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034292			75-09-2	Methylene Chloride	NGS	87	<3.0	110	n/a	n/a	n/a	n/a	3.0		n/a
S17T034292			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034292			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034292			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034292			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034292			110-88-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034292			100-42-5	Styrene	NGS	100	<1.4	2.3	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034292			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034292			108-88-3	Toluene	NGS	100	<1.4	12	n/a	n/a	n/a	n/a	1.4		n/a

NA = Not Analyzed, ND = Not Detected

Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BA-IN
 Customer Sample ID: 17-05614-2-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															
S17T034292		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034292		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	4.0	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034292		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034292		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034292		142-82-5		n-Heptane	NGS	97	<1.5	2.9	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034292		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BL-EF
 Customer Sample ID: 17-05614-2-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 YOA #2															
S17T034293		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034293		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034293		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034293		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034293		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034293		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034293		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034293		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034293		71-36-3		1-Butanol	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a/U
S17T034293		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034293		71-23-8		1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034293		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034293		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034293		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a/U
S17T034293		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034293		591-78-6		2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034293		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034293		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S17T034293		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034293		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034293		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
S17T034293		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034293		67-64-1		Acetone	NGS	100	<6.7	15	n/a	n/a	n/a	n/a	6.7		n/a/U
S17T034293		75-05-8		Acetonitrile	NGS	99	<3.3	5.6	n/a	n/a	n/a	n/a	3.3		n/a/J
S17T034293		98-86-2		Acetophenone	NGS	98	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034293		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034293		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

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U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BL-EF
 Customer Sample ID: 17-05614-2-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															
S17T034293		107-06-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034293		71-43-2		Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a	1.2	U
S17T034293		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034293		123-72-8		Butanal	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034293		109-74-0		Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034293		56-23-5		Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034293		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034293		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034293		87-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034293		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034293		124-18-5		Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034293		64-17-5		Ethanol	NGS	93	<4.1	11	n/a	n/a	n/a	n/a	4.1	n/a	J
S17T034293		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034293		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034293		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034293		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034293		828-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034293		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034293		75-09-2		Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034293		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034293		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034293		110-59-6		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034293		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034293		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034293		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034293		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034293		108-88-3		Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U

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 Y - Comment

E - Outside Calibration Range

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05614-2-SD1-BL-EF

Customer Sample ID: 17-05614-2-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															
S17T034293		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034293		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034293		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034293		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034293		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034293		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

U - Less Than Detection Limit

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BL-IN
 Customer Sample ID: 17-05614-2-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 YOA #2															
S17T034294		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034294		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034294		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034294		75-35-4		1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034294		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034294		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034294		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034294		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034294		71-36-3		1-Butanol	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a/U
S17T034294		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034294		71-23-8		1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034294		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034294		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034294		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a/U
S17T034294		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034294		591-78-6		2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034294		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034294		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S17T034294		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034294		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034294		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
S17T034294		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034294		67-64-1		Acetone	NGS	100	<6.7	11	n/a	n/a	n/a	n/a	6.7		n/a/J
S17T034294		75-05-8		Acetonitrile	NGS	99	<3.3	5.7	n/a	n/a	n/a	n/a	3.3		n/a/J
S17T034294		98-86-2		Acetophenone	NGS	98	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034294		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034294		107-18-5		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BL-IN
 Customer Sample ID: 17-05614-2-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															
S17T034294			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034294			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034294			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034294			123-72-8	Butanal	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034294			109-74-0	Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034294			56-23-5	Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034294			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034294			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034294			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034294			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034294			124-18-5	Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034294			64-17-5	Ethanol	NGS	93	<4.1	12	n/a	n/a	n/a	n/a	4.1	n/a	J
S17T034294			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034294			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034294			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034294			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034294			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034294			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034294			75-09-2	Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034294			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034294			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034294			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034294			107-12-0	Propenenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034294			110-96-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034294			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034294			127-18-4	Tetrachloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034294			106-88-3	Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

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U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-BL-IN
 Customer Sample ID: 17-05614-2-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															
S17T034294		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034294		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034294		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034294		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034294		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034294		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-2
 Customer Sample ID: 17-05614-2-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 YOA #2															
S17T034295		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034295		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034295		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034295		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034295		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034295		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034295		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034295		123-81-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034295		71-36-3		1-Butanol	NGS	90	<2.2	28	n/a	n/a	n/a	n/a	2.2		n/a
S17T034295		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034295		71-23-8		1-Propanol	NGS	91	<4.0	10	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034295		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034295		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034295		78-93-3		2-Butanone	NGS	100	<2.6	15	n/a	n/a	n/a	n/a	2.6		n/a
S17T034295		110-43-0		2-Heptanone	NGS	100	<1.6	3.7	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034295		591-78-6		2-Hexanone	NGS	110	<1.6	3.8	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034295		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034295		78-84-4		3-Buten-2-one	NGS	100	<2.3	4.4	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034295		106-35-4		3-Heptanone	NGS	100	<1.4	66	n/a	n/a	n/a	n/a	1.4		n/a
S17T034295		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034295		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
S17T034295		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	3.2	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034295		67-64-1		Acetone	NGS	100	<6.7	670	n/a	n/a	n/a	n/a	6.7		n/a|E
S17T034295		75-05-8		Acetonitrile	NGS	99	<3.3	66	n/a	n/a	n/a	n/a	3.3		n/a
S17T034295		98-86-2		Acetophenone	NGS	98	<4.0	22	n/a	n/a	n/a	n/a	4.0		n/a
S17T034295		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034295		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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 Y - Comment

E - Outside Calibration Range

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U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-2
 Customer Sample ID: 17-05614-2-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															
S17T034295			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034295			71-43-2	Benzene	NGS	100	<1.2	3.9	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034295			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034295			123-72-8	Butanal	NGS	99	<1.5	5.6	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034295			109-74-0	Butanenitrile	NGS	99	<1.9	9.0	n/a	n/a	n/a	n/a	1.9		n/a|J
S17T034295			56-23-5	Carbon tetrachloride	NGS	97	<1.3	1.4	n/a	n/a	n/a	n/a	1.3		n/a|J
S17T034295			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034295			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034295			67-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034295			110-82-7	Cyclohexane	NGS	100	<2.7	6.5	n/a	n/a	n/a	n/a	2.7		n/a|J
S17T034295			124-18-5	Decane	NGS	100	<2.3	13	n/a	n/a	n/a	n/a	2.3		n/a|EY
S17T034295			64-17-5	Ethanol	NGS	93	<4.1	2.1E+03	n/a	n/a	n/a	n/a	4.1		n/a|EY
S17T034295			141-78-6	Ethyl acetate	NGS	110	<1.4	3.0	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034295			100-41-4	Ethylbenzene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034295			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034295			110-54-3	Hexane	NGS	100	<2.0	3.8	n/a	n/a	n/a	n/a	2.0		n/a|J
S17T034295			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034295			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034295			75-09-2	Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034295			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034295			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034295			110-59-8	Pentanitrile	NGS	100	<1.4	3.2	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034295			107-12-0	Propanenitrile	NGS	100	<2.1	11	n/a	n/a	n/a	n/a	2.1		n/a|J
S17T034295			110-86-1	Pyridine	NGS	100	<1.2	1.6	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034295			100-42-5	Styrene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034295			127-18-4	Tetrachloroethene	NGS	100	<1.5	8.7	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034295			108-88-3	Toluene	NGS	100	<1.4	4.6	n/a	n/a	n/a	n/a	1.4		n/a J

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 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173093
SDG Number:
Customer Sample ID: 17-05614-2-SD1-IN-2
Customer Sample ID: 17-05614-2-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															
S17T034295		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034295		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	100	n/a	n/a	n/a	n/a	1.6		n/a
S17T034295		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034295		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034295		142-82-5		n-Heptane	NGS	97	<1.5	3.9	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034295		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-3
 Customer Sample ID: 17-05614-2-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															
S17T034296		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034296		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034296		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034296		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034296		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034296		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034296		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034296		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034296		71-36-3		1-Butanol	NGS	90	<2.2	22	n/a	n/a	n/a	n/a	2.2		n/a|J
S17T034296		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034296		71-23-8		1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034296		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034296		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034296		78-93-3		2-Butanone	NGS	100	<2.8	15	n/a	n/a	n/a	n/a	2.8		n/a|U
S17T034296		110-43-0		2-Heptanone	NGS	100	<1.6	3.4	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034296		591-78-6		2-Hexanone	NGS	110	<1.6	3.0	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034296		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034296		78-94-4		3-Buten-2-one	NGS	100	<2.3	4.4	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034296		106-35-4		3-Heptanone	NGS	100	<1.4	54	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034296		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034296		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
S17T034296		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	3.3	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034296		67-84-1		Acetone	NGS	100	<6.7	570	n/a	n/a	n/a	n/a	6.7		n/a|E
S17T034296		75-05-8		Acetonitrile	NGS	99	<3.3	50	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034296		98-86-2		Acetophenone	NGS	98	<4.0	14	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034296		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a|U
S17T034296		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 Y - Comment
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-3
 Customer Sample ID: 17-05614-2-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															
S17T034296		107-05-1		Allyl Chloride	NGS	92	<-3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034296		71-43-2		Benzene	NGS	100	<1.2	3.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034296		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034296		123-72-8		Butanal	NGS	99	<1.5	7.1	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034296		109-74-0		Butanenitrile	NGS	99	<1.9	7.6	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034296		56-23-5		Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034296		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034296		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034296		67-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034296		110-82-7		Cyclohexane	NGS	100	<2.7	5.1	n/a	n/a	n/a	n/a	2.7		n/a/J
S17T034296		124-18-5		Decane	NGS	100	<2.3	7.4	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034296		64-17-5		Ethanol	NGS	93	<4.1	1.7E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034296		141-78-6		Ethyl acetate	NGS	110	<1.4	2.3	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034296		100-41-4		Ethylbenzene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034296		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034296		110-54-3		Hexane	NGS	100	<2.0	3.2	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034296		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034296		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034296		75-09-2		Methylene Chloride	NGS	87	<3.0	3.1	n/a	n/a	n/a	n/a	3.0		n/a/J
S17T034296		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034296		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034296		110-59-8		Pentanenitrile	NGS	100	<1.4	2.4	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034296		107-12-0		Propanenitrile	NGS	100	<2.1	8.1	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034296		110-86-1		Pyridine	NGS	100	<1.2	1.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034296		100-42-5		Styrene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034296		127-18-4		Tetrachloroethene	NGS	100	<1.6	7.5	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034296		108-88-3		Toluene	NGS	100	<1.4	3.9	n/a	n/a	n/a	n/a	1.4		n/a/J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05614-2-SD1-IN-3

Customer Sample ID: 17-05614-2-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															
S17T034296		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034296		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	93	n/a	n/a	n/a	n/a	1.6		n/a
S17T034296		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034296		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034296		142-82-5		n-Heptane	NGS	97	<1.5	3.3	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034296		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

U - Less Than Detector Limit

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-5
 Customer Sample ID: 17-05614-2-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															
S17T034298		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034298		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034298		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034298		75-35-4		1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034298		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034298		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034298		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034298		123-81-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034298		71-36-3		1-Butanol	NGS	90	<2.2	20	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034298		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034298		71-23-8		1-Propanol	NGS	91	<4.0	7.5	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034298		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034298		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034298		78-93-3		2-Butanone	NGS	100	<2.6	13	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034298		110-43-0		2-Heptanone	NGS	100	<1.6	2.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034298		591-78-6		2-Hexanone	NGS	110	<1.6	3.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034298		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034298		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.5	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034298		106-35-4		3-Heptanone	NGS	100	<1.4	48	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034298		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034298		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
S17T034298		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	1.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034298		57-64-1		Acetone	NGS	100	<6.7	340	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034298		75-05-8		Acetonitrile	NGS	99	<3.3	49	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034298		96-86-2		Acetophenone	NGS	98	<4.0	7.5	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034298		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034298		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-5
 Customer Sample ID: 17-05614-2-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															
S17T034298		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034298		71-43-2		Benzene	NGS	100	<1.2	3.7	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034298		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034298		123-72-8		Butanal	NGS	99	<1.5	5.9	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034298		109-74-0		Butanenitrile	NGS	99	<1.9	7.7	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034298		56-23-5		Carbon tetrachloride	NGS	97	<1.3	1.4	n/a	n/a	n/a	n/a	1.3		n/a/J
S17T034298		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034298		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034298		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034298		110-82-7		Cyclohexane	NGS	100	<2.7	3.5	n/a	n/a	n/a	n/a	2.7		n/a/J
S17T034298		124-18-5		Decane	NGS	100	<2.3	4.2	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034298		64-17-5		Ethanol	NGS	93	<4.1	1.8E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034298		141-78-6		Ethyl acetate	NGS	110	<1.4	2.4	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034298		100-41-4		Ethylbenzene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034298		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034298		110-54-3		Hexane	NGS	100	<2.0	3.8	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034298		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034298		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034298		75-09-2		Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034298		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034298		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034298		110-59-6		Pentanitrile	NGS	100	<1.4	2.3	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034298		107-12-0		Propanenitrile	NGS	100	<2.1	8.4	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034298		110-86-1		Pyridine	NGS	100	<1.2	1.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034298		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034298		127-18-4		Tetrachloroethene	NGS	100	<1.6	8.9	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034298		108-88-3		Toluene	NGS	100	<1.4	5.3	n/a	n/a	n/a	n/a	1.4		n/a/J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-5
 Customer Sample ID: 17-05614-2-SD1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Er	% Qual	Flags
VAPOR-TDU VOA #2																
S17T034298		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1			n/a U
S17T034298		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	120	n/a	n/a	n/a	n/a	1.6			n/a
S17T034298		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5			n/a U
S17T034298		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6			n/a U
S17T034298		142-82-5		n-Heptane	NGS	97	<1.5	3.9	n/a	n/a	n/a	n/a	1.5			n/a J
S17T034298		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0			n/a U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-6
 Customer Sample ID: 17-05614-2-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															
S17T034299		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034299		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034299		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034299		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034299		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034299		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034299		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034299		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034299		71-36-3		1-Butanol	NGS	90	<2.2	18	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034299		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034299		71-23-8		1-Propanol	NGS	91	<4.0	5.2	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034299		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034299		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034299		78-93-3		2-Butanone	NGS	100	<2.6	9.6	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034299		110-43-0		2-Heptanone	NGS	100	<1.6	2.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034299		591-78-6		2-Hexanone	NGS	110	<1.6	3.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034299		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034299		78-94-4		3-Buten-2-one	NGS	100	<2.3	2.7	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034299		106-35-4		3-Heptanone	NGS	100	<1.4	44	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034299		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034299		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
S17T034299		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034299		57-84-1		Acetone	NGS	100	<6.7	200	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034299		75-05-8		Acetonitrile	NGS	99	<3.3	40	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034299		58-96-2		Acetophenone	NGS	98	<4.0	5.5	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034299		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034299		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-6
 Customer Sample ID: 17-05614-2-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															
S177034299		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034299		71-43-2		Benzene	NGS	100	<1.2	3.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034299		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034299		123-72-8		Butanal	NGS	99	<1.5	5.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034299		109-74-0		Butanenitrile	NGS	99	<1.9	6.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034299		56-23-5		Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034299		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034299		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034299		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034299		110-82-7		Cyclohexane	NGS	100	<2.7	2.8	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034299		124-18-5		Decane	NGS	100	<2.3	5.9	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034299		64-17-5		Ethanol	NGS	93	<4.1	1.5E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034299		141-78-6		Ethyl acetate	NGS	110	<1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034299		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034299		110-00-9		Furan	NGS	88	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034299		110-54-3		Hexane	NGS	100	<2.0	3.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034299		828-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034299		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034299		75-08-2		Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034299		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034299		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034299		110-59-8		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034299		107-12-0		Propanenitrile	NGS	100	<2.1	7.1	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034299		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034299		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034299		127-18-4		Tetrachloroethene	NGS	100	<1.6	6.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034299		108-88-3		Toluene	NGS	100	<1.4	4.7	n/a	n/a	n/a	n/a	1.4	n/a	J

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-6
 Customer Sample ID: 17-05614-2-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															
S17T034299		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034299		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	110	n/a	n/a	n/a	n/a	1.6		n/a
S17T034299		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034299		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034299		142-82-5		n-Heptane	NGS	97	<1.5	3.6	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034299		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-7
 Customer Sample ID: 17-05614-2-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															
S17T034300		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034300		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034300		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034300		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034300		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034300		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034300		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034300		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034300		71-36-3		1-Butanol	NGS	90	<2.2	2.3	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034300		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034300		71-23-8		1-Propanol	NGS	91	<4.0	8.8	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034300		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034300		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034300		78-93-3		2-Butanone	NGS	100	<2.6	11	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034300		110-43-0		2-Heptanone	NGS	100	<1.6	2.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034300		591-78-6		2-Hexanone	NGS	110	<1.6	3.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034300		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034300		78-94-4		3-Buten-2-one	NGS	100	<2.3	2.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034300		106-35-4		3-Heptanone	NGS	100	<1.4	48	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034300		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034300		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
S17T034300		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034300		57-84-1		Acetone	NGS	100	<6.7	250	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034300		75-05-8		Acetonitrile	NGS	99	<3.3	45	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034300		98-86-2		Acetophenone	NGS	98	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034300		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034300		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-7
 Customer Sample ID: 17-05614-2-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															
S17T034300			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034300			71-43-2	Benzene	NGS	100	<1.2	2.8	n/a	n/a	n/a	n/a	n/a		n/a/J
S17T034300			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034300			123-72-8	Butanal	NGS	99	<1.5	7.0	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034300			109-74-0	Butanenitrile	NGS	99	<1.9	7.0	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034300			56-23-5	Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034300			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034300			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034300			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034300			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034300			124-18-5	Decane	NGS	100	<2.3	3.0	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034300			64-17-5	Ethanol	NGS	93	<4.1	1.5E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034300			141-78-6	Ethyl acetate	NGS	110	<1.4	2.5	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034300			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034300			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034300			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034300			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034300			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034300			75-09-2	Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034300			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034300			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034300			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034300			107-12-0	Propanenitrile	NGS	100	<2.1	8.5	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034300			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034300			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034300			127-18-4	Tetrachloroethene	NGS	100	<1.6	6.7	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034300			108-88-3	Toluene	NGS	100	<1.4	4.3	n/a	n/a	n/a	n/a	1.4		n/a/J

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 Y - Comment
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05614-2-SD1-IN-7
 Customer Sample ID: 17-05614-2-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															
S177034300		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034300		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	120	n/a	n/a	n/a	n/a	1.6		n/a
S177034300		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034300		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034300		142-82-5		n-Heptane	NGS	97	<1.5	7.4	n/a	n/a	n/a	n/a	1.5		n/a J
S177034300		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BA-EF
 Customer Sample ID: 17-05615-2-TL1-BA-EF

Sample#	R	AW	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034281			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034281			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034281			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034281			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034281			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034281			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034281			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034281			123-91-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034281			71-36-3	1-Butanol	NGS	90	<2.2	7.2	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034281			111-70-6	1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034281			71-23-8	1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034281			108-47-4	2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034281			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034281			78-93-3	2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034281			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034281			591-78-6	2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034281			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034281			78-94-4	3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034281			106-35-4	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034281			106-68-3	3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034281			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
S17T034281			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034281			67-84-1	Acetone	NGS	100	<6.7	34	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034281			75-06-8	Acetonitrile	NGS	99	<3.0	99	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034281			98-96-2	Acetophenone	NGS	96	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034281			107-13-1	Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034281			107-18-6	Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

N/A = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BA-EF
 Customer Sample ID: 17-05615-2-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															
S177034281		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034281		71-43-2		Benzene	NGS	100	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034281		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034281		123-72-8		Butanal	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034281		109-74-0		Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034281		56-23-5		Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034281		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034281		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034281		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034281		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S177034281		124-18-5		Decane	NGS	100	<2.3	3.4	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034281		64-17-5		Ethanol	NGS	93	<4.1	6.5	n/a	n/a	n/a	n/a	4.1	n/a	J
S177034281		141-78-6		Ethyl acetate	NGS	110	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034281		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034281		110-00-9		Furan	NGS	88	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034281		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034281		528-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034281		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034281		75-09-2		Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034281		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034281		88-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034281		110-59-8		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034281		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034281		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034281		100-42-5		Styrene	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034281		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034281		108-88-3		Toluene	NGS	100	<1.4	4.7	n/a	n/a	n/a	n/a	1.4	n/a	J

NA = Not Analyzed, ND = Not Detected

Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BA-EF
 Customer Sample ID: 17-05615-2-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															
S177034281			79-01-6	Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S177034281			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S177034281			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S177034281			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S177034281			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S177034281			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BA-IN
 Customer Sample ID: 17-05615-2-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															
S177034282		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S177034282		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034282		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S177034282		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S177034282		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S177034282		542-75-6		1,3-Dichloropropene (Tolsil)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S177034282		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S177034282		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S177034282		71-36-3		1-Butanol	NGS	90	<2.2	9.2	n/a	n/a	n/a	n/a	2.2	n/a	JY
S177034282		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S177034282		71-23-8		1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S177034282		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S177034282		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S177034282		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S177034282		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S177034282		591-78-6		2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S177034282		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S177034282		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S177034282		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034282		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY
S177034282		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	UY
S177034282		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S177034282		57-64-1		Acetone	NGS	100	<6.7	74	n/a	n/a	n/a	n/a	6.7	n/a	Y
S177034282		75-05-8		Acetonitrile	NGS	99	<3.3	34	n/a	n/a	n/a	n/a	3.3	n/a	Y
S177034282		96-86-2		Acetophenone	NGS	98	<4.0	7.4	n/a	n/a	n/a	n/a	4.0	n/a	JY
S177034282		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S177034282		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BA-IN
 Customer Sample ID: 17-05615-2-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															
S17T034282		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	UY
S17T034282		71-43-2		Benzene	NGS	100	<1.2	8.2	n/a	n/a	n/a	n/a	1.2	n/a	JY
S17T034282		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	UY
S17T034282		123-72-8		Butanal	NGS	99	<1.5	1.5	n/a	n/a	n/a	n/a	1.5	n/a	JY
S17T034282		109-74-0		Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034282		56-23-5		Carbon tetrachloride	NGS	97	<1.3	1.8	n/a	n/a	n/a	n/a	1.3	n/a	JY
S17T034282		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034282		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	UY
S17T034282		67-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034282		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034282		124-18-5		Decane	NGS	100	<2.3	11	n/a	n/a	n/a	n/a	2.3	n/a	JY
S17T034282		64-17-5		Ethanol	NGS	93	<4.1	18	n/a	n/a	n/a	n/a	4.1	n/a	JY
S17T034282		141-78-6		Ethyl acetate	NGS	110	<1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	JY
S17T034282		100-41-4		Ethylbenzene	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	JY
S17T034282		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S17T034282		110-54-3		Hexane	NGS	100	<2.0	6.2	n/a	n/a	n/a	n/a	2.0	n/a	JY
S17T034282		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034282		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S17T034282		75-09-2		Methylene Chloride	NGS	87	<3.0	81	n/a	n/a	n/a	n/a	3.0	n/a	Y
S17T034282		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034282		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034282		110-59-8		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034282		107-12-0		Propenenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034282		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034282		100-42-5		Styrene	NGS	100	<1.4	4.1	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034282		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034282		108-88-3		Toluene	NGS	100	<1.4	17	n/a	n/a	n/a	n/a	1.4	n/a	Y

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BA-IN
 Customer Sample ID: 17-05615-2-TL1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Er %	Qual Flags
VAPOR-TDU VOA #2															
S17T034282		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a UY
S17T034282		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	3.9	n/a	n/a	n/a	n/a	1.6		n/a UY
S17T034282		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a UY
S17T034282		123-85-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a UY
S17T034282		142-82-5		n-Heptane	NGS	97	<1.5	4.1	n/a	n/a	n/a	n/a	1.5		n/a UY
S17T034282		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a UY

U - Less Than Detection Limit

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BL-EF
 Customer Sample ID: 17-05615-2-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															
S177034283		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034283		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034283		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034283		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034283		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034283		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034283		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034283		71-36-3		1-Butanol	NGS	90	<2.2	12	n/a	n/a	n/a	n/a	2.2	n/a	J
S177034283		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S177034283		71-23-8		1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S177034283		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034283		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034283		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S177034283		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034283		591-78-6		2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034283		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034283		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S177034283		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034283		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
S177034283		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034283		67-64-1		Acetone	NGS	100	<6.7	15	n/a	n/a	n/a	n/a	6.7	n/a	U
S177034283		75-05-8		Acetonitrile	NGS	99	<3.3	4.7	n/a	n/a	n/a	n/a	3.3	n/a	J
S177034283		98-85-2		Acetophenone	NGS	98	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S177034283		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034283		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BL-EF
 Customer Sample ID: 17-05615-2-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															
S177034283		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034283		71-43-2		Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034283		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034283		123-72-8		Butanal	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034283		109-74-0		Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034283		56-23-5		Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034283		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034283		87-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S177034283		124-18-5		Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S177034283		64-17-5		Ethanol	NGS	93	<4.1	6.8	n/a	n/a	n/a	n/a	4.1	n/a	J
S177034283		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034283		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034283		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034283		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034283		75-09-2		Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034283		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034283		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034283		110-59-8		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034283		110-88-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034283		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034283		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034283		108-88-3		Toluene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4	n/a	J

NA = Not Analyzed, ND = Not Detected

Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05615-2-TL1-BL-EF

Customer Sample ID: 17-05615-2-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															
S177034283		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034283		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034283		10081-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034283		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034283		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034283		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

U - Less Than Detection Limit

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

Y - Comment

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173093
SDG Number:
Customer Sample ID: 17-05615-2-TL1-BL-IN
Customer Sample ID: 17-05615-2-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															
S17T034284			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034284			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034284			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S17T034284			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034284			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034284			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034284			123-91-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034284			71-36-3	1-Butanol	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S17T034284			111-70-6	1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S17T034284			71-23-8	1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034284			108-47-4	2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S17T034284			1706-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034284			78-93-3	2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S17T034284			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034284			591-78-6	2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034284			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034284			78-94-4	3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S17T034284			106-68-3	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			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	UY
S17T034284			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034284			67-64-1	Acetone	NGS	100	<6.7	9.2	n/a	n/a	n/a	n/a	6.7	n/a	JY
S17T034284			75-05-8	Acetonitrile	NGS	99	<3.3	13	n/a	n/a	n/a	n/a	3.3	n/a	Y
S17T034284			98-86-2	Acetophenone	NGS	98	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034284			107-13-1	Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S17T034284			107-18-6	Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BL-IN
 Customer Sample ID: 17-05615-2-TL1-BL-IN

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034284			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	UY
S17T034284			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034284			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	UY
S17T034284			123-72-8	Butanal	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034284			109-74-0	Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034284			56-23-5	Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034284			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	UY
S17T034284			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034284			124-18-5	Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S17T034284			64-17-5	Ethanol	NGS	93	<4.1	7.9	n/a	n/a	n/a	n/a	4.1	n/a	JY
S17T034284			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S17T034284			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034284			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034284			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S17T034284			75-09-2	Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S17T034284			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034284			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034284			110-59-8	Pentanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034284			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034284			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034284			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034284			108-88-3	Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-BL-IN
 Customer Sample ID: 17-05615-2-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															
S17T034284			79-01-6	Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a UY
S17T034284			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a UY
S17T034284			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a UY
S17T034284			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a UY
S17T034284			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a UY
S17T034284			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a UY

U - Less Than Detection Limit

J - Estimated

E - Outside Calibration Range

Y - Comment

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-2
 Customer Sample ID: 17-05615-2-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															
S17T034285		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034285		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034285		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034285		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S17T034285		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034285		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034285		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034285		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034285		71-36-3		1-Butanol	NGS	90	<2.2	4.4	n/a	n/a	n/a	n/a	2.2	n/a	JY
S17T034285		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S17T034285		71-23-8		1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034285		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S17T034285		1706-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034285		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S17T034285		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034285		591-78-6		2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034285		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034285		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S17T034285		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034285		106-86-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY
S17T034285		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	UY
S17T034285		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034285		87-64-1		Acetone	NGS	100	<6.7	40	n/a	n/a	n/a	n/a	6.7	n/a	Y
S17T034285		75-05-8		Acetonitrile	NGS	99	<3.3	45	n/a	n/a	n/a	n/a	3.3	n/a	Y
S17T034285		98-86-2		Acetophenone	NGS	96	<4.0	8.8	n/a	n/a	n/a	n/a	4.0	n/a	JY
S17T034285		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S17T034285		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY

NA = Not Analyzed, ND = Not Detected
 Y = Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-2
 Customer Sample ID: 17-05615-2-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															
S177034285		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	UY
S177034285		71-43-2		Benzene	NGS	100	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	UY
S177034285		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	UY
S177034285		123-72-8		Butanal	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S177034285		109-74-0		Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S177034285		56-23-5		Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S177034285		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034285		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	UY
S177034285		87-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034285		110-82-7		Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S177034285		124-18-5		Decane	NGS	100	<2.3	16	n/a	n/a	n/a	n/a	2.3	n/a	Y
S177034285		64-17-5		Ethanol	NGS	93	<4.1	45	n/a	n/a	n/a	n/a	4.1	n/a	Y
S177034285		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034285		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034285		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S177034285		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S177034285		328-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S177034285		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S177034285		75-09-2		Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S177034285		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S177034285		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S177034285		110-59-8		Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034285		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S177034285		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S177034285		100-42-5		Styrene	NGS	100	<1.4	4.6	n/a	n/a	n/a	n/a	1.4	n/a	UY
S177034285		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S177034285		108-88-3		Toluene	NGS	100	<1.4	3.1	n/a	n/a	n/a	n/a	1.4	n/a	UY

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 Y - Comment
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-2
 Customer Sample ID: 17-05615-2-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															
S17T034285			79-01-6	Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a UY
S17T034285			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a UY
S17T034285			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a UY
S17T034285			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a UY
S17T034285			142-82-5	n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a UY
S17T034285			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a UY

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-3

Customer Sample ID: 17-05615-2-TL1-IN-3

Sample#	R	IA#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034286			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	n/a
S177034286			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S177034286			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	n/a
S177034286			75-35-4	1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	n/a
S177034286			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S177034286			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	n/a
S177034286			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	n/a
S177034286			123-81-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	n/a
S177034286			71-36-3	1-Butanol	NGS	90	<2.2	19	n/a	n/a	n/a	n/a	2.2	n/a	n/a
S177034286			111-70-6	1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	n/a
S177034286			71-23-8	1-Propanol	NGS	91	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	n/a
S177034286			108-47-4	2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	n/a
S177034286			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	n/a
S177034286			78-93-3	2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	n/a
S177034286			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S177034286			591-78-6	2-Hexanone	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S177034286			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	n/a
S177034286			78-94-4	3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	n/a
S177034286			106-35-4	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	n/a
S177034286			106-68-3	3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	n/a
S177034286			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	n/a
S177034286			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	n/a
S177034286			57-84-1	Acetone	NGS	100	<6.7	60	n/a	n/a	n/a	n/a	6.7	n/a	n/a
S177034286			75-05-8	Acetonitrile	NGS	99	<3.3	55	n/a	n/a	n/a	n/a	3.3	n/a	n/a
S177034286			98-86-2	Acetophenone	NGS	98	<4.0	11	n/a	n/a	n/a	n/a	4.0	n/a	n/a
S177034286			107-13-1	Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	n/a
S177034286			107-18-6	Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	n/a

NA = Not Analyzed, ND = Not Detected

Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-3
 Customer Sample ID: 17-05615-2-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															
S177034286			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034286			71-43-2	Benzene	NGS	100	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034286			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034286			123-72-8	Butanal	NGS	98	<1.5	1.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034286			109-74-0	Butanenitrile	NGS	99	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034286			56-23-5	Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034286			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034286			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034286			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034286			110-82-7	Cyclohexane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S177034286			124-18-5	Decane	NGS	100	<2.3	18	n/a	n/a	n/a	n/a	2.3	n/a	U
S177034286			64-17-5	Ethanol	NGS	93	<4.1	190	n/a	n/a	n/a	n/a	4.1	n/a	U
S177034286			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034286			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034286			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034286			110-54-3	Hexane	NGS	100	<2.0	2.8	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034286			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034286			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034286			75-09-2	Methylene Chloride	NGS	87	<3.0	6.2	n/a	n/a	n/a	n/a	3.0	n/a	J
S177034286			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034286			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034286			110-59-8	Pentanitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034286			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034286			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034286			100-42-5	Styrene	NGS	100	<1.4	5.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034286			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034286			108-88-3	Toluene	NGS	100	<1.4	3.3	n/a	n/a	n/a	n/a	1.4	n/a	J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-3
 Customer Sample ID: 17-05615-2-TL1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDUVOA #2															
S177034286		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034286		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034286		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034286		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034286		142-82-5		n-Heptane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034286		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-4
 Customer Sample ID: 17-05615-2-TL1-IN-4

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034287		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034287		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034287		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034287		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034287		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034287		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034287		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034287		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034287		71-36-3		1-Butanol	NGS	90	<2.2	28	n/a	n/a	n/a	n/a	2.2	n/a	
S177034287		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S177034287		71-23-8		1-Propanol	NGS	91	<4.0	10	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034287		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034287		1706-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034287		78-93-3		2-Butanone	NGS	100	<2.6	16	n/a	n/a	n/a	n/a	2.6	n/a	
S177034287		110-43-0		2-Heptanone	NGS	100	<1.6	2.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034287		591-79-6		2-Hexanone	NGS	110	<1.6	3.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034287		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034287		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034287		106-35-4		3-Heptanone	NGS	100	<1.4	42	n/a	n/a	n/a	n/a	1.4	n/a	
S177034287		106-66-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034287		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
S177034287		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034287		57-64-1		Acetone	NGS	100	<6.7	550	n/a	n/a	n/a	n/a	6.7	n/a	E
S177034287		75-05-8		Acetonitrile	NGS	99	<3.3	60	n/a	n/a	n/a	n/a	3.3	n/a	
S177034287		98-86-2		Acetophenone	NGS	98	<4.0	6.4	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034287		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034287		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-4

Customer Sample ID: 17-05615-2-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															
S177034287			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034287			71-43-2	Benzene	NGS	100	<1.2	2.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034287			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034287			123-72-8	Butanal	NGS	99	<1.5	5.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034287			109-74-0	Butanenitrile	NGS	99	<1.9	7.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034287			56-23-5	Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034287			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034287			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034287			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034287			110-82-7	Cyclohexane	NGS	100	<2.7	3.7	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034287			124-18-5	Decane	NGS	100	<2.3	4.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034287			64-17-5	Ethanol	NGS	93	<4.1	1.8E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034287			141-78-6	Ethyl acetate	NGS	110	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034287			100-41-4	Ethylbenzene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034287			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034287			110-54-3	Hexane	NGS	100	<2.0	3.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034287			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034287			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034287			75-09-2	Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034287			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034287			98-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034287			110-59-8	Pentanitrile	NGS	100	<1.4	2.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034287			107-12-0	Propanenitrile	NGS	100	<2.1	8.4	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034287			110-86-1	Pyridine	NGS	100	<1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034287			100-42-5	Styrene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034287			127-18-4	Tetrachloroethene	NGS	100	<1.6	6.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034287			108-88-3	Toluene	NGS	100	<1.4	4.4	n/a	n/a	n/a	n/a	1.4	n/a	J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-4

Customer Sample ID: 17-05615-2-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															
S17T034287		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034287		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	110	n/a	n/a	n/a	n/a	1.6		n/a
S17T034287		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034287		123-85-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034287		142-82-5		n-Heptane	NGS	97	<1.5	2.8	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034287		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

U - Less Than Detection Limit

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-5
 Customer Sample ID: 17-05615-2-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 VOA #2															
S17T034288		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034288		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034288		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034288		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034288		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034288		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034288		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034288		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034288		71-36-3		1-Butanol	NGS	90	<2.2	40	n/a	n/a	n/a	n/a	2.2	n/a	
S17T034288		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034288		71-23-8		1-Propanol	NGS	91	<4.0	10	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034288		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034288		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034288		78-93-3		2-Butanone	NGS	100	<2.6	12	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034288		110-43-0		2-Heptanone	NGS	100	<1.6	2.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034288		591-78-6		2-Hexanone	NGS	110	<1.6	3.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034288		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034288		78-84-4		3-Buten-2-one	NGS	100	<2.3	2.9	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034288		106-35-4		3-Heptanone	NGS	100	<1.4	52	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034288		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034288		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
S17T034288		105-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034288		67-64-1		Acetone	NGS	100	<6.7	410	n/a	n/a	n/a	n/a	6.7	n/a	E
S17T034288		75-05-8		Acetonitrile	NGS	99	<3.3	66	n/a	n/a	n/a	n/a	3.3	n/a	
S17T034288		98-86-2		Acetophenone	NGS	98	<4.0	8.6	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034288		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034288		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-5
 Customer Sample ID: 17-05615-2-TL1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDUVOA #2															
S177034288		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034288		71-43-2		Benzene	NGS	100	<1.2	3.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034288		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034288		123-72-8		Butanal	NGS	98	<1.5	6.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034288		109-74-0		Butanenitrile	NGS	99	<1.9	7.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034288		56-23-5		Carbon tetrachloride	NGS	97	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S177034288		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034288		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034288		87-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034288		110-82-7		Cyclohexane	NGS	100	<2.7	3.4	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034288		124-18-5		Decane	NGS	100	<2.3	11	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034288		64-17-5		Ethanol	NGS	93	<4.1	1.9E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034288		141-78-6		Ethyl acetate	NGS	110	<1.4	4.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034288		100-41-4		Ethylbenzene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034288		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034288		110-54-3		Hexane	NGS	100	<2.0	5.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034288		528-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034288		126-98-7		Mathacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034288		75-09-2		Methylene Chloride	NGS	87	<3.0	8.3	n/a	n/a	n/a	n/a	3.0	n/a	J
S177034288		81-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034288		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034288		110-59-8		Pentanitrile	NGS	100	<1.4	2.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034288		107-12-0		Propanenitrile	NGS	100	<2.1	8.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034288		110-86-1		Pyridine	NGS	100	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034288		100-42-5		Styrene	NGS	100	<1.4	2.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034288		127-18-4		Tetrachloroethene	NGS	100	<1.6	7.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034288		108-88-3		Toluene	NGS	100	<1.4	5.8	n/a	n/a	n/a	n/a	1.4	n/a	J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-5

Customer Sample ID: 17-05615-2-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 VOA #2															
S177034288		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034288		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	120	n/a	n/a	n/a	n/a	1.6		n/a
S177034288		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034288		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034288		142-82-5		n-Heptane	NGS	97	<1.5	3.8	n/a	n/a	n/a	n/a	1.5		n/a J
S177034288		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-6
 Customer Sample ID: 17-05615-2-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															
S177034289			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034289			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034289			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034289			75-35-4	1,1-Dichloroethane	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034289			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034289			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034289			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034289			123-91-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034289			71-36-3	1-Butanol	NGS	90	<2.2	23	n/a	n/a	n/a	n/a	2.2	n/a	J
S177034289			111-70-9	1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S177034289			71-23-8	1-Propanol	NGS	91	<4.0	8.6	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034289			108-47-4	2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034289			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034289			78-93-3	2-Butanone	NGS	100	<2.6	12	n/a	n/a	n/a	n/a	2.6	n/a	U
S177034289			110-43-0	2-Heptanone	NGS	100	<1.6	2.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034289			591-78-6	2-Hexanone	NGS	110	<1.6	3.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034289			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034289			78-94-4	3-Buten-2-one	NGS	100	<2.3	2.7	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034289			106-35-4	3-Heptanone	NGS	100	<1.4	46	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034289			106-68-3	3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034289			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
S177034289			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034289			67-64-1	Acetone	NGS	100	<6.7	320	n/a	n/a	n/a	n/a	6.7	n/a	U
S177034289			75-05-8	Acetonitrile	NGS	99	<3.3	41	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034289			96-86-2	Acetophenone	NGS	98	<4.0	4.4	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034289			107-13-1	Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034289			107-18-6	Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 Y - Comment
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-6
 Customer Sample ID: 17-05615-2-TL1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rac %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034289			107-05-1	Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034289			71-43-2	Benzene	NGS	100	<1.2	3.5	n/a	n/a	n/a	n/a	1.2		n/a|J
S17T034289			100-47-0	Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a|U
S17T034289			123-72-8	Butanal	NGS	99	<1.5	5.5	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034289			109-74-0	Butanenitrile	NGS	99	<1.9	6.9	n/a	n/a	n/a	n/a	1.9		n/a|J
S17T034289			56-23-5	Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034289			108-90-7	Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034289			75-00-3	Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a|U
S17T034289			67-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034289			110-82-7	Cyclohexane	NGS	100	<2.7	3.8	n/a	n/a	n/a	n/a	2.7		n/a|J
S17T034289			124-18-5	Decane	NGS	100	<2.3	7.7	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034289			64-17-5	Ethanol	NGS	93	<4.1	1.7E+03	n/a	n/a	n/a	n/a	4.1		n/a|E
S17T034289			141-78-6	Ethyl acetate	NGS	110	<1.4	2.7	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034289			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034289			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a|U
S17T034289			110-54-3	Hexane	NGS	100	<2.0	6.3	n/a	n/a	n/a	n/a	2.0		n/a|J
S17T034289			628-73-9	Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034289			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034289			75-09-2	Methylene Chloride	NGS	87	<3.0	5.7	n/a	n/a	n/a	n/a	3.0		n/a|J
S17T034289			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a|U
S17T034289			88-95-3	Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U
S17T034289			110-59-6	Pentanitrile	NGS	100	<1.4	2.2	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034289			107-12-0	Propenenitrile	NGS	100	<2.1	8.3	n/a	n/a	n/a	n/a	2.1		n/a|J
S17T034289			110-86-1	Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034289			100-42-5	Styrene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a|J
S17T034289			127-18-4	Tetrachloroethene	NGS	100	<1.6	7.2	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034289			108-88-3	Toluene	NGS	100	<1.4	7.7	n/a	n/a	n/a	n/a	1.4		n/a|J

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093

SDG Number:

Customer Sample ID: 17-05615-2-TL1-IN-6

Customer Sample ID: 17-05615-2-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															
S17T034289		79-01-6		Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034289		75-69-4		Trichlorofluoromethane	NGS	110	<1.6	120	n/a	n/a	n/a	n/a	1.6		n/a
S17T034289		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034289		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034289		142-82-5		n-Heptane	NGS	97	<1.5	4.6	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034289		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-7
 Customer Sample ID: 17-05615-2-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															
S17T034290		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034290		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034290		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034290		75-35-4		1,1-Dichloroethene	NGS	100	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	U
S17T034290		107-06-2		1,2-Dichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034290		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034290		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034290		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034290		71-36-3		1-Butanol	NGS	90	<2.2	19	n/a	n/a	n/a	n/a	2.2	n/a	J
S17T034290		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034290		71-23-8		1-Propanol	NGS	91	<4.0	7.9	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034290		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034290		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034290		78-93-3		2-Butanone	NGS	100	<2.6	11	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034290		110-43-0		2-Heptanone	NGS	100	<1.6	2.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034290		581-78-6		2-Hexanone	NGS	110	<1.6	3.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034290		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034290		78-94-4		3-Buten-2-one	NGS	100	<2.3	2.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034290		106-35-4		3-Heptanone	NGS	100	<1.4	47	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034290		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034290		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
S17T034290		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034290		67-64-1		Acetone	NGS	100	<6.7	240	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034290		75-05-8		Acetonitrile	NGS	99	<3.3	33	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034290		98-86-2		Acetophenone	NGS	98	<4.0	4.5	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034290		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034290		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-7
 Customer Sample ID: 17-05615-2-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															
S17T034290		107-05-1		Allyl Chloride	NGS	92	<3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034290		71-43-2		Benzene	NGS	100	<1.2	5.9	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034290		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034290		123-72-8		Butanal	NGS	99	<1.5	5.2	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034290		109-74-0		Butanenitrile	NGS	99	<1.9	6.3	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034290		56-23-5		Carbon tetrachloride	NGS	97	<1.3	1.5	n/a	n/a	n/a	n/a	1.3		n/a/J
S17T034290		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034290		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034290		67-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034290		110-82-7		Cyclohexane	NGS	100	<2.7	4.2	n/a	n/a	n/a	n/a	2.7		n/a/J
S17T034290		124-18-5		Decane	NGS	100	<2.3	5.9	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034290		64-17-5		Ethanol	NGS	93	<4.1	1.5E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034290		141-78-6		Ethyl acetate	NGS	110	<1.4	2.7	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034290		100-41-4		Ethylbenzene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034290		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034290		110-54-3		Hexane	NGS	100	<2.0	9.1	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034290		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034290		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034290		75-09-2		Methylene Chloride	NGS	87	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034290		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034290		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034290		110-59-8		Pentanitrile	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034290		107-12-0		Propanenitrile	NGS	100	<2.1	7.3	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034290		110-86-1		Pyridine	NGS	100	<1.2	1.4	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034290		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034290		127-18-4		Tetrachloroethene	NGS	100	<1.6	6.6	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034290		108-88-3		Toluene	NGS	100	<1.4	10	n/a	n/a	n/a	n/a	1.4		n/a/J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 17-05615-2-TL1-IN-7
 Customer Sample ID: 17-05615-2-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															
S17T034290			79-01-6	Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034290			75-69-4	Trichlorofluoromethane	NGS	110	<1.6	110	n/a	n/a	n/a	n/a	1.6		n/a
S17T034290			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034290			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034290			142-82-5	n-Heptane	NGS	97	<1.5	5.6	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034290			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 5614-2-SD1-IN-4
 Customer Sample ID: 5614-2-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															
S17T034297		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034297		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034297		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034297		75-35-4		1,1-Dichloroethene	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034297		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034297		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034297		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034297		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034297		71-36-3		1-Butanol	NGS	90	<2.2	21	n/a	n/a	n/a	n/a	2.2		n/a|J
S17T034297		111-70-6		1-Heptanol	NGS	100	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034297		71-23-8		1-Propanol	NGS	91	<4.0	8.4	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034297		108-47-4		2,4-Dimethylpyridine	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034297		1708-29-8		2,5-Dihydrofuran	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034297		78-93-3		2-Butanone	NGS	100	<2.6	14	n/a	n/a	n/a	n/a	2.6		n/a|U
S17T034297		110-43-0		2-Heptanone	NGS	100	<1.6	2.5	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034297		591-78-6		2-Hexanone	NGS	110	<1.6	2.9	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034297		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034297		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.9	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034297		106-35-4		3-Heptanone	NGS	100	<1.4	41	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034297		106-68-3		3-Octanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034297		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
S17T034297		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.6	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034297		67-64-1		Acetone	NGS	100	<6.7	480	n/a	n/a	n/a	n/a	6.7		n/a|E
S17T034297		75-05-8		Acetonitrile	NGS	99	<3.3	45	n/a	n/a	n/a	n/a	3.3		n/a|U
S17T034297		98-86-2		Acetophenone	NGS	98	<4.0	7.0	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034297		107-13-1		Acrylonitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a|U
S17T034297		107-18-6		Allyl Alcohol	NGS	92	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

E - Outside Calibration Range

J - Estimated

U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 5614-2-SD1-IN-4
 Customer Sample ID: 5614-2-SD1-IN-4

Sample#	R	AI#	ICAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034297		107-05-1		Allyl Chloride	NGS	92	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034297		71-43-2		Benzene	NGS	100	<1.2	3.3	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034297		100-47-0		Benzonitrile	NGS	100	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034297		123-72-8		Butanal	NGS	99	<1.5	8.7	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034297		109-74-0		Butanenitrile	NGS	99	<1.9	7.5	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034297		56-23-5		Carbon tetrachloride	NGS	97	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034297		108-90-7		Chlorobenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034297		75-00-3		Chloroethane	NGS	110	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034297		57-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034297		110-82-7		Cyclohexane	NGS	100	<2.7	3.9	n/a	n/a	n/a	n/a	2.7		n/a/J
S17T034297		124-18-5		Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S17T034297		54-17-5		Ethanol	NGS	93	<4.1	1.7E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034297		141-78-6		Ethyl acetate	NGS	110	<1.4	2.3	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034297		100-41-4		Ethylbenzene	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034297		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034297		110-54-3		Hexane	NGS	100	<2.0	4.1	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034297		628-73-9		Hexanenitrile	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034297		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034297		75-09-2		Methylene Chloride	NGS	87	<3.0	3.0	n/a	n/a	n/a	n/a	3.0		n/a/J
S17T034297		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034297		98-95-3		Nitrobenzene	NGS	95	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034297		110-59-8		Pentanenitrile	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034297		107-12-0		Propanenitrile	NGS	100	<2.1	8.0	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034297		110-86-1		Pyridine	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034297		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034297		127-18-4		Tetrachloroethene	NGS	100	<1.6	6.7	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034297		108-88-3		Toluene	NGS	100	<1.4	4.9	n/a	n/a	n/a	n/a	1.4		n/a/J

U - Less Than Detection Limit
 J - Estimated
 E - Outside Calibration Range
 Y - Comment
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173093
 SDG Number:
 Customer Sample ID: 5614-2-SD1-IN-4
 Customer Sample ID: 5614-2-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															
S17T034297			79-01-6	Trichloroethene	NGS	91	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034297			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	97	n/a	n/a	n/a	n/a	1.6	n/a	
S17T034297			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034297			123-86-4	n-Butyl acetate	NGS	110	<1.5	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034297			142-82-5	n-Heptane	NGS	97	<1.5	3.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034297			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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 Y - Comment

E - Outside Calibration Range

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VOA 20173094 Comments

DSRComment 3.0.13
DSR.Jar v. 3.0.13

2017 Cartridge Evaluation
06-dec-2017 11:13:42

Verification Sample Comments

Sample: S17T034302 Group: 20173094
Y flag: Acetonitrile - detector saturation; reported result is a rough
estimate.

kak 12/02/17
Sample: S17T034311 Group: 20173094
Y flag: Sample tube was associated with a clean certification batch that was
not
within acceptance criteria (acetonitrile > 2X MDL) kak 12/02/17

2017 Cartridge Evaluation
 Data Summary of All Results

Daniel Hansen / Daniel Hansen 12/6/17

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BA-EF
 Customer Sample ID: 17-05613-2-SC1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Dot Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034311			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034311			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034311			75-35-4	1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S17T034311			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034311			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034311			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034311			123-91-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034311			71-36-3	1-Butanol	NGS	85	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S17T034311			111-70-6	1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	UY
S17T034311			71-23-8	1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034311			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S17T034311			1706-29-8	2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034311			78-93-3	2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S17T034311			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034311			591-78-6	2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034311			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034311			78-94-4	3-Ethen-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S17T034311			106-35-4	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			106-68-3	3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY
S17T034311			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	UY
S17T034311			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034311			87-64-1	Acetone	NGS	94	<6.7	14	n/a	n/a	n/a	n/a	6.7	n/a	Y
S17T034311			75-05-8	Acetonitrile	NGS	97	<3.3	43	n/a	n/a	n/a	n/a	3.3	n/a	Y
S17T034311			98-86-2	Acetophenone	NGS	94	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	UY
S17T034311			107-13-1	Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S17T034311			107-18-6	Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BA-EF
 Customer Sample ID: 17-05613-2-SC1-BA-EF

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034311			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	UY
S17T034311			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034311			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	UY
S17T034311			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034311			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S17T034311			56-23-5	Carbon tetrachloride	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S17T034311			105-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	UY
S17T034311			67-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			110-82-7	Cyclohexane	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S17T034311			124-18-5	Decane	NGS	100	<2.3	3.1	n/a	n/a	n/a	n/a	2.3	n/a	JY
S17T034311			64-17-5	Ethanol	NGS	88	6.5	1.2E+03	n/a	n/a	n/a	n/a	4.1	n/a	EY
S17T034311			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S17T034311			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S17T034311			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034311			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S17T034311			75-09-2	Methylene Chloride	NGS	84	4.1	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S17T034311			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034311			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S17T034311			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S17T034311			110-86-1	Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S17T034311			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S17T034311			127-18-4	Tetrachloroethene	NGS	100	<1.6	8.8	n/a	n/a	n/a	n/a	1.6	n/a	JY
S17T034311			108-88-3	Toluene	NGS	100	<1.4	<2.7	n/a	n/a	n/a	n/a	1.4	n/a	JY

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BA-EF
 Customer Sample ID: 17-05613-2-SC1-BA-EF

Sample#	R	A#	CAS #	VOA #2	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU																
S17T034311			79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S17T034311			75-69-4		Trichlorofluoromethane	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034311			10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034311			123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S17T034311			142-82-5		n-Heptane	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S17T034311			10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY

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L - LLS Outside Range

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BA-IN
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034312		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034312		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034312		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034312		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034312		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034312		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034312		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034312		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034312		71-36-3		1-Butanol	NGS	85	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2		n/a/U
S17T034312		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034312		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034312		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034312		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034312		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a/U
S17T034312		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034312		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034312		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034312		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S17T034312		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034312		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034312		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
S17T034312		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034312		67-64-1		Acetone	NGS	94	<6.7	7.2	n/a	n/a	n/a	n/a	6.7		n/a/J
S17T034312		75-05-8		Acetonitrile	NGS	97	<3.3	1.1E+03	n/a	n/a	n/a	n/a	3.3		n/a/E
S17T034312		98-86-2		Acetophenone	NGS	94	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034312		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034312		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BA-IN
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034312		107-05-1		Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		71-43-2		Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		123-72-8		Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		56-23-5		Carbon tetrachloride	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		108-90-7		Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		87-56-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		110-82-7		Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		124-18-5		Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		64-17-5		Ethanol	NGS	88	6.5	14	n/a	n/a	n/a	n/a	n/a		n/a/J
S17T034312		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		628-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		75-09-2		Methylene Chloride	NGS	84	4.1	<3.0	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		86-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		110-59-8		Pentanitrile	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		107-12-0		Propenenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		110-86-1		Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	n/a		n/a/U
S17T034312		108-88-3		Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a		n/a/U

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 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BA-IN
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034312			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034312			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034312			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034312			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034312			142-82-5	n-Heptane	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034312			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

J - Estimated
 E - Outside Calibration Range
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 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BL-EF
 Customer Sample ID: 17-05613-2-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 VOA #2															
S177034313			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034313			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034313			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034313			75-35-4	1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034313			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034313			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034313			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034313			123-91-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034313			71-36-3	1-Butanol	NGS	85	<2.2	86	n/a	n/a	n/a	n/a	2.2	n/a	L
S177034313			111-70-9	1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.8	n/a	U
S177034313			71-23-8	1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S177034313			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034313			1708-28-8	2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034313			78-93-3	2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S177034313			110-43-0	2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034313			591-78-6	2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034313			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034313			78-94-4	3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S177034313			106-35-4	3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034313			106-68-3	3-Octanone	NGS	96	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034313			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
S177034313			108-10-1	4-Methyl-2-pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034313			57-84-1	Acetone	NGS	94	<6.7	46	n/a	n/a	n/a	n/a	6.7	n/a	
S177034313			75-05-8	Acetonitrile	NGS	97	<3.3	85	n/a	n/a	n/a	n/a	3.3	n/a	
S177034313			98-86-2	Acetophenone	NGS	94	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S177034313			107-13-1	Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034313			107-18-6	Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 Y - Comment

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L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BL-EF
 Customer Sample ID: 17-05613-2-SC1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Er %	Qual Flags
VAPOR-TDU VOA #2															
S17T034313		107-05-1		Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034313		71-43-2		Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034313		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034313		123-72-8		Butanal	NGS	100	<1.5	2.5	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034313		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034313		58-23-5		Carbon tetrachloride	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034313		108-90-7		Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034313		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034313		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034313		110-82-7		Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034313		124-18-5		Decane	NGS	100	<2.3	2.9	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034313		64-17-5		Ethanol	NGS	88	6.5	5.4	n/a	n/a	n/a	n/a	4.1		n/a
S17T034313		141-78-6		Ethyl acetate	NGS	110	<1.4	1.7	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034313		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034313		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034313		110-54-3		Hexane	NGS	100	<2.0	3.9	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034313		628-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034313		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034313		75-09-2		Methylene Chloride	NGS	84	4.1	13	n/a	n/a	n/a	n/a	3.0		n/a
S17T034313		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034313		98-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034313		110-59-8		Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034313		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034313		110-86-1		Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034313		100-42-5		Styrene	NGS	100	<1.4	1.7	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034313		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034313		108-88-3		Toluene	NGS	100	<1.4	7.8	n/a	n/a	n/a	n/a	1.4		n/a/J

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BL-EF
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034313			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034313			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034313			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034313			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034313			142-82-5	n-Heptane	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034313			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BL-IN
 Customer Sample ID: 17-05613-2-SC1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Er %	Qual Flags
VAPOR-TDU VOA #2															
S17T034314		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034314		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034314		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034314		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034314		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034314		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034314		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034314		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034314		71-36-3		1-Butanol	NGS	85	<2.2	4.4	n/a	n/a	n/a	n/a	2.2	n/a	JL
S17T034314		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034314		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034314		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034314		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034314		78-93-3		2-Butanone	NGS	100	<2.6	3.4	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034314		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034314		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034314		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034314		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034314		106-35-4		3-Heptanone	NGS	100	<1.4	23	n/a	n/a	n/a	n/a	1.4	n/a	
S17T034314		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034314		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
S17T034314		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034314		57-64-1		Acetone	NGS	94	<6.7	40	n/a	n/a	n/a	n/a	6.7	n/a	
S17T034314		75-05-8		Acetonitrile	NGS	97	<3.3	43	n/a	n/a	n/a	n/a	3.3	n/a	
S17T034314		98-86-2		Acetophenone	NGS	94	<4.0	4.7	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034314		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034314		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BL-IN
 Customer Sample ID: 17-05613-2-SC1-BL-IN

Sample#	R	A#	CAS #	Analysis	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034314			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034314			71-43-2	Benzene	NGS	100	<1.2	5.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034314			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034314			123-72-8	Butanal	NGS	100	<1.5	2.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034314			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034314			56-23-5	Carbon tetrachloride	NGS	98	<1.3	1.6	n/a	n/a	n/a	n/a	1.3	n/a	J
S17T034314			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034314			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034314			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034314			110-82-7	Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034314			124-18-5	Decane	NGS	100	<2.3	5.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034314			64-17-5	Ethanol	NGS	88	6.5	42	n/a	n/a	n/a	n/a	4.1	n/a	
S17T034314			141-78-6	Ethyl acetate	NGS	110	<1.4	2.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034314			100-41-4	Ethylbenzene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034314			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034314			110-54-3	Hexane	NGS	100	<2.0	3.8	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034314			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034314			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034314			75-09-2	Methylene Chloride	NGS	84	4.1	4.2	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034314			81-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034314			88-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034314			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034314			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034314			110-86-1	Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034314			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034314			127-18-4	Tetrachloroethene	NGS	100	<1.6	2.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034314			108-88-3	Toluene	NGS	100	<1.4	7.9	n/a	n/a	n/a	n/a	1.4	n/a	J

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U - Less Than Detection Limit

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J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-BL-IN
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034314			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034314			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	4.6	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034314			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034314			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034314			142-82-5	n-Heptane	NGS	95	<1.5	3.2	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034314			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

J - Estimated
 E - Outside Calibration Range
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-2
 Customer Sample ID: 17-05613-2-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 VOA #2															
S177034315		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a U
S177034315		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S177034315		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U
S177034315		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a U
S177034315		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034315		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034315		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034315		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a U
S177034315		71-36-3		1-Butanol	NGS	85	<2.2	24	n/a	n/a	n/a	n/a	2.2		n/a J L
S177034315		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a U
S177034315		71-23-8		1-Propanol	NGS	86	<4.0	7.2	n/a	n/a	n/a	n/a	4.0		n/a J
S177034315		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a U
S177034315		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a U
S177034315		78-93-3		2-Butanone	NGS	100	<2.6	16	n/a	n/a	n/a	n/a	2.6		n/a
S177034315		110-43-0		2-Heptanone	NGS	100	<1.6	4.0	n/a	n/a	n/a	n/a	1.6		n/a J
S177034315		591-78-6		2-Hexanone	NGS	100	<1.6	3.8	n/a	n/a	n/a	n/a	1.6		n/a J
S177034315		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a U
S177034315		78-94-4		3-Buten-2-one	NGS	100	<2.3	5.2	n/a	n/a	n/a	n/a	2.3		n/a J
S177034315		106-35-4		3-Heptanone	NGS	100	<1.4	69	n/a	n/a	n/a	n/a	1.4		n/a
S177034315		106-66-3		3-Octanone	NGS	96	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a U
S177034315		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
S177034315		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	3.1	n/a	n/a	n/a	n/a	1.6		n/a J
S177034315		57-84-1		Acetone	NGS	94	<6.7	420	n/a	n/a	n/a	n/a	6.7		n/a E
S177034315		75-05-8		Acetonitrile	NGS	97	<3.3	110	n/a	n/a	n/a	n/a	3.3		n/a
S177034315		98-86-2		Acetophenone	NGS	94	<4.0	20	n/a	n/a	n/a	n/a	4.0		n/a
S177034315		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S177034315		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-2
 Customer Sample ID: 17-05613-2-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 VOA #2															
S177034315		107-05-1		Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034315		71-43-2		Benzene	NGS	100	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034315		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034315		123-72-8		Butanal	NGS	100	<1.5	7.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034315		109-74-0		Butanenitrile	NGS	100	<1.9	7.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034315		66-23-5		Carbon tetrachloride	NGS	98	<1.3	1.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S177034315		108-90-7		Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034315		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034315		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034315		110-82-7		Cyclohexane	NGS	98	<2.7	3.2	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034315		124-18-5		Decane	NGS	100	<2.3	6.4	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034315		64-17-5		Ethanol	NGS	88	6.5	1.8E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034315		141-78-6		Ethyl acetate	NGS	110	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034315		100-41-4		Ethylbenzene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034315		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034315		110-54-3		Hexane	NGS	100	<2.0	3.7	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034315		528-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034315		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034315		75-09-2		Methylene Chloride	NGS	84	4.1	3.0	n/a	n/a	n/a	n/a	3.0	n/a	J
S177034315		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034315		98-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034315		110-59-8		Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034315		107-12-0		Propanenitrile	NGS	100	<2.1	8.3	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034315		110-86-1		Pyridine	NGS	100	1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034315		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034315		127-18-4		Tetrachloroethane	NGS	100	<1.6	7.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034315		108-88-3		Toluene	NGS	100	<1.4	5.4	n/a	n/a	n/a	n/a	1.4	n/a	J

J - Estimated
 E - Outside Calibration Range

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 U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173094
SDG Number:
Customer Sample ID: 17-05613-2-SC1-IN-2
Customer Sample ID: 17-05613-2-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 VOA #2															
S177034315		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034315		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	96	n/a	n/a	n/a	n/a	1.6		n/a
S177034315		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034315		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034315		142-82-5		n-Heptane	NGS	95	<1.5	5.4	n/a	n/a	n/a	n/a	1.5		n/a J
S177034315		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

J - Estimated
 E - Outside Calibration Range
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-3
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034316		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034316		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034316		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034316		75-35-4		1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034316		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034316		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034316		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034316		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034316		71-36-3		1-Butanol	NGS	85	<2.2	39	n/a	n/a	n/a	n/a	2.2	n/a	L
S17T034316		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034316		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034316		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034316		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034316		78-93-3		2-Butanone	NGS	100	<2.6	7.0	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034316		110-43-0		2-Heptanone	NGS	100	<1.6	4.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034316		591-78-6		2-Hexanone	NGS	100	<1.6	3.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034316		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034316		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034316		106-35-4		3-Heptanone	NGS	100	<1.4	69	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034316		106-66-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034316		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
S17T034316		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	5.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034316		87-64-1		Acetone	NGS	94	<6.7	260	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034316		75-05-8		Acetonitrile	NGS	97	<3.3	65	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034316		98-86-2		Acetophenone	NGS	94	<4.0	19	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034316		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034316		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-3
 Customer Sample ID: 17-05613-2-SC1-IN-3

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VQA #2															
S177034316			107-05-1	Allyl Chloride	NGS	89	<-3.3	<-3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034316			71-43-2	Benzene	NGS	100	<-1.2	3.6	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034316			100-47-0	Benzonitrile	NGS	99	<-1.7	<-1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034316			123-72-8	Butanal	NGS	100	<-1.5	8.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034316			109-74-0	Butanenitrile	NGS	100	<-1.9	5.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034316			56-23-5	Carbon tetrachloride	NGS	98	<-1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S177034316			108-90-7	Chlorobenzene	NGS	99	<-1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034316			75-00-3	Chloroethane	NGS	99	<-4.5	<-4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034316			87-86-3	Chloroform	NGS	100	<-1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034316			110-82-7	Cyclohexane	NGS	98	<-2.7	3.6	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034316			124-18-5	Decane	NGS	100	<-2.3	8.4	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034316			84-17-5	Ethanol	NGS	88	6.5	1.5E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034316			141-78-6	Ethyl acetate	NGS	110	<-1.4	2.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034316			100-41-4	Ethylbenzene	NGS	100	<-1.4	2.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034316			110-00-9	Furan	NGS	86	<-4.2	<-4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034316			110-54-3	Hexane	NGS	100	<-2.0	4.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034316			828-73-9	Hexanenitrile	NGS	99	<-1.2	<-1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034316			126-98-7	Methacrylonitrile	NGS	98	<-1.1	<-1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034316			75-09-2	Methylene Chloride	NGS	84	4.1	7.6	n/a	n/a	n/a	n/a	3.0	n/a	J
S177034316			91-20-3	Naphthalene	NGS	100	<-2.1	<-2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034316			98-95-3	Nitrobenzene	NGS	96	<-1.8	<-1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034316			110-59-8	Pentanitrile	NGS	98	<-1.4	<-1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034316			107-12-0	Propanenitrile	NGS	100	<-2.1	5.5	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034316			110-86-1	Pyridine	NGS	100	1.2	<-1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034316			100-42-5	Styrene	NGS	100	<-1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034316			127-18-4	Tetrachloroethene	NGS	100	<-1.6	8.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034316			108-88-3	Toluene	NGS	100	<-1.4	7.1	n/a	n/a	n/a	n/a	1.4	n/a	J

J - Estimated
 E - Outside Calibration Range
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 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05613-2-SC1-IN-3

Customer Sample ID: 17-05613-2-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 VOA #2															
S177034316			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034316			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	57	n/a	n/a	n/a	n/a	1.6		n/a
S177034316			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034316			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034316			142-82-5	n-Heptane	NGS	95	<1.5	6.3	n/a	n/a	n/a	n/a	1.5		n/a J
S177034316			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-4
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034317			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a U
S17T034317			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S17T034317			75-34-3	1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U
S17T034317			75-35-4	1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a U
S17T034317			107-06-2	1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034317			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034317			106-46-7	1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034317			123-81-1	1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a U
S17T034317			71-36-3	1-Butanol	NGS	85	<2.2	18	n/a	n/a	n/a	n/a	2.2		n/a J L
S17T034317			111-70-6	1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a U
S17T034317			71-23-8	1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a U
S17T034317			108-47-4	2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a U
S17T034317			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a U
S17T034317			78-93-3	2-Butanone	NGS	100	<2.6	8.9	n/a	n/a	n/a	n/a	2.6		n/a J
S17T034317			110-43-0	2-Heptanone	NGS	100	<1.6	3.8	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034317			591-78-6	2-Hexanone	NGS	100	<1.6	3.2	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034317			534-22-5	2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a U
S17T034317			78-94-4	3-Buten-2-one	NGS	100	<2.3	3.6	n/a	n/a	n/a	n/a	2.3		n/a J
S17T034317			106-35-4	3-Heptanone	NGS	100	<1.4	54	n/a	n/a	n/a	n/a	1.4		n/a
S17T034317			106-68-3	3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a U
S17T034317			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
S17T034317			108-10-1	4-Methyl-2-Pentanone	NGS	96	<1.6	4.7	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034317			87-64-1	Acetone	NGS	94	<6.7	320	n/a	n/a	n/a	n/a	6.7		n/a
S17T034317			75-05-8	Acetonitrile	NGS	97	<3.3	74	n/a	n/a	n/a	n/a	3.3		n/a
S17T034317			98-86-2	Acetophenone	NGS	94	<4.0	13	n/a	n/a	n/a	n/a	4.0		n/a
S17T034317			107-13-1	Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a U
S17T034317			107-18-5	Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U

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L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-4
 Customer Sample ID: 17-05613-2-SC1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Er %	Qual Flags
VAPOR-TDU VOA #2															
S177034317			107-05-1	Allyl Chloride	NGS	89	<-3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S177034317			71-43-2	Benzene	NGS	100	<-1.2	3.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S177034317			100-47-0	Benzonitrile	NGS	99	<-1.7	<-1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S177034317			123-72-8	Butanal	NGS	100	<-1.5	6.4	n/a	n/a	n/a	n/a	1.5		n/a/J
S177034317			109-74-0	Butanenitrile	NGS	100	<-1.9	6.0	n/a	n/a	n/a	n/a	1.9		n/a/J
S177034317			56-23-5	Carbon tetrachloride	NGS	98	<-1.3	1.5	n/a	n/a	n/a	n/a	1.3		n/a/J
S177034317			108-90-7	Chlorobenzene	NGS	99	<-1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034317			75-00-3	Chloroethane	NGS	99	<-4.5	<-4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S177034317			57-68-3	Chloroform	NGS	100	<-1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034317			110-82-7	Cyclohexane	NGS	98	<-2.7	3.0	n/a	n/a	n/a	n/a	2.7		n/a/J
S177034317			124-18-5	Decane	NGS	100	<-2.3	5.7	n/a	n/a	n/a	n/a	2.3		n/a/J
S177034317			64-17-5	Ethanol	NGS	88	6.5	1.6E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S177034317			141-78-6	Ethyl acetate	NGS	110	<-1.4	2.7	n/a	n/a	n/a	n/a	1.4		n/a/J
S177034317			100-41-4	Ethylbenzene	NGS	100	<-1.4	2.3	n/a	n/a	n/a	n/a	1.4		n/a/J
S177034317			110-00-9	Furan	NGS	86	<-4.2	<-4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S177034317			110-54-3	Hexane	NGS	100	<-2.0	2.5	n/a	n/a	n/a	n/a	2.0		n/a/J
S177034317			628-73-9	Hexanenitrile	NGS	99	<-1.2	1.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S177034317			126-88-7	Methacrylonitrile	NGS	98	<-1.1	<-1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S177034317			75-09-2	Methylene Chloride	NGS	84	4.1	<-3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S177034317			91-20-3	Naphthalene	NGS	100	<-2.1	<-2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S177034317			98-95-3	Nitrobenzene	NGS	96	<-1.8	<-1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S177034317			110-59-8	Pentanitrile	NGS	98	<-1.4	<-1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034317			107-12-0	Propanenitrile	NGS	100	<-2.1	6.9	n/a	n/a	n/a	n/a	2.1		n/a/J
S177034317			110-86-1	Pyridine	NGS	100	1.2	1.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S177034317			100-42-5	Styrene	NGS	100	<-1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S177034317			127-18-4	Tetrachloroethene	NGS	100	<-1.6	7.0	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034317			108-88-3	Toluene	NGS	100	<-1.4	4.8	n/a	n/a	n/a	n/a	1.4		n/a/J

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 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-4
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034317			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034317			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	96	n/a	n/a	n/a	n/a	1.6		n/a
S17T034317			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034317			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034317			142-82-5	n-Heptane	NGS	95	<1.5	4.6	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034317			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

J - Estimated
 E - Outside Calibration Range
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-5
 Customer Sample ID: 17-05613-2-SC1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flag
VAPOR-TDU VOA #2															
S17T034318		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034318		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034318		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034318		75-35-4		1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034318		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034318		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034318		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034318		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034318		71-36-3		1-Butanol	NGS	85	<2.2	18	n/a	n/a	n/a	n/a	2.2	n/a	JL
S17T034318		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034318		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034318		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034318		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034318		78-93-3		2-Butanone	NGS	100	<2.6	8.5	n/a	n/a	n/a	n/a	2.6	n/a	J
S17T034318		110-43-0		2-Heptanone	NGS	100	<1.6	3.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034318		591-78-6		2-Hexanone	NGS	100	<1.6	2.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034318		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034318		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.0	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034318		106-35-4		3-Heptanone	NGS	100	<1.4	52	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034318		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	J
S17T034318		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
S17T034318		108-10-1		4-Methyl-2-pentanone	NGS	96	<1.6	3.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034318		57-64-1		Acetone	NGS	94	<6.7	300	n/a	n/a	n/a	n/a	6.7	n/a	J
S17T034318		75-05-8		Acetonitrile	NGS	97	<3.3	69	n/a	n/a	n/a	n/a	3.3	n/a	J
S17T034318		96-86-2		Acetophenone	NGS	94	<4.0	11	n/a	n/a	n/a	n/a	4.0	n/a	J
S17T034318		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034318		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-5
 Customer Sample ID: 17-05613-2-SC1-IN-5

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cmt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034318			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034318			71-43-2	Benzene	NGS	100	<1.2	3.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034318			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034318			123-72-8	Butanal	NGS	100	<1.5	4.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034318			109-74-0	Butanenitrile	NGS	100	<1.9	5.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034318			56-23-5	Carbon tetrachloride	NGS	98	<1.3	1.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S177034318			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034318			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034318			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034318			110-82-7	Cyclohexane	NGS	98	<2.7	3.1	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034318			124-18-5	Decane	NGS	100	<2.3	4.1	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034318			64-17-5	Ethanol	NGS	88	6.5	1.8E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034318			141-78-6	Ethyl acetate	NGS	110	<1.4	2.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034318			100-41-4	Ethylbenzene	NGS	100	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034318			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034318			110-54-3	Hexane	NGS	100	<2.0	3.8	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034318			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034318			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034318			75-09-2	Methylene Chloride	NGS	84	4.1	4.8	n/a	n/a	n/a	n/a	3.0	n/a	J
S177034318			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034318			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034318			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034318			107-12-0	Propanenitrile	NGS	100	<2.1	6.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034318			110-86-1	Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034318			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034318			127-18-4	Tetrachloroethene	NGS	100	<1.6	7.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034318			108-88-3	Toluene	NGS	100	<1.4	7.1	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-5
 Customer Sample ID: 17-05613-2-SC1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Er %	Qual Flags
VAPOR-TDU VOA #2															
S177034318		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S177034318		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034318		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034318		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034318		142-82-5		n-Heptane	NGS	95	<1.5	4.4	n/a	n/a	n/a	n/a	1.5		n/a/J
S177034318		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U

J - Estimated
 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-6
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034319		79-34-5		1,1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034319		79-00-5		1,1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a|U
S17T034319		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U
S17T034319		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a|U
S17T034319		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034319		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034319		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034319		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a|U
S17T034319		71-36-3		1-Butanol	NGS	85	<2.2	17	n/a	n/a	n/a	n/a	2.2		n/a|JL
S17T034319		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a|U
S17T034319		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a|U
S17T034319		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a|U
S17T034319		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a|U
S17T034319		78-93-3		2-Butanone	NGS	100	<2.6	15	n/a	n/a	n/a	n/a	2.6		n/a
S17T034319		110-43-0		2-Heptanone	NGS	100	<1.6	2.9	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034319		591-78-6		2-Hexanone	NGS	100	<1.6	3.0	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034319		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a|U
S17T034319		78-94-4		3-Buten-2-one	NGS	100	<2.3	4.3	n/a	n/a	n/a	n/a	2.3		n/a|J
S17T034319		106-35-4		3-Heptanone	NGS	100	<1.4	51	n/a	n/a	n/a	n/a	1.4		n/a
S17T034319		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a|U
S17T034319		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
S17T034319		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.3	n/a	n/a	n/a	n/a	1.6		n/a|J
S17T034319		67-84-1		Acetone	NGS	94	<6.7	330	n/a	n/a	n/a	n/a	6.7		n/a
S17T034319		75-05-8		Acetonitrile	NGS	97	<3.3	89	n/a	n/a	n/a	n/a	3.3		n/a
S17T034319		98-96-2		Acetophenone	NGS	94	<4.0	7.9	n/a	n/a	n/a	n/a	4.0		n/a|J
S17T034319		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a|U
S17T034319		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a|U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-6
 Customer Sample ID: 17-05613-2-SC1-IN-6

Sample#	R	AF	CAS #	Analysis	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034319			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034319			71-43-2	Benzene	NGS	100	<1.2	3.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034319			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034319			123-72-8	Butanal	NGS	100	<1.5	8.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034319			109-74-0	Butanenitrile	NGS	100	<1.9	7.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034319			56-23-5	Carbon tetrachloride	NGS	98	<1.3	1.6	n/a	n/a	n/a	n/a	1.3	n/a	J
S177034319			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034319			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034319			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034319			110-82-7	Cyclohexane	NGS	98	<2.7	2.8	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034319			124-18-5	Decane	NGS	100	<2.3	6.2	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034319			64-17-5	Ethanol	NGS	88	6.5	1.7E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034319			141-78-6	Ethyl acetate	NGS	110	<1.4	2.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034319			100-41-4	Ethylbenzene	NGS	100	<1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034319			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034319			110-54-3	Hexane	NGS	100	<2.0	4.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034319			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034319			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034319			75-09-2	Methylene Chloride	NGS	84	4.1	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034319			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034319			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034319			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034319			107-12-0	Propanenitrile	NGS	100	<2.1	7.8	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034319			110-86-1	Pyridine	NGS	100	1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034319			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034319			127-18-4	Tetrachloroethene	NGS	100	<1.6	8.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034319			108-88-3	Toluene	NGS	100	<1.4	7.6	n/a	n/a	n/a	n/a	1.4	n/a	J

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L - LLS Outside Range

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05613-2-SC1-IN-6

Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034319			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034319			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	1.30	n/a	n/a	n/a	n/a	1.6		n/a
S17T034319			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034319			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034319			142-82-5	n-Heptane	NGS	95	<1.5	6.2	n/a	n/a	n/a	n/a	1.5		n/a J
S17T034319			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

J - Estimated
 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

Y - Comment

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-7
 Customer Sample ID: 17-05613-2-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 VOA #2															
S177034320		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034320		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034320		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034320		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034320		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034320		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034320		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034320		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034320		71-56-3		1-Butanol	NGS	85	<2.2	16	n/a	n/a	n/a	n/a	2.2	n/a	JL
S177034320		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S177034320		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S177034320		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034320		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034320		78-93-3		2-Butanone	NGS	100	<2.6	8.4	n/a	n/a	n/a	n/a	2.6	n/a	J
S177034320		110-43-0		2-Heptanone	NGS	100	<1.6	2.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034320		591-78-6		2-Hexanone	NGS	100	<1.6	2.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034320		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034320		78-94-4		3-Buten-2-one	NGS	100	<2.3	2.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034320		106-35-4		3-Heptanone	NGS	100	<1.4	44	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034320		106-68-3		3-Octanone	NGS	96	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034320		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
S177034320		108-10-1		4-Methyl-2-pentanone	NGS	95	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034320		57-64-1		Acetone	NGS	94	<6.7	86	n/a	n/a	n/a	n/a	6.7	n/a	U
S177034320		75-05-8		Acetonitrile	NGS	97	<3.3	87	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034320		98-96-2		Acetophenone	NGS	94	<4.0	4.3	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034320		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034320		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05613-2-SC1-IN-7
 Customer Sample ID: 17-05613-2-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 VOA #2															
S17T034320		107-05-1		Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034320		71-43-2		Benzene	NGS	100	<1.2	2.7	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034320		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034320		123-72-8		Butanal	NGS	100	<1.5	6.5	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034320		109-74-0		Butanenitrile	NGS	100	<1.9	6.0	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034320		56-23-5		Carbon tetrachloride	NGS	98	<1.3	1.3	n/a	n/a	n/a	n/a	1.3		n/a/J
S17T034320		108-90-7		Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034320		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034320		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034320		110-82-7		Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034320		124-18-5		Decane	NGS	100	<2.3	2.3	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034320		64-17-5		Ethanol	NGS	88	6.5	1.0E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034320		141-78-6		Ethyl acetate	NGS	110	<1.4	1.8	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034320		100-41-4		Ethylbenzene	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034320		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034320		110-54-3		Hexane	NGS	100	<2.0	2.7	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034320		628-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034320		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034320		75-09-2		Methylene Chloride	NGS	84	4.1	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034320		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034320		98-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034320		110-59-8		Pentanenitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034320		107-12-0		Propanenitrile	NGS	100	<2.1	4.3	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034320		110-86-1		Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034320		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034320		127-18-4		Tetrachloroethene	NGS	100	<1.6	7.0	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034320		108-88-3		Toluene	NGS	100	<1.4	5.8	n/a	n/a	n/a	n/a	1.4		n/a/J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05613-2-SC1-IN-7

Customer Sample ID: 17-05613-2-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 VOA #2															
S177034320		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S177034320		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	70	n/a	n/a	n/a	n/a	1.6		n/a
S177034320		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S177034320		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S177034320		142-82-5		n-Heptane	NGS	95	<1.5	4.3	n/a	n/a	n/a	n/a	1.5		n/a|J
S177034320		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

J - Estimated
 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BA-EF
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034301		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034301		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034301		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034301		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034301		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034301		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034301		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034301		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034301		71-36-3		1-Butanol	NGS	85	<2.2	8.3	n/a	n/a	n/a	n/a	2.2		n/a/JL
S17T034301		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034301		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034301		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034301		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034301		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6		n/a/U
S17T034301		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034301		581-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034301		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034301		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S17T034301		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034301		106-68-3		3-Octanone	NGS	96	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034301		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
S17T034301		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034301		67-64-1		Acetone	NGS	94	<6.7	33	n/a	n/a	n/a	n/a	6.7		n/a
S17T034301		75-05-8		Acetonitrile	NGS	97	<3.3	110	n/a	n/a	n/a	n/a	3.3		n/a
S17T034301		98-86-2		Acetophenone	NGS	94	<4.0	4.7	n/a	n/a	n/a	n/a	4.0		n/a/J
S17T034301		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034301		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

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

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BA-EF
 Customer Sample ID: 17-05616-2-TL2-BA-EF

Sample#	R	A#	CAS #	Analysis	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034301			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034301			71-43-2	Benzene	NGS	100	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034301			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034301			123-72-8	Butanal	NGS	100	<1.5	1.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034301			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034301			56-23-5	Carbon tetrachloride	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034301			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034301			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034301			87-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034301			110-82-7	Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034301			124-18-5	Decane	NGS	100	<2.3	4.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034301			64-17-5	Ethanol	NGS	88	6.5	30	n/a	n/a	n/a	n/a	4.1	n/a	
S17T034301			141-78-6	Ethyl acetate	NGS	110	<1.4	1.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034301			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034301			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034301			110-54-3	Hexane	NGS	100	<2.0	3.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034301			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034301			128-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034301			75-09-2	Methylene Chloride	NGS	84	4.1	7.5	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034301			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034301			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034301			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034301			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034301			110-86-1	Pyridine	NGS	100	1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034301			100-42-5	Styrene	NGS	100	<1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034301			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034301			108-88-3	Toluene	NGS	100	<1.4	3.7	n/a	n/a	n/a	n/a	1.4	n/a	J

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L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05616-2-TL2-BA-EF

Customer Sample ID: 17-05616-2-TL2-BA-EF

Sample#	R	AV	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S177034301			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034301			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034301			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034301			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034301			142-82-5	n-Heptane	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034301			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BA-IN
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034302		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034302		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034302		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034302		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034302		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034302		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034302		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034302		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034302		71-36-3		1-Butanol	NGS	85	<2.2	2.7	n/a	n/a	n/a	n/a	2.2		n/a/L
S17T034302		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034302		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034302		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034302		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034302		78-93-3		2-Butanone	NGS	100	<2.6	3.4	n/a	n/a	n/a	n/a	2.6		n/a/J
S17T034302		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034302		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034302		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034302		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a/U
S17T034302		106-35-4		3-Heptanone	NGS	100	<1.4	1.5	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034302		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034302		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
S17T034302		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034302		67-64-1		Acetone	NGS	94	<6.7	5.7	n/a	n/a	n/a	n/a	6.7		n/a
S17T034302		75-05-8		Acetonitrile	NGS	97	<3.3	1.8E+03	n/a	n/a	n/a	n/a	3.3		n/a/EY
S17T034302		98-86-2		Acetophenone	NGS	94	<4.0	5.8	n/a	n/a	n/a	n/a	4.0		n/a/J
S17T034302		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034302		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

J - Estimated
 E - Outside Calibration Range
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 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BA-IN
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034302		107-05-1		Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034302		71-43-2		Benzene	NGS	100	<1.2	4.8	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034302		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034302		123-72-8		Butanal	NGS	100	<1.5	2.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034302		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034302		56-23-5		Carbon tetrachloride	NGS	98	<1.3	1.7	n/a	n/a	n/a	n/a	1.3	n/a	J
S17T034302		108-90-7		Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034302		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034302		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034302		110-82-7		Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034302		124-18-5		Decane	NGS	100	<2.3	8.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034302		64-17-5		Ethanol	NGS	88	6.5	75	n/a	n/a	n/a	n/a	4.1	n/a	U
S17T034302		141-76-6		Ethyl acetate	NGS	110	<1.4	3.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034302		100-41-4		Ethylbenzene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034302		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034302		110-54-3		Hexane	NGS	100	<2.0	4.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034302		628-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034302		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034302		75-09-2		Methylene Chloride	NGS	84	4.1	3.4	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034302		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034302		98-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034302		110-59-8		Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034302		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034302		110-86-1		Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034302		100-42-5		Styrene	NGS	100	<1.4	2.9	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034302		127-18-4		Tetrachloroethene	NGS	100	<1.6	1.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034302		108-88-3		Toluene	NGS	100	<1.4	10	n/a	n/a	n/a	n/a	1.4	n/a	J

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

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20173094
SDG Number:
Customer Sample ID: 17-05616-2-TL2-BA-IN
Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034302		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034302		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	4.4	n/a	n/a	n/a	n/a	1.6		n/a J
S17T034302		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034302		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034302		142-82-5		n-Heptane	NGS	95	<1.5	3.1	n/a	n/a	n/a	n/a	1.5		n/a J
S17T034302		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

J - Estimated
 E - Outside Calibration Range
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BL-EF
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034303		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034303		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034303		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034303		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034303		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034303		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034303		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034303		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034303		71-36-3		1-Bulanol	NGS	85	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	LU
S17T034303		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034303		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034303		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034303		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034303		78-93-3		2-Bulthane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034303		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034303		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034303		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034303		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034303		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034303		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034303		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
S17T034303		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034303		67-64-1		Acetone	NGS	94	<6.7	9.2	n/a	n/a	n/a	n/a	6.7	n/a	J
S17T034303		75-05-8		Acetonitrile	NGS	97	<3.3	5.9	n/a	n/a	n/a	n/a	3.3	n/a	J
S17T034303		66-86-2		Acetophenone	NGS	94	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034303		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034303		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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U - Less Than Detection Limit

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J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BL-EF
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034303		107-05-1		Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a U
S17T034303		71-43-2		Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a U
S17T034303		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a U
S17T034303		123-72-8		Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034303		109-74-0		Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a U
S17T034303		56-23-5		Carbon tetrachloride	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a U
S17T034303		108-90-7		Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S17T034303		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a U
S17T034303		67-66-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S17T034303		110-82-7		Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a U
S17T034303		124-18-5		Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3		n/a U
S17T034303		64-17-5		Ethanol	NGS	88	6.5	19	n/a	n/a	n/a	n/a	4.1		n/a U
S17T034303		141-78-6		Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S17T034303		100-41-4		Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S17T034303		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a U
S17T034303		110-54-3		Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U
S17T034303		628-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a U
S17T034303		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034303		75-09-2		Methylene Chloride	NGS	84	4.1	<3.0	n/a	n/a	n/a	n/a	3.0		n/a U
S17T034303		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a U
S17T034303		98-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a U
S17T034303		110-59-6		Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S17T034303		107-12-0		Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a U
S17T034303		110-86-1		Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a U
S17T034303		100-42-5		Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U
S17T034303		127-18-4		Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034303		108-88-3		Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a U

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U - Less Than Detection Limit

L - LLS Outside Range

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BL-EF
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034303		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034303		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034303		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034303		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S17T034303		142-82-5		n-Heptane	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S17T034303		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

J - Estimated
 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BL-IN
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034304		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034304		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034304		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S17T034304		75-35-4		1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S17T034304		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034304		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034304		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034304		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S17T034304		71-36-3		1-Butanol	NGS	85	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	LU
S17T034304		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S17T034304		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034304		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034304		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S17T034304		78-93-3		2-Butanone	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S17T034304		110-43-0		2-Heptanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034304		591-78-6		2-Hexanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034304		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034304		78-94-4		3-Buten-2-one	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S17T034304		106-35-4		3-Heptanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034304		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S17T034304		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
S17T034304		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034304		67-64-1		Acetone	NGS	94	<6.7	<6.7	n/a	n/a	n/a	n/a	6.7	n/a	U
S17T034304		75-05-8		Acetonitrile	NGS	97	<3.3	120	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034304		98-86-2		Acetophenone	NGS	94	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S17T034304		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S17T034304		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-BL-IN
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034304			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	n/a	3.3	n/a|U
S17T034304			71-43-2	Benzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a	1.2	n/a|U
S17T034304			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	n/a	1.7	n/a|U
S17T034304			123-72-8	Butanal	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	n/a	1.5	n/a|U
S17T034304			109-74-0	Butanenitrile	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	n/a	1.9	n/a|U
S17T034304			56-23-5	Carbon tetrachloride	NGS	98	<1.3	<1.3	n/a	n/a	n/a	n/a	n/a	1.3	n/a|U
S17T034304			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a|U
S17T034304			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	n/a	4.5	n/a|U
S17T034304			67-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a|U
S17T034304			110-82-7	Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	n/a	2.7	n/a|U
S17T034304			124-18-5	Decane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	n/a	2.3	n/a|U
S17T034304			64-17-5	Ethanol	NGS	88	6.5	23	n/a	n/a	n/a	n/a	n/a	4.1	n/a|J
S17T034304			141-78-6	Ethyl acetate	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a|U
S17T034304			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a|U
S17T034304			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	n/a	4.2	n/a|U
S17T034304			110-54-3	Hexane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	n/a	2.0	n/a|U
S17T034304			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	n/a	1.2	n/a|U
S17T034304			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	n/a	1.1	n/a|U
S17T034304			75-09-2	Methylene Chloride	NGS	84	4.1	<3.0	n/a	n/a	n/a	n/a	n/a	3.0	n/a|U
S17T034304			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	n/a	2.1	n/a|U
S17T034304			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	n/a	1.8	n/a|U
S17T034304			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a|U
S17T034304			107-12-0	Propanenitrile	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	n/a	2.1	n/a|U
S17T034304			110-86-1	Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	n/a	1.2	n/a|U
S17T034304			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a|U
S17T034304			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	n/a	1.6	n/a U
S17T034304			108-88-3	Toluene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	n/a	1.4	n/a U

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L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05616-2-TL2-BL-IN

Customer Sample ID: 17-05616-2-TL2-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spt Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034304			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034304			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034304			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034304			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034304			142-82-5	n-Heptane	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034304			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

J - Estimated
 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-2
 Customer Sample ID: 17-05616-2-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 VOA #2															
S177034305		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034305		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034305		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034305		75-35-4		1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034305		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034305		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034305		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034305		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034305		71-36-3		1-Butanol	NGS	85	<2.2	39	n/a	n/a	n/a	n/a	2.2	n/a	L
S177034305		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S177034305		71-23-8		1-Propanol	NGS	86	<4.0	8.5	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034305		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034305		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034305		78-93-3		2-Butanone	NGS	100	<2.6	17	n/a	n/a	n/a	n/a	2.6	n/a	U
S177034305		110-43-0		2-Heptanone	NGS	100	<1.6	3.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034305		591-78-6		2-Hexanone	NGS	100	<1.6	4.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034305		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034305		78-94-4		3-Buten-2-one	NGS	100	<2.3	5.0	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034305		106-35-4		3-Heptanone	NGS	100	<1.4	49	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034305		106-68-3		3-Octanone	NGS	99	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034305		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
S177034305		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	3.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034305		87-84-1		Acetone	NGS	94	<6.7	480	n/a	n/a	n/a	n/a	6.7	n/a	E
S177034305		75-05-8		Acetonitrile	NGS	97	<3.3	130	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034305		96-86-2		Acetophenone	NGS	94	<4.0	9.4	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034305		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034305		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-2
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034305		107-05-1		Allyl Chloride	NGS	89	<-3.3	<-3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034305		71-43-2		Benzene	NGS	100	<1.2	3.1	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034305		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034305		123-72-8		Butanal	NGS	100	<1.5	10	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034305		109-74-0		Butanenitrile	NGS	100	<1.9	7.8	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034305		56-23-5		Carbon tetrachloride	NGS	98	<1.3	1.6	n/a	n/a	n/a	n/a	1.3		n/a/J
S17T034305		108-90-7		Chlorobenzene	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034305		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034305		67-86-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034305		110-82-7		Cyclohexane	NGS	98	<2.7	3.2	n/a	n/a	n/a	n/a	2.7		n/a/J
S17T034305		124-18-5		Decane	NGS	100	<2.3	15	n/a	n/a	n/a	n/a	2.3		n/a/E
S17T034305		64-17-5		Ethanol	NGS	88	6.5	1.8E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034305		141-78-6		Ethyl acetate	NGS	110	<1.4	3.3	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034305		100-41-4		Ethylbenzene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034305		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034305		110-54-3		Hexane	NGS	100	<2.0	4.8	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034305		628-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034305		126-98-7		Methacrylonitrile	NGS	98	<1.1	2.0	n/a	n/a	n/a	n/a	1.1		n/a/J
S17T034305		75-09-2		Methylene Chloride	NGS	84	4.1	7.5	n/a	n/a	n/a	n/a	3.0		n/a/J
S17T034305		91-20-3		Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034305		98-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034305		110-59-8		Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034305		107-12-0		Propanenitrile	NGS	100	<2.1	8.2	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034305		110-86-1		Pyridine	NGS	100	1.2	1.7	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034305		100-42-5		Styrene	NGS	100	<1.4	2.9	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034305		127-18-4		Tetrachloroethene	NGS	100	<1.6	5.7	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034305		108-88-3		Toluene	NGS	100	<1.4	7.6	n/a	n/a	n/a	n/a	1.4		n/a/J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05616-2-TL2-IN-2

Customer Sample ID: 17-05616-2-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 VOA #2															
S177034305		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S177034305		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	91	n/a	n/a	n/a	n/a	1.6		n/a
S177034305		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S177034305		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S177034305		142-82-5		n-Heptane	NGS	95	<1.5	5.7	n/a	n/a	n/a	n/a	1.5		n/a|J
S177034305		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

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 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-3
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034306		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034306		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034306		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034306		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034306		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034306		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034306		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034306		123-81-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034306		71-36-3		1-Butanol	NGS	85	<2.2	28	n/a	n/a	n/a	n/a	2.2		n/a/L
S17T034306		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034306		71-23-8		1-Propanol	NGS	86	<4.0	7.2	n/a	n/a	n/a	n/a	4.0		n/a/J
S17T034306		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034306		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034306		78-83-3		2-Butanone	NGS	100	<2.6	18	n/a	n/a	n/a	n/a	2.6		n/a
S17T034306		110-43-0		2-Heptanone	NGS	100	<1.6	4.8	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034306		591-78-6		2-Hexanone	NGS	100	<1.6	4.5	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034306		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034306		78-94-4		3-Buten-2-one	NGS	100	<2.3	5.2	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034306		106-35-4		3-Heptanone	NGS	100	<1.4	62	n/a	n/a	n/a	n/a	1.4		n/a
S17T034306		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034306		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
S17T034306		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	6.6	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034306		67-64-1		Acetone	NGS	94	<6.7	530	n/a	n/a	n/a	n/a	6.7		n/a/E
S17T034306		75-05-8		Acetonitrile	NGS	97	<3.3	110	n/a	n/a	n/a	n/a	3.3		n/a
S17T034306		98-86-2		Acetophenone	NGS	94	<4.0	16	n/a	n/a	n/a	n/a	4.0		n/a
S17T034306		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034306		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05616-2-TL2-IN-3

Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034306		107-05-1		Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034306		71-43-2		Benzene	NGS	100	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034306		100-47-0		Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034306		123-72-8		Butanal	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034306		109-74-0		Buzanenitrile	NGS	100	<1.9	7.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S17T034306		56-23-5		Carbon tetrachloride	NGS	98	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S17T034306		108-90-7		Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034306		75-00-3		Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034306		67-56-3		Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034306		110-82-7		Cyclohexane	NGS	98	<2.7	4.1	n/a	n/a	n/a	n/a	2.7	n/a	J
S17T034306		124-18-5		Decane	NGS	100	<2.3	19	n/a	n/a	n/a	n/a	2.3	n/a	E
S17T034306		64-17-5		Ethanol	NGS	88	6.5	1.8E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S17T034306		141-79-6		Ethyl acetate	NGS	110	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034306		100-41-4		Ethylbenzene	NGS	100	<1.4	2.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034306		110-00-9		Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034306		110-54-3		Hexane	NGS	100	<2.0	4.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034306		628-73-9		Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034306		126-98-7		Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034306		75-09-2		Methylene Chloride	NGS	84	4.1	3.1	n/a	n/a	n/a	n/a	3.0	n/a	J
S17T034306		91-20-3		Naphthalene	NGS	100	<2.1	2.4	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034306		98-95-3		Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034306		110-59-8		Pentanenitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034306		107-12-0		Propanenitrile	NGS	100	<2.1	8.7	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034306		110-86-1		Pyridine	NGS	100	1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034306		100-42-5		Styrene	NGS	100	<1.4	3.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034306		127-18-4		Tetrachloroethane	NGS	100	<1.6	7.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034306		108-88-3		Toluene	NGS	100	<1.4	7.6	n/a	n/a	n/a	n/a	1.4	n/a	J

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L - LLS Outside Range

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 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-3
 Customer Sample ID: 17-05616-2-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 VOA #2															
S177034306		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034306		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	110	n/a	n/a	n/a	n/a	1.6	n/a	
S177034306		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034306		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034306		142-82-5		n-Heptane	NGS	95	<1.5	6.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034306		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-4
 Customer Sample ID: 17-05616-2-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 VOA #2															
S177034307		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034307		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034307		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S177034307		75-35-4		1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S177034307		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034307		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034307		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034307		123-81-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S177034307		71-36-3		1-Butanol	NGS	85	<2.2	61	n/a	n/a	n/a	n/a	2.2	n/a	L
S177034307		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9	n/a	U
S177034307		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0	n/a	U
S177034307		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S177034307		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S177034307		76-93-3		2-Butanone	NGS	100	<2.6	17	n/a	n/a	n/a	n/a	2.6	n/a	
S177034307		110-43-0		2-Heptanone	NGS	100	<1.6	4.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034307		591-78-6		2-Hexanone	NGS	100	<1.6	4.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034307		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034307		78-94-4		3-Buten-2-one	NGS	100	<2.3	4.3	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034307		106-35-4		3-Heptanone	NGS	100	<1.4	54	n/a	n/a	n/a	n/a	1.4	n/a	
S177034307		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S177034307		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
S177034307		108-10-1		4-Methyl-2-pentanone	NGS	96	<1.6	6.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034307		87-64-1		Acetone	NGS	94	<6.7	460	n/a	n/a	n/a	n/a	6.7	n/a	E
S177034307		75-05-8		Acetonitrile	NGS	97	<3.3	270	n/a	n/a	n/a	n/a	3.3	n/a	
S177034307		98-86-2		Acetophenone	NGS	94	<4.0	12	n/a	n/a	n/a	n/a	4.0	n/a	J
S177034307		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S177034307		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-4
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034307			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034307			71-43-2	Benzene	NGS	100	<1.2	3.9	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034307			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034307			123-72-8	Butanal	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034307			109-74-0	Butanenitrile	NGS	100	<1.9	6.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S17T034307			56-23-5	Carbon tetrachloride	NGS	98	<1.3	1.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S17T034307			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034307			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034307			67-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034307			110-82-7	Cyclohexane	NGS	98	<2.7	3.7	n/a	n/a	n/a	n/a	2.7	n/a	J
S17T034307			124-18-6	Decane	NGS	100	<2.3	9.2	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034307			64-17-5	Ethanol	NGS	88	5.5	1.7E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S17T034307			141-78-6	Ethyl acetate	NGS	110	<1.4	3.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034307			100-41-4	Ethylbenzene	NGS	100	<1.4	2.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034307			110-00-9	Furan	NGS	85	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034307			110-54-3	Hexane	NGS	100	<2.0	8.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034307			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034307			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034307			75-09-2	Methylene Chloride	NGS	84	4.1	19	n/a	n/a	n/a	n/a	3.0	n/a	U
S17T034307			61-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034307			88-96-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034307			110-59-8	Pentanenitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034307			107-12-0	Propanenitrile	NGS	100	<2.1	7.5	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034307			110-86-1	Pyridine	NGS	100	1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034307			100-42-5	Styrene	NGS	100	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034307			127-18-4	Tetrachloroethene	NGS	100	<1.6	8.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034307			108-88-3	Toluene	NGS	100	<1.4	10	n/a	n/a	n/a	n/a	1.4	n/a	J

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2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-4
 Customer Sample ID: 17-05616-2-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 VOA #2															
S177034307			79-01-6	Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034307			75-69-4	Trichlorofluoromethane	NGS	98	<1.6	1.10	n/a	n/a	n/a	n/a	1.6	n/a	
S177034307			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S177034307			123-86-4	n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S177034307			142-82-5	n-Heptane	NGS	95	<1.5	6.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034307			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

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L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-5
 Customer Sample ID: 17-05616-2-TL2-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAFOR-TDU VOA #2															
S177034308		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034308		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034308		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S177034308		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S177034308		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S177034308		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034308		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S177034308		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S177034308		71-36-3		1-Butanol	NGS	85	<2.2	47	n/a	n/a	n/a	n/a	2.2		n/a/L
S177034308		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S177034308		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S177034308		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S177034308		1706-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S177034308		78-93-3		2-Butanone	NGS	100	<2.6	15	n/a	n/a	n/a	n/a	2.6		n/a/U
S177034308		110-43-0		2-Heptanone	NGS	100	<1.6	3.2	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034308		591-78-6		2-Hexanone	NGS	100	<1.6	3.1	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034308		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S177034308		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.5	n/a	n/a	n/a	n/a	2.3		n/a/J
S177034308		106-35-4		3-Heptanone	NGS	100	<1.4	49	n/a	n/a	n/a	n/a	1.4		n/a/U
S177034308		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S177034308		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
S177034308		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	3.4	n/a	n/a	n/a	n/a	1.6		n/a/J
S177034308		87-64-1		Acetone	NGS	94	<6.7	360	n/a	n/a	n/a	n/a	6.7		n/a
S177034308		75-05-8		Acetonitrile	NGS	97	<3.3	520	n/a	n/a	n/a	n/a	3.3		n/a/E
S177034308		88-86-2		Acetophenone	NGS	94	<4.0	9.9	n/a	n/a	n/a	n/a	4.0		n/a/J
S177034308		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S177034308		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-5
 Customer Sample ID: 17-05616-2-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 VOA #2															
S177034308			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S177034308			71-43-2	Benzene	NGS	100	<1.2	3.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S177034308			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S177034308			123-72-8	Butanal	NGS	100	<1.5	6.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S177034308			109-74-0	Butanenitrile	NGS	100	<1.9	6.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S177034308			56-23-5	Carbon tetrachloride	NGS	98	<1.3	1.3	n/a	n/a	n/a	n/a	1.3	n/a	J
S177034308			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034308			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S177034308			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034308			110-82-7	Cyclohexane	NGS	98	<2.7	3.1	n/a	n/a	n/a	n/a	2.7	n/a	J
S177034308			124-18-5	Decane	NGS	100	<2.3	12	n/a	n/a	n/a	n/a	2.3	n/a	J
S177034308			64-17-5	Ethanol	NGS	88	6.5	1.8E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S177034308			141-78-6	Ethyl acetate	NGS	110	<1.4	3.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034308			100-41-4	Ethylbenzene	NGS	100	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034308			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S177034308			110-54-3	Hexane	NGS	100	<2.0	7.1	n/a	n/a	n/a	n/a	2.0	n/a	J
S177034308			528-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034308			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S177034308			75-09-2	Methylene Chloride	NGS	84	4.1	24	n/a	n/a	n/a	n/a	3.0	n/a	
S177034308			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S177034308			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S177034308			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S177034308			107-12-0	Propanenitrile	NGS	100	<2.1	7.8	n/a	n/a	n/a	n/a	2.1	n/a	J
S177034308			110-86-1	Pyridine	NGS	100	1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S177034308			100-42-5	Styrene	NGS	100	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S177034308			127-18-4	Tetrachloroethene	NGS	100	<1.6	7.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S177034308			108-88-3	Toluene	NGS	100	<1.4	7.6	n/a	n/a	n/a	n/a	1.4	n/a	J

J - Estimated
 E - Outside Calibration Range
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05616-2-TL2-IN-5

Customer Sample ID: 17-05616-2-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 VOA #2															
S177034308		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S177034308		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	120	n/a	n/a	n/a	n/a	1.6		n/a
S177034308		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a U
S177034308		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a U
S177034308		142-82-5		n-Heptane	NGS	95	<1.5	3.8	n/a	n/a	n/a	n/a	1.5		n/a J
S177034308		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a U

J - Estimated
 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-6
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034309		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034309		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034309		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034309		75-35-4		1,1-Dichloroethane	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034309		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034309		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034309		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034309		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034309		71-36-3		1-Butanol	NGS	85	<2.2	43	n/a	n/a	n/a	n/a	2.2		n/a/L
S17T034309		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034309		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034309		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034309		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034309		78-93-3		2-Butanone	NGS	100	<2.6	14	n/a	n/a	n/a	n/a	2.6		n/a
S17T034309		110-43-0		2-Heptanone	NGS	100	<1.6	2.8	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034309		591-78-6		2-Hexanone	NGS	100	<1.6	3.6	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034309		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034309		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.8	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034309		106-35-4		3-Heptanone	NGS	100	<1.4	45	n/a	n/a	n/a	n/a	1.4		n/a
S17T034309		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034309		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
S17T034309		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.6	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034309		67-64-1		Acetone	NGS	94	<6.7	370	n/a	n/a	n/a	n/a	6.7		n/a
S17T034309		75-05-8		Acetonitrile	NGS	97	<3.3	300	n/a	n/a	n/a	n/a	3.3		n/a
S17T034309		98-86-2		Acetophenone	NGS	94	<4.0	6.3	n/a	n/a	n/a	n/a	4.0		n/a/J
S17T034309		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034309		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05616-2-TL2-IN-6

Customer Sample ID: 17-05616-2-TL2-IN-6

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S17T034309			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S17T034309			71-43-2	Benzene	NGS	100	<1.2	3.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034309			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	U
S17T034309			123-72-8	Butanal	NGS	100	<1.5	7.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034309			109-74-0	Butanenitrile	NGS	100	<1.9	6.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S17T034309			36-23-5	Carbon tetrachloride	NGS	98	<1.3	1.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S17T034309			108-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034309			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	U
S17T034309			87-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034309			110-82-7	Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S17T034309			124-18-5	Decane	NGS	100	<2.3	9.0	n/a	n/a	n/a	n/a	2.3	n/a	J
S17T034309			64-17-5	Ethanol	NGS	88	6.5	1.6E+03	n/a	n/a	n/a	n/a	4.1	n/a	E
S17T034309			141-78-6	Ethyl acetate	NGS	110	<1.4	2.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034309			100-41-4	Ethylbenzene	NGS	100	<1.4	1.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034309			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S17T034309			110-54-3	Hexane	NGS	100	<2.0	6.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S17T034309			528-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S17T034309			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034309			75-09-2	Methylene Chloride	NGS	84	4.1	19	n/a	n/a	n/a	n/a	3.0	n/a	
S17T034309			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S17T034309			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S17T034309			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S17T034309			107-12-0	Propanenitrile	NGS	100	<2.1	7.1	n/a	n/a	n/a	n/a	2.1	n/a	J
S17T034309			110-86-1	Pyridine	NGS	100	1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S17T034309			100-42-5	Styrene	NGS	100	<1.4	2.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S17T034309			127-18-4	Tetrachloroethene	NGS	100	<1.6	7.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S17T034309			108-88-3	Toluene	NGS	100	<1.4	7.3	n/a	n/a	n/a	n/a	1.4	n/a	J

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-6
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034309		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034309		75-69-4		Trichlorofluoromethane	NGS	98	<1.6	120	n/a	n/a	n/a	n/a	1.6	n/a	
S17T034309		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S17T034309		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S17T034309		142-82-5		n-Heptane	NGS	95	<1.5	5.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S17T034309		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-7
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034310		79-34-5		1,1,2,2-Tetrachloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034310		79-00-5		1,1,2-Trichloroethane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034310		75-34-3		1,1-Dichloroethane	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a/U
S17T034310		75-35-4		1,1-Dichloroethene	NGS	93	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6		n/a/U
S17T034310		107-06-2		1,2-Dichloroethane	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a/U
S17T034310		542-75-6		1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034310		106-46-7		1,4-Dichlorobenzene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a/U
S17T034310		123-91-1		1,4-Dioxane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3		n/a/U
S17T034310		71-36-3		1-Butanol	NGS	85	<2.2	2.2	n/a	n/a	n/a	n/a	2.2		n/a/JL
S17T034310		111-70-6		1-Heptanol	NGS	93	<3.9	<3.9	n/a	n/a	n/a	n/a	3.9		n/a/U
S17T034310		71-23-8		1-Propanol	NGS	86	<4.0	<4.0	n/a	n/a	n/a	n/a	4.0		n/a/U
S17T034310		108-47-4		2,4-Dimethylpyridine	NGS	98	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034310		1708-29-8		2,5-Dihydrofuran	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9		n/a/U
S17T034310		78-93-3		2-Butanone	NGS	100	<2.6	1.3	n/a	n/a	n/a	n/a	2.6		n/a
S17T034310		110-43-0		2-Heptanone	NGS	100	<1.6	2.9	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034310		591-78-6		2-Hexanone	NGS	100	<1.6	3.9	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034310		534-22-5		2-Methylfuran	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034310		78-94-4		3-Buten-2-one	NGS	100	<2.3	3.2	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034310		106-35-4		3-Heptanone	NGS	100	<1.4	4.9	n/a	n/a	n/a	n/a	1.4		n/a
S17T034310		106-68-3		3-Octanone	NGS	98	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9		n/a/U
S17T034310		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
S17T034310		108-10-1		4-Methyl-2-Pentanone	NGS	96	<1.6	2.2	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034310		67-64-1		Acetone	NGS	94	<6.7	20.0	n/a	n/a	n/a	n/a	6.7		n/a
S17T034310		75-05-8		Acetonitrile	NGS	97	<3.3	7.9	n/a	n/a	n/a	n/a	3.3		n/a
S17T034310		88-86-2		Acetophenone	NGS	94	<4.0	5.9	n/a	n/a	n/a	n/a	4.0		n/a/J
S17T034310		107-13-1		Acrylonitrile	NGS	96	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8		n/a/U
S17T034310		107-18-6		Allyl Alcohol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U

NA = Not Analyzed, ND = Not Detected
 Y - Comment

U - Less Than Detection Limit

L - LLS Outside Range

J - Estimated
 E - Outside Calibration Range

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094
 SDG Number:
 Customer Sample ID: 17-05616-2-TL2-IN-7
 Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034310			107-05-1	Allyl Chloride	NGS	89	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3		n/a/U
S17T034310			71-43-2	Benzene	NGS	100	<1.2	3.2	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034310			100-47-0	Benzonitrile	NGS	99	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7		n/a/U
S17T034310			123-72-8	Butanal	NGS	100	<1.5	6.7	n/a	n/a	n/a	n/a	1.5		n/a/J
S17T034310			109-74-0	Butanenitrile	NGS	100	<1.9	7.1	n/a	n/a	n/a	n/a	1.9		n/a/J
S17T034310			56-23-5	Carbon tetrachloride	NGS	98	<1.3	1.5	n/a	n/a	n/a	n/a	1.3		n/a/J
S17T034310			105-90-7	Chlorobenzene	NGS	99	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034310			75-00-3	Chloroethane	NGS	99	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5		n/a/U
S17T034310			67-86-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034310			110-82-7	Cyclohexane	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7		n/a/U
S17T034310			124-18-5	Decane	NGS	100	<2.3	5.1	n/a	n/a	n/a	n/a	2.3		n/a/J
S17T034310			64-17-5	Ethanol	NGS	88	6.5	1.7E+03	n/a	n/a	n/a	n/a	4.1		n/a/E
S17T034310			141-78-6	Ethyl acetate	NGS	110	<1.4	4.1	n/a	n/a	n/a	n/a	1.4		n/a/J
S17T034310			100-41-4	Ethylbenzene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034310			110-00-9	Furan	NGS	86	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2		n/a/U
S17T034310			110-54-3	Hexane	NGS	100	<2.0	3.1	n/a	n/a	n/a	n/a	2.0		n/a/J
S17T034310			628-73-9	Hexanenitrile	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2		n/a/U
S17T034310			126-98-7	Methacrylonitrile	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034310			75-09-2	Methylene Chloride	NGS	84	4.1	<3.0	n/a	n/a	n/a	n/a	3.0		n/a/U
S17T034310			91-20-3	Naphthalene	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1		n/a/U
S17T034310			98-95-3	Nitrobenzene	NGS	96	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8		n/a/U
S17T034310			110-59-8	Pentanitrile	NGS	98	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034310			107-12-0	Propanenitrile	NGS	100	<2.1	7.1	n/a	n/a	n/a	n/a	2.1		n/a/J
S17T034310			110-86-1	Pyridine	NGS	100	1.2	1.6	n/a	n/a	n/a	n/a	1.2		n/a/J
S17T034310			100-42-5	Styrene	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4		n/a/U
S17T034310			127-18-4	Tetrachloroethene	NGS	100	<1.6	8.7	n/a	n/a	n/a	n/a	1.6		n/a/J
S17T034310			106-88-3	Toluene	NGS	100	<1.4	4.7	n/a	n/a	n/a	n/a	1.4		n/a/J

J - Estimated
 E - Outside Calibration Range
 L - LLS Outside Range
 U - Less Than Detection Limit
 NA = Not Analyzed, ND = Not Detected
 Y - Comment

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173094

SDG Number:

Customer Sample ID: 17-05616-2-TL2-IN-7

Customer Sample ID: 17-05616-2-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 VOA #2															
S17T034310		79-01-6		Trichloroethene	NGS	93	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034310		76-69-4		Trichlorofluoromethane	NGS	98	<1.6	140	n/a	n/a	n/a	n/a	1.6		n/a
S17T034310		10061-01-5		cis-1,3-Dichloropropene	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5		n/a|U
S17T034310		123-86-4		n-Butyl acetate	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6		n/a|U
S17T034310		142-82-5		n-Heptane	NGS	95	<1.5	5.0	n/a	n/a	n/a	n/a	1.5		n/a|J
S17T034310		10061-02-6		trans-1,3-Dichloropropene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0		n/a|U

J - Estimated
 E - Outside Calibration Range

L - LLS Outside Range

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected
 Y - Comment

C.4.3 Methanol



ANALYTICAL REPORT

Report Date: September 08, 2017

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 PO Box 850, MSIN T6-02
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Phone: (509) 373-1262

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 20173044

Workorder: **34-1724321**

Client Project ID: 2017 CARTRIDGE
 EVALUATION

Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033418	Collected: 08/26/2017			
Lab ID: 1724321001	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198391)				
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033419	Collected: 08/26/2017			
Lab ID: 1724321002	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198391)				
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033420	Collected: 08/26/2017			
Lab ID: 1724321003	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198391)				
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

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Environmental

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ANALYTICAL REPORT

Workorder: **34-1724321**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033421	Collected: 08/26/2017			
Lab ID: 1724321004	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033422	Collected: 08/26/2017			
Lab ID: 1724321005	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033423	Collected: 08/26/2017			
Lab ID: 1724321006	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033424	Collected: 08/26/2017			
Lab ID: 1724321007	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724321**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033425		Collected: 08/26/2017	
Lab ID: 1724321008		Received: 08/31/2017	
Method: NIOSH 2000		Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GCI38
		Sampling Info: Air Volume Not Provided	Analyzed: 09/07/2017 (198391)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)
Methanol	<0.010	NA	NA
			RL (mg/sample) 0.010

Sample ID: S17T033426		Collected: 08/26/2017	
Lab ID: 1724321009		Received: 08/31/2017	
Method: NIOSH 2000		Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GCI38
		Sampling Info: Air Volume Not Provided	Analyzed: 09/07/2017 (198391)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)
Methanol	<0.010	NA	NA
			RL (mg/sample) 0.010

Sample ID: S17T033427		Collected: 08/26/2017	
Lab ID: 1724321010		Received: 08/31/2017	
Method: NIOSH 2000		Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GCI38
		Sampling Info: Air Volume Not Provided	Analyzed: 09/07/2017 (198391)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)
Methanol	<0.010	NA	NA
			RL (mg/sample) 0.010

Sample ID: S17T033428		Collected: 08/26/2017	
Lab ID: 1724321011		Received: 08/31/2017	
Method: NIOSH 2000		Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GCI38
		Sampling Info: Air Volume Not Provided	Analyzed: 09/07/2017 (198391)
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)
Methanol	<0.010	NA	NA
			RL (mg/sample) 0.010



ANALYTICAL REPORT

Workorder: **34-1724321**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033429	Collected: 08/26/2017			
Lab ID: 1724321012	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033430	Collected: 08/26/2017			
Lab ID: 1724321013	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033431	Collected: 08/26/2017			
Lab ID: 1724321014	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033432	Collected: 08/26/2017			
Lab ID: 1724321015	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724321**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033433	Collected: 08/26/2017			
Lab ID: 1724321016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033434	Collected: 08/26/2017			
Lab ID: 1724321017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033435	Collected: 08/26/2017			
Lab ID: 1724321018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033436	Collected: 08/26/2017			
Lab ID: 1724321019	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724321**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033437	Collected: 08/26/2017			
Lab ID: 1724321020	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GC138			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Comments

Workorder: 1724321
QC/QD pair 564944/564945 relate to samples 1724321001-020
QC/QD pair 564948/564949 relate to samples 1724322001-020

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

Method	Analyst	Peer Review
NIOSH 2000	/S/ Fred Rejali 09/07/2017 22:05	/S/ Lyle Edwards 09/08/2017 08:02

Laboratory Contact Information

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ANALYTICAL REPORT

Workorder: **34-1724321**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724321		
Limits: Historical/Performance	Preparation: NA	Analysis: IH GC-FID QC
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8807 (HBN: 198391)
	Prepared By: NA	Analyzed By: Fred Rejali

Blank

MB: 564943			
Analyzed: 09/07/2017 00:00			
Units: mg/sample			

Analyte	Result	MDL	RL
Methanol	ND	NA	0.0100

MB: 564947			
Analyzed: 09/07/2017 00:00			
Units: mg/sample			

Analyte	Result	MDL	RL
Methanol	ND	NA	0.0100

MB: 565154			
Analyzed: 09/07/2017 00:00			
Units: mg/sample			

Analyte	Result	MDL	RL
Methanol	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564944					LCSD: 564945				
Analyzed: 09/07/2017 00:00					Analyzed: 09/07/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Methanol	0.135	0.126	107	84.1 109.1	0.126	99.7	6.90	0.0 20.0	

LCS: 564948					LCSD: 564949				
Analyzed: 09/07/2017 00:00					Analyzed: 09/07/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Methanol	0.134	0.126	106	84.1 109.1	0.114	90.2	16.1	0.0 20.0	

LCS: 565155					LCSD: 565156				
Analyzed: 09/07/2017 00:00					Analyzed: 09/07/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Methanol	0.0973	0.0948	103	84.1 109.1	0.0940	99.2	3.45	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724321

Limits: Historical/Performance

Basis: ALS Laboratory Group

Preparation: NA

Batch: NA

Prepared By: NA

Analysis: IH GC-FID QC

Batch: IFID/8807 (HBN: 198391)

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 09/07/2017 22:05	/S/ Lyle Edwards 09/08/2017 08:02

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



7/24/21

Assembler N/A		C.O.C. No. 20173044	
Collector JONES		Page 1 of 2	
SAF No. N/A		MSIN 16-02 FAX 372-1878	
Project Title 2017 CARTRIDGE EVALUATION		Purchase Order/Charge Code 2030067/C820	
Shipped To (Lab) R.S.		Ice Chest No. WTS-033	
Protocol N/A		Temp. ON ICE	
Contact/Requestor CARL HOWARD IV		Telephone No. 373-6861	
Sample Origin 2017 CARTRIDGE EVALUATION		Bill of Lading/Air Bill No. 7701 4792.0780	
Logbook/Work Package No. N/A		Parts and Return No. 42951	
Method of Shipment			
Data Turnaround 10 DAYS			

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033418	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-BA-EF	N/A
	S17T033419	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-BA-DN	N/A
	S17T033420	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-BJ-EFF	N/A
	S17T033421	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-BJ-IMP	N/A
	S17T033422	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-1	N/A
	S17T033423	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-2	N/A
	S17T033424	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-3	N/A
	S17T033425	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-4	N/A
	S17T033426	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-5	N/A
	S17T033427	VA 8/26/17		CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-6	N/A

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard & 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	Matrix*
WRPS	JA Gradson	8/30/17	1400	JA Gradson	JA Gradson	8/30/17	0800	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
								DL = Drum Liquids T = Tissue WM = Wipe L = Liquid V = Vegetation VA = Vapor X = Other

Disposal Method (e.g., Return to customer; per lab procedure used in process)	Disposed By	Date/Time
	Fred Rejak	09/07/17
FINAL SAMPLE DISPOSITION		2100

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

Assembler N/A		C.O.C. No. 20173044					
Collector JONES		Page 2 of 2					
SAP No. N/A		MSIN 16-02					
Project Title 2017 CARBONIDE EVALUATION		Telephone No. 373-6861					
Shipped To (Lab) ALS		Purchase Order/Charge Code 2030067/CR20					
Protocol N/A		Ice Chest No. N/A					
		Temp. ON ICE					
		Bill of Lading/Air Bill No. 7761 41920780					
		Parts and Return No. 42951					
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative	
	S17T033428	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-7	N/A	
	S17T033429	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-EF-8	N/A	
	S17T033430	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-1	N/A	
	S17T033431	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-2	N/A	
	S17T033432	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-3	N/A	
	S17T033433	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-4	N/A	
	S17T033434	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-5	N/A	
	S17T033435	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-6	N/A	
	S17T033436	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-7	N/A	
	S17T033437	VA	8/26/17	CHARCOAL TUBE	METHANOL 17-05615-13-TLL-IN-8	N/A	
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No Hold Time							
Relinquished By Don Jenson		Date/Time 8/30/17 0900		Received By JA Garcia		Date/Time 8/30/17 0900	
Relinquished By WRPS		Date/Time 8/30/17 1100		Received By FEDEX		Date/Time 8/31/17	
Relinquished By		Date/Time		Received By		Date/Time	
Relinquished By		Date/Time		Received By		Date/Time	
SPECIAL INSTRUCTIONS Send Results to Carl Howald & Keisha Garcia Carl.W.Howald@ri.gov and Keisha.R.Garcia@ri.gov See ROW for email MSDS# 15 Reference Contract # 55502				Matrix* S = Soil DL = Drum Liquids SE = Sediment T = Tissue SO = Solid WM = 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)		Date/Time	
				Fred Rejab		09/07/17 2100	

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin. A-6005-962 (03/05)



ANALYTICAL REPORT

Report Date: September 08, 2017

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

20173045

Workorder: **34-1724322**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033438		Collected: 08/27/2017		
Lab ID: 1724322001		Received: 08/31/2017		
Method: NIOSH 2000		Media: SKC 226-51, Silica Gel Tube 50/100mg		Instrument: GCI38
		Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033439		Collected: 08/27/2017		
Lab ID: 1724322002		Received: 08/31/2017		
Method: NIOSH 2000		Media: SKC 226-51, Silica Gel Tube 50/100mg		Instrument: GCI38
		Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033440		Collected: 08/27/2017		
Lab ID: 1724322003		Received: 08/31/2017		
Method: NIOSH 2000		Media: SKC 226-51, Silica Gel Tube 50/100mg		Instrument: GCI38
		Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

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1724322 - Page 1 of 11

Fri, 09/08/17 8:11 AM



ANALYTICAL REPORT

Workorder: **34-1724322**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033441	Collected: 08/27/2017			
Lab ID: 1724322004	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033442	Collected: 08/27/2017			
Lab ID: 1724322005	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033443	Collected: 08/27/2017			
Lab ID: 1724322006	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033444	Collected: 08/27/2017			
Lab ID: 1724322007	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724322**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033445	Collected: 08/27/2017			
Lab ID: 1724322008	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GC138			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033446	Collected: 08/27/2017			
Lab ID: 1724322009	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GC138			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033447	Collected: 08/27/2017			
Lab ID: 1724322010	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GC138			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033448	Collected: 08/27/2017			
Lab ID: 1724322011	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GC138			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724322**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033449	Collected: 08/27/2017			
Lab ID: 1724322012	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033450	Collected: 08/27/2017			
Lab ID: 1724322013	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033451	Collected: 08/27/2017			
Lab ID: 1724322014	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033452	Collected: 08/27/2017			
Lab ID: 1724322015	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg	Instrument: GC138		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198391)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724322**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033453	Collected: 08/27/2017			
Lab ID: 1724322016	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033454	Collected: 08/27/2017			
Lab ID: 1724322017	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033455	Collected: 08/27/2017			
Lab ID: 1724322018	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Sample ID: S17T033456	Collected: 08/27/2017			
Lab ID: 1724322019	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724322**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033457	Collected: 08/27/2017			
Lab ID: 1724322020	Received: 08/31/2017			
Method: NIOSH 2000	Media: SKC 226-51, Silica Gel Tube 50/100mg			
	Instrument: GCI38			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198391)			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Methanol	<0.010	NA	NA	0.010

Comments

Workorder: 1724322

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

Method	Analyst	Peer Review
NIOSH 2000	/S/ Fred Rejali 09/07/2017 22:05	/S/ Lyle Edwards 09/08/2017 08:02

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724322**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS DNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724322

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: IH GC-FID QC
Batch: IFID/8807 (HBN: 198391)
Analyzed By: Fred Rejali

Blank

MB: 564943
Analyzed: 09/07/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.0100

MB: 564947
Analyzed: 09/07/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.0100

MB: 565154
Analyzed: 09/07/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564944 Analyzed: 09/07/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 564945 Analyzed: 09/07/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Methanol	0.135	0.126	107	84.1 109.1	0.126	99.7	6.90	0.0 20.0	

LCS: 564948 Analyzed: 09/07/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 564949 Analyzed: 09/07/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Methanol	0.134	0.126	106	84.1 109.1	0.114	90.2	16.1	0.0 20.0	

LCS: 565155 Analyzed: 09/07/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565156 Analyzed: 09/07/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Methanol	0.0973	0.0948	103	84.1 109.1	0.0940	99.2	3.45	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724322		
Limits: Historical/Performance	Preparation: NA	Analysis: IH GC-FID QC
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8807 (HEN: 198391)
	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/ Lyle Edwards
09/07/2017 22:05	09/08/2017 08:02

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



1724322

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembled: N/A

C.O.C. No. 20173045
Page 1 of 2

Collector: JONES
SAF No. N/A
Project Title: 2017 CARTRIDGE EVALUATION
Shipped To (Lab): ALS
Protocol: N/A

Contact/Requestor: CARL HOWARD IV
Sample Origin: 2017 CARTRIDGE EVALUATION
Logbook/Work Package No. N/A
Method of Shipment: N/A

Telephone No. 373-6861
Purchase Order/Charge Code: 203006/CE20
Ice Chest No. MS-033
Bill of Lading/Air Bill No. 7701 4792 0780
Parts and Return No. 42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033438	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-BA-EF	N/A
	S17T033439	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-BA-IN	N/A
	S17T033440	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-BL-EF	N/A
	S17T033441	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-BL-IN	N/A
	S17T033442	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-EF-1	N/A
	S17T033443	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-EF-2	N/A
	S17T033444	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-EF-3	N/A
	S17T033445	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-EF-4	N/A
	S17T033446	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-EF-5	N/A
	S17T033447	8/27/17		CHARCOAL TUBE	METHANOL 17-05616-13-TL2-EF-6	N/A

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard & Keisha Garcia
Carl W Howard@rl.gov and Keisha_R_Garcia@rl.gov
gov See SOW for email
RELEASE 15
Reference Contract # 55502

Relinquished By: Dianne Turner/Keisha Garcia
Relinquished By: JA Gradisher
Relinquished By: WRPS
Relinquished By: [Signature]

Received By: [Signature]
Received By: [Signature]
Received By: [Signature]
Received By: [Signature]

Date/Time: 8/30/17 0900
Date/Time: 8/30/17 1400
Date/Time: [Signature]
Date/Time: [Signature]

Print Sign
Print Sign
Print Sign
Print Sign

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

Disposal Method (e.g., Return to customer, per lab procedure, used in process)
Disposed By: Fred Rejali
Date/Time: 0910717 2100

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

Assembler		C.O.C. No. 20173045						
N/A		Page 2 of 2						
Collector		Telephone No. 373-6861						
JONES		MSIN 76-02 FAX 372-1878						
SAF No.		Purchase Order/Charge Code						
N/A		203006/CB20						
Project Title		Temp. ON ICC						
2017 CARTRIDGE EVALUATION		Ice Chest No. WTS-033						
Shipped To (Lab)		Bill of Lading/Air Bill No. 7701 4792 6780						
ALS		Parts and Return No. 42951						
Protocol		N/A						
Contact/Requestor		Sample Origin						
CARL HOWARD IV		2017 CARTRIDGE EVALUATION						
Logbook/Work Package No.		Method of Shipment						
N/A		Data Turnaround						
10 DAYS		N/A						
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative		
	S17T033448	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-BF-7	N/A		
	S17T033449	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-BF-8	N/A		
	S17T033450	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-1	N/A		
	S17T033451	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-2	N/A		
	S17T033452	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-3	N/A		
	S17T033453	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-4	N/A		
	S17T033454	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-5	N/A		
	S17T033455	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-6	N/A		
	S17T033456	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-7	N/A		
	S17T033457	YA	8/27/17	CHARCOAL TUBE	METHANOL 17-05616-13-TL2-IN-8	N/A		
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Hold Time								
SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@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	Mathx*
Dianne Turner			8/30/17 0900	JA Gradsheg			8/30/17	S = Soil SE = Sediment SO = Solid SL = Sludge SW = Water O = Oil A = Air DS = Drum Solids
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
WRPS			8/30/17 1400	JA Gradsheg			8/30/17	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure used in process)		Disposed By		Date/Time		
				Fred Rejali		09/07/17		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.4.4 Furans

04 - Apr - 2018 10:10:53
 DSRHardcopyWOLimits 3.0.13a
 DSR_Jar v. 3.0.14

2017 Cartridge Evaluation Data Summary of All Results

*Daniel Hansen
 David Hanson 4-4-18*

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-BA-EF
 Customer Sample ID: 17-05614-3-SD1-BA-EF

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flggs
Furans in Vapor Samples															
S17T034146			1191-99-7	2,3-Dihydrofuran	NGS	99	0.37	<0.36	n/a	n/a	n/a	n/a	0.36		n/a/U
S17T034146			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42		n/a/U
S17T034146			625-86-5	2,5-Dimethylfuran	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a/U
S17T034146			3777-71-7	2-Heptylfuran	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a/U
S17T034146			534-22-5	2-Methylfuran	NGS	100	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a/U
S17T034146			3777-69-3	2-Pentylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a/U
S17T034146			4229-91-8	2-Propylfuran	NGS	120	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a/U
S17T034146			110-00-9	Furan	NGS	110	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a/U
S17T034146			109-99-9	Tetrahydrofuran	NGS	100	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a/U

Revised report - reporting criteria changed from detection limit to reporting limit. 04/14/18

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088

SDG Number:

Customer Sample ID: 17-05614-3-SD1-BA-IN

Customer Sample ID: 17-05614-3-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															
S17T034147			1191-99-7	2,3-Dihydrofuran	NGS	99	0.37	0.38	n/a	n/a	n/a	n/a	0.36	n/a	J
S17T034147			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034147			625-86-5	2,5-Dimethylfuran	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034147			3777-71-7	2-Heptylfuran	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034147			534-22-5	2-Methylfuran	NGS	100	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034147			3777-69-3	2-Pentylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034147			4229-91-8	2-Propylfuran	NGS	120	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034147			110-00-9	Furan	NGS	110	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034147			109-99-9	Tetrahydrofuran	NGS	100	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

J - Estimated

U - Less Than Detection Limit

Y - Comment

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088

SDG Number:

Customer Sample ID: 17-05614-3-SD1-BL-EF

Customer Sample ID: 17-05614-3-SD1-BL-EF

Sample#	R	Alt	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034148			1191-99-7	2,3-Dihydrofuran	NGS	99	0.37	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034148			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034148			625-86-5	2,5-Dimethylfuran	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034148			3777-71-7	2-Heptylfuran	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034148			534-22-5	2-Methylfuran	NGS	100	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034148			3777-69-3	2-Pentylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034148			4229-91-8	2-Propylfuran	NGS	120	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034148			110-00-9	Furan	NGS	110	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034148			109-99-9	Tetrahydrofuran	NGS	100	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-BL-IN
 Customer Sample ID: 17-05614-3-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															
S17T034149			1191-99-7	2,3-Dihydrofuran	NGS	99	0.37	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034149			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034149			625-86-5	2,5-Dimethylfuran	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034149			3777-71-7	2-Heptylfuran	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034149			534-22-5	2-Methylfuran	NGS	100	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034149			3777-69-3	2-Pentylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034149			4229-91-8	2-Propylfuran	NGS	120	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034149			110-00-9	Furan	NGS	110	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034149			109-99-9	Tetrahydrofuran	NGS	100	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173088
SDG Number:
Customer Sample ID: 17-05614-3-SD1-EF-1
Customer Sample ID: 17-05614-3-SD1-EF-1

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034150			1191-99-7	2,3-Dihydrofuran	NGS	99	0.37	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034150			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034150			625-86-5	2,5-Dimethylfuran	NGS	110	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034150			3777-71-7	2-Heptylfuran	NGS	120	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034150			534-22-5	2-Methylfuran	NGS	100	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034150			3777-69-3	2-Pentylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034150			4229-91-8	2-Propylfuran	NGS	120	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034150			110-00-9	Furan	NGS	110	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034150			109-99-9	Tetrahydrofuran	NGS	100	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-EF-3
 Customer Sample ID: 17-05614-3-SD1-EF-3

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034152			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034152			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034152			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034152			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034152			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034152			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034152			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034152			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034152			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-EF-4
 Customer Sample ID: 17-05614-3-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															
S17T034158			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034158			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034158			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034158			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034158			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034158			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034158			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034158			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034158			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173088
SDG Number:
Customer Sample ID: 17-05614-3-SD1-EF-5
Customer Sample ID: 17-05614-3-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															
S17T034159			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034159			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034159			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034159			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034159			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034159			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034159			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034159			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034159			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-EF-6
 Customer Sample ID: 17-05614-3-SD1-EF-6

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034160			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034160			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034160			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034160			3777-71-7	2-Heptylfuran	NGS	110	<1.0	2.0	n/a	n/a	n/a	n/a	1.0	n/a	J
S17T034160			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034160			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034160			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034160			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034160			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-EF-7
 Customer Sample ID: 17-05614-3-SD1-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															
S17T034161			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a U
S17T034161			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a U
S17T034161			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a U
S17T034161			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a U
S17T034161			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a U
S17T034161			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a U
S17T034161			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a U
S17T034161			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a U
S17T034161			108-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-EF-8
 Customer Sample ID: 17-05614-3-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															
S17T034162			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034162			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034162			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034162			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034162			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034162			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034162			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034162			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034162			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-IN-1
 Customer Sample ID: 17-05614-3-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															
S17T034163			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U
S17T034163			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a|U
S17T034163			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a|U
S17T034163			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a|U
S17T034163			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a|U
S17T034163			3777-89-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034163			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a|U
S17T034163			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a|U
S17T034163			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173088
SDG Number:
Customer Sample ID: 17-05614-3-SD1-IN-2
Customer Sample ID: 17-05614-3-SD1-IN-2

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034164			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034164			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034164			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034164			3777-71-7	2-Heptylfuran	NGS	110	<1.0	1.4	n/a	n/a	n/a	n/a	1.0	n/a	J
S17T034164			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034164			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034164			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034164			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034164			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

J - Estimated
 U - Less Than Detection Limit
 Y - Comment
 NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-IN-3
 Customer Sample ID: 17-05614-3-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															
S17T034165			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	UY
S17T034165			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	UY
S17T034165			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	UY
S17T034165			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	UY
S17T034165			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	UY
S17T034165			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	UY
S17T034165			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	UY
S17T034165			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	UY
S17T034165			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	UY

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-IN-4
 Customer Sample ID: 17-05614-3-SD1-IN-4

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034166			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U
S17T034166			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a|U
S17T034166			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a|U
S17T034166			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a|U
S17T034166			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a|U
S17T034166			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034166			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a|U
S17T034166			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a|U
S17T034166			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-IN-5
 Customer Sample ID: 17-05614-3-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															
S17T034167			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U
S17T034167			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a|U
S17T034167			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a|U
S17T034167			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a|U
S17T034167			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a|U
S17T034167			3777-89-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034167			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a|U
S17T034167			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a|U
S17T034167			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088

SDG Number:

Customer Sample ID: 17-05614-3-SD1-IN-6

Customer Sample ID: 17-05614-3-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															
S17T034168			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034168			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034168			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034168			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034168			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034168			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034168			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034168			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034168			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

J - Estimated

U - Less Than Detection Limit

Y - Comment

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-IN-7
 Customer Sample ID: 17-05614-3-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															
S17T034169			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034169			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034169			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034169			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034169			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034169			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034169			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034169			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034169			109-99-9	Tetrahydrofuran	NGS	84	<0.36	0.43	n/a	n/a	n/a	n/a	0.36	n/a	J

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173088
 SDG Number:
 Customer Sample ID: 17-05614-3-SD1-IN-8
 Customer Sample ID: 17-05614-3-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spt Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034170			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034170			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034170			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034170			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034170			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034170			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034170			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034170			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034170			109-99-9	Tetrahydrofuran	NGS	84	<0.36	0.59	n/a	n/a	n/a	n/a	0.36	n/a	J

NA = Not Analyzed, ND = Not Detected

Y - Comment

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Daniel Hansen
Daniel Hansen 4-4-18

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-BA-EF
 Customer Sample ID: 17-05615-3-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
Furans in Vapor Samples															
S17T034201			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034201			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034201			626-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034201			3777-71-7	2-Hepylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034201			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034201			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034201			4228-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034201			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034201			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

Revised report - reporting criteria changed from detection limit to reporting limit. cust 4/4/18

NA = Not Analyzed, ND = Not Detected

J - Estimated
 U - Less Than Detection Limit

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-BA-IN
 Customer Sample ID: 17-05615-3-TL1-BA-IN

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034202			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U
S17T034202			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a|U
S17T034202			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a|U
S17T034202			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a|U
S17T034202			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a|U
S17T034202			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034202			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a|U
S17T034202			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a|U
S17T034202			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-BL-EF
 Customer Sample ID: 17-05615-3-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															
S17T034203			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U
S17T034203			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a|U
S17T034203			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a|U
S17T034203			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a|U
S17T034203			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a|U
S17T034203			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034203			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a|U
S17T034203			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a|U
S17T034203			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-BL-IN
 Customer Sample ID: 17-05615-3-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															
S17T034204			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034204			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034204			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034204			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034204			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034204			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034204			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034204			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034204			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089

SDG Number:

Customer Sample ID: 17-05615-3-TL1-EF-1

Customer Sample ID: 17-05615-3-TL1-EF-1

Sample#	R	AI#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034205			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034205			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034205			525-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034205			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034205			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034205			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034205			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034205			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034205			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-EF-2
 Customer Sample ID: 17-05615-3-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															
S17T034206			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034206			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034206			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034206			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034206			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034206			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034206			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034206			110-00-9	Furan	NGS	100	<0.41	0.51	n/a	n/a	n/a	n/a	0.41	n/a	J
S17T034206			109-99-9	Tetrahydrofuran	NGS	84	<0.36	0.45	n/a	n/a	n/a	n/a	0.36	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-EF-3
 Customer Sample ID: 17-05615-3-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															
S17T034207			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034207			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034207			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034207			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034207			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034207			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034207			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034207			110-00-9	Furan	NGS	100	<0.41	0.49	n/a	n/a	n/a	n/a	0.41	n/a	J
S17T034207			109-99-9	Tetrahydrofuran	NGS	84	<0.36	0.37	n/a	n/a	n/a	n/a	0.36	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-EF-4
 Customer Sample ID: 17-05615-3-TL1-EF-4

Sample#	R	AM	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034208			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034208			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034208			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034208			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034208			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034208			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034208			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034208			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034208			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089

SDG Number:

Customer Sample ID: 17-05615-3-TL1-EF-5

Customer Sample ID: 17-05615-3-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															
S17T034209			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034209			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034209			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034209			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034209			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034209			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034209			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034209			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034209			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-EF-6
 Customer Sample ID: 17-05615-3-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															
S17T034210			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034210			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034210			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034210			3777-71-7	2-Hepylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034210			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034210			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034210			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034210			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034210			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-EF-7
 Customer Sample ID: 17-05615-3-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															
S17T034211			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034211			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034211			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034211			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034211			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034211			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034211			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034211			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034211			109-99-9	Tetrahydrofuran	NGS	84	<0.36	1.6	n/a	n/a	n/a	n/a	0.36	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089

SDG Number:

Customer Sample ID: 17-05615-3-TL1-EF-8

Customer Sample ID: 17-05615-3-TL1-EF-8

Sample#	R	AF	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034212			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034212			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034212			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034212			3777-71-7	2-Hepylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034212			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034212			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034212			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034212			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034212			109-99-9	Tetrahydrofuran	NGS	84	<0.36	1.4	n/a	n/a	n/a	n/a	0.36	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-IN-1
 Customer Sample ID: 17-05615-3-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															
S17T034213			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U
S17T034213			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a|U
S17T034213			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a|U
S17T034213			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a|U
S17T034213			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a|U
S17T034213			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034213			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a|U
S17T034213			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a|U
S17T034213			109-99-9	Tetrahydrofuran	NGS	84	<0.36	1.0	n/a	n/a	n/a	n/a	0.36		n/a|J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20173089
SDG Number:
Customer Sample ID: 17-05615-3-TL1-IN-2
Customer Sample ID: 17-05615-3-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															
S17T034214			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034214			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034214			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034214			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034214			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034214			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034214			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034214			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034214			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173089
SDG Number:
Customer Sample ID: 17-05615-3-TL1-IN-3
Customer Sample ID: 17-05615-3-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															
S17T034215			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U
S17T034215			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42		n/a|U
S17T034215			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93		n/a|U
S17T034215			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0		n/a|U
S17T034215			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65		n/a|U
S17T034215			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1		n/a|U
S17T034215			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66		n/a|U
S17T034215			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41		n/a|U
S17T034215			109-99-9	Tetrahydrofuran	NGS	84	<0.36	<0.36	n/a	n/a	n/a	n/a	0.36		n/a|U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

**2017 Cartridge Evaluation
 Data Summary of All Results**

Sample Group: 20173089
SDG Number:
Customer Sample ID: 17-05615-3-TL1-IN-4
Customer Sample ID: 17-05615-3-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															
S17T034216			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034216			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034216			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034216			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034216			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034216			3777-89-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034216			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034216			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034216			109-99-9	Tetrahydrofuran	NGS	84	<0.36	1.6	n/a	n/a	n/a	n/a	0.36	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-IN-5
 Customer Sample ID: 17-05615-3-TL1-IN-5

Sample#	R	IA#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034217			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034217			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034217			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034217			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034217			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034217			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034217			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034217			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034217			109-99-9	Tetrahydrofuran	NGS	84	<0.36	0.60	n/a	n/a	n/a	n/a	0.36	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-IN-6
 Customer Sample ID: 17-05615-3-TL1-IN-6

Sample#	R	As#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034218			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034218			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034218			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034218			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034218			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034218			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034218			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034218			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034218			109-99-9	Tetrahydrofuran	NGS	84	<0.36	1.8	n/a	n/a	n/a	n/a	0.36	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-IN-7
 Customer Sample ID: 17-05615-3-TL1-IN-7

Sample#	R	IA#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S17T034219			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034219			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034219			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034219			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034219			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034219			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034219			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034219			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034219			109-99-9	Tetrahydrofuran	NGS	84	<0.36	0.59	n/a	n/a	n/a	n/a	0.36	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2017 Cartridge Evaluation
 Data Summary of All Results

Sample Group: 20173089
 SDG Number:
 Customer Sample ID: 17-05615-3-TL1-IN-8
 Customer Sample ID: 17-05615-3-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															
S17T034220			1191-99-7	2,3-Dihydrofuran	NGS	90	0.63	<0.36	n/a	n/a	n/a	n/a	0.36	n/a	U
S17T034220			1708-29-8	2,5-Dihydrofuran	NGS	86	0.51	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S17T034220			625-86-5	2,5-Dimethylfuran	NGS	80	<0.93	<0.93	n/a	n/a	n/a	n/a	0.93	n/a	U
S17T034220			3777-71-7	2-Heptylfuran	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S17T034220			534-22-5	2-Methylfuran	NGS	85	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	U
S17T034220			3777-69-3	2-Pentylfuran	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S17T034220			4229-91-8	2-Propylfuran	NGS	91	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	U
S17T034220			110-00-9	Furan	NGS	100	<0.41	<0.41	n/a	n/a	n/a	n/a	0.41	n/a	U
S17T034220			109-99-9	Tetrahydrofuran	NGS	84	<0.36	1.0	n/a	n/a	n/a	n/a	0.36	n/a	J

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

C.4.5 Amines



ANALYTICAL REPORT

Report Date: September 07, 2017

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20173058

Workorder: **34-1724331**

Client Project ID: 2017 CARTRIDGE
 EVALUATION

Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033726	Collected: 08/27/2017			
Lab ID: 1724331001	Received: 08/31/2017			
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: 09/02/2017 (198150)		
	Result (ug/sample)	Result (mg/m ³)	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: S17T033727	Collected: 08/27/2017			
Lab ID: 1724331002	Received: 08/31/2017			
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: 09/02/2017 (198150)		
	Result (ug/sample)	Result (mg/m ³)	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: S17T033728	Collected: 08/27/2017			
Lab ID: 1724331003	Received: 08/31/2017			
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: 09/02/2017 (198150)		
	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10

Results Continued on Next Page

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ANALYTICAL REPORT

Workorder: **34-1724331**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033728	Collected: 08/27/2017			
Lab ID: 1724331003	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Methylamine	<0.10	NA	NA	0.10

Sample ID: S17T033729	Collected: 08/27/2017			
Lab ID: 1724331004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033730	Collected: 08/27/2017			
Lab ID: 1724331005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033731	Collected: 08/27/2017			
Lab ID: 1724331006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724331**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033732	Collected: 08/27/2017			
Lab ID: 1724331007	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033733	Collected: 08/27/2017			
Lab ID: 1724331008	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033734	Collected: 08/27/2017			
Lab ID: 1724331009	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033735	Collected: 08/27/2017			
Lab ID: 1724331010	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724331**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033736	Collected: 08/27/2017			
Lab ID: 1724331011	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033737	Collected: 08/27/2017			
Lab ID: 1724331012	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033738	Collected: 08/27/2017			
Lab ID: 1724331013	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033739	Collected: 08/27/2017			
Lab ID: 1724331014	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/02/2017 (198150)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724331**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033740	Collected: 08/27/2017			
Lab ID: 1724331015	Received: 08/31/2017			
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: 09/02/2017 (198150)				
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033741	Collected: 08/27/2017			
Lab ID: 1724331016	Received: 08/31/2017			
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: 09/02/2017 (198150)				
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033742	Collected: 08/27/2017			
Lab ID: 1724331017	Received: 08/31/2017			
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: 09/02/2017 (198150)				
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033743	Collected: 08/27/2017			
Lab ID: 1724331018	Received: 08/31/2017			
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: 09/02/2017 (198150)				
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724331**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033744	Collected: 08/27/2017			
Lab ID: 1724331019	Received: 08/31/2017			
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: 09/02/2017 (198150)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033745	Collected: 08/27/2017			
Lab ID: 1724331020	Received: 08/31/2017			
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: 09/02/2017 (198150)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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

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 09/06/2017 17:11	/S/ Thomas Bosch 09/07/2017 13:12

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724331**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724331		
Limits: Historical/Performance	Preparation: NA	Analysis: IH Aliphatic Amines
Basis: ALS Laboratory Group	Batch: NA	Batch: ILC/15814 (HBN: 198150)
	Prepared By: NA	Analyzed By: Stephen Brose

Blank

LMB: 564419			
Analyzed: 09/02/2017 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

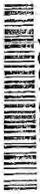
LCS: 564420					LCSD: 564421				
Analyzed: 09/02/2017 00:00					Analyzed: 09/02/2017 00:00				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Dimethylamine	5.21	5.00	104	80.4 134.6	5.10	102	2.10	0.0 20.0	
Ethylamine	4.82	5.00	96.4	40.0 160.0	5.22	104	7.90	0.0 20.0	
Methylamine	4.90	5.00	98.0	40.0 160.0	4.87	97.3	0.684	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 09/06/2017 17:11	/S/ Thomas Bosch 09/07/2017 13:12

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



1724331

17-24331

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173058
Page 1 of 2

Assembler: N/A
 Collector: JONES
 SAF No.: N/A
 Project Title: 2017 CARTRIDGE EVALUATION
 Shipped To (Lab): ALS
 Protocol: N/A

Contact/Requestor: CARL HOWARD IV
 Sample Origin: 2017 CARTRIDGE EVALUATION
 Logbook/ Work Package No.: N/A
 Method of Shipment: N/A
 Data Turnaround: 10 DAYS

Telephone No: 313-6861
 Purchase Order/Charge Code: 29309/CE20
 Ice Chest No.: 033
 Bill of Lading/Air Bill No.: 1701 4792 0180
 Parts and Return No.: 42951

MSIN: 16-02
 FAX: 372-1878
 Temp: ON ICE

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033726	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-BA-EF	N/A
	S17T033727	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-BA-IN	N/A
	S17T033728	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-BL-EF	N/A
	S17T033729	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-BL-IN	N/A
	S17T033730	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-EF-1	N/A
	S17T033731	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-EF-2	N/A
	S17T033732	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-EF-3	N/A
	S17T033733	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-EF-4	N/A
	S17T033734	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-EF-5	N/A
	S17T033735	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SCL-EF-6	N/A

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

SPECIAL INSTRUCTIONS
 Send Results to Carl Howard & Keisha Garcia
 Carl.W.Howard@rl.gov and Keisha.F.Garcia@rl.gov see SON for email
 CONTRACT 55502
 RELEASE 15

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix*
Diane Turner			8/30/17	JA Garcia			8/30/17	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
WRPS			8/30/17	FEDEX				DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other

Relinquished By: [Signature]
 Date/Time: 8/30/17

Disposal Method (e.g., Return to customer, per lab procedure): Consumed
 Disposed By: [Signature]
 Date/Time: 9/1/17

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

Assembler		C.O.C. No.				
N/A		20173058				
Collector		Page				
JONES		2 of 2				
Contact/Requestor		Telephone No.				
CARL HOWARD IV		373-6861				
Sample Origin		Purchase Order/Charge Code				
2017 CARTRIDGE EVALUATION		203067020				
SAF No.		MSIN				
N/A		T6-02				
Project Title		FAX				
2017 CARTRIDGE EVALUATION		372-1878				
Shipped To (Lab)		MSIN				
ALS		T6-02				
Method of Shipment		Ice Chest				
N/A		N/A				
Data Turnaround		Bill of Lading/Air Bill No.				
10 DAYS		7701 4792 0780				
Protocol		Parts and Return No.				
N/A		42951				
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033736	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-EF-7	N/A
	S17T033737	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-EF-8	N/A
	S17T033738	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-1	N/A
	S17T033739	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-2	N/A
	S17T033740	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-3	N/A
	S17T033741	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-4	N/A
	S17T033742	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-5	N/A
	S17T033743	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-6	N/A
	S17T033744	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-7	N/A
	S17T033745	VA	8/27/17	XAD-7-NBD	AMINES 17-05613-4-SC1-IN-8	N/A
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@rl.gov and Keisha_R.Garcia@rl.gov see SON for email CONTRACT 55302 RELEASE 15</p>						
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time
Dianna Turner		Dianna Turner	8/30/17 0900	JAGradum	JAGradum	8/30/17 0900
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time
WRPS		JAGradum	8/30/17 1400	FEDEX		
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time
<p>FINAL SAMPLE DISPOSITION</p> <p>Disposal Method (e.g., Return to customer, per lab procedure, used in process)</p> <p>Disposed By: <i>Cassius</i> Date/Time: 9/1/17</p>						

A-6003-962 (03/05)



ANALYTICAL REPORT

Report Date: September 07, 2017

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
20173059

Workorder: **34-1724332**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033749	Collected: 08/26/2017			
Lab ID: 1724332001	Received: 08/31/2017			
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: 09/03/2017 (198151)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033750	Collected: 08/26/2017			
Lab ID: 1724332002	Received: 08/31/2017			
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: 09/03/2017 (198151)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033751	Collected: 08/26/2017			
Lab ID: 1724332003	Received: 08/31/2017			
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: 09/03/2017 (198151)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10

Results Continued on Next Page

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ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

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Thu, 09/07/17 1:52 PM



ANALYTICAL REPORT

Workorder: **34-1724332**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033751	Collected: 08/26/2017			
Lab ID: 1724332003	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Methylamine	<0.10	NA	NA	0.10

Sample ID: S17T033752	Collected: 08/26/2017			
Lab ID: 1724332004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033753	Collected: 08/26/2017			
Lab ID: 1724332005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033754	Collected: 08/26/2017			
Lab ID: 1724332006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724332**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033755		Collected: 08/26/2017		
Lab ID: 1724332007	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033756		Collected: 08/26/2017		
Lab ID: 1724332008	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033757		Collected: 08/26/2017		
Lab ID: 1724332009	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033758		Collected: 08/26/2017		
Lab ID: 1724332010	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724332**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033759	Collected: 08/26/2017			
Lab ID: 1724332011	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033760	Collected: 08/26/2017			
Lab ID: 1724332012	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033761	Collected: 08/26/2017			
Lab ID: 1724332013	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033762	Collected: 08/26/2017			
Lab ID: 1724332014	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198151)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724332**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033763		Collected: 08/26/2017		
Lab ID: 1724332015	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033764		Collected: 08/26/2017		
Lab ID: 1724332016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033765		Collected: 08/26/2017		
Lab ID: 1724332017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033766		Collected: 08/26/2017		
Lab ID: 1724332018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198151)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724332**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033767	Collected: 08/26/2017			
Lab ID: 1724332019	Received: 08/31/2017			
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: 09/03/2017 (198151)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033768	Collected: 08/26/2017			
Lab ID: 1724332020	Received: 08/31/2017			
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: 09/03/2017 (198151)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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

Comments

Workorder: 1724332

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 (iS/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
Amines-VOA Aliphatic VAA-1	iS/ Stephen Brose 09/06/2017 16:06	iS/ Thomas Bosch 09/07/2017 13:05

Laboratory Contact Information

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

Phone: (801) 266-7700
 Email: als@alst.com
 Web: www.alst.com



ANALYTICAL REPORT

Workorder: **34-1724332**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS DNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Industrial Hygiene	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing: CPSC Soil, Dust, Paint, Air	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Dietary Supplements	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724332		
Limits: Historical/Performance	Preparation: NA	Analysis: IH Aliphatic Amines
Basis: ALS Laboratory Group	Batch: NA	Batch: ILC/15815 (HBN: 198151)
	Prepared By: NA	Analyzed By: Stephen Brose

Blank

LMB: 564423			
Analyzed: 09/03/2017 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: 564424					LCSD: 564425				
Analyzed: 09/03/2017 00:00					Analyzed: 09/03/2017 00:00				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Dimethylamine	5.13	5.00	103	60.4 134.6	5.35	107	4.14	0.0 20.0	
Ethylamine	5.01	5.00	100	40.0 160.0	4.59	91.7	8.89	0.0 20.0	
Methylamine	5.17	5.00	103	40.0 160.0	4.81	96.3	7.08	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 09/06/2017 16:06	/S/ Thomas Bosch 09/07/2017 13:05

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



1724332

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173059 Page 1 of 2

MSIN FAX 372-1878

Telephone No. 373-6861

Contact/Requestor: CARL HOWARD IV

Sample Origin: 2017 CARTRIDGE EVALUATION

Logbook/Work Package No. N/A

Project Title: 2017 CARTRIDGE EVALUATION

Shipped To (Lab): PLS

IC Chest No. 033

Temp: ON ICE

Bill of Lading/Air Bill No. 7701 4792 0780

Parts and Return No. 42951

Method of Shipment

Data Turnaround: 10 DAYS

Preservative

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033749	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BA-EF	N/A
	S17T033750	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BA-IN	N/A
	S17T033751	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BL-EF	N/A
	S17T033752	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BL-IN	N/A
	S17T033753	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BF-1	N/A
	S17T033754	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BF-2	N/A
	S17T033755	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BF-3	N/A
	S17T033756	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BF-4	N/A
	S17T033757	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BF-5	N/A
	S17T033758	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SDI-BF-6	N/A

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

SPECIAL INSTRUCTIONS: Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@del.gov and Keisha.F.Garcia@del.gov see SWM for email. CONTRACT 55502. RELEASE 15.

Relinquished By: Dan Sorrows (Print) 8/30/17 0900 (Sign) JA Grady (Sign) 8/30/17 0900 (Date/Time)

Relinquished By: JA Grady (Print) 8/30/17 1400 (Sign) FEDEX (Sign) 8/31/17 0800 (Date/Time)

Relinquished By: WRPS (Print) 8/30/17 1400 (Sign) (Sign) 8/31/17 0800 (Date/Time)

Relinquished By: (Print) (Sign) (Date/Time)

Relinquished By: (Print) (Sign) (Date/Time)

Disposal Method (e.g., Return to customer, per lab procedure, used in process): **Conserved**

Disposed By: **Conserved**

Date/Time: 9/1/17

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler: N/A
 Collector: JONES
 SAF No.: N/A
 Project Title: 2017 Cartridge Evaluation
 Shipped To (Lab): ALS
 Protocol: N/A

Contact/Requestor: CARL HOWARD IV
 Sample Origin: 2017 CARTRIDGE EVALUATION
 Logbook/Work Package No.: N/A
 Method of Shipment: N/A
 Date Turnaround: 10 DAYS

Telephone No.: 373-6861
 MSIN: T6-02
 FAX: 372-1878
 Purchase Order/Charge Code: 203009/CE20
 Ice Chest No.: WTS-033
 Bill of Lading/Air Bill No.: 7701 4792 0780
 Parts and Return No.: ~~8301~~ 8301/42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033759	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-EF-7	N/A
	S17T033760	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-EF-8	N/A
	S17T033761	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-1	N/A
	S17T033762	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-2	N/A
	S17T033763	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-3	N/A
	S17T033764	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-4	N/A
	S17T033765	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-5	N/A
	S17T033766	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-6	N/A
	S17T033767	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-7	N/A
	S17T033768	VA	8/26/17	XAD-7-NBD	AMINES 17-05614-4-SD1-IN-8	N/A

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

SPECIAL INSTRUCTIONS
 Send Results to Carl Howard & Keisha Garcia
 Carl.W.Howard@rl.gov and Keisha.K.Garcia@rl.gov
 See SCW for email
 CONTRACT 55502
 RELEASE 15

Relinquished By	Date/Time	Received By	Date/Time	Print	Sign	Date/Time	Matrix*
Don Severson	8/30/17	WRPS of a Gardner	8/30/17	0902			S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
Relinquished By: Fisher	8/30/17	WRPS of a Gardner	8/30/17	1400	FEDEX		DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By:							

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed
 Disposed By: [Signature]
 Date/Time: 9/11/17



ANALYTICAL REPORT

Report Date: September 08, 2017

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

20173060

Workorder: **34-1724333**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033774	Collected: 08/26/2017			
Lab ID: 1724333001	Received: 08/31/2017			
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: 09/03/2017 (198180)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033775	Collected: 08/26/2017			
Lab ID: 1724333002	Received: 08/31/2017			
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: 09/03/2017 (198180)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033776	Collected: 08/26/2017			
Lab ID: 1724333003	Received: 08/31/2017			
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: 09/03/2017 (198180)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10

Results Continued on Next Page

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

1724333 - Page 1 of 10

Fri, 09/08/17 10:10 AM



ANALYTICAL REPORT

Workorder: 34-1724333
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033776	Collected: 08/26/2017			
Lab ID: 1724333003	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198180)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Methylamine	<0.10	NA	NA	0.10

Sample ID: S17T033777	Collected: 08/26/2017			
Lab ID: 1724333004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198180)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033778	Collected: 08/26/2017			
Lab ID: 1724333005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198180)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033779	Collected: 08/26/2017			
Lab ID: 1724333006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: Amines-VOA Aliphatic VAA-1	Instrument: HPLC11			
Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]				
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198180)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: 34-1724333
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033780		Collected: 08/26/2017		
Lab ID: 1724333007		Received: 08/31/2017		
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033781		Collected: 08/26/2017		
Lab ID: 1724333008		Received: 08/31/2017		
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033782		Collected: 08/26/2017		
Lab ID: 1724333009		Received: 08/31/2017		
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033783		Collected: 08/26/2017		
Lab ID: 1724333010		Received: 08/31/2017		
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: 34-1724333
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033784		Collected: 08/26/2017		
Lab ID: 1724333011	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033785		Collected: 08/26/2017		
Lab ID: 1724333012	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033786		Collected: 08/26/2017		
Lab ID: 1724333013	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033788		Collected: 08/26/2017		
Lab ID: 1724333014	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724333**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033789		Collected: 08/26/2017		
Lab ID: 1724333015	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033790		Collected: 08/26/2017		
Lab ID: 1724333016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033791		Collected: 08/26/2017		
Lab ID: 1724333017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033792		Collected: 08/26/2017		
Lab ID: 1724333018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
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: 09/03/2017 (198180)		
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724333**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033793	Collected: 08/26/2017			
Lab ID: 1724333019	Received: 08/31/2017			
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: 09/03/2017 (198180)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033794	Collected: 08/26/2017			
Lab ID: 1724333020	Received: 08/31/2017			
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: 09/03/2017 (198180)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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

Comments

Workorder: 1724333

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 (iS/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
Amines-VOA Aliphatic VAA-1	iS/ Stephen Brose 09/07/2017 16:30	iS/ Thomas Bosch 09/08/2017 10:08

Laboratory Contact Information

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

Phone: (801) 266-7700
 Email: als@alst.com
 Web: www.alst.com



ANALYTICAL REPORT

Workorder: **34-1724333**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724333		
Limits: Historical/Performance	Preparation: NA	Analysis: IH Aliphatic Amines
Basis: ALS Laboratory Group	Batch: NA	Batch: ILC/15816 (HBN: 198180)
	Prepared By: NA	Analyzed By: Stephen Brose

Blank

LMB: 564560			
Analyzed: 09/03/2017 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: 564561					LCSD: 564562				
Analyzed: 09/03/2017 00:00					Analyzed: 09/03/2017 00:00				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Dimethylamine	5.21	5.00	104	80.4 134.6	5.29	106	1.43	0.0 20.0	
Ethylamine	4.60	5.00	92.0	40.0 160.0	5.35	107	15.1	0.0 20.0	
Methylamine	4.90	5.00	97.9	40.0 160.0	4.87	97.3	0.600	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 09/07/2017 16:30	/S/ Thomas Bosch 09/08/2017 10:08

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



1724333

Assembler
N/A

C.O.C. No. 20173060
Page 1 of 2

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Contact/Requestor
CARL HOWARD IV

Telephone No. 373-6861

MSIN T6-02 FAX 372-1878

Sample Origin
2017 CARTRIDGE EVALUATION

Purchase Order/Charge Code
2030067C820

SAF No.
N/A

Ice Chest No.
WTS-033

Temp.
011 ICE

Project Title
2017 CARTRIDGE EVALUATION

Logbook Work Package No.
N/A

Bill of Lading/Air Bill No.
71014792 0780

Method of Shipment

Parts and Return No.
42951

Protocol
N/A

Data Turnaround
10 DAYS

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	SL7T033774	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-BA-EF	N/A
	SL7T033775	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-BA-IN	N/A
	SL7T033776	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-BL-EF	N/A
	SL7T033777	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-BL-IN	N/A
	SL7T033778	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-EF-1	N/A
	SL7T033779	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-EF-2	N/A
	SL7T033780	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-EF-3	N/A
	SL7T033781	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-EF-4	N/A
	SL7T033782	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-EF-5	N/A
	SL7T033783	8/26/17		XAD-7-NBD	AMINES 17-05615-4-TLL-EF-6	N/A

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard & Keisha Garcia
Carl.W.Howard@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	Matrix*
Relinquished By Diane Turner			8/30/17 0900	Received By RE Rogers			8/30/17 0900	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
Relinquished By RE Rogers			8/31/17 1400	Received By [Signature]	FEDEX		8/31/17 1400	DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By [Signature]				Received By [Signature]				

FINAL SAMPLE DISPOSITION
Disposal Method (e.g., Return to customer, per lab procedure) used in process

Disposed By
[Signature]

Date/Time
9/1/17

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

Assembler
N/A

Collector
JONES

SAF No.
N/A

Project Title
2017 CARTRIDGE EVALUATION

Shipped To (Lab)
ALS

Protocol
N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.
20173060

Page 2 of 2

Contact/Requestor
CARL HOWARD IV

Sample Origin
2017 CARTRIDGE EVALUATION

Logbook/Work Package No.
N/A

Method of Shipment
Data Turnaround
10 DAYS

Telephone No.
373-6861

FAX
372-1878

Purchase Order/Charge Code
203006/CS20

Ice Chest No.
425-033

Temp.
00105

Bill of Lading/Air Bill No.
77014792 0780

Parts and Return No.
42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033784	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-BF-7	N/A
	S17T033785	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-BF-8	N/A
	S17T033786	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-1	N/A
	S17T033788	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-2	N/A
	S17T033789	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-3	N/A
	S17T033790	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-4	N/A
	S17T033791	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-5	N/A
	S17T033792	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-6	N/A
	S17T033793	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-7	N/A
	S17T033794	VA 8/26/17		XAD-7-NBD	AMINES 17-05615-4-TL1-IN-8	N/A

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard & Keisha Garcia
Carl.Howard@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	Matrix*
James Turner	James Turner	[Signature]	8/30/17 0900	RE LOGUE	[Signature]	8/30/17 0900		S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
RE LOGUE	RE LOGUE	[Signature]	8/30/17 1400	Received By	[Signature]	8/31/17 1003		DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By				Received By				

Relinquished By

Print

Sign

Date/Time

Received By

Print

Sign

Date/Time

Matrix*

DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
VA = Vapor
X = Other

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

7/1/17



ANALYTICAL REPORT

Report Date: September 08, 2017

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

20173061

Workorder: 34-1724334

Client Project ID: 2017 CARTRIDGE EVALUATION

Purchase Order: 55502 Rel15

Project Manager: Rand Potter

Analytical Results

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033797 and various chemical results.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033798 and various chemical results.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033799 and various chemical results.

Results Continued on Next Page

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company



RIGHT SOLUTIONS RIGHT PARTNER

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ANALYTICAL REPORT

Workorder: **34-1724334**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033799	Collected: 08/27/2017			
Lab ID: 1724334003	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/05/2017 (198230)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Methylamine	<0.10	NA	NA	0.10

Sample ID: S17T033800	Collected: 08/27/2017			
Lab ID: 1724334004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/05/2017 (198230)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033801	Collected: 08/27/2017			
Lab ID: 1724334005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/05/2017 (198230)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033802	Collected: 08/27/2017			
Lab ID: 1724334006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
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: 09/05/2017 (198230)				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724334**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033803	Collected: 08/27/2017			
Lab ID: 1724334007	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
	Instrument: HPLC11			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/05/2017 (198230)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033804	Collected: 08/27/2017			
Lab ID: 1724334008	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
	Instrument: HPLC11			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/05/2017 (198230)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033805	Collected: 08/27/2017			
Lab ID: 1724334009	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
	Instrument: HPLC11			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/05/2017 (198230)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033806	Collected: 08/27/2017			
Lab ID: 1724334010	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
	Instrument: HPLC11			
	Samplng Info: Air Volume Not Provided			
	Analyzed: 09/05/2017 (198230)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: **34-1724334**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033807	Collected: 08/27/2017			
Lab ID: 1724334011	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
Instrument: HPLC11	Analized: 09/05/2017 (198230)			
Sampling Info: Air Volume Not Provided				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033808	Collected: 08/27/2017			
Lab ID: 1724334012	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
Instrument: HPLC11	Analized: 09/05/2017 (198230)			
Sampling Info: Air Volume Not Provided				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033809	Collected: 08/27/2017			
Lab ID: 1724334013	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
Instrument: HPLC11	Analized: 09/05/2017 (198230)			
Sampling Info: Air Volume Not Provided				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033810	Collected: 08/27/2017			
Lab ID: 1724334014	Received: 08/31/2017			
Method: Amines-VOA Aliphatic VAA-1	Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]			
Instrument: HPLC11	Analized: 09/05/2017 (198230)			
Sampling Info: Air Volume Not Provided				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	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: 34-1724334
Client Project ID: 2017 CARTRIDGE EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033811 and analytes Dimethylamine, Ethylamine, Methylamine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033812 and analytes Dimethylamine, Ethylamine, Methylamine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033813 and analytes Dimethylamine, Ethylamine, Methylamine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033814 and analytes Dimethylamine, Ethylamine, Methylamine.



ANALYTICAL REPORT

Workorder: **34-1724334**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033815	Collected: 08/27/2017			
Lab ID: 1724334019	Received: 08/31/2017			
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: 09/05/2017 (198230)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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: S17T033816	Collected: 08/27/2017			
Lab ID: 1724334020	Received: 08/31/2017			
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: 09/05/2017 (198230)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	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

Comments

Workorder: 1724334

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 (iS/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
Amines-VOA Aliphatic VAA-1	iS/ Stephen Brose 09/08/2017 09:00	iS/ Thomas Bosch 09/08/2017 10:13

Laboratory Contact Information

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

Phone: (801) 266-7700
 Email: als@alst.com
 Web: www.alst.com



ANALYTICAL REPORT

Workorder: **34-1724334**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724334		
Limits: Historical/Performance	Preparation: NA	Analysis: IH Aliphatic Amines
Basis: ALS Laboratory Group	Batch: NA	Batch: ILC/15819 (HBN: 198230)
	Prepared By: NA	Analyzed By: Stephen Brose

Blank

LMB: 564692			
Analyzed: 09/05/2017 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: 564693					LCSD: 564694				
Analyzed: 09/05/2017 00:00					Analyzed: 09/05/2017 00:00				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Dimethylamine	4.81	5.00	96.1	80.4 134.6	4.76	95.2	0.971	0.0 20.0	
Ethylamine	5.28	5.00	106	40.0 160.0	4.87	97.4	8.05	0.0 20.0	
Methylamine	4.44	5.00	88.8	40.0 160.0	4.66	93.2	4.80	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 09/08/2017 09:00	/S/ Thomas Bosch 09/08/2017 10:13

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



1724334

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173061
Page 1 of 2

Assembler: N/A

Collector: JONES

SAF No.: N/A

Project Title: 2017 CARTRIDGE EVALUATION

Shipped To (Lab): RUS

Protocol: N/A

Contact/Requestor: CARL HOWARD IV

Sample Origin: 2017 CARTRIDGE EVALUATION

Logbook/Work Package No.: N/A

Method of Shipment: N/A

Data Turnaround: 10 DAYS

Telephone No: 313-6861

Purchase Order/Charge Code: 203068/CB2C

Ice Chest No.: WTS-033

Temp.: 00303

Bill of Lading/Air Bill No.: 7701 4792 0780

Parts and Return No.: 42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033797	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-BA-EF	N/A
	S17T033798	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-BA-IN	N/A
	S17T033799	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-BL-EF	N/A
	S17T033800	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-BL-IN	N/A
	S17T033801	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-EF-1	N/A
	S17T033802	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-EF-2	N/A
	S17T033803	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-EF-3	N/A
	S17T033804	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-EF-4	N/A
	S17T033805	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-EF-5	N/A
	S17T033806	VA	8/27/17	XAD-7-NBD	AMINES 17-05616-4-TI2-EF-6	N/A

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

SPECIAL INSTRUCTIONS
 Send Results to Carl Howard & 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	Matrix*
Dianne Turner			8/30/17 0900	RE KOPECS			8/30/17 0900	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
RE KOPECS			8/30/17 1400	Received By			8/31/17 1400	
				Received By				

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposited By: Carl Howard

Date/Time: 9/5/17

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: September 08, 2017

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

20173050

Workorder: **34-1724323**

Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033538	Collected: 08/27/2017			
Lab ID: 1724323001	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033539	Collected: 08/27/2017			
Lab ID: 1724323002	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033540	Collected: 08/27/2017			
Lab ID: 1724323003	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

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Environmental

www.alsglobal.com

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ANALYTICAL REPORT

Workorder: **34-1724323**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033541	Collected: 08/27/2017			
Lab ID: 1724323004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033542	Collected: 08/27/2017			
Lab ID: 1724323005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033543	Collected: 08/27/2017			
Lab ID: 1724323006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033544	Collected: 08/27/2017			
Lab ID: 1724323007	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724323**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033545	Collected: 08/27/2017			
Lab ID: 1724323008	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033546	Collected: 08/27/2017			
Lab ID: 1724323009	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	0.016	NA	NA	0.010

Sample ID: S17T033547	Collected: 08/27/2017			
Lab ID: 1724323010	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033548	Collected: 08/27/2017			
Lab ID: 1724323011	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724323**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033549	Collected: 08/27/2017			
Lab ID: 1724323012	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033550	Collected: 08/27/2017			
Lab ID: 1724323013	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033551	Collected: 08/27/2017			
Lab ID: 1724323014	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033552	Collected: 08/27/2017			
Lab ID: 1724323015	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724323**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033553	Collected: 08/27/2017			
Lab ID: 1724323016	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033554	Collected: 08/27/2017			
Lab ID: 1724323017	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033555	Collected: 08/27/2017			
Lab ID: 1724323018	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033556	Collected: 08/27/2017			
Lab ID: 1724323019	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198195)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724323**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033557	Collected: 08/27/2017			
Lab ID: 1724323020	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198195)			
Analyte	Result (mg/sample)	Result (mg/m ³)	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 09/08/2017 09:19	/S/ Lyle Edwards 09/08/2017 12:34

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724323**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724323		
Limits: Historical/Performance	Preparation: NA	Analysis: IH GC-FID QC
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8796 (HEN: 198195)
	Prepared By: NA	Analyzed By: Young Hee Yoon

Blank

MB: 564589			
Analyzed: 09/03/2017 00:00			
Units: mg/sample			
Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564590					LCSD: 564591				
Analyzed: 09/03/2017 00:00					Analyzed: 09/03/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Acetonitrile	0.333	0.312	107	86.6 115.3	0.296	94.9	11.8	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 09/08/2017 09:19	/S/ Lyle Edwards 09/08/2017 12:33

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



1724323

Assembler N/A		C.O.C. No. 20173050	
Telephone No. 373-6861		Page 1 of 2	
MSIN T6-02 FAX 372-1978			
Purchase Order/Charge Code 203006/0320			
Sample Origin 2017 CARTRIDGE EVALUATION			
Project Title 2017 CARTRIDGE EVALUATION			
ALS			
Shipped To (Lab)		Ice Chest No. 033	
Method of Shipment		N/A	
Bill of Lading/Air Bill No.		1701 4792 0786	
Parts and Return No.		A2951	
Data Turnaround 10 DAYS			
Protocol N/A			
Contact/Requestor CARL HOWARD IV			
Sample Origin 2017 CARTRIDGE EVALUATION			
Logbook/Work Package No. N/A			
Method of Shipment			
Data Turnaround 10 DAYS			
Protocol N/A			

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033538	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-BA-EF	N/A
	S17T033539	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-BA-IN	N/A
	S17T033540	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-BL-EF	N/A
	S17T033541	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-BL-IN	N/A
	S17T033542	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-1	N/A
	S17T033543	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-2	N/A
	S17T033544	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-3	N/A
	S17T033545	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-4	N/A
	S17T033546	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-5	N/A
	S17T033547	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-6	N/A

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard & Keisha Garcia
Carl W Howard
carl.howard@va.gov
Keisha F Garcia
keisha.garcia@va.gov
SEE SOW for email
RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By	Print	Received By	Print	Date/Time	Date/Time	Matrix*
Diane Turner	8/27/17	Ke Lopez	8/30/17	0900		S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
Relinquished By	Sign	Received By	Sign	Date/Time	Date/Time	DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
JA Grastner	8/27/17	Ke Lopez	8/30/17	1400		
Relinquished By	Print	Received By	Print	Date/Time	Date/Time	

Disposal Method (e.g., Return to customer, per lab procedure) (used in process)

FINAL SAMPLE DISPOSITION

Disposed by: Yong Nam Han
Date: SEPT 4, 2017 6:30 PM

A-6003-962 (03/05)

Assembler		C.O.C. No.				
N/A		20173050				
Collector		Page				
JONES		2 of 2				
Project Title		Telephone No.				
2017 CARTRIDGE EVALUATION		373-6861				
Shipped To (Lab)		MSIN				
ALS		16-02				
Protocol		FAX				
N/A		372-1878				
Contact/Requestor		Purchase Order/Charge Code				
CHARL HOWELL TV		203006/CB20				
Sample Origin		Ice Chest No.				
2017 CARTRIDGE EVALUATION		N/A				
Logbook/Work Package No.		Temp.				
N/A		ON ICE				
Method of Shipment		Bill of Lading/Air Bill No.				
Data Turnaround		7701 4792 0780				
10 DAYS		Parts and Return No.				
		42951				
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033548	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-7	N/A
	S17T033549	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-EF-8	N/A
	S17T033550	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-1	N/A
	S17T033551	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-2	N/A
	S17T033552	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-3	N/A
	S17T033553	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-4	N/A
	S17T033554	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-5	N/A
	S17T033555	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-6	N/A
	S17T033556	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-7	N/A
	S17T033557	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05613-5-SCI-IN-8	N/A

Relinquished By	Print	Sign	Date/Time	Received By	Print	Date/Time	Matrix*
Dianne Turner			8/30/17	RE Rogers		8/30/17 0900	S = Soil
Relinquished By				Received By			SE = Sediment
RE Rogers			8/30/17	Received By	FEDEX	1800	SO = Solid
Relinquished By				Received By			SL = Sludge
				Received By			WV = Water
				Received By			O = Oil
				Received By			A = Air
				Received By			DS = Drum Solids
							DL = Drum Liquids
							T = Tissue
							WF = Wipe
							L = Liquid
							V = Vegetation
							VA = Vapor
							X = Other

Relinquished By	Print	Sign	Date/Time	Received By	Print	Date/Time	Matrix*
Dianne Turner			8/30/17	RE Rogers		8/30/17 0900	S = Soil
Relinquished By				Received By			SE = Sediment
RE Rogers			8/30/17	Received By	FEDEX	1800	SO = Solid
Relinquished By				Received By			SL = Sludge
				Received By			WV = Water
				Received By			O = Oil
				Received By			A = Air
				Received By			DS = Drum Solids
							DL = Drum Liquids
							T = Tissue
							WF = Wipe
							L = Liquid
							V = Vegetation
							VA = Vapor
							X = Other

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS Yes No **Hold Time**
SPECIAL INSTRUCTIONS
 Send Results to Carl Rosald & Keisha Garcia
 Carl W Rosald@crl.gov and Keisha_R_Garcia@crl.gov See SDW for email
 RELEASE 15
 Reference Contract # 55502

Relinquished By	Print	Sign	Date/Time	Received By	Print	Date/Time	Matrix*
Dianne Turner			8/30/17	RE Rogers		8/30/17 0900	S = Soil
Relinquished By				Received By			SE = Sediment
RE Rogers			8/30/17	Received By	FEDEX	1800	SO = Solid
Relinquished By				Received By			SL = Sludge
				Received By			WV = Water
				Received By			O = Oil
				Received By			A = Air
				Received By			DS = Drum Solids
							DL = Drum Liquids
							T = Tissue
							WF = 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)	Date/Time
	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	
	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	

Disposed By: *Angie New from* Date: *Sept 4, 2017* Time: *6:30 pm*
 All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.



ANALYTICAL REPORT

Report Date: September 08, 2017

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
20173051

Workorder: **34-1724324**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033558	Collected: 08/26/2017			
Lab ID: 1724324001	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198197)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033559	Collected: 08/26/2017			
Lab ID: 1724324002	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198197)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033560	Collected: 08/26/2017			
Lab ID: 1724324003	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198197)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

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Fri, 09/08/17 11:55 AM



ANALYTICAL REPORT

Workorder: **34-1724324**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033561	Collected: 08/26/2017			
Lab ID: 1724324004	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033562	Collected: 08/26/2017			
Lab ID: 1724324005	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033563	Collected: 08/26/2017			
Lab ID: 1724324006	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033564	Collected: 08/26/2017			
Lab ID: 1724324007	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724324**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033565	Collected: 08/26/2017			
Lab ID: 1724324008	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033566	Collected: 08/26/2017			
Lab ID: 1724324009	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033567	Collected: 08/26/2017			
Lab ID: 1724324010	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033568	Collected: 08/26/2017			
Lab ID: 1724324011	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724324**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033569	Collected: 08/26/2017			
Lab ID: 1724324012	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198197)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033570	Collected: 08/26/2017			
Lab ID: 1724324013	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198197)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033571	Collected: 08/26/2017			
Lab ID: 1724324014	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198197)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033572	Collected: 08/26/2017			
Lab ID: 1724324015	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198197)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724324**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033573	Collected: 08/26/2017			
Lab ID: 1724324016	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033574	Collected: 08/26/2017			
Lab ID: 1724324017	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033575	Collected: 08/26/2017			
Lab ID: 1724324018	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033576	Collected: 08/26/2017			
Lab ID: 1724324019	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724324**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033577	Collected: 08/26/2017			
Lab ID: 1724324020	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198197)			
Analyte	Result (mg/sample)	Result (mg/m ³)	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 09/07/2017 18:06	/S/ Lyle Edwards 09/08/2017 11:48

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724324**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724324		
Limits: Historical/Performance	Preparation: NA	Analysis: IH GC-FID QC
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8798 (HEN: 198197)
	Prepared By: NA	Analyzed By: Young Hee Yoon

Blank

MB: 564597			
Analyzed: 09/03/2017 00:00			
Units: mg/sample			
Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564598					LCSD: 564599				
Analyzed: 09/03/2017 00:00					Analyzed: 09/03/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Acetonitrile	0.291	0.312	93.3	86.6 115.3	0.347	111	17.6	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 09/07/2017 18:06	/S/ Lyle Edwards 09/08/2017 11:48

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



1724324

Assembler N/A

Collector JONES

SAF No. N/A

Project Title 2017 CARTRIDGE EVALUATION

Shipped To (Lab) ALS

Protocol N/A

MSIN T6-02

Telephone No. 373-6861

Purchase Order/Charge Code 2030067C820

Ice Chest No. N/A

Temp. ON ICE

Bill of Lading/Air Bill No. 77014792 0780

Parts and Return No. 22951

C.O.C. No. 20173051

Page 1 of 2

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033558	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-BR-EF-1	N/A
	S17T033559	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-BR-IN	N/A
	S17T033560	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-BL-EF	N/A
	S17T033561	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-BL-IN	N/A
	S17T033562	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-EF-1	N/A
	S17T033563	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-EF-2	N/A
	S17T033564	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-EF-3	N/A
	S17T033565	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-EF-4	N/A
	S17T033566	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-EF-5	N/A
	S17T033567	VA 8/26/17		CHARCOAL TUBE	Acetonitrile 17-05614-5-SD1-EF-6	N/A

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

SPECIAL INSTRUCTIONS

Send Results to: Carl Rowald & Keisha Garcia
Carl Rowald, 10101 S. 26th St. and Keisha F. Garcia, 611
gov. see SOW for email
REFERENCE 15
Reference Contract # 55502

Relinquished By	Print	Sign	Date/Time	Received By	Print	Date/Time	Matrix*
Dianne Turner	8/30/17	8/30/17	0900	RE Logan	8/30/17	0900	S = Soil DL = Drum Liquids SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
RE Logan	8/30/17	8/30/17	1400	Received By	8/30/17	1400	T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other

Relinquished By

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Logan 8/30/17 4:30 PM

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		C.O.C. No.	
N/A		20173051	
Contact/Requestor		Telephone No.	MSIN
CARL HOWARD IV		373-6861	376-02
Sample Origin	Purchase Order/Charge Code	FAX	
N/A	203006/CR20	372-1878	
Project Title	Ice Chest No.	Temp.	
2017 CARTRIDGE EVALUATION	N/A	ON ICE	
Shipped To (Lab)	Bill of Lading/Air Bill No.	Parts and Return No.	
ALS	N/A	7701 4792 07	
Protocol			
N/A		42951	

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033568	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-EE-7	N/A
	S17T033569	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-EE-8	N/A
	S17T033570	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-1	N/A
	S17T033571	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-2	N/A
	S17T033572	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-3	N/A
	S17T033573	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-4	N/A
	S17T033574	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-5	N/A
	S17T033575	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-6	N/A
	S17T033576	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-7	N/A
	S17T033577	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05614-5-SDI-IN-8	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS Yes No Hold Time

SPECIAL INSTRUCTIONS:
 Send Results to Carl Howard & Keisha Garcia
 Carl.W.Howard@ci.gov and Keisha_R_Garcia@ci.gov
 See SOW for email
 RELEASE 15
 Reference Contract # 55502

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix*
Dianne Turner			8/30/17 0920	Receives			8/30/17 0940	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
Relinquished By			1400	Received By			8/31/17	
Relinquished By				Received By				

Disposal Method (e.g., Return to customer, per lab procedure) used in process

Dispersed By: Gary New York Sept 4, 2017 6:30 PM

A-6003-362 (03/05)



ANALYTICAL REPORT

Report Date: September 08, 2017

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
20173052

Workorder: **34-1724325**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033578	Collected: 08/26/2017			
Lab ID: 1724325001	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033579	Collected: 08/26/2017			
Lab ID: 1724325002	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033580	Collected: 08/26/2017			
Lab ID: 1724325003	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

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Fri, 09/08/17 10:55 AM



ANALYTICAL REPORT

Workorder: **34-1724325**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033581	Collected: 08/26/2017			
Lab ID: 1724325004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033582	Collected: 08/26/2017			
Lab ID: 1724325005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033583	Collected: 08/26/2017			
Lab ID: 1724325006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033584	Collected: 08/26/2017			
Lab ID: 1724325007	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724325**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033585	Collected: 08/26/2017			
Lab ID: 1724325008	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198206)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033586	Collected: 08/26/2017			
Lab ID: 1724325009	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198206)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033587	Collected: 08/26/2017			
Lab ID: 1724325010	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198206)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033588	Collected: 08/26/2017			
Lab ID: 1724325011	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198206)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724325**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033589	Collected: 08/26/2017			
Lab ID: 1724325012	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033590	Collected: 08/26/2017			
Lab ID: 1724325013	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033591	Collected: 08/26/2017			
Lab ID: 1724325014	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033592	Collected: 08/26/2017			
Lab ID: 1724325015	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/04/2017 (198206)				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724325**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033593	Collected: 08/26/2017			
Lab ID: 1724325016	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198206)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033594	Collected: 08/26/2017			
Lab ID: 1724325017	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198206)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033595	Collected: 08/26/2017			
Lab ID: 1724325018	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198206)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033596	Collected: 08/26/2017			
Lab ID: 1724325019	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198206)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724325**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033597	Collected: 08/26/2017			
Lab ID: 1724325020	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198206)			
Analyte	Result (mg/sample)	Result (mg/m ³)	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 09/07/2017 17:41	/S/ Lyle Edwards 09/08/2017 10:42

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724325**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS DNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724325		
Limits: Historical/Performance	Preparation: NA	Analysis: IH GC-FID QC
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8800 (HBN: 198206)
	Prepared By: NA	Analyzed By: Young Hee Yoon

Blank

MB: 564620			
Analyzed: 09/04/2017 00:00			
Units: mg/sample			
Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564621					LCSD: 564622				
Analyzed: 09/04/2017 00:00					Analyzed: 09/04/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Acetonitrile	0.289	0.312	92.6	86.6 | 115.3	0.337	108	15.3	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 09/07/2017 17:41	/S/ Lyle Edwards 09/08/2017 10:42

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



1724325

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173052
Page 1 of 2

Assembler: N/A
 Collector: JONES
 SAF No.: N/A
 Project Title: 2017 CARTRIDGE EVALUATION
 Shipped To (Lab): ALS
 Protocol: N/A

Contact/Requestor: CARL HOWARD IV
 Telephone No: 373-6861
 MSIN: TE-02
 FAX: 372-1878

Sample Origin: 2017 CARTRIDGE EVALUATION
 Purchase Order/Charge Code: 2030067/0820

Logbook/Work Package No.: N/A
 Test Chest No.: **MS 033**
 Temp: **ON ICE**

Method of Shipment: **7701 4792 0780**
 Bill of Lading/Air Bill No.: **42951**
 Parts and Return No.:

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033578	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-BA-EF	N/A
	S17T033579	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-BA-IN	N/A
	S17T033580	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-BL-EF	N/A
	S17T033581	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-BL-IN	N/A
	S17T033582	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EF-1	N/A
	S17T033583	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EF-2	N/A
	S17T033584	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EF-3	N/A
	S17T033585	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EF-4	N/A
	S17T033586	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EF-5	N/A
	S17T033587	VA	8/26/17	CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS Yes No Hold Time

SPECIAL INSTRUCTIONS
 Send Results to Carl Howard & Keisha Garcia
 Carl Howard: 373-6861, and Keisha R. Garcia: 373-6861
 per see SOP for email
 RELEASE 15
 Reference Contract # 55502

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix*
Relinquished By			8/30/17 0900	Received By	RS Lopez		8/30/17 0900	S = Soil DL = Drum Liquids SE = Sediment T = Tissue SO = Solid WI = Wipe SL = Sludge L = Liquid W = Water VA = Vegetation O = Oil A = Air X = Other DS = Drum Solids
Relinquished By			8/30/17 1400	Received By			8/30/17 1400	
Relinquished By				Received By				

Disposal Method (e.g., Return to customer, per lab procedure, used in process): **going thru you**
 Disposed By: **you**
 Date/Time: **Sept 5, 2017 10:00AM**

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 N/A		C.O.C. No. 20173052	
Collector JONES		Page 2 of 2	
SAF No. N/A		Telephone No. 313-6861 MSIN T6-02 FAX 372-1878	
Project Title 2017 CARTRIDGE EVALUATION		Purchase Order/Charge Code 203067/020	
Shipped To (Lab) ALS		Ice Chest No. WTS-033 Temp. ON ICE	
Protocol N/A		Bill of Lading/Air Bill No. 7701 4792-0780	
Data Turnaround 30 DAYS		Parts and Return No. A2951	

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033588	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EE-7	N/A
	S17T033589	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-EF-8	N/A
	S17T033590	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-1	N/A
	S17T033591	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-2	N/A
	S17T033592	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-3	N/A
	S17T033593	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-4	N/A
	S17T033594	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-5	N/A
	S17T033595	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-6	N/A
	S17T033596	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-7	N/A
	S17T033597	8/26/17		CHARCOAL TUBE	Acetonitrile 17-05615-5-TLL-IN-8	N/A

Relinquished By <i>Diane Turner</i>		Sign <i>Diane Turner</i>	Date/Time 8/30/17 0900	Received By <i>CS Rogers</i>	Date/Time 8/30/17 0900	Material* S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
Relinquished By <i>RE Rogers</i>		Sign <i>RE Rogers</i>	Date/Time 8/30/17 1400	Received By <i>RE Rogers</i>	Date/Time 8/30/17 1400	Material* DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By		Sign	Date/Time	Received By	Date/Time	Material*

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS Yes No Hold Time

SPECIAL INSTRUCTIONS
Send Results to Carl, Howard & Keisha Garcia
Carl W. Royal@dl.gov and Keisha_R_Garcia@dl.gov
See SOW for email
RELEASE 15
Reference Contract # 55502

Disposal Method (e.g., Return to customer, per lab procedure, used in process) **you're new you SEPT 5, 2017 10:00 AM**

A-6003-962 (03/05)



ANALYTICAL REPORT

Report Date: September 08, 2017

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

20173053

Workorder: **34-1724326**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033598		Collected: 08/27/2017		
Lab ID: 1724326001		Received: 08/31/2017		
Method: NIOSH 1606		Media: SKC 226-09, Charcoal Tube 400/200mg		Instrument: GCI02
		Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033599		Collected: 08/27/2017		
Lab ID: 1724326002		Received: 08/31/2017		
Method: NIOSH 1606		Media: SKC 226-09, Charcoal Tube 400/200mg		Instrument: GCI02
		Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033600		Collected: 08/27/2017		
Lab ID: 1724326003		Received: 08/31/2017		
Method: NIOSH 1606		Media: SKC 226-09, Charcoal Tube 400/200mg		Instrument: GCI02
		Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

1724326 - Page 1 of 10

Fri, 09/08/17 11:10 AM



ANALYTICAL REPORT

Workorder: **34-1724326**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033601	Collected: 08/27/2017			
Lab ID: 1724326004	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033602	Collected: 08/27/2017			
Lab ID: 1724326005	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033603	Collected: 08/27/2017			
Lab ID: 1724326006	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033604	Collected: 08/27/2017			
Lab ID: 1724326007	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724326**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033605	Collected: 08/27/2017			
Lab ID: 1724326008	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033606	Collected: 08/27/2017			
Lab ID: 1724326009	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033607	Collected: 08/27/2017			
Lab ID: 1724326010	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033608	Collected: 08/27/2017			
Lab ID: 1724326011	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724326**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033609	Collected: 08/27/2017			
Lab ID: 1724326012	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033610	Collected: 08/27/2017			
Lab ID: 1724326013	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033611	Collected: 08/27/2017			
Lab ID: 1724326014	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033612	Collected: 08/27/2017			
Lab ID: 1724326015	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724326**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033613	Collected: 08/27/2017			
Lab ID: 1724326016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033614	Collected: 08/27/2017			
Lab ID: 1724326017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033615	Collected: 08/27/2017			
Lab ID: 1724326018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S17T033616	Collected: 08/27/2017			
Lab ID: 1724326019	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg	Instrument: GCI02		
Sampling Info: Air Volume Not Provided		Analyzed: 09/04/2017 (198207)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010



ANALYTICAL REPORT

Workorder: **34-1724326**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033617	Collected: 08/27/2017			
Lab ID: 1724326020	Received: 08/31/2017			
Method: NIOSH 1606	Media: SKC 226-09, Charcoal Tube 400/200mg			
	Instrument: GCI02			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/04/2017 (198207)			
Analyte	Result (mg/sample)	Result (mg/m ³)	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 09/07/2017 17:19	/S/ Lyle Edwards 09/08/2017 10:58

Laboratory Contact Information

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

Phone: (801) 266-7700
 Email: als@alsglobal.com
 Web: www.alssl.com



ANALYTICAL REPORT

Workorder: **34-1724326**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724326		
Limits: Historical/Performance	Preparation: NA	Analysis: IH GC-FID QC
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8801 (HBN: 198207)
	Prepared By: NA	Analyzed By: Young Hee Yoon

Blank

MB: 564624			
Analyzed: 09/04/2017 00:00			
Units: mg/sample			
Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564625					LCSD: 564626				
Analyzed: 09/04/2017 00:00					Analyzed: 09/04/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Acetonitrile	0.333	0.312	107	86.6 115.3	0.288	92.3	14.5	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 09/07/2017 17:19	/S/ Lyle Edwards 09/08/2017 10:58

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



W

1724326

1-24-2016

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173053

Page 1 of 2

Assembler: N/A

Collector: JONES

SAF No.: N/A

Project Title: 2017 CARTRIDGE EVALUATION

Shipped To (Lab): ALS

Protocol: N/A

Contact/Requestor: CARL HOWARD IV

Sample Origin: 2017 CARTRIDGE EVALUATION

Logbook/Work Package No.: N/A

Method of Shipment: N/A

Date Turnaround: 10 DAYS

Telephone No.: 373-6861

Purchase Order/Charge Code: 203006/CS2C

Ice Chest No.: N/A

Bill of Lading/Air Bill No.: 7701 4792 0780

Parts and Return No.: 42951

MSIN: 56-02

FAX: 372-1878

Temp: ON ICE

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033598	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-BA-EF	N/A
	S17T033599	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-BA-IN	N/A
	S17T033600	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EL-EF	N/A
	S17T033601	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EL-IN	N/A
	S17T033602	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EF-1	N/A
	S17T033603	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EF-2	N/A
	S17T033604	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EF-3	N/A
	S17T033605	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EF-4	N/A
	S17T033606	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EF-5	N/A
	S17T033607	VA	8/27/17	CHARCOAL TUBE	Acetonitrile 17-05616-5-TL2-EF-6	N/A

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

SPECIAL INSTRUCTIONS: Hold Time

Send Results to Carl Howard & Keisha Garcia
 Carl.Howard@epa.gov and Keisha.F.Garcia@epa.gov
 See SOW for email
 RELEASE 15
 Reference Contract # 55502

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix*
Relinquished By: <i>Dianne Turner</i>			8/30/17 0900	Received By: <i>RE ROGERS</i>			8/30/17 0900	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
Relinquished By: <i>RE ROGERS</i>			8/30/17 1400	Received By: <i>FEDEX</i>				DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By: <i>RE ROGERS</i>				Received By: <i>RE ROGERS</i>				

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process)

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)

C.4.7 Mercury

20173126 Rev. 0

**FINAL REPORT ON MERCURY VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED AUGUST 26-27, 2017**

Document No.: 20173126 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
September 27, 2017



Prepared for:

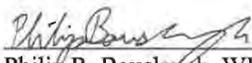
Prepared by:

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 September 27, 2017
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON MERCURY VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED AUGUST 26-27, 2017**

This final report presents the results of eighty mercury vapor tubes received at the 222-S Laboratory on August 28, 2017, in good condition and with adequate paperwork. The mercury vapor tubes were logged into sample delivery group 20173126.

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 81 – 115%, 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

20173126 Rev. 0

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).

32 of the 80 mercury samples were found to have results above the reporting limit of 0.05 µg/sample.

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Attachment 1

DATA SUMMARY REPORT

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C.572

DATA SUMMARY REPORT FOR SAMPLE GROUP 20173126

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
17-05613-6-SC1-BA-EF	Total	S17T034703	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-SC1-BA-EF	Resin	S17T034704	Mercury	ug/sample	93.7	<0.0500	<0.0500	0.0500
17-05613-6-SC1-BA-EF	Glass Wool	S17T034705	Mercury	ug/sample	93.7	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ba-in	Total	S17T034706	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ba-in	Resin	S17T034707	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ba-in	Glass Wool	S17T034708	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-bl-ef	Total	S17T034709	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-bl-ef	Resin	S17T034710	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-bl-ef	Glass Wool	S17T034711	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-bl-in	Total	S17T034712	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-bl-in	Resin	S17T034713	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-bl-in	Glass Wool	S17T034714	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-1	Total	S17T034715	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-1	Resin	S17T034716	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-1	Glass Wool	S17T034717	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-2	Total	S17T034718	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-2	Resin	S17T034719	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-2	Glass Wool	S17T034720	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-3	Total	S17T034721	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-3	Resin	S17T034722	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-3	Glass Wool	S17T034723	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-4	Total	S17T034724	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-4	Resin	S17T034725	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-4	Glass Wool	S17T034726	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-5	Total	S17T034727	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-5	Resin	S17T034729	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-5	Glass Wool	S17T034730	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-6	Total	S17T034732	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-6	Resin	S17T034733	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-6	Glass Wool	S17T034734	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-7	Total	S17T034743	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-7	Resin	S17T034744	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-7	Glass Wool	S17T034745	Mercury	ug/sample	97.5	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-8	Total	S17T034752	Mercury	ug/sample	n/a	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-8	Resin	S17T034753	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-ef-8	Glass Wool	S17T034754	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-in-1	Total	S17T034756	Mercury	ug/sample	n/a	<0.0500	0.184	0.0500
17-05613-6-sc1-in-1	Resin	S17T034758	Mercury	ug/sample	84.4	<0.0500	0.179	0.0500
17-05613-6-sc1-in-1	Glass Wool	S17T034759	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-in-2	Total	S17T034768	Mercury	ug/sample	n/a	<0.0500	0.191	0.0500
17-05613-6-sc1-in-2	Resin	S17T034770	Mercury	ug/sample	84.4	<0.0500	0.186	0.0500
17-05613-6-sc1-in-2	Glass Wool	S17T034771	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-in-3	Total	S17T034783	Mercury	ug/sample	n/a	<0.0500	0.182	0.0500
17-05613-6-sc1-in-3	Resin	S17T034786	Mercury	ug/sample	84.4	<0.0500	0.177	0.0500
17-05613-6-sc1-in-3	Glass Wool	S17T034787	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-in-4	Total	S17T034790	Mercury	ug/sample	n/a	<0.0500	0.175	0.0500
17-05613-6-sc1-in-4	Resin	S17T034791	Mercury	ug/sample	84.4	<0.0500	0.170	0.0500
17-05613-6-sc1-in-4	Glass Wool	S17T034792	Mercury	ug/sample	84.4	<0.0500	<0.0500	0.0500

17-05613-6-sc1-in-5	Total	S17T034797	Mercury	µg/sample	n/a	<0.0500	0.185	0.0500
17-05613-6-sc1-in-5	Resin	S17T034812	Mercury	µg/sample	84.4	<0.0500	0.180	0.0500
17-05613-6-sc1-in-5	Glass Wool	S17T034813	Mercury	µg/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-in-6	Total	S17T034816	Mercury	µg/sample	n/a	<0.0500	0.209	0.0500
17-05613-6-sc1-in-6	Resin	S17T034817	Mercury	µg/sample	84.4	<0.0500	0.204	0.0500
17-05613-6-sc1-in-6	Glass Wool	S17T034818	Mercury	µg/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-in-7	Total	S17T034819	Mercury	µg/sample	n/a	<0.0500	0.177	0.0500
17-05613-6-sc1-in-7	Resin	S17T034823	Mercury	µg/sample	84.4	<0.0500	0.172	0.0500
17-05613-6-sc1-in-7	Glass Wool	S17T034824	Mercury	µg/sample	84.4	<0.0500	<0.0500	0.0500
17-05613-6-sc1-in-8	Total	S17T034826	Mercury	µg/sample	n/a	<0.0500	0.194	0.0500
17-05613-6-sc1-in-8	Resin	S17T034829	Mercury	µg/sample	84.4	<0.0500	0.189	0.0500
17-05613-6-sc1-in-8	Glass Wool	S17T034830	Mercury	µg/sample	84.4	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ba-ef	Total	S17T034840	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ba-ef	Resin	S17T034841	Mercury	µg/sample	84.4	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ba-ef	Glass Wool	S17T034842	Mercury	µg/sample	84.4	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ba-in	Total	S17T034843	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ba-in	Resin	S17T034844	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ba-in	Glass Wool	S17T034845	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-bl-ef	Total	S17T034847	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-bl-ef	Resin	S17T034850	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-bl-ef	Glass Wool	S17T034851	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-bl-in	Total	S17T034855	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-bl-in	Resin	S17T034859	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-bl-in	Glass Wool	S17T034860	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-1	Total	S17T034865	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-1	Resin	S17T034868	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-1	Glass Wool	S17T034869	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-2	Total	S17T034871	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-2	Resin	S17T034877	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-2	Glass Wool	S17T034878	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-3	Total	S17T034885	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-3	Resin	S17T034887	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-3	Glass Wool	S17T034888	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-4	Total	S17T034891	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-4	Resin	S17T034895	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-4	Glass Wool	S17T034896	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-5	Total	S17T034900	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-5	Resin	S17T034902	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-5	Glass Wool	S17T034903	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-6	Total	S17T034904	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-6	Resin	S17T034905	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-6	Glass Wool	S17T034906	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-7	Total	S17T034907	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-7	Resin	S17T034908	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-7	Glass Wool	S17T034909	Mercury	µg/sample	90.1	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-8	Total	S17T034912	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-8	Resin	S17T034914	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-sd1-ef-8	Glass Wool	S17T034915	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-sd1-in-1	Total	S17T034918	Mercury	µg/sample	n/a	<0.0500	0.203	0.0500
17-05614-6-sd1-in-1	Resin	S17T034922	Mercury	µg/sample	92.8	<0.0500	0.198	0.0500
17-05614-6-sd1-in-1	Glass Wool	S17T034923	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-sd1-in-2	Total	S17T034937	Mercury	µg/sample	n/a	<0.0500	0.239	0.0500
17-05614-6-sd1-in-2	Resin	S17T034938	Mercury	µg/sample	92.8	<0.0500	0.234	0.0500
17-05614-6-sd1-in-2	Glass Wool	S17T034939	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500

17-05614-6-SD1-IN-3	Total	S17T034942	Mercury	µg/sample	n/a	<0.0500	0.223	0.0500
17-05614-6-SD1-IN-3	Resin	S17T034946	Mercury	µg/sample	92.8	<0.0500	0.218	0.0500
17-05614-6-SD1-IN-3	Glass Wool	S17T034947	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-SD1-IN-4	Total	S17T034948	Mercury	µg/sample	n/a	<0.0500	0.223	0.0500
17-05614-6-SD1-IN-4	Resin	S17T034949	Mercury	µg/sample	92.8	<0.0500	0.218	0.0500
17-05614-6-SD1-IN-4	Glass Wool	S17T034950	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-SD1-IN-5	Total	S17T034951	Mercury	µg/sample	n/a	<0.0500	0.227	0.0500
17-05614-6-SD1-IN-5	Resin	S17T034952	Mercury	µg/sample	92.8	<0.0500	0.222	0.0500
17-05614-6-SD1-IN-5	Glass Wool	S17T034953	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-SD1-IN-6	Total	S17T034954	Mercury	µg/sample	n/a	<0.0500	0.250	0.0500
17-05614-6-SD1-IN-6	Resin	S17T034955	Mercury	µg/sample	92.8	<0.0500	0.245	0.0500
17-05614-6-SD1-IN-6	Glass Wool	S17T034956	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-SD1-IN-7	Total	S17T034957	Mercury	µg/sample	n/a	<0.0500	0.236	0.0500
17-05614-6-SD1-IN-7	Resin	S17T034958	Mercury	µg/sample	92.8	<0.0500	0.232	0.0500
17-05614-6-SD1-IN-7	Glass Wool	S17T034959	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05614-6-SD1-IN-8	Total	S17T034960	Mercury	µg/sample	n/a	<0.0500	0.244	0.0500
17-05614-6-SD1-IN-8	Resin	S17T034961	Mercury	µg/sample	92.8	<0.0500	0.239	0.0500
17-05614-6-SD1-IN-8	Glass Wool	S17T034962	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BA-EF	Total	S17T034981	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BA-EF	Resin	S17T034982	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BA-EF	Glass Wool	S17T034983	Mercury	µg/sample	92.8	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BA-IN	Total	S17T034984	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BA-IN	Resin	S17T034985	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BA-IN	Glass Wool	S17T034986	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BL-EF	Total	S17T034987	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BL-EF	Resin	S17T034988	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BL-EF	Glass Wool	S17T034989	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BL-IN	Total	S17T034990	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BL-IN	Resin	S17T034991	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-BL-IN	Glass Wool	S17T034992	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-1	Total	S17T034993	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-1	Resin	S17T034994	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-1	Glass Wool	S17T034995	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-2	Total	S17T034996	Mercury	µg/sample	n/a	<0.0500	0.246	0.0500
17-05615-6-TL1-EF-2	Resin	S17T034997	Mercury	µg/sample	97.2	<0.0500	0.241	0.0500
17-05615-6-TL1-EF-2	Glass Wool	S17T034998	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-3	Total	S17T034999	Mercury	µg/sample	n/a	<0.0500	0.265	0.0500
17-05615-6-TL1-EF-3	Resin	S17T035000	Mercury	µg/sample	97.2	<0.0500	0.260	0.0500
17-05615-6-TL1-EF-3	Glass Wool	S17T035001	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-4	Total	S17T035002	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-4	Resin	S17T035003	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-4	Glass Wool	S17T035004	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-5	Total	S17T035005	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-5	Resin	S17T035006	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-5	Glass Wool	S17T035007	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-6	Total	S17T035009	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-6	Resin	S17T035012	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-6	Glass Wool	S17T035013	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-7	Total	S17T035020	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-7	Resin	S17T035022	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-7	Glass Wool	S17T035023	Mercury	µg/sample	97.2	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-8	Total	S17T035026	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-8	Resin	S17T035028	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-EF-8	Glass Wool	S17T035029	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500

17-05615-6-TL1-IN-1	Total	S17T035032	Mercury	µg/sample	n/a	<0.0500	0.247	0.0500
17-05615-6-TL1-IN-1	Resin	S17T035036	Mercury	µg/sample	93.1	<0.0500	0.242	0.0500
17-05615-6-TL1-IN-1	Glass Wool	S17T035037	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-2	Total	S17T035041	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-2	Resin	S17T035042	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-2	Glass Wool	S17T035043	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-3	Total	S17T035044	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-3	Resin	S17T035045	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-3	Glass Wool	S17T035046	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-4	Total	S17T035047	Mercury	µg/sample	n/a	<0.0500	0.230	0.0500
17-05615-6-TL1-IN-4	Resin	S17T035048	Mercury	µg/sample	93.1	<0.0500	0.225	0.0500
17-05615-6-TL1-IN-4	Glass Wool	S17T035049	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-5	Total	S17T035050	Mercury	µg/sample	n/a	<0.0500	0.249	0.0500
17-05615-6-TL1-IN-5	Resin	S17T035051	Mercury	µg/sample	93.1	<0.0500	0.244	0.0500
17-05615-6-TL1-IN-5	Glass Wool	S17T035052	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-6	Total	S17T035053	Mercury	µg/sample	n/a	<0.0500	0.221	0.0500
17-05615-6-TL1-IN-6	Resin	S17T035054	Mercury	µg/sample	93.1	<0.0500	0.216	0.0500
17-05615-6-TL1-IN-6	Glass Wool	S17T035055	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-7	Total	S17T035056	Mercury	µg/sample	n/a	<0.0500	0.205	0.0500
17-05615-6-TL1-IN-7	Resin	S17T035057	Mercury	µg/sample	93.1	<0.0500	0.200	0.0500
17-05615-6-TL1-IN-7	Glass Wool	S17T035058	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05615-6-TL1-IN-8	Total	S17T035060	Mercury	µg/sample	n/a	<0.0500	0.205	0.0500
17-05615-6-TL1-IN-8	Resin	S17T035064	Mercury	µg/sample	93.1	<0.0500	0.200	0.0500
17-05615-6-TL1-IN-8	Glass Wool	S17T035065	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BA-EF	Total	S17T035080	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BA-EF	Resin	S17T035084	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BA-EF	Glass Wool	S17T035085	Mercury	µg/sample	93.1	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BA-IN	Total	S17T035098	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BA-IN	Resin	S17T035102	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BA-IN	Glass Wool	S17T035103	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BL-EF	Total	S17T035107	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BL-EF	Resin	S17T035108	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BL-EF	Glass Wool	S17T035109	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BL-IN	Total	S17T035110	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BL-IN	Resin	S17T035111	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-BL-IN	Glass Wool	S17T035112	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-1	Total	S17T035113	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-1	Resin	S17T035114	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-1	Glass Wool	S17T035115	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-2	Total	S17T035116	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-2	Resin	S17T035117	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-2	Glass Wool	S17T035118	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-3	Total	S17T035119	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-3	Resin	S17T035120	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-3	Glass Wool	S17T035121	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-4	Total	S17T035122	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-4	Resin	S17T035123	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-4	Glass Wool	S17T035124	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-5	Total	S17T035125	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-5	Resin	S17T035126	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-5	Glass Wool	S17T035127	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-6	Total	S17T035128	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-6	Resin	S17T035129	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-6	Glass Wool	S17T035130	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500

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17-05616-6-TL2-EF-7	Total	S17T035131	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-7	Resin	S17T035132	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-7	Glass Wool	S17T035133	Mercury	µg/sample	95.3	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-8	Total	S17T035134	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-8	Resin	S17T035135	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-EF-8	Glass Wool	S17T035136	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-IN-1	Total	S17T035137	Mercury	µg/sample	n/a	<0.0500	0.216	0.0500
17-05616-6-TL2-IN-1	Resin	S17T035138	Mercury	µg/sample	90.5	<0.0500	0.211	0.0500
17-05616-6-TL2-IN-1	Glass Wool	S17T035139	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-IN-2	Total	S17T035140	Mercury	µg/sample	n/a	<0.0500	0.217	0.0500
17-05616-6-TL2-IN-2	Resin	S17T035141	Mercury	µg/sample	90.5	<0.0500	0.212	0.0500
17-05616-6-TL2-IN-2	Glass Wool	S17T035142	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-IN-3	Total	S17T035143	Mercury	µg/sample	n/a	<0.0500	0.194	0.0500
17-05616-6-TL2-IN-3	Resin	S17T035144	Mercury	µg/sample	90.5	<0.0500	0.189	0.0500
17-05616-6-TL2-IN-3	Glass Wool	S17T035145	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-IN-4	Total	S17T035146	Mercury	µg/sample	n/a	<0.0500	0.203	0.0500
17-05616-6-TL2-IN-4	Resin	S17T035147	Mercury	µg/sample	90.5	<0.0500	0.198	0.0500
17-05616-6-TL2-IN-4	Glass Wool	S17T035148	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-IN-5	Total	S17T035149	Mercury	µg/sample	n/a	<0.0500	0.206	0.0500
17-05616-6-TL2-IN-5	Resin	S17T035150	Mercury	µg/sample	90.5	<0.0500	0.201	0.0500
17-05616-6-TL2-IN-5	Glass Wool	S17T035151	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-IN-7	Total	S17T035152	Mercury	µg/sample	n/a	<0.0500	0.232	0.0500
17-05616-6-TL2-IN-7	Resin	S17T035153	Mercury	µg/sample	90.5	<0.0500	0.227	0.0500
17-05616-6-TL2-IN-7	Glass Wool	S17T035154	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2-IN-8	Total	S17T035155	Mercury	µg/sample	n/a	<0.0500	0.690	0.0500
17-05616-6-TL2-IN-8	Resin	S17T035156	Mercury	µg/sample	90.5	<0.0500	0.685	0.0500
17-05616-6-TL2-IN-8	Glass Wool	S17T035157	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500
17-05616-6-TL2IN-6	Total	S17T035158	Mercury	µg/sample	n/a	<0.0500	0.215	0.0500
17-05616-6-TL2IN-6	Resin	S17T035159	Mercury	µg/sample	90.5	<0.0500	0.210	0.0500
17-05616-6-TL2IN-6	Glass Wool	S17T035160	Mercury	µg/sample	90.5	<0.0500	<0.0500	0.0500

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Attachment 2

ANALYSIS DATE REPORT

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ANALYSIS DATE REPORT FOR SAMPLE GROUP 20173126

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S17T034704	17-05613-6-SC1-BA-EF	Mercury	09/04/2017 09:30	09/14/2017 10:50
S17T034705	17-05613-6-SC1-BA-EF	Mercury	09/04/2017 09:30	09/14/2017 10:51
S17T034707	17-05613-6-scl-ba-in	Mercury	09/04/2017 09:30	09/14/2017 10:58
S17T034708	17-05613-6-scl-ba-in	Mercury	09/04/2017 09:30	09/14/2017 11:00
S17T034710	17-05613-6-scl-bl-ef	Mercury	09/04/2017 09:30	09/14/2017 11:01
S17T034711	17-05613-6-scl-bl-ef	Mercury	09/04/2017 09:30	09/14/2017 11:03
S17T034713	17-05613-6-scl-bl-in	Mercury	09/04/2017 09:30	09/14/2017 11:08
S17T034714	17-05613-6-scl-bl-in	Mercury	09/04/2017 09:30	09/14/2017 11:09
S17T034716	17-05613-6-scl-ef-1	Mercury	09/04/2017 09:30	09/14/2017 11:11
S17T034717	17-05613-6-scl-ef-1	Mercury	09/04/2017 09:30	09/14/2017 11:12
S17T034719	17-05613-6-scl-ef-2	Mercury	09/04/2017 09:30	09/14/2017 11:14
S17T034720	17-05613-6-scl-ef-2	Mercury	09/04/2017 09:30	09/14/2017 11:15
S17T034722	17-05613-6-scl-ef-3	Mercury	09/04/2017 09:30	09/14/2017 11:17
S17T034723	17-05613-6-scl-ef-3	Mercury	09/04/2017 09:30	09/14/2017 11:18
S17T034725	17-05613-6-scl-ef-4	Mercury	09/04/2017 09:30	09/14/2017 11:20
S17T034726	17-05613-6-scl-ef-4	Mercury	09/04/2017 09:30	09/14/2017 11:21
S17T034729	17-05613-6-scl-ef-5	Mercury	09/04/2017 09:30	09/14/2017 11:26
S17T034730	17-05613-6-scl-ef-5	Mercury	09/04/2017 09:30	09/14/2017 11:28
S17T034733	17-05613-6-scl-ef-6	Mercury	09/04/2017 09:30	09/14/2017 11:29
S17T034734	17-05613-6-scl-ef-6	Mercury	09/04/2017 09:30	09/14/2017 11:31
S17T034744	17-05613-6-scl-ef-7	Mercury	09/04/2017 09:30	09/14/2017 11:32
S17T034745	17-05613-6-scl-ef-7	Mercury	09/04/2017 09:30	09/14/2017 11:34
S17T034753	17-05613-6-scl-ef-8	Mercury	09/13/2017 11:30	09/14/2017 12:19
S17T034754	17-05613-6-scl-ef-8	Mercury	09/13/2017 11:30	09/14/2017 12:20
S17T034758	17-05613-6-scl-in-1	Mercury	09/13/2017 11:30	09/14/2017 12:22
S17T034759	17-05613-6-scl-in-1	Mercury	09/13/2017 11:30	09/14/2017 12:24
S17T034770	17-05613-6-scl-in-2	Mercury	09/13/2017 11:30	09/14/2017 12:25
S17T034771	17-05613-6-scl-in-2	Mercury	09/13/2017 11:30	09/14/2017 12:27
S17T034786	17-05613-6-scl-in-3	Mercury	09/13/2017 11:30	09/14/2017 12:28
S17T034787	17-05613-6-scl-in-3	Mercury	09/13/2017 11:30	09/14/2017 12:34
S17T034791	17-05613-6-scl-in-4	Mercury	09/13/2017 11:30	09/14/2017 12:35
S17T034792	17-05613-6-scl-in-4	Mercury	09/13/2017 11:30	09/14/2017 12:37
S17T034812	17-05613-6-scl-in-5	Mercury	09/13/2017 11:30	09/14/2017 12:39
S17T034813	17-05613-6-scl-in-5	Mercury	09/13/2017 11:30	09/14/2017 12:40
S17T034817	17-05613-6-scl-in-6	Mercury	09/13/2017 11:30	09/14/2017 12:42
S17T034818	17-05613-6-scl-in-6	Mercury	09/13/2017 11:30	09/14/2017 12:44
S17T034823	17-05613-6-scl-in-7	Mercury	09/13/2017 11:30	09/14/2017 12:45
S17T034824	17-05613-6-scl-in-7	Mercury	09/13/2017 11:30	09/14/2017 12:47
S17T034829	17-05613-6-scl-in-8	Mercury	09/13/2017 11:30	09/14/2017 12:49
S17T034830	17-05613-6-scl-in-8	Mercury	09/13/2017 11:30	09/14/2017 12:54
S17T034841	17-05614-6-sd1-ba-ef	Mercury	09/13/2017 11:30	09/14/2017 12:55
S17T034842	17-05614-6-sd1-ba-ef	Mercury	09/13/2017 11:30	09/14/2017 12:57
S17T034844	17-05614-6-sd1-ba-in	Mercury	09/13/2017 11:30	09/14/2017 13:02
S17T034845	17-05614-6-sd1-ba-in	Mercury	09/13/2017 11:30	09/14/2017 13:05
S17T034850	17-05614-6-sd1-bl-ef	Mercury	09/13/2017 11:30	09/14/2017 13:07
S17T034851	17-05614-6-sd1-bl-ef	Mercury	09/13/2017 11:30	09/14/2017 13:08
S17T034859	17-05614-6-sd1-bl-in	Mercury	09/13/2017 11:30	09/14/2017 13:13
S17T034860	17-05614-6-sd1-bl-in	Mercury	09/13/2017 11:30	09/14/2017 13:15

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S17T034868	17-05614-6-sd1-ef-1	Mercury	09/13/2017 11:30	09/14/2017 13:16
S17T034869	17-05614-6-sd1-ef-1	Mercury	09/13/2017 11:30	09/14/2017 13:18
S17T034877	17-05614-6-sd1-ef-2	Mercury	09/13/2017 11:30	09/14/2017 13:19
S17T034878	17-05614-6-sd1-ef-2	Mercury	09/13/2017 11:30	09/14/2017 13:21
S17T034887	17-05614-6-sd1-ef-3	Mercury	09/13/2017 11:30	09/14/2017 13:22
S17T034888	17-05614-6-sd1-ef-3	Mercury	09/13/2017 11:30	09/14/2017 13:24
S17T034895	17-05614-6-sd1-ef-4	Mercury	09/13/2017 11:30	09/14/2017 13:25
S17T034896	17-05614-6-sd1-ef-4	Mercury	09/13/2017 11:30	09/14/2017 13:27
S17T034902	17-05614-6-sd1-ef-5	Mercury	09/13/2017 11:30	09/14/2017 13:32
S17T034903	17-05614-6-sd1-ef-5	Mercury	09/13/2017 11:30	09/14/2017 13:33
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S17T034906	17-05614-6-sd1-ef-6	Mercury	09/13/2017 11:30	09/14/2017 13:36
S17T034908	17-05614-6-sd1-ef-7	Mercury	09/13/2017 11:30	09/14/2017 13:38
S17T034909	17-05614-6-sd1-ef-7	Mercury	09/13/2017 11:30	09/14/2017 13:39
S17T034914	17-05614-6-sd1-ef-8	Mercury	09/13/2017 14:50	09/18/2017 18:23
S17T034915	17-05614-6-sd1-ef-8	Mercury	09/13/2017 14:50	09/18/2017 18:24
S17T034922	17-05614-6-sd1-in-1	Mercury	09/13/2017 14:50	09/18/2017 18:26
S17T034923	17-05614-6-sd1-in-1	Mercury	09/13/2017 14:50	09/18/2017 18:28
S17T034938	17-05614-6-sd1-in-2	Mercury	09/13/2017 14:50	09/18/2017 18:29
S17T034939	17-05614-6-sd1-in-2	Mercury	09/13/2017 14:50	09/18/2017 18:31
S17T034946	17-05614-6-SD1-IN-3	Mercury	09/13/2017 14:50	09/18/2017 18:33
S17T034947	17-05614-6-SD1-IN-3	Mercury	09/13/2017 14:50	09/18/2017 18:38
S17T034949	17-05614-6-SD1-IN-4	Mercury	09/13/2017 14:50	09/18/2017 18:39
S17T034950	17-05614-6-SD1-IN-4	Mercury	09/13/2017 14:50	09/18/2017 18:41
S17T034952	17-05614-6-SD1-IN-5	Mercury	09/13/2017 14:50	09/18/2017 18:43
S17T034953	17-05614-6-SD1-IN-5	Mercury	09/13/2017 14:50	09/18/2017 18:44
S17T034955	17-05614-6-SD1-IN-6	Mercury	09/13/2017 14:50	09/18/2017 18:46
S17T034956	17-05614-6-SD1-IN-6	Mercury	09/13/2017 14:50	09/18/2017 18:48
S17T034958	17-05614-6-SD1-IN-7	Mercury	09/13/2017 14:50	09/18/2017 18:49
S17T034959	17-05614-6-SD1-IN-7	Mercury	09/13/2017 14:50	09/18/2017 18:51
S17T034961	17-05614-6-SD1-IN-8	Mercury	09/13/2017 14:50	09/18/2017 18:53
S17T034962	17-05614-6-SD1-IN-8	Mercury	09/13/2017 14:50	09/18/2017 18:58
S17T034982	17-05615-6-TL1-BA-EF	Mercury	09/13/2017 14:50	09/18/2017 19:00
S17T034983	17-05615-6-TL1-BA-EF	Mercury	09/13/2017 14:50	09/18/2017 19:01
S17T034985	17-05615-6-TL1-BA-IN	Mercury	09/13/2017 14:50	09/18/2017 19:08
S17T034986	17-05615-6-TL1-BA-IN	Mercury	09/13/2017 14:50	09/18/2017 19:09
S17T034988	17-05615-6-TL1-BL-EF	Mercury	09/13/2017 14:50	09/18/2017 19:11
S17T034989	17-05615-6-TL1-BL-EF	Mercury	09/13/2017 14:50	09/18/2017 19:12
S17T034991	17-05615-6-TL1-BL-IN	Mercury	09/13/2017 14:50	09/18/2017 19:17
S17T034992	17-05615-6-TL1-BL-IN	Mercury	09/13/2017 14:50	09/18/2017 19:19
S17T034994	17-05615-6-TL1-EF-1	Mercury	09/13/2017 14:50	09/18/2017 19:20
S17T034995	17-05615-6-TL1-EF-1	Mercury	09/13/2017 14:50	09/18/2017 19:22
S17T034997	17-05615-6-TL1-EF-2	Mercury	09/13/2017 14:50	09/18/2017 19:24
S17T034998	17-05615-6-TL1-EF-2	Mercury	09/13/2017 14:50	09/18/2017 19:26
S17T035000	17-05615-6-TL1-EF-3	Mercury	09/13/2017 14:50	09/18/2017 19:27
S17T035001	17-05615-6-TL1-EF-3	Mercury	09/13/2017 14:50	09/18/2017 19:29
S17T035003	17-05615-6-TL1-EF-4	Mercury	09/13/2017 14:50	09/18/2017 19:30
S17T035004	17-05615-6-TL1-EF-4	Mercury	09/13/2017 14:50	09/18/2017 19:32
S17T035006	17-05615-6-TL1-EF-5	Mercury	09/13/2017 14:50	09/18/2017 19:37
S17T035007	17-05615-6-TL1-EF-5	Mercury	09/13/2017 14:50	09/18/2017 19:39
S17T035012	17-05615-6-TL1-EF-6	Mercury	09/13/2017 14:50	09/18/2017 19:41
S17T035013	17-05615-6-TL1-EF-6	Mercury	09/13/2017 14:50	09/18/2017 19:42
S17T035022	17-05615-6-TL1-EF-7	Mercury	09/13/2017 14:50	09/18/2017 19:44
S17T035023	17-05615-6-TL1-EF-7	Mercury	09/13/2017 14:50	09/18/2017 19:46

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S17T035028	17-05615-6-TL1-EF-8	Mercury	09/18/2017 10:25	09/18/2017 20:31
S17T035029	17-05615-6-TL1-EF-8	Mercury	09/18/2017 10:25	09/18/2017 20:32
S17T035036	17-05615-6-TL1-IN-1	Mercury	09/18/2017 10:25	09/18/2017 20:34
S17T035037	17-05615-6-TL1-IN-1	Mercury	09/18/2017 10:25	09/18/2017 20:36
S17T035042	17-05615-6-TL1-IN-2	Mercury	09/18/2017 10:25	09/18/2017 20:37
S17T035043	17-05615-6-TL1-IN-2	Mercury	09/18/2017 10:25	09/18/2017 20:39
S17T035045	17-05615-6-TL1-IN-3	Mercury	09/18/2017 10:25	09/18/2017 20:41
S17T035046	17-05615-6-TL1-IN-3	Mercury	09/18/2017 10:25	09/18/2017 20:46
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S17T035058	17-05615-6-TL1-IN-7	Mercury	09/18/2017 10:25	09/18/2017 20:59
S17T035064	17-05615-6-TL1-IN-8	Mercury	09/18/2017 10:25	09/18/2017 21:01
S17T035065	17-05615-6-TL1-IN-8	Mercury	09/18/2017 10:25	09/18/2017 21:06
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S17T035103	17-05616-6-TL2-BA-IN	Mercury	09/18/2017 10:25	09/18/2017 21:17
S17T035108	17-05616-6-TL2-BL-EF	Mercury	09/18/2017 10:25	09/18/2017 21:19
S17T035109	17-05616-6-TL2-BL-EF	Mercury	09/18/2017 10:25	09/18/2017 21:20
S17T035111	17-05616-6-TL2-BL-IN	Mercury	09/18/2017 10:25	09/18/2017 21:25
S17T035112	17-05616-6-TL2-BL-IN	Mercury	09/18/2017 10:25	09/18/2017 21:27
S17T035114	17-05616-6-TL2-EF-1	Mercury	09/18/2017 10:25	09/18/2017 21:28
S17T035115	17-05616-6-TL2-EF-1	Mercury	09/18/2017 10:25	09/18/2017 21:30
S17T035117	17-05616-6-TL2-EF-2	Mercury	09/18/2017 10:25	09/18/2017 21:32
S17T035118	17-05616-6-TL2-EF-2	Mercury	09/18/2017 10:25	09/18/2017 21:34
S17T035120	17-05616-6-TL2-EF-3	Mercury	09/18/2017 10:25	09/18/2017 21:35
S17T035121	17-05616-6-TL2-EF-3	Mercury	09/18/2017 10:25	09/18/2017 21:37
S17T035123	17-05616-6-TL2-EF-4	Mercury	09/18/2017 10:25	09/18/2017 21:39
S17T035124	17-05616-6-TL2-EF-4	Mercury	09/18/2017 10:25	09/18/2017 21:40
S17T035126	17-05616-6-TL2-EF-5	Mercury	09/18/2017 10:25	09/18/2017 21:45
S17T035127	17-05616-6-TL2-EF-5	Mercury	09/18/2017 10:25	09/18/2017 21:47
S17T035129	17-05616-6-TL2-EF-6	Mercury	09/18/2017 10:25	09/18/2017 21:49
S17T035130	17-05616-6-TL2-EF-6	Mercury	09/18/2017 10:25	09/18/2017 21:50
S17T035132	17-05616-6-TL2-EF-7	Mercury	09/18/2017 10:25	09/18/2017 21:52
S17T035133	17-05616-6-TL2-EF-7	Mercury	09/18/2017 10:25	09/18/2017 21:53
S17T035135	17-05616-6-TL2-EF-8	Mercury	09/18/2017 16:00	09/19/2017 12:20
S17T035136	17-05616-6-TL2-EF-8	Mercury	09/18/2017 16:00	09/19/2017 12:22
S17T035138	17-05616-6-TL2-IN-1	Mercury	09/18/2017 16:00	09/19/2017 12:23
S17T035139	17-05616-6-TL2-IN-1	Mercury	09/18/2017 16:00	09/19/2017 12:25
S17T035141	17-05616-6-TL2-IN-2	Mercury	09/18/2017 16:00	09/19/2017 12:27
S17T035142	17-05616-6-TL2-IN-2	Mercury	09/18/2017 16:00	09/19/2017 12:29
S17T035144	17-05616-6-TL2-IN-3	Mercury	09/18/2017 16:00	09/19/2017 12:30
S17T035145	17-05616-6-TL2-IN-3	Mercury	09/18/2017 16:00	09/19/2017 12:35
S17T035147	17-05616-6-TL2-IN-4	Mercury	09/18/2017 16:00	09/19/2017 12:37
S17T035148	17-05616-6-TL2-IN-4	Mercury	09/18/2017 16:00	09/19/2017 12:39
S17T035150	17-05616-6-TL2-IN-5	Mercury	09/18/2017 16:00	09/19/2017 12:40
S17T035151	17-05616-6-TL2-IN-5	Mercury	09/18/2017 16:00	09/19/2017 12:42
S17T035153	17-05616-6-TL2-IN-7	Mercury	09/18/2017 16:00	09/19/2017 12:44
S17T035154	17-05616-6-TL2-IN-7	Mercury	09/18/2017 16:00	09/19/2017 12:45

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S17T035156	17-05616-6-TL2-IN-8	Mercury	09/18/2017 16:00	09/19/2017 12:47
S17T035157	17-05616-6-TL2-IN-8	Mercury	09/18/2017 16:00	09/19/2017 12:49
S17T035159	17-05616-6-TL2IN-6	Mercury	09/18/2017 16:00	09/19/2017 12:50
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Attachment 3

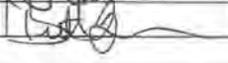
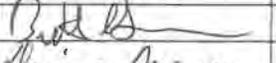
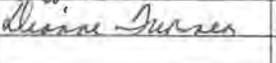
RECEIPT PAPERWORK

15 of 28

C.583

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST			ATS-LO-090-101 Rev DH-1
Date Samples Received: <u>8/29/17</u>		Total Number of Samples: <u>1000</u>		Group No.: <u>20173012</u>
Sample Custodian: <u>Don Scorsone</u>		IH Technician: <u>[Signature]</u> <u>8/29/17</u>		
Sample Custodian to Complete				
Action	Yes	No	N/A	Comments
RSR provided?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Verify GKI is complete	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="checkbox"/> In Project File
Received from an alpha facility?	<input type="radio"/>	<input checked="" type="radio"/>		<input type="checkbox"/> Contact PC for approval to release
Check that outer custody seal is intact, if present	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Record cooler temperature in centigrade, as appropriate	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/> Check if no cooler and/or no ice <u>7.2°</u>
Samples are intact and in good condition	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Date and time of sampling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Sampling location or origin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Container type, size, and number	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Preservatives (if used) noted on the COC/RSA and sample bottles	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
• Analysis request is clear	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Signature of persons relinquishing and receiving samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Date and/or time of sample custody exchange	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Verify that sample numbers on containers match the COC and/or RSA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples stored properly (e.g., refrigeration)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No PC/SC Initials: <u>AD</u> Date: <u>8/28/17</u>				
If No, comment on communication and resolution: <u>WRPS SHIP</u> <u>Run</u>				
<u>WHL NH380 Hg80</u> <u>Acetone/Trile-80</u>				
Number of IH Samples Received:				
Aldehyde Screen: <u>80</u>	Amines: <u>80</u>	Ammonia: <u>80</u>	Aromatic HC:	Asbestos:
Beryllium:	Be-Bulk:	Be-Filter:	Be-Wipe:	1, 3-Butadiene: <u>60</u>
Formaldehyde:	Furans: <u>80</u>	Mercury: <u>80</u>	Methanol: <u>40</u>	Nitrosamines: <u>80</u>
Nitrous Oxide:	Pyridines: <u>80</u>	SVOA: <u>80</u>	VOA: <u>80</u>	Other-IH:

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/27/17	
CACN: ^{DV 8/22/17} 202845 203006		COA: CB20	Survey No.: 17-05613 - AX-Farm Cartridge Testing Sat-Sun Yellow Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
	17-05613-3-SC1-IN-8 / TDU (Tenax)  CS 7-19-17	Furans Source			
S17T034703	17-05613-6-SC1-BA-EF / Hydrar (SKC 226-17-1A)  S17T034704 S17T034705	Hg-Elemental Source			
S17T034706	17-05613-6-SC1-BA-IN / Hydrar (SKC 226-17-1A)  S17T034707 S17T034708	Hg-Elemental Source			
S17T034709	17-05613-6-SC1-BL-EF / Hydrar (SKC 226-17-1A)  S17T034710 S17T034711	Hg-Elemental Source			
S17T034712	17-05613-6-SC1-BL-IN / Hydrar (SKC 226-17-1A)  S17T034713 S17T034714	Hg-Elemental Source			
S17T034715	17-05613-6-SC1-EF-1 / Hydrar (SKC 226-17-1A)  S17T034716 S17T034717	Hg-Elemental Source			
S17T034718	17-05613-6-SC1-EF-2 / Hydrar (SKC 226-17-1A)  S17T034719 S17T034720	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBBIE	MO-25C	8/27/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

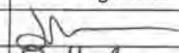
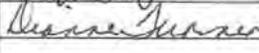
INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/27/17	
CACN: ^{DL 8/22/17} 202643 203006		COA: CB20		Survey No.: 17-05613 - AX-Farm Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
517T034722	17-05613-6-SC1-EF-3 / Hydrar (SKC 226-17-1A) 517T034722 517T034723	Hg-Elemental Source			
517T034724	17-05613-6-SC1-EF-4 / Hydrar (SKC 226-17-1A) 517T034725 517T034726	Hg-Elemental Source			
517T034727	17-05613-6-SC1-EF-5 / Hydrar (SKC 226-17-1A) 517T034729 517T034730	Hg-Elemental Source			
517T034732	17-05613-6-SC1-EF-6 / Hydrar (SKC 226-17-1A) 517T034733 517T034734	Hg-Elemental Source			
517T034743	17-05613-6-SC1-EF-7 / Hydrar (SKC 226-17-1A) 517T034744 517T034745	Hg-Elemental Source			
517T034752	17-05613-6-SC1-EF-8 / Hydrar (SKC 226-17-1A) 517T034753 517T034754	Hg-Elemental Source			
517T034756	17-05613-6-SC1-IN-1 / Hydrar (SKC 226-17-1A) 517T034758 517T034759	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		J. ROBLEE	MO-252	8/27/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 8/27/17	
CACN: 202043 ^{01 8/22/17} 8 202006		COA: CB20	Survey No.: 17-05613 - AX-Farm Cartridge Testing Sat-Sun Yellow Mac		
Contact Name: Jones, Parker L.		Phone: (509)373-4966	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			
5177034768	17-05613-6-SC1-IN-2 / Hydrar (SKC 226-17-1A) 5177034770 5177034771	Hg-Elemental Source			
5177034783	17-05613-6-SC1-IN-3 / Hydrar (SKC 226-17-1A) 5177034786 5177034787	Hg-Elemental Source			
5177034790	17-05613-6-SC1-IN-4 / Hydrar (SKC 226-17-1A) 5177034791 5177034792	Hg-Elemental Source			
5177034797	17-05613-6-SC1-IN-5 / Hydrar (SKC 226-17-1A) 5177034812 5177034813	Hg-Elemental Source			
5177034816	17-05613-6-SC1-IN-6 / Hydrar (SKC 226-17-1A) 5177034817 5177034818	Hg-Elemental Source			
5177034819	17-05613-6-SC1-IN-7 / Hydrar (SKC 226-17-1A) 5177034823 5177034824	Hg-Elemental Source			
5177034826	17-05613-6-SC1-IN-8 / Hydrar (SKC 226-17-1A) 5177034829 5177034830	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>[Signature]</i>	JAKE ROBLEE	MO -252	8/27/17	0600
Retrieved from Storage:	<i>[Signature]</i>	BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>[Signature]</i>	BRETT GARNER	8/28/17	13:30	
Received By:	<i>[Signature]</i>	Dianna Turner	8/28/17	13:30	
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: 8/26/17		
CACN: 202645 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L.			Phone: (509)373-4966		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			
	17-05614-3-SD1-IN-8 / TDU (Tenax)  15 719-17	Furans-Source			
S177034840	17-05614-6-SD1-BA-EF / Hydrar (SKC 226-17-1A)  S177034841 S177034842	Hg-Elemental Source			
S177034843	17-05614-6-SD1-BA-IN / Hydrar (SKC 226-17-1A)  S177034844 S177034845	Hg-Elemental Source			
S177034847	17-05614-6-SD1-BL-EF / Hydrar (SKC 226-17-1A)  S177034850 S177034850 → S177034851	Hg-Elemental Source			
S177034855	17-05614-6-SD1-BL-IN / Hydrar (SKC 226-17-1A)  S177034859 S177034860	Hg-Elemental Source			
S177034865	17-05614-6-SD1-EF-1 / Hydrar (SKC 226-17-1A)  S177034868 S177034869	Hg-Elemental Source			
S177034871	17-05614-6-SD1-EF-2 / Hydrar (SKC 226-17-1A)  S177034877 S177034878	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JOKE PORRICE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 8/26/17		
CACN: DV 8/22/17 202043 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
5177034885	17-05614-6-SD1-EF-3 / Hydrar (SKC 226-17-1A) - 5177034887 5177034888	Hg-Elemental Source			
5177034891	17-05614-6-SD1-EF-4 / Hydrar (SKC 226-17-1A) - 5177034895 5177034896	Hg-Elemental Source			
5177034900	17-05614-6-SD1-EF-5 / Hydrar (SKC 226-17-1A) - 5177034902 5177034903	Hg-Elemental Source			
5177034904	17-05614-6-SD1-EF-6 / Hydrar (SKC 226-17-1A) - 5177034905 5177034906	Hg-Elemental Source			
5177034907	17-05614-6-SD1-EF-7 / Hydrar (SKC 226-17-1A) - 5177034908 5177034909	Hg-Elemental Source			
5177034912	17-05614-6-SD1-EF-8 / Hydrar (SKC 226-17-1A) - 5177034914 5177034915	Hg-Elemental Source			
5177034918	17-05614-6-SD1-IN-1 / Hydrar (SKC 226-17-1A) - 5177034922 5177034923	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLES	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 8/26/17		
CACN: ^{DV 8/22/17} 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
5177034937	17-05614-6-SD1-IN-2 / Hydrar (SKC 226-17-1A) 5177034938 5177034939	Hg-Elemental Source			
5177034942	17-05614-6-SD1-IN-3 / Hydrar (SKC 226-17-1A) 5177034944 5177034947	Hg-Elemental Source			
5177034948	17-05614-6-SD1-IN-4 / Hydrar (SKC 226-17-1A) 5177034949 5177034950	Hg-Elemental Source			
5177034951	17-05614-6-SD1-IN-5 / Hydrar (SKC 226-17-1A) 5177034952 5177034953	Hg-Elemental Source			
5177034954	17-05614-6-SD1-IN-6 / Hydrar (SKC 226-17-1A) 5177034955 5177034956	Hg-Elemental Source			
5177034957	17-05614-6-SD1-IN-7 / Hydrar (SKC 226-17-1A) 5177034958 5177034959	Hg-Elemental Source			
5177034960	17-05614-6-SD1-IN-8 / Hydrar (SKC 226-17-1A) 5177034961 5177034962	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE JONES	MO-252	8/26/17	0600
Retrieved from Storage:		Matt Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Matt Garner	8/28/17	1330	
Received By:		Dianne Turner	8/28/17	1330	
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: 8/20/17	
CACN: ^{DN 8/22/17} 202843 203006		COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
	17-05615-3-TL1-IN-8 / TDU (Tenax) <i>SN 07-19-17</i>	Furans-Source			
✓ 5177034981	17-05615-6-TL1-BA-EF / Hydrar (SKC 226-17-1A) 5177034982 5177034983	Hg-Elemental Source			
✓ 5177034984	17-05615-6-TL1-BA-IN / Hydrar (SKC 226-17-1A) 5177034985 5177034986	Hg-Elemental Source			
✓ 5177034987	17-05615-6-TL1-BL-EF / Hydrar (SKC 226-17-1A) 5177034988 5177034989	Hg-Elemental Source			
✓ 5177034990	17-05615-6-TL1-BL-IN / Hydrar (SKC 226-17-1A) 5177034991 5177034992	Hg-Elemental Source			
✓ 5177034993	17-05615-6-TL1-EF-1 / Hydrar (SKC 226-17-1A) 5177034994 5177034995	Hg-Elemental Source			
✓ 5177034996	17-05615-6-TL1-EF-2 / Hydrar (SKC 226-17-1A) 5177034997 5177034998	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>Jake Roblee</i>	Jake Roblee	MO 252	8/26/17	0600
Retrieved from Storage:	<i>Brett Garner</i>	Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>Brett Garner</i>	Brett Garner	8/28/17	1330	
Received By:	<i>Don Sorenson</i>	Don Sorenson	8/29/17	1330	
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: 8/26/17		
CACN: 202643 203006		COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
✓ 5177034999	17-05615-6-TL1-EF-3 / Hydrar (SKC 226-17-1A) ^{gl 8-2117} 5177034 5177035000 5177035001	Hg-Elemental Source			
✓ 5177035002	17-05615-6-TL1-EF-4 / Hydrar (SKC 226-17-1A) 5177035003 5177035004	Hg-Elemental Source			
✓ 5177035005	17-05615-6-TL1-EF-5 / Hydrar (SKC 226-17-1A) 5177035006 5177035007	Hg-Elemental Source			
✓ 5177035009	17-05615-6-TL1-EF-6 / Hydrar (SKC 226-17-1A) 5177035012 5177035013	Hg-Elemental Source			
✓ 5177035020	17-05615-6-TL1-EF-7 / Hydrar (SKC 226-17-1A) 5177035022 5177035023	Hg-Elemental Source			
✓ 5177035026	17-05615-6-TL1-EF-8 / Hydrar (SKC 226-17-1A) 5177035028 5177035029	Hg-Elemental Source			
✓ 5177035032	17-05615-6-TL1-IN-1 / Hydrar (SKC 226-17-1A) 5177035036 5177035037	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE/PARKER	M0 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Jensen	8/28/17	1330	
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: 8/26/17	
CACN: 202093 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L.			Phone: (509)373-4966		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			
✓ 5177035041	17-05615-6-TL1-IN-2 / Hydrar (SKC 226-17-1A) 5177035042 5177035043	Hg-Elemental Source			
✓ 5177035044	17-05615-6-TL1-IN-3 / Hydrar (SKC 226-17-1A) 5177035045 5177035046	Hg-Elemental Source			
✓ 5177035047	17-05615-6-TL1-IN-4 / Hydrar (SKC 226-17-1A) 5177035048 5177035049	Hg-Elemental Source			
✓ 5177035050	17-05615-6-TL1-IN-5 / Hydrar (SKC 226-17-1A) 5177035051 5177035052	Hg-Elemental Source			
✓ 5177035053	17-05615-6-TL1-IN-6 / Hydrar (SKC 226-17-1A) 5177035054 5177035055	Hg-Elemental Source			
✓ 5177035056	17-05615-6-TL1-IN-7 / Hydrar (SKC 226-17-1A) 5177035057 5177035058	Hg-Elemental Source			
✓ 5177035060	17-05615-6-TL1-IN-8 / Hydrar (SKC 226-17-1A) 5177035064 5177035065	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>Jan</i>	JAKE ROYEE	M0252	8/26/17	0600
Retrieved from Storage:	<i>Brett G</i>	Brett Garner		8/25/17	0900
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>Brett G</i>	Brett Garner	8/25/17	1330	
Received By:	<i>Don</i>	Don Johnson	8/23/17	1330	
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: 8/27/17	
CACN: DV 8/22/17 202845 203006		COA: CB20		Survey No.: 17-05616 - AX-Farm Cartridge Testing Sat-Sun Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05616-3-TL2-IN-8 / TDU (Tenax) <i>CS</i> <i>7-19-17</i>	Furans Source			
<i>5177035080</i>	17-05616-6-TL2-BA-EF / Hydrar (SKC 226-17-1A) <i>5177035084</i> <i>5177035085</i>	Hg-Elemental Source			
<i>5177035098</i>	17-05616-6-TL2-BA-IN / Hydrar (SKC 226-17-1A) <i>5177035102</i> <i>5177035103</i>	Hg-Elemental Source			
<i>5177035107</i>	17-05616-6-TL2-BL-EF / Hydrar (SKC 226-17-1A) <i>51770351108</i> <i>51770351109</i>	Hg-Elemental Source			
<i>5177035110</i>	17-05616-6-TL2-BL-IN / Hydrar (SKC 226-17-1A) <i>5177035111</i> <i>5177035112</i>	Hg-Elemental Source			
<i>5177035113</i>	17-05616-6-TL2-EF-1 / Hydrar (SKC 226-17-1A) <i>5177035114</i> <i>5177035115</i>	Hg-Elemental Source			
<i>5177035116</i>	17-05616-6-TL2-EF-2 / Hydrar (SKC 226-17-1A) <i>5177035117</i> <i>5177035118</i>	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>[Signature]</i>	JAKE ROBLES	MO-252	8/27/17	0600
Retrieved from Storage:	<i>[Signature]</i>	Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>[Signature]</i>	Brett Garner	8/28/17	1330	
Received By:	<i>[Signature]</i>	Dianne Turner	8/28/17	1330	
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: 8/27/17	
CACN: ^{DV 8/22/17} 262643 <u>203006</u>		COA: CB20		Survey No.: 17-05616 - AX-Farm Cartridge Testing Sat-Sun Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4965		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			
S17T03519	17-05616-6-TL2-EF-3 / Hydrar (SKC 226-17-1A) S17T035120 S17T035121	Hg-Elemental Source			
S17T035122	17-05616-6-TL2-EF-4 / Hydrar (SKC 226-17-1A) ^{8/1 8347} S17T035123 S17T035124 S17T035124	Hg-Elemental Source			
S17T035125	17-05616-6-TL2-EF-5 / Hydrar (SKC 226-17-1A) S17T035126 S17T035127	Hg-Elemental Source			
S17T035128	17-05616-6-TL2-EF-6 / Hydrar (SKC 226-17-1A) S17T035129 S17T035130	Hg-Elemental Source			
S17T035131	17-05616-6-TL2-EF-7 / Hydrar (SKC 226-17-1A) S17T035132 S17T035133	Hg-Elemental Source			
S17T035134	17-05616-6-TL2-EF-8 / Hydrar (SKC 226-17-1A) S17T035135 S17T035136	Hg-Elemental Source			
S17T035137	17-05616-6-TL2-IN-1 / Hydrar (SKC 226-17-1A) S17T035138 S17T035139	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/27/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Dianne Turner	8/28/17	1330	
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: 8/27/17	
CACN: ^{01 8/27/17} 202843 203006	COA: CB20	Survey No.: 17-05616 - AX-Farm Cartridge Testing Sat-Sun Green Mac	
Contact Name: Jones, Parker L		Phone: (509)373-4966	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	
5177035140	17-05616-6-TL2-IN-2 / Hydrar (SKC 226-17-1A) ; 5177035141 5177035142	Hg-Elemental Source	
5177035143	17-05616-6-TL2-IN-3 / Hydrar (SKC 226-17-1A) ; 5177035144 5177035145	Hg-Elemental Source	
5177035146	17-05616-6-TL2-IN-4 / Hydrar (SKC 226-17-1A) ; 5177035147 5177035148	Hg-Elemental Source	
5177035149	17-05616-6-TL2-IN-5 / Hydrar (SKC 226-17-1A) ; 5177035150 5177035151	Hg-Elemental Source	
5177035152	17-05616-6-TL2-IN-7 / Hydrar (SKC 226-17-1A) ; 5177035153 5177035154	Hg-Elemental Source	
5177035155	17-05616-6-TL2-IN-8 / Hydrar (SKC 226-17-1A) ; 5177035156 5177035157	Hg-Elemental Source	
5177035158	17-05616-6-TL2IN-6 / Hydrar (SKC 226-17-1A) ; 5177035159 5177035160	Hg-Elemental Source	
Special Instructions:			
	Signature	Printed Name	Location
Delivered to Storage:		J. RORLEE	MO-252
Retrieved from Storage:		Brett Garner	
	Signature	Printed Name	Date
Relinquished By:		Brett Garner	8/28/17
Received By:		Diaque Turner	8/28/17
Relinquished By:			
Received By:			
Relinquished By:			
Received By:			
Additional Comments:			

C.4.8 Ammonia

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**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED AUGUST 26-27, 2017**

Document No.: 20173011 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

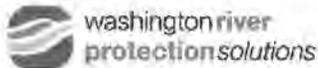
Date Published
September 28, 2017



LAB # 184777

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 September 28, 2017
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED AUGUST 26-27, 2017**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on August 28, 2017, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20173011.

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. 3-1	LA-533-117, Rev. 3-1 LA-503-157, Rev. 2-7

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 81 - 111% for instrument IC-09 and 83 - 112 for instrument IC-13, 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

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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.

The RPD% (Relative Percent Difference) for the LCS/LCS Dup for batch 76978 was outside the acceptance criteria of $\leq 7\%$ at 8.5%, all associated samples have been "c" flagged.

49 of the 80 ammonia sample for group 20173011 were above the reporting limit of μg per sample. For sample 17-05614-7-sd1-in-5, both the front resin and back resin portions were below the reporting limit, but the total was not (see Attachment 1).

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Attachment 1

DATA SUMMARY REPORT

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DATA SUMMARY REPORT FOR SAMPLE GROUP 20173011

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
17-05613-7-SC1-IN-3	Total	S17T033618	Ammonia	ug/sample	n/a	<10.0	62.7	10.0
17-05613-7-SC1-IN-3	Front Resin	S17T033639	Ammonia	ug/sample	90.6	<10.0	62.2	10.0
17-05613-7-SC1-IN-3	Back Resin	S17T033640	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-IN-4	Total	S17T033641	Ammonia	ug/sample	n/a	<10.0	60.6	10.0
17-05613-7-SC1-IN-4	Front Resin	S17T033642	Ammonia	ug/sample	90.6	<10.0	60.1	10.0
17-05613-7-SC1-IN-4	Back Resin	S17T033643	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-IN-5	Total	S17T033644	Ammonia	ug/sample	n/a	<10.0	15.9	10.0
17-05613-7-SC1-IN-5	Front Resin	S17T033651	Ammonia	ug/sample	90.6	<10.0	15.5	10.0
17-05613-7-SC1-IN-5	Back Resin	S17T033652	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-IN-6	Total	S17T033664	Ammonia	ug/sample	n/a	<10.0	57.3	10.0
17-05613-7-SC1-IN-6	Front Resin	S17T033668	Ammonia	ug/sample	90.6	<10.0	57.0	10.0
17-05613-7-SC1-IN-6	Back Resin	S17T033669	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-IN-7	Total	S17T033670	Ammonia	ug/sample	n/a	<10.0	57.2	10.0
17-05613-7-SC1-IN-7	Front Resin	S17T033671	Ammonia	ug/sample	90.6	<10.0	56.9	10.0
17-05613-7-SC1-IN-7	Back Resin	S17T033672	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-IN-8	Total	S17T033676	Ammonia	ug/sample	n/a	<10.0	47.3	10.0
17-05613-7-SC1-IN-8	Front Resin	S17T033682	Ammonia	ug/sample	90.6	<10.0	46.9	10.0
17-05613-7-SC1-IN-8	Back Resin	S17T033684	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-BA-EF	Total	S17T033691	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-BA-EF	Front Resin	S17T033697	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-BA-EF	Back Resin	S17T033698	Ammonia	ug/sample	90.6	<10.0	<10.0	10.0
17-05613-7-SC1-BA-IN	Total	S17T033699	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-BA-IN	Front Resin	S17T033714	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05613-7-SC1-BA-IN	Back Resin	S17T033716	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05613-7-SC1-BL-EF	Total	S17T033722	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-BL-EF	Front Resin	S17T033723	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-BL-EF	Back Resin	S17T033724	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-BL-IN	Total	S17T033725	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-BL-IN	Front Resin	S17T033746	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-BL-IN	Back Resin	S17T033747	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-sc1-ef-1	Total	S17T033748	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-sc1-ef-1	Front Resin	S17T033769	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-sc1-ef-1	Back Resin	S17T033770	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-sc1-ef-2	Total	S17T033771	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-sc1-ef-2	Front Resin	S17T033772	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-sc1-ef-2	Back Resin	S17T033773	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-sc1-ef-3	Total	S17T033787	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-sc1-ef-3	Front Resin	S17T033795	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-sc1-ef-3	Back Resin	S17T033796	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-4	Total	S17T034846	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-EF-4	Front Resin	S17T034848	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-4	Back Resin	S17T034849	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-5	Total	S17T034852	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-EF-5	Front Resin	S17T034853	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-5	Back Resin	S17T034854	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-6	Total	S17T034856	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-EF-6	Front Resin	S17T034857	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-6	Back Resin	S17T034858	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-7	Total	S17T034861	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-EF-7	Front Resin	S17T034862	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-7	Back Resin	S17T034863	Ammonia	ug/sample	103	<10.0	<10.0	10.0

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17-05613-7-SC1-EF-8	Total	S17T034864	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05613-7-SC1-EF-8	Front Resin	S17T034866	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-EF-8	Back Resin	S17T034867	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-IN-1	Total	S17T034870	Ammonia	ug/sample	n/a	<10.0	65.7	10.0
17-05613-7-SC1-IN-1	Front Resin	S17T034872	Ammonia	ug/sample	103	<10.0	65.2	10.0
17-05613-7-SC1-IN-1	Back Resin	S17T034873	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05613-7-SC1-IN-2	Total	S17T034874	Ammonia	ug/sample	n/a	<10.0	75.1	10.0
17-05613-7-SC1-IN-2	Front Resin	S17T034875	Ammonia	ug/sample	103	<10.0	74.4	10.0
17-05613-7-SC1-IN-2	Back Resin	S17T034876	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BA-EF	Total	S17T034879	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05616-7-TL2-BA-EF	Front Resin	S17T034880	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BA-EF	Back Resin	S17T034881	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BA-IN	Total	S17T034882	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05616-7-TL2-BA-IN	Front Resin	S17T034883	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BA-IN	Back Resin	S17T034884	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BL-EF	Total	S17T034886	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05616-7-TL2-BL-EF	Front Resin	S17T034889	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BL-EF	Back Resin	S17T034890	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BL-IN	Total	S17T034892	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05616-7-TL2-BL-IN	Front Resin	S17T034893	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-BL-IN	Back Resin	S17T034894	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-EF-1	Total	S17T034897	Ammonia	ug/sample	n/a	<10.0	18.0	10.0
17-05616-7-TL2-EF-1	Front Resin	S17T034898	Ammonia	ug/sample	103	<10.0	17.5	10.0
17-05616-7-TL2-EF-1	Back Resin	S17T034899	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-EF-2	Total	S17T034901	Ammonia	ug/sample	n/a	<10.0	19.9	10.0
17-05616-7-TL2-EF-2	Front Resin	S17T034910	Ammonia	ug/sample	103	<10.0	19.4	10.0
17-05616-7-TL2-EF-2	Back Resin	S17T034911	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-EF-3	Total	S17T034913	Ammonia	ug/sample	n/a	<10.0	21.2	10.0
17-05616-7-TL2-EF-3	Front Resin	S17T034916	Ammonia	ug/sample	103	<10.0	20.7	10.0
17-05616-7-TL2-EF-3	Back Resin	S17T034917	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05616-7-TL2-EF-4	Total	S17T034919	Ammonia	ug/sample	n/a	<10.0	23.4	10.0
17-05616-7-TL2-EF-4	Front Resin	S17T034920	Ammonia	ug/sample	96.8	<10.0	23.0	10.0
17-05616-7-TL2-EF-4	Back Resin	S17T034921	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-EF-5	Total	S17T034924	Ammonia	ug/sample	n/a	<10.0	23.8	10.0
17-05616-7-TL2-EF-5	Front Resin	S17T034925	Ammonia	ug/sample	96.8	<10.0	23.5	10.0
17-05616-7-TL2-EF-5	Back Resin	S17T034926	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-EF-6	Total	S17T034927	Ammonia	ug/sample	n/a	<10.0	18.1	10.0
17-05616-7-TL2-EF-6	Front Resin	S17T034928	Ammonia	ug/sample	96.8	<10.0	17.6	10.0
17-05616-7-TL2-EF-6	Back Resin	S17T034929	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-EF-7	Total	S17T034930	Ammonia	ug/sample	n/a	<10.0	22.0	10.0
17-05616-7-TL2-EF-7	Front Resin	S17T034931	Ammonia	ug/sample	96.8	<10.0	21.6	10.0
17-05616-7-TL2-EF-7	Back Resin	S17T034932	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-EF-8	Total	S17T034933	Ammonia	ug/sample	n/a	<10.0	16.9	10.0
17-05616-7-TL2-EF-8	Front Resin	S17T034934	Ammonia	ug/sample	96.8	<10.0	16.5	10.0
17-05616-7-TL2-EF-8	Back Resin	S17T034935	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-IN-1	Total	S17T034936	Ammonia	ug/sample	n/a	<10.0	71.3	10.0
17-05616-7-TL2-IN-1	Front Resin	S17T034940	Ammonia	ug/sample	96.8	<10.0	71.0	10.0
17-05616-7-TL2-IN-1	Back Resin	S17T034941	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-IN-2	Total	S17T034943	Ammonia	ug/sample	n/a	<10.0	72.9	10.0
17-05616-7-TL2-IN-2	Front Resin	S17T034944	Ammonia	ug/sample	96.8	<10.0	72.5	10.0
17-05616-7-TL2-IN-2	Back Resin	S17T034945	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-IN-3	Total	S17T034963	Ammonia	ug/sample	n/a	<10.0	66.8	10.0
17-05616-7-TL2-IN-3	Front Resin	S17T034964	Ammonia	ug/sample	96.8	<10.0	66.5	10.0
17-05616-7-TL2-IN-3	Back Resin	S17T034965	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0
17-05616-7-TL2-IN-4	Total	S17T034966	Ammonia	ug/sample	n/a	<10.0	62.0	10.0
17-05616-7-TL2-IN-4	Front Resin	S17T034967	Ammonia	ug/sample	96.8	<10.0	61.6	10.0
17-05616-7-TL2-IN-4	Back Resin	S17T034968	Ammonia	ug/sample	96.8	<10.0	<10.0	10.0

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17-05616-7-TL2-IN-5	Total	S17T034969	Ammonia	ug/sample	n/a	<10.0	59.3	10.0
17-05616-7-TL2-IN-5	Front Resin	S17T034970	Ammonia	ug/sample	97.2	<10.0	58.8	10.0
17-05616-7-TL2-IN-5	Back Resin	S17T034971	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05616-7-TL2-IN-6	Total	S17T034972	Ammonia	ug/sample	n/a	<10.0	64.2	10.0
17-05616-7-TL2-IN-6	Front Resin	S17T034973	Ammonia	ug/sample	97.2	<10.0	63.8	10.0
17-05616-7-TL2-IN-6	Back Resin	S17T034974	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05616-7-TL2-IN-7	Total	S17T034975	Ammonia	ug/sample	n/a	<10.0	61.4	10.0
17-05616-7-TL2-IN-7	Front Resin	S17T034976	Ammonia	ug/sample	97.2	<10.0	61.1	10.0
17-05616-7-TL2-IN-7	Back Resin	S17T034977	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05616-7-TL2-IN-8	Total	S17T034978	Ammonia	ug/sample	n/a	<10.0	68.5	10.0
17-05616-7-TL2-IN-8	Front Resin	S17T034979	Ammonia	ug/sample	97.2	<10.0	68.1	10.0
17-05616-7-TL2-IN-8	Back Resin	S17T034980	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-ba-ef	Total	S17T035008	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ba-ef	Front Resin	S17T035010	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-ba-ef	Back Resin	S17T035011	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-ba-in	Total	S17T035014	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ba-in	Front Resin	S17T035015	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-ba-in	Back Resin	S17T035016	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-bl-ef	Total	S17T035017	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-bl-ef	Front Resin	S17T035018	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-bl-ef	Back Resin	S17T035019	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-bl-in	Total	S17T035021	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-bl-in	Front Resin	S17T035024	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-bl-in	Back Resin	S17T035025	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-ef-1	Total	S17T035027	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-1	Front Resin	S17T035030	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-ef-1	Back Resin	S17T035031	Ammonia	ug/sample	97.2	<10.0	<10.0	10.0
17-05614-7-sd1-ef-2	Total	S17T035033	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-2	Front Resin	S17T035034	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-2	Back Resin	S17T035035	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-3	Total	S17T035038	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-3	Front Resin	S17T035039	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-3	Back Resin	S17T035040	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-4	Total	S17T035059	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-4	Front Resin	S17T035061	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-4	Back Resin	S17T035062	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-5	Total	S17T035063	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-5	Front Resin	S17T035066	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-5	Back Resin	S17T035067	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-6	Total	S17T035068	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-6	Front Resin	S17T035069	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-6	Back Resin	S17T035070	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-7	Total	S17T035071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-7	Front Resin	S17T035072	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-7	Back Resin	S17T035073	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-8	Total	S17T035074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05614-7-sd1-ef-8	Front Resin	S17T035075	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-ef-8	Back Resin	S17T035076	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-in-1	Total	S17T035077	Ammonia	ug/sample	n/a	<10.0	98.2	10.0
17-05614-7-sd1-in-1	Front Resin	S17T035078	Ammonia	ug/sample	103	<10.0	97.6	10.0
17-05614-7-sd1-in-1	Back Resin	S17T035079	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-in-2	Total	S17T035081	Ammonia	ug/sample	n/a	<10.0	91.3	10.0
17-05614-7-sd1-in-2	Front Resin	S17T035082	Ammonia	ug/sample	103	<10.0	90.5	10.0
17-05614-7-sd1-in-2	Back Resin	S17T035083	Ammonia	ug/sample	103	<10.0	<10.0	10.0
17-05614-7-sd1-in-3	Total	S17T035086	Ammonia	ug/sample	n/a	<10.0	66.9	10.0
17-05614-7-sd1-in-3	Front Resin	S17T035087	Ammonia	ug/sample	103	<10.0	66.4	10.0
17-05614-7-sd1-in-3	Back Resin	S17T035088	Ammonia	ug/sample	103	<10.0	<10.0	10.0

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17-05614-7-sd1-in-4	Total	S17T035089	Ammonia	ug/sample	n/a	<10.0	63.8	10.0
17-05614-7-sd1-in-4	Front Resin	S17T035090	Ammonia	ug/sample	102	<10.0	63.1	10.0
17-05614-7-sd1-in-4	Back Resin	S17T035091	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05614-7-sd1-in-5	Total	S17T035092	Ammonia	ug/sample	n/a	<10.0	10.1	10.0
17-05614-7-sd1-in-5	Front Resin	S17T035093	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05614-7-sd1-in-5	Back Resin	S17T035094	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05614-7-sd1-in-6	Total	S17T035095	Ammonia	ug/sample	n/a	<10.0	72.4	10.0
17-05614-7-sd1-in-6	Front Resin	S17T035096	Ammonia	ug/sample	102	<10.0	71.8	10.0
17-05614-7-sd1-in-6	Back Resin	S17T035097	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05614-7-sd1-in-7	Total	S17T035099	Ammonia	ug/sample	n/a	<10.0	50.1	10.0
17-05614-7-sd1-in-7	Front Resin	S17T035100	Ammonia	ug/sample	102	<10.0	49.4	10.0
17-05614-7-sd1-in-7	Back Resin	S17T035101	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05614-7-sd1-in-8	Total	S17T035104	Ammonia	ug/sample	n/a	<10.0	66.3	10.0
17-05614-7-sd1-in-8	Front Resin	S17T035105	Ammonia	ug/sample	102	<10.0	65.6	10.0
17-05614-7-sd1-in-8	Back Resin	S17T035106	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-TL1-BA-EF	Total	S17T035318	Ammonia	ug/sample	n/a	<10.0	11.5	10.0
17-05615-7-TL1-BA-EF	Front Resin	S17T035319	Ammonia	ug/sample	102	<10.0	10.9	10.0
17-05615-7-TL1-BA-EF	Back Resin	S17T035320	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-tl1-ba-in	Total	S17T035321	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05615-7-tl1-ba-in	Front Resin	S17T035323	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-tl1-ba-in	Back Resin	S17T035324	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-tl1-bl-ef	Total	S17T035327	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05615-7-tl1-bl-ef	Front Resin	S17T035328	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-tl1-bl-ef	Back Resin	S17T035329	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-tl1-bl-in	Total	S17T035330	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
17-05615-7-tl1-bl-in	Front Resin	S17T035331	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-tl1-bl-in	Back Resin	S17T035332	Ammonia	ug/sample	102	<10.0	<10.0	10.0
17-05615-7-tl1-ef-1	Total	S17T035333	Ammonia	ug/sample	n/a	<10.0	24.6	10.0
17-05615-7-tl1-ef-1	Front Resin	S17T035334	Ammonia	ug/sample	99.0	<10.0	23.8	10.0
17-05615-7-tl1-ef-1	Back Resin	S17T035335	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-ef-2	Total	S17T035337	Ammonia	ug/sample	n/a	<10.0	80.2	10.0
17-05615-7-tl1-ef-2	Front Resin	S17T035338	Ammonia	ug/sample	99.0	<10.0	79.4	10.0
17-05615-7-tl1-ef-2	Back Resin	S17T035339	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-ef-3	Total	S17T035342	Ammonia	ug/sample	n/a	<10.0	75.8	10.0
17-05615-7-tl1-ef-3	Front Resin	S17T035343	Ammonia	ug/sample	99.0	<10.0	75.3	10.0
17-05615-7-tl1-ef-3	Back Resin	S17T035345	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-ef-4	Total	S17T035346	Ammonia	ug/sample	n/a	<10.0	20.7	10.0
17-05615-7-tl1-ef-4	Front Resin	S17T035349	Ammonia	ug/sample	99.0	<10.0	20.0	10.0
17-05615-7-tl1-ef-4	Back Resin	S17T035350	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-ef-5	Total	S17T035351	Ammonia	ug/sample	n/a	<10.0	19.0	10.0
17-05615-7-tl1-ef-5	Front Resin	S17T035353	Ammonia	ug/sample	99.0	<10.0	18.1	10.0
17-05615-7-tl1-ef-5	Back Resin	S17T035354	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-ef-6	Total	S17T035355	Ammonia	ug/sample	n/a	<10.0	16.5	10.0
17-05615-7-tl1-ef-6	Front Resin	S17T035358	Ammonia	ug/sample	99.0	<10.0	15.7	10.0
17-05615-7-tl1-ef-6	Back Resin	S17T035359	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-ef-7	Total	S17T035361	Ammonia	ug/sample	n/a	<10.0	14.6	10.0
17-05615-7-tl1-ef-7	Front Resin	S17T035364	Ammonia	ug/sample	99.0	<10.0	14.0	10.0
17-05615-7-tl1-ef-7	Back Resin	S17T035365	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-ef-8	Total	S17T035366	Ammonia	ug/sample	n/a	<10.0	14.5	10.0
17-05615-7-tl1-ef-8	Front Resin	S17T035367	Ammonia	ug/sample	99.0	<10.0	13.8	10.0
17-05615-7-tl1-ef-8	Back Resin	S17T035368	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-in-1	Total	S17T035370	Ammonia	ug/sample	n/a	<10.0	80.9	10.0
17-05615-7-tl1-in-1	Front Resin	S17T035371	Ammonia	ug/sample	99.0	<10.0	80.3	10.0
17-05615-7-tl1-in-1	Back Resin	S17T035373	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0
17-05615-7-tl1-in-2	Total	S17T035375	Ammonia	ug/sample	n/a	<10.0	23.6	10.0
17-05615-7-tl1-in-2	Front Resin	S17T035377	Ammonia	ug/sample	99.0	<10.0	23.1	10.0
17-05615-7-tl1-in-2	Back Resin	S17T035378	Ammonia	ug/sample	99.0	<10.0	<10.0	10.0

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17-05615-7-t11-in-3	Total	S17T035381	Ammonia	ug/sample	n/a	<10.0	22.5	10.0
17-05615-7-t11-in-3	Front Resin	S17T035382	Ammonia	ug/sample	101	<10.0	21.8	10.0
17-05615-7-t11-in-3	Back Resin	S17T035383	Ammonia	ug/sample	101	<10.0	<10.0	10.0
17-05615-7-t11-in-4	Total	S17T035385	Ammonia	ug/sample	n/a	<10.0	70.8	10.0
17-05615-7-t11-in-4	Front Resin	S17T035386	Ammonia	ug/sample	101	<10.0	70.2	10.0
17-05615-7-t11-in-4	Back Resin	S17T035387	Ammonia	ug/sample	101	<10.0	<10.0	10.0
17-05615-7-t11-in-5	Total	S17T035390	Ammonia	ug/sample	n/a	<10.0	71.9	10.0
17-05615-7-t11-in-5	Front Resin	S17T035391	Ammonia	ug/sample	101	<10.0	71.2	10.0
17-05615-7-t11-in-5	Back Resin	S17T035392	Ammonia	ug/sample	101	<10.0	<10.0	10.0
17-05615-7-t11-in-6	Total	S17T035393	Ammonia	ug/sample	n/a	<10.0	75.2	10.0
17-05615-7-t11-in-6	Front Resin	S17T035394	Ammonia	ug/sample	101	<10.0	74.6	10.0
17-05615-7-t11-in-6	Back Resin	S17T035395	Ammonia	ug/sample	101	<10.0	<10.0	10.0
17-05615-7-t11-in-7	Total	S17T035396	Ammonia	ug/sample	n/a	<10.0	63.2	10.0
17-05615-7-t11-in-7	Front Resin	S17T035397	Ammonia	ug/sample	101	<10.0	62.5	10.0
17-05615-7-t11-in-7	Back Resin	S17T035398	Ammonia	ug/sample	101	<10.0	<10.0	10.0
17-05615-7-t11-in-8	Total	S17T035399	Ammonia	ug/sample	n/a	<10.0	67.8	10.0
17-05615-7-t11-in-8	Front Resin	S17T035400	Ammonia	ug/sample	101	<10.0	67.2	10.0
17-05615-7-t11-in-8	Back Resin	S17T035401	Ammonia	ug/sample	101	<10.0	<10.0	10.0

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Attachment 2

ANALYSIS DATE REPORT

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ANALYSIS DATE REPORT FOR SAMPLE GROUP 20173011

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S17T033639	17-05613-7-SC1-IN-3	IC - NH4	09/18/2017 09:00	09/19/2017 02:31
S17T033640	17-05613-7-SC1-IN-3	IC - NH4	09/18/2017 09:00	09/19/2017 02:49
S17T033642	17-05613-7-SC1-IN-4	IC - NH4	09/18/2017 09:00	09/19/2017 03:07
S17T033643	17-05613-7-SC1-IN-4	IC - NH4	09/18/2017 09:00	09/19/2017 03:25
S17T033651	17-05613-7-SC1-IN-5	IC - NH4	09/18/2017 09:00	09/19/2017 04:37
S17T033652	17-05613-7-SC1-IN-5	IC - NH4	09/18/2017 09:00	09/19/2017 04:55
S17T033668	17-05613-7-SC1-IN-6	IC - NH4	09/18/2017 09:00	09/19/2017 05:13
S17T033669	17-05613-7-SC1-IN-6	IC - NH4	09/18/2017 09:00	09/19/2017 05:31
S17T033671	17-05613-7-SC1-IN-7	IC - NH4	09/18/2017 09:00	09/19/2017 05:49
S17T033672	17-05613-7-SC1-IN-7	IC - NH4	09/18/2017 09:00	09/19/2017 06:07
S17T033682	17-05613-7-SC1-IN-8	IC - NH4	09/18/2017 09:00	09/19/2017 06:26
S17T033684	17-05613-7-SC1-IN-8	IC - NH4	09/18/2017 09:00	09/19/2017 06:44
S17T033697	17-05613-7-SC1-BA-EF	IC - NH4	09/18/2017 09:00	09/19/2017 07:02
S17T033698	17-05613-7-SC1-BA-EF	IC - NH4	09/18/2017 09:00	09/19/2017 07:20
S17T033714	17-05613-7-SC1-BA-IN	IC - NH4	09/19/2017 10:15	09/19/2017 15:15
S17T033716	17-05613-7-SC1-BA-IN	IC - NH4	09/19/2017 10:15	09/19/2017 15:33
S17T033723	17-05613-7-SC1-BL-EF	IC - NH4	09/19/2017 08:40	09/19/2017 17:37
S17T033724	17-05613-7-SC1-BL-EF	IC - NH4	09/19/2017 08:40	09/19/2017 17:54
S17T033746	17-05613-7-SC1-BL-IN	IC - NH4	09/19/2017 08:40	09/19/2017 18:10
S17T033747	17-05613-7-SC1-BL-IN	IC - NH4	09/19/2017 08:40	09/19/2017 18:27
S17T033769	17-05613-7-scl-ef-1	IC - NH4	09/19/2017 08:40	09/19/2017 18:44
S17T033770	17-05613-7-scl-ef-1	IC - NH4	09/19/2017 08:40	09/19/2017 19:01
S17T033772	17-05613-7-scl-ef-2	IC - NH4	09/19/2017 08:40	09/19/2017 20:09
S17T033773	17-05613-7-scl-ef-2	IC - NH4	09/19/2017 08:40	09/19/2017 20:26
S17T033795	17-05613-7-scl-ef-3	IC - NH4	09/19/2017 08:40	09/19/2017 20:42
S17T033796	17-05613-7-scl-ef-3	IC - NH4	09/19/2017 08:40	09/19/2017 20:59
S17T034848	17-05613-7-SC1-EF-4	IC - NH4	09/19/2017 08:40	09/19/2017 21:16
S17T034849	17-05613-7-SC1-EF-4	IC - NH4	09/19/2017 08:40	09/19/2017 21:33
S17T034853	17-05613-7-SC1-EF-5	IC - NH4	09/19/2017 08:40	09/19/2017 21:50
S17T034854	17-05613-7-SC1-EF-5	IC - NH4	09/19/2017 08:40	09/19/2017 22:07
S17T034857	17-05613-7-SC1-EF-6	IC - NH4	09/19/2017 08:40	09/19/2017 22:24
S17T034858	17-05613-7-SC1-EF-6	IC - NH4	09/19/2017 08:40	09/19/2017 22:41
S17T034862	17-05613-7-SC1-EF-7	IC - NH4	09/19/2017 08:40	09/19/2017 23:48
S17T034863	17-05613-7-SC1-EF-7	IC - NH4	09/19/2017 08:40	09/20/2017 00:05
S17T034866	17-05613-7-SC1-EF-8	IC - NH4	09/19/2017 08:40	09/20/2017 00:22
S17T034867	17-05613-7-SC1-EF-8	IC - NH4	09/19/2017 08:40	09/20/2017 00:39
S17T034872	17-05613-7-SC1-IN-1	IC - NH4	09/19/2017 08:40	09/20/2017 02:54
S17T034873	17-05613-7-SC1-IN-1	IC - NH4	09/19/2017 08:40	09/20/2017 03:11
S17T034875	17-05613-7-SC1-IN-2	IC - NH4	09/19/2017 08:40	09/20/2017 09:39
S17T034876	17-05613-7-SC1-IN-2	IC - NH4	09/19/2017 08:40	09/20/2017 03:44
S17T034880	17-05616-7-TL2-BA-EF	IC - NH4	09/19/2017 08:40	09/20/2017 04:01
S17T034881	17-05616-7-TL2-BA-EF	IC - NH4	09/19/2017 08:40	09/20/2017 04:18
S17T034883	17-05616-7-TL2-BA-IN	IC - NH4	09/19/2017 08:40	09/20/2017 05:26
S17T034884	17-05616-7-TL2-BA-IN	IC - NH4	09/19/2017 08:40	09/20/2017 05:43
S17T034889	17-05616-7-TL2-BL-EF	IC - NH4	09/19/2017 08:40	09/20/2017 06:00
S17T034890	17-05616-7-TL2-BL-EF	IC - NH4	09/19/2017 08:40	09/20/2017 06:16
S17T034893	17-05616-7-TL2-BL-IN	IC - NH4	09/19/2017 08:40	09/20/2017 06:33
S17T034894	17-05616-7-TL2-BL-IN	IC - NH4	09/19/2017 08:40	09/20/2017 06:50

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S17T034898	17-05616-7-TL2-EF-1	IC - NH4	09/19/2017 08:40	09/20/2017 07:07
S17T034899	17-05616-7-TL2-EF-1	IC - NH4	09/19/2017 08:40	09/20/2017 07:24
S17T034910	17-05616-7-TL2-EF-2	IC - NH4	09/19/2017 08:40	09/20/2017 07:41
S17T034911	17-05616-7-TL2-EF-2	IC - NH4	09/19/2017 08:40	09/20/2017 07:58
S17T034916	17-05616-7-TL2-EF-3	IC - NH4	09/19/2017 08:40	09/20/2017 09:05
S17T034917	17-05616-7-TL2-EF-3	IC - NH4	09/19/2017 08:40	09/20/2017 09:22
S17T034920	17-05616-7-TL2-EF-4	IC - NH4	09/19/2017 10:15	09/19/2017 15:51
S17T034921	17-05616-7-TL2-EF-4	IC - NH4	09/19/2017 10:15	09/19/2017 16:09
S17T034925	17-05616-7-TL2-EF-5	IC - NH4	09/19/2017 10:15	09/19/2017 16:27
S17T034926	17-05616-7-TL2-EF-5	IC - NH4	09/19/2017 10:15	09/19/2017 16:45
S17T034928	17-05616-7-TL2-EF-6	IC - NH4	09/19/2017 10:15	09/19/2017 17:57
S17T034929	17-05616-7-TL2-EF-6	IC - NH4	09/19/2017 10:15	09/19/2017 18:16
S17T034931	17-05616-7-TL2-EF-7	IC - NH4	09/19/2017 10:15	09/19/2017 18:34
S17T034932	17-05616-7-TL2-EF-7	IC - NH4	09/19/2017 10:15	09/19/2017 18:52
S17T034934	17-05616-7-TL2-EF-8	IC - NH4	09/19/2017 10:15	09/19/2017 19:10
S17T034935	17-05616-7-TL2-EF-8	IC - NH4	09/19/2017 10:15	09/19/2017 19:28
S17T034940	17-05616-7-TL2-IN-1	IC - NH4	09/19/2017 10:15	09/19/2017 19:46
S17T034941	17-05616-7-TL2-IN-1	IC - NH4	09/19/2017 10:15	09/19/2017 20:04
S17T034944	17-05616-7-TL2-IN-2	IC - NH4	09/19/2017 10:15	09/19/2017 20:22
S17T034945	17-05616-7-TL2-IN-2	IC - NH4	09/19/2017 10:15	09/19/2017 20:40
S17T034964	17-05616-7-TL2-IN-3	IC - NH4	09/19/2017 10:15	09/19/2017 21:52
S17T034965	17-05616-7-TL2-IN-3	IC - NH4	09/19/2017 10:15	09/19/2017 22:10
S17T034967	17-05616-7-TL2-IN-4	IC - NH4	09/19/2017 10:15	09/19/2017 22:28
S17T034968	17-05616-7-TL2-IN-4	IC - NH4	09/19/2017 10:15	09/19/2017 22:47
S17T034970	17-05616-7-TL2-IN-5	IC - NH4	09/19/2017 10:15	09/20/2017 01:11
S17T034971	17-05616-7-TL2-IN-5	IC - NH4	09/19/2017 10:15	09/20/2017 01:29
S17T034973	17-05616-7-TL2-IN-6	IC - NH4	09/19/2017 10:15	09/20/2017 01:47
S17T034974	17-05616-7-TL2-IN-6	IC - NH4	09/19/2017 10:15	09/20/2017 02:05
S17T034976	17-05616-7-TL2-IN-7	IC - NH4	09/19/2017 10:15	09/20/2017 02:23
S17T034977	17-05616-7-TL2-IN-7	IC - NH4	09/19/2017 10:15	09/20/2017 02:41
S17T034979	17-05616-7-TL2-IN-8	IC - NH4	09/19/2017 10:15	09/20/2017 03:54
S17T034980	17-05616-7-TL2-IN-8	IC - NH4	09/19/2017 10:15	09/20/2017 04:12
S17T035010	17-05614-7-sd1-ba-ef	IC - NH4	09/19/2017 10:15	09/20/2017 04:30
S17T035011	17-05614-7-sd1-ba-ef	IC - NH4	09/19/2017 10:15	09/20/2017 04:48
S17T035015	17-05614-7-sd1-ba-in	IC - NH4	09/19/2017 10:15	09/20/2017 05:06
S17T035016	17-05614-7-sd1-ba-in	IC - NH4	09/19/2017 10:15	09/20/2017 05:24
S17T035018	17-05614-7-sd1-bl-ef	IC - NH4	09/19/2017 10:15	09/20/2017 05:42
S17T035019	17-05614-7-sd1-bl-ef	IC - NH4	09/19/2017 10:15	09/20/2017 06:00
S17T035024	17-05614-7-sd1-bl-in	IC - NH4	09/19/2017 10:15	09/20/2017 06:18
S17T035025	17-05614-7-sd1-bl-in	IC - NH4	09/19/2017 10:15	09/20/2017 06:36
S17T035030	17-05614-7-sd1-ef-1	IC - NH4	09/19/2017 10:15	09/20/2017 07:49
S17T035031	17-05614-7-sd1-ef-1	IC - NH4	09/19/2017 10:15	09/20/2017 08:07
S17T035034	17-05614-7-sd1-ef-2	IC - NH4	09/20/2017 12:00	09/20/2017 17:53
S17T035035	17-05614-7-sd1-ef-2	IC - NH4	09/20/2017 12:00	09/20/2017 18:10
S17T035039	17-05614-7-sd1-ef-3	IC - NH4	09/20/2017 12:00	09/20/2017 18:27
S17T035040	17-05614-7-sd1-ef-3	IC - NH4	09/20/2017 12:00	09/20/2017 18:44
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S17T035062	17-05614-7-sd1-ef-4	IC - NH4	09/20/2017 12:00	09/20/2017 19:18
S17T035066	17-05614-7-sd1-ef-5	IC - NH4	09/20/2017 12:00	09/20/2017 20:25
S17T035067	17-05614-7-sd1-ef-5	IC - NH4	09/20/2017 12:00	09/20/2017 20:42
S17T035069	17-05614-7-sd1-ef-6	IC - NH4	09/20/2017 12:00	09/20/2017 20:59
S17T035070	17-05614-7-sd1-ef-6	IC - NH4	09/20/2017 12:00	09/20/2017 21:16
S17T035072	17-05614-7-sd1-ef-7	IC - NH4	09/20/2017 12:00	09/20/2017 21:33
S17T035073	17-05614-7-sd1-ef-7	IC - NH4	09/20/2017 12:00	09/20/2017 21:50

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S17T035075	17-05614-7-sd1-ef-8	IC - NH4	09/20/2017 12:00	09/20/2017 22:07
S17T035076	17-05614-7-sd1-ef-8	IC - NH4	09/20/2017 12:00	09/20/2017 22:24
S17T035078	17-05614-7-sd1-in-1	IC - NH4	09/20/2017 12:00	09/21/2017 09:56
S17T035079	17-05614-7-sd1-in-1	IC - NH4	09/20/2017 12:00	09/20/2017 22:57
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S17T035083	17-05614-7-sd1-in-2	IC - NH4	09/20/2017 12:00	09/21/2017 00:22
S17T035087	17-05614-7-sd1-in-3	IC - NH4	09/20/2017 12:00	09/21/2017 00:39
S17T035088	17-05614-7-sd1-in-3	IC - NH4	09/20/2017 12:00	09/21/2017 00:55
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S17T035091	17-05614-7-sd1-in-4	IC - NH4	09/20/2017 12:00	09/21/2017 03:27
S17T035093	17-05614-7-sd1-in-5	IC - NH4	09/20/2017 12:00	09/21/2017 03:44
S17T035094	17-05614-7-sd1-in-5	IC - NH4	09/20/2017 12:00	09/21/2017 04:01
S17T035096	17-05614-7-sd1-in-6	IC - NH4	09/20/2017 12:00	09/21/2017 04:18
S17T035097	17-05614-7-sd1-in-6	IC - NH4	09/20/2017 12:00	09/21/2017 04:35
S17T035100	17-05614-7-sd1-in-7	IC - NH4	09/20/2017 12:00	09/21/2017 05:42
S17T035101	17-05614-7-sd1-in-7	IC - NH4	09/20/2017 12:00	09/21/2017 05:59
S17T035105	17-05614-7-sd1-in-8	IC - NH4	09/20/2017 12:00	09/21/2017 06:16
S17T035106	17-05614-7-sd1-in-8	IC - NH4	09/20/2017 12:00	09/21/2017 06:33
S17T035319	17-05615-7-TL1-BA-EF	IC - NH4	09/20/2017 12:00	09/21/2017 06:50
S17T035320	17-05615-7-TL1-BA-EF	IC - NH4	09/20/2017 12:00	09/21/2017 07:07
S17T035323	17-05615-7-tl1-ba-in	IC - NH4	09/20/2017 12:00	09/21/2017 07:24
S17T035324	17-05615-7-tl1-ba-in	IC - NH4	09/20/2017 12:00	09/21/2017 07:41
S17T035328	17-05615-7-tl1-bl-ef	IC - NH4	09/20/2017 12:00	09/21/2017 07:57
S17T035329	17-05615-7-tl1-bl-ef	IC - NH4	09/20/2017 12:00	09/21/2017 08:14
S17T035331	17-05615-7-tl1-bl-in	IC - NH4	09/20/2017 12:00	09/21/2017 09:22
S17T035332	17-05615-7-tl1-bl-in	IC - NH4	09/20/2017 12:00	09/21/2017 09:39
S17T035334	17-05615-7-tl1-ef-1	IC - NH4	09/21/2017 10:20	09/21/2017 14:52
S17T035335	17-05615-7-tl1-ef-1	IC - NH4	09/21/2017 10:20	09/21/2017 15:10
S17T035338	17-05615-7-tl1-ef-2	IC - NH4	09/21/2017 10:20	09/21/2017 15:28
S17T035339	17-05615-7-tl1-ef-2	IC - NH4	09/21/2017 10:20	09/21/2017 15:46
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S17T035345	17-05615-7-tl1-ef-3	IC - NH4	09/21/2017 10:20	09/21/2017 16:22
S17T035349	17-05615-7-tl1-ef-4	IC - NH4	09/21/2017 10:20	09/21/2017 17:34
S17T035350	17-05615-7-tl1-ef-4	IC - NH4	09/21/2017 10:20	09/21/2017 17:52
S17T035353	17-05615-7-tl1-ef-5	IC - NH4	09/21/2017 10:20	09/21/2017 18:10
S17T035354	17-05615-7-tl1-ef-5	IC - NH4	09/21/2017 10:20	09/21/2017 18:28
S17T035358	17-05615-7-tl1-ef-6	IC - NH4	09/21/2017 10:20	09/21/2017 18:47
S17T035359	17-05615-7-tl1-ef-6	IC - NH4	09/21/2017 10:20	09/21/2017 19:05
S17T035364	17-05615-7-tl1-ef-7	IC - NH4	09/21/2017 10:20	09/21/2017 19:23
S17T035365	17-05615-7-tl1-ef-7	IC - NH4	09/21/2017 10:20	09/21/2017 19:41
S17T035367	17-05615-7-tl1-ef-8	IC - NH4	09/21/2017 10:20	09/21/2017 19:59
S17T035368	17-05615-7-tl1-ef-8	IC - NH4	09/21/2017 10:20	09/21/2017 20:17
S17T035371	17-05615-7-tl1-in-1	IC - NH4	09/21/2017 10:20	09/21/2017 21:29
S17T035373	17-05615-7-tl1-in-1	IC - NH4	09/21/2017 10:20	09/21/2017 21:47
S17T035377	17-05615-7-tl1-in-2	IC - NH4	09/21/2017 10:20	09/21/2017 22:05
S17T035378	17-05615-7-tl1-in-2	IC - NH4	09/21/2017 10:20	09/21/2017 22:23
S17T035382	17-05615-7-tl1-in-3	IC - NH4	09/21/2017 10:20	09/22/2017 00:48
S17T035383	17-05615-7-tl1-in-3	IC - NH4	09/21/2017 10:20	09/22/2017 01:06
S17T035386	17-05615-7-tl1-in-4	IC - NH4	09/21/2017 10:20	09/22/2017 01:24
S17T035387	17-05615-7-tl1-in-4	IC - NH4	09/21/2017 10:20	09/22/2017 01:42
S17T035391	17-05615-7-tl1-in-5	IC - NH4	09/21/2017 10:20	09/22/2017 02:00
S17T035392	17-05615-7-tl1-in-5	IC - NH4	09/21/2017 10:20	09/22/2017 02:18
S17T035394	17-05615-7-tl1-in-6	IC - NH4	09/21/2017 10:20	09/22/2017 03:30
S17T035395	17-05615-7-tl1-in-6	IC - NH4	09/21/2017 10:20	09/22/2017 03:49

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S17T035397	17-05615-7-t11-in-7	IC - NH4	09/21/2017 10:20	09/22/2017 04:07
S17T035398	17-05615-7-t11-in-7	IC - NH4	09/21/2017 10:20	09/22/2017 04:25
S17T035400	17-05615-7-t11-in-8	IC - NH4	09/21/2017 10:20	09/22/2017 04:43
S17T035401	17-05615-7-t11-in-8	IC - NH4	09/21/2017 10:20	09/22/2017 05:01

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Attachment 3

RECEIPT PAPERWORK

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C.611

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST			ATS-LO-090-101 Rev DH-1
Date Samples Received: <u>8/29/17</u>		Total Number of Samples: <u>1000</u>		Group No.: <u>20173011</u>
Sample Custodian: <u>Don Sofen</u>		IH Technician: <u>[Signature] 8/29/17</u>		
Sample Custodian to Complete				
Action	Yes	No	N/A	Comments
RSR provided?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Verify GKI is complete	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="checkbox"/> In Project File
Received from an alpha facility?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/> Contact PC for approval to release
Check that outer custody seal is intact, if present	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Record cooler temperature in centigrade, as appropriate	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/> Check if no cooler and/or no ice <u>7.2°</u>
Samples are intact and in good condition	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Date and time of sampling	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Sampling location or origin	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Container type, size, and number	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Preservatives (if used) noted on the COC/RSA and sample bottles	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
• Analysis request is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Signature of persons relinquishing and receiving samples	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Date and/or time of sample custody exchange	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Verify that sample numbers on containers match the COC and/or RSA	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Samples stored properly (e.g., refrigeration)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No PC/SC Initials: <u>LAD</u> Date: <u>8/28/17</u>				
If No, comment on communication and resolution: <u>WRPS SHIP —</u> <u>Run —</u>				
<u>WHL NH3 80 Hg 80 Acetonitrile - 80</u>				
Number of IH Samples Received:				
Aldehyde Screen: <u>80</u>	Amines: <u>80</u>	Ammonia: <u>80</u>	Aromatic HC: _____	Asbestos: _____
Beryllium: _____	Be-Bulk: _____	Be-Filter: _____	Be-Wipe: _____	1, 3-Butadiene: <u>160</u>
Formaldehyde: _____	Furans: <u>80</u>	Mercury: <u>80</u>	Methanol: <u>40</u>	Nitrosamines: <u>80</u>
Nitrous Oxide: _____	Pyridines: <u>80</u>	SVOA: <u>80</u>	VOA: <u>80</u>	Other-IH: _____

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			Date Sampled: 8/27/17		
CACN: ⁰¹ 203006 ₂₀₂₈₄₃		COA: CB20	Survey No.: 17-05613 - AX-Farm Cartridge Testing Sat-Sun Yellow Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
517033618	17-05613-7-SC1-IN-3 / CISA (SKC 226-29) . 517033639 517033640	NH3 Source			
517033641	17-05613-7-SC1-IN-4 / CISA (SKC 226-29) . 517033642 517033643	NH3 Source			
517033644	17-05613-7-SC1-IN-5 / CISA (SKC 226-29) . 517033649 517033652	NH3 Source			
517033664	17-05613-7-SC1-IN-6 / CISA (SKC 226-29) . 517033668 517033669	NH3 Source			
517033670	17-05613-7-SC1-IN-7 / CISA (SKC 226-29) . 517033671 517033672	NH3 Source			
517033676	17-05613-7-SC1-IN-8 / CISA (SKC 226-29) . 517033682 517033684	NH3 Source			
	17-05613-12-SC1-BA-EF / Thermosorb-N (TDX) AS 7-19-17	Nitrosamines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>[Signature]</i>	J. ROGEE	MO-252	8/27/17	0600
Retrieved from Storage:	<i>[Signature]</i>	BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>[Signature]</i>	BRETT GARNER	8/28/17	13:30	
Received By:	<i>[Signature]</i>	Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

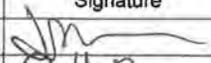
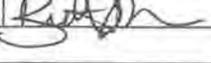
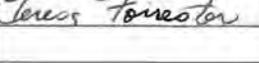
INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/27/17	
CACN: DV 8/22/17 202845 203006		COA: CB20		Survey No.: 17-05613 - AX-Farm Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
• S17T033691	17-05613-7-SC1-BA-EF / CISA (SKC 226-29) . S17T033697 S17T033698	NH3 Source			
• S17T033699	17-05613-7-SC1-BA-IN / CISA (SKC 226-29) S17T033727, 14 S17T033716	NH3 Source			
• S17T033722	17-05613-7-SC1-BL-EF / CISA (SKC 226-29) S17T033723 S17T033724	NH3 Source			
• S17T033725	17-05613-7-SC1-BL-IN / CISA (SKC 226-29) S17T033746 S17T033747	NH3 Source			
• S17T033748	17-05613-7-SC1-EF-1 / CISA (SKC 226-29) S17T033769 S17T033770	NH3 Source			
• S17T033771	17-05613-7-SC1-EF-2 / CISA (SKC 226-29) S17T033772 S17T033773	NH3 Source			
• S17T033787	17-05613-7-SC1-EF-3 / CISA (SKC 226-29) S17T033795 S17T033796	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLEE	M0-252	8/27/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 8/27/17	
CACN: ^{01 8/22/17} 202043 203006		COA: CB20	Survey No.: 17-05613 - AX-Farm Cartridge Testing Sat-Sun Yellow Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
• 517T034846	17-05613-7-SC1-EF-4 / CISA (SKC 226-29) - 517T034848 517T034849	NH3 Source			
• 517T034852	17-05613-7-SC1-EF-5 / CISA (SKC 226-29) - 517T034853 517T034854	NH3 Source			
• 517T034856	17-05613-7-SC1-EF-6 / CISA (SKC 226-29) - 517T034857 517T034858	NH3 Source			
• 517T034861	17-05613-7-SC1-EF-7 / CISA (SKC 226-29) - 517T034862 517T034863	NH3 Source			
• 517T034864	17-05613-7-SC1-EF-8 / CISA (SKC 226-29) - 517T034866 517T034867	NH3 Source			
• 517T034870	17-05613-7-SC1-IN-1 / CISA (SKC 226-29) - 517T034872 517T034873	NH3 Source			
• 517T034874	17-05613-7-SC1-IN-2 / CISA (SKC 226-29) - 517T034875 517T034876	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>J. Roblee</i>	J. ROBLEE	MO-252	8/27/17	0600
Retrieved from Storage:	<i>Brett Garner</i>	BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>Brett Garner</i>	BRETT GARNER	8/28/17	13:30	
Received By:	<i>Dianne Turner</i>	Dianne Turner	8/28/17	13:30	
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: 8/27/17	
CACN: ^{07 8/22/17} 202643 203006	COA: CB20	Survey No.: 17-05616 - AX-Farm Cartridge Testing Sat-Sun Green Mac	
Contact Name: Jones, Parker L		Phone: (509)373-4966	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	
	17-05616-13-TL2-IN-3 / Silica Gel (SKC-226-51) 	Methanol Source	
	17-05616-13-TL2-IN-4 / Silica Gel (SKC-226-51) 	Methanol Source	
	17-05616-13-TL2-IN-5 / Silica Gel (SKC-226-51) 	Methanol Source	
	17-05616-13-TL2-IN-6 / Silica Gel (SKC-226-51) 	Methanol Source	
	17-05616-13-TL2-IN-7 / Silica Gel (SKC-226-51) 	Methanol Source	
	17-05616-13-TL2-IN-8 / Silica Gel (SKC-226-51) 	Methanol Source	
517034879	17-05616-7-TL2-BA-EF / CISA (SKC 226-29) 517034880  517034881	NH3 Source	
Special Instructions:			
	Signature	Printed Name	Location
Delivered to Storage:		JAKE ROBLEE	MO-252
Retrieved from Storage:		BRET GARNER	
	Signature	Printed Name	Date
Relinquished By:		BRET GARNER	8/28/17
Received By:		TERESA FORRESTER	8/28/17
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: 8/27/17
CACN: ⁰⁴ 8/22/17 202045 203006	COA: CB20	Survey No.: 17-05616 - AX-Farm Cartridge Testing Sat-Sun Green Mac
Contact Name: Jones, Parker L	Phone: (509)373-4966	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
→ 517034882	17-05616-7-TL2-BA-IN / CISA (SKC 226-29) 517034 883 517034 884	NH3 Source
→ 517034886	17-05616-7-TL2-BL-EF / CISA (SKC 226-29) 517034 889 517034 890	NH3 Source
→ 517034892	17-05616-7-TL2-BL-IN / CISA (SKC 226-29) 517034 893 517034 894	NH3 Source
→ 517034897	17-05616-7-TL2-EF-1 / CISA (SKC 226-29) 517034 898 517034 899	NH3 Source
→ 517034901	17-05616-7-TL2-EF-2 / CISA (SKC 226-29) 517034 910 517034 911	NH3 Source
→ 517034913	17-05616-7-TL2-EF-3 / CISA (SKC 226-29) 517034 916 517034 917	NH3 Source
→ 517034919	17-05616-7-TL2-EF-4 / CISA (SKC 226-29) 517034 920 517034 921	NH3 Source
Special Instructions:		
	Signature	Printed Name
Delivered to Storage:		J. FORSTER
Retrieved from Storage:		BRETT GARNER
	Location	Date
	MO-252	8/27/17
		Time
		0600
	Signature	Printed Name
Relinquished By:		BRETT GARNER
Received By:		TERESA FORRESTER
	Date	Time
	8/28/17	1330
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: 8/27/17		
CACN: 202543 OV 8/22/17 203006		COA: CB20		Survey No.: 17-05616 - AX-Farm Cartridge Testing Sat-Sun Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
→ 517T034924	17-05616-7-TL2-EF-5 / CISA (SKC 226-29) 517T034925 517T034926	NH3 Source			
→ 517T034927	17-05616-7-TL2-EF-6 / CISA (SKC 226-29) 517T034928 517T034929	NH3 Source			
→ 517T034930	17-05616-7-TL2-EF-7 / CISA (SKC 226-29) 517T034931 517T034932	NH3 Source			
→ 517T034933	17-05616-7-TL2-EF-8 / CISA (SKC 226-29) 517T034934 517T034935	NH3 Source			
→ 517T034936	17-05616-7-TL2-IN-1 / CISA (SKC 226-29) 517T034940 517T034941	NH3 Source			
→ 517T034943	17-05616-7-TL2-IN-2 / CISA (SKC 226-29) 517T034944 517T034945	NH3 Source			
→ 517T034963	17-05616-7-TL2-IN-3 / CISA (SKC 226-29) 517T034964 517T034965	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		J. ROOBLE	MO-252	8/27/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
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: 8/27/17	
CACN: DV 8/22/17 202543 203006	COA: CB20	Survey No.: 17-05616 - AX-Farm Cartridge Testing Sat-Sun Green Mac	
Contact Name: Jones, Parker L		Phone: (509)373-4966	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	
4 S17T034966	17-05616-7-TL2-IN-4 / CISA (SKC 226-29) S17T034967 S17T034968	NH3 Source	
5 S17T034969	17-05616-7-TL2-IN-5 / CISA (SKC 226-29) S17T034970 S17T034971	NH3 Source	
6 S17T034972	17-05616-7-TL2-IN-6 / CISA (SKC 226-29) S17T034973 S17T034974	NH3 Source	
7 S17T034975	17-05616-7-TL2-IN-7 / CISA (SKC 226-29) S17T034976 S17T034977	NH3 Source	
8 S17T034978	17-05616-7-TL2-IN-8 / CISA (SKC 226-29) S17T034979 S17T034980	NH3 Source	
	17-05616-12-TL2-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source	
	17-05616-12-TL2-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source	
Special Instructions:			
	Signature	Printed Name	Location
Delivered to Storage:	<i>[Signature]</i>	J. ROUSE	MO-25C
Retrieved from Storage:	<i>[Signature]</i>	BREITGARNER	
	Signature	Printed Name	Date
Relinquished By:	<i>[Signature]</i>	BRET GARNER	8/28/17
Received By:	<i>[Signature]</i>	TERESA FORRESTER	8/28/17
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: 8/26/17		
CACN: <i>DY 8/22/17</i> <i>202043</i> <i>203006</i>		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
<i>S17T035008</i>	17-05614-7-SD1-BA-EF / CISA (SKC 226-29) · <i>S17T035010</i>  <i>S17T035011</i>	NH3 Source			
<i>S17T035014</i>	17-05614-7-SD1-BA-IN / CISA (SKC 226-29) · <i>S17T035015</i>  <i>S17T035016</i>	NH3 Source			
<i>S17T035017</i>	17-05614-7-SD1-BL-EF / CISA (SKC 226-29) · <i>S17T035018</i>  <i>S17T035019</i>	NH3 Source			
<i>S17T035021</i>	17-05614-7-SD1-BL-IN / CISA (SKC 226-29) · <i>S17T035024</i>  <i>S17T035025</i>	NH3 Source			
<i>S17T035027</i>	17-05614-7-SD1-EF-1 / CISA (SKC 226-29) · <i>S17T035030</i>  <i>S17T035031</i>	NH3 Source			
<i>S17T035033</i>	17-05614-7-SD1-EF-2 / CISA (SKC 226-29) · <i>S17T035034</i>  <i>S17T035035</i>	NH3 Source			
<i>S17T035038</i>	17-05614-7-SD1-EF-3 / CISA (SKC 226-29) · <i>S17T035039</i>  <i>S17T035040</i>	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>[Signature]</i>	JAKE POWEE	MO-252	8/26/17	0600
Retrieved from Storage:	<i>[Signature]</i>	Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>[Signature]</i>	Brett Garner	8/28/17	13:30	
Received By:	<i>[Signature]</i>	Diane Turner	8/28/17	13:30	
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: 8/26/17		
CACN: ^{PV 8/22/17} 202643 203006		COA: CB20	Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
S17T035059	17-05614-7-SD1-EF-4 / CISA (SKC 226-29) · S17T035061 S17T035062	NH3 Source			
S17T035063	17-05614-7-SD1-EF-5 / CISA (SKC 226-29) · S17T035066 S17T035067	NH3 Source			
S17T035068	17-05614-7-SD1-EF-6 / CISA (SKC 226-29) · S17T035069 S17T035070	NH3 Source			
S17T035071	17-05614-7-SD1-EF-7 / CISA (SKC 226-29) · S17T035072 S17T035073	NH3 Source			
S17T035074	17-05614-7-SD1-EF-8 / CISA (SKC 226-29) · S17T035075 S17T035076	NH3 Source			
S17T035077	17-05614-7-SD1-IN-1 / CISA (SKC 226-29) · S17T035078 S17T035079	NH3 Source			
S17T035081	17-05614-7-SD1-IN-2 / CISA (SKC 226-29) · S17T035082 S17T035083	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORSLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0900
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 8/26/17		
CACN# 202843 ^{8/21/17} 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
517T035080	17-05614-7-SD1-IN-3 / CISA (SKC 226-29) . 517T035087 517T035088	NH3 Source			
517T035089	17-05614-7-SD1-IN-4 / CISA (SKC 226-29) . 517T035090 517T035091	NH3 Source			
517T035092	17-05614-7-SD1-IN-5 / CISA (SKC 226-29) . 517T035093 517T035094	NH3 Source			
517T035095 ^{8/26/17} 517T0350	17-05614-7-SD1-IN-6 / CISA (SKC 226-29) . 517T035096 517T035097	NH3 Source			
517T035099	17-05614-7-SD1-IN-7 / CISA (SKC 226-29) . 517T035100 517T035101	NH3 Source			
517T035104	17-05614-7-SD1-IN-8 / CISA (SKC 226-29) . 517T035105 517T035106	NH3 Source			
	17-05614-12-SD1-BA-EF / Thermosorb-N (TDX) CS 7-19-17	Nitrosamines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 8/26/17	
CACN: ^{DN 8/22/17} 202943 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-13-TL1-IN-3 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-IN-4 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-IN-5 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-IN-6 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-IN-7 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-IN-8 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
• S177035318	17-05615-7-TL1-BA-EF / CISA (SKC 226-29) [Barcode]	S177035319 S177035320		NH3 Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[Signature]	JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:	[Signature]	Brett Gunnar		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	[Signature]	Brett Gunnar	8/28/17	1330	
Received By:	[Signature]	TERESA PORRESTER	8/28/17	1330	
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: 8/26/17	
CACN: ^{DV 8/22/17} 202843 203006		COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
• S17T035321	17-05615-7-TL1-BA-IN / CISA (SKC 226-29) S17T035323 S17T035324	NH3 Source			
• S17T035327	17-05615-7-TL1-BL-EF / CISA (SKC 226-29) S17T035328 S17T035329	NH3 Source			
• S17T035330	17-05615-7-TL1-BL-IN / CISA (SKC 226-29) S17T035331 S17T035332	NH3 Source			
• S17T035333	17-05615-7-TL1-EF-1 / CISA (SKC 226-29) S17T035334 S17T035335	NH3 Source			
• S17T035337	17-05615-7-TL1-EF-2 / CISA (SKC 226-29) S17T035338 S17T035339	NH3 Source			
• S17T035342	17-05615-7-TL1-EF-3 / CISA (SKC 226-29) S17T035343 S17T035345	NH3 Source			
• S17T035346	17-05615-7-TL1-EF-4 / CISA (SKC 226-29) S17T035349 S17T035350	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Britt Gerner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Britt Gerner	8/29/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
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: 8/24/17	
CACN: ^{pv 8/22/17} 202843 203006		COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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	
517T035351	17-05615-7-TL1-EF-5 / CISA (SKC 226-29) 517T035353 517T035354			NH3 Source	
517T035355	17-05615-7-TL1-EF-6 / CISA (SKC 226-29) 517T035358 517T035359			NH3 Source	
517T035361	17-05615-7-TL1-EF-7 / CISA (SKC 226-29) 517T035364 517T035365			NH3 Source	
517T035366	17-05615-7-TL1-EF-8 / CISA (SKC 226-29) 517T035367 517T035368			NH3 Source	
517T035370	17-05615-7-TL1-IN-1 / CISA (SKC 226-29) 517T035371 517T035373			NH3 Source	
517T035375	17-05615-7-TL1-IN-2 / CISA (SKC 226-29) 517T035377 517T035378			NH3 Source	
517T035381	17-05615-7-TL1-IN-3 / CISA (SKC 226-29) 517T035382 517T035383			NH3 Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>[Signature]</i>	JAKE ROBLER	MO 252	8/26/17	0600
Retrieved from Storage:	<i>[Signature]</i>	Brett Gernie		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>[Signature]</i>	Brett Gernie	8/28/17	1330	
Received By:	<i>[Signature]</i>	TERESA FORRESTER	8/28/17	1330	
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: 8/26/17	
CACN: ^{DV 8/22/17} 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
517T035385	17-05615-7-TL1-IN-4 / CISA (SKC 226-29) 517T0353 86 517T0353 87			NH3 Source	
517T035390	17-05615-7-TL1-IN-5 / CISA (SKC 226-29) 517T0353 91 517T0353 92			NH3 Source	
517T035393	17-05615-7-TL1-IN-6 / CISA (SKC 226-29) 517T0353 94 517T0353 95			NH3 Source	
517T035396	17-05615-7-TL1-IN-7 / CISA (SKC 226-29) 517T0353 97 517T0353 98			NH3 Source	
517T035399	17-05615-7-TL1-IN-8 / CISA (SKC 226-29) 517T0354 00 517T0354 01			NH3 Source	
17-05615-12-TL1-BA-EF / Thermosorb-N (TDX)				Nitrosamines Source	
17-05615-12-TL1-BA-IN / Thermosorb-N (TDX)				Nitrosamines Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLER	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Gurne		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gurne	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

C.4.9 Aldehydes



ANALYTICAL REPORT

Report Date: September 11, 2017

Robert (Buddy) Sosa
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20173054

Workorder: **34-1724327**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033619	Collected: 08/27/2017			
Lab ID: 1724327001	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198134)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	0.10	NA	NA	0.050
Acetone	<0.050	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: S17T033620	Collected: 08/27/2017			
Lab ID: 1724327002	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198134)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.13	NA	NA	0.050
Acetaldehyde	0.14	NA	NA	0.050

Results Continued on Next Page

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ANALYTICAL REPORT

Workorder: **34-1724327**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033620		Collected: 08/27/2017		
Lab ID: 1724327002		Received: 08/31/2017		
Sampling Location: 2017 CARTRIDGE EVALU				
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Acetone	0.15	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	0.060	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033621		Collected: 08/27/2017		
Lab ID: 1724327003		Received: 08/31/2017		
Sampling Location: 2017 CARTRIDGE EVALU				
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	<0.050	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: **34-1724327**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033622	Collected: 08/27/2017			
Lab ID: 1724327004	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
Instrument: HPLC13	Analized: 09/03/2017 (198134)			
Sampling Location: 2017 CARTRIDGE EVALU				
Sampling Info: Air Volume Not Provided				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	<0.050	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: S17T033623	Collected: 08/27/2017			
Lab ID: 1724327005	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
Instrument: HPLC13	Analized: 09/03/2017 (198134)			
Sampling Location: 2017 CARTRIDGE EVALU				
Sampling Info: Air Volume Not Provided				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.088	NA	NA	0.050
Acetaldehyde	1.2	NA	NA	0.050
Acetone	<0.050	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: **34-1724327**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033624	Collected: 08/27/2017			
Lab ID: 1724327006	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.13	NA	NA	0.050
Acetaldehyde	2.5	NA	NA	0.050
Acetone	<0.050	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: S17T033625	Collected: 08/27/2017			
Lab ID: 1724327007	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.18	NA	NA	0.050
Acetaldehyde	3.3	NA	NA	0.050
Acetone	<0.050	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: **34-1724327**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033626	Collected: 08/27/2017			
Lab ID: 1724327008	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
Instrument: HPLC13	Sampling Info: Air Volume Not Provided			
Analyzed: 09/03/2017 (198134)				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.19	NA	NA	0.050
Acetaldehyde	3.3	NA	NA	0.050
Acetone	0.12	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: S17T033627	Collected: 08/27/2017			
Lab ID: 1724327009	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
Instrument: HPLC13	Sampling Info: Air Volume Not Provided			
Analyzed: 09/03/2017 (198134)				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.15	NA	NA	0.050
Acetaldehyde	2.5	NA	NA	0.050
Acetone	0.080	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: **34-1724327**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033628	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724327010		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.14	NA	NA	0.050
Acetaldehyde	2.3	NA	NA	0.050
Acetone	<0.050	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: S17T033629	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724327011		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.14	NA	NA	0.050
Acetaldehyde	2.6	NA	NA	0.050
Acetone	0.10	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: **34-1724327**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033630	Collected: 08/27/2017			
Lab ID: 1724327012	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
Instrument: HPLC13	Sampling Info: Air Volume Not Provided			
Analyzed: 09/03/2017 (198134)				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.089	NA	NA	0.050
Acetaldehyde	2.5	NA	NA	0.050
Acetone	0.17	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: S17T033631	Collected: 08/27/2017			
Lab ID: 1724327013	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
Instrument: HPLC13	Sampling Info: Air Volume Not Provided			
Analyzed: 09/03/2017 (198134)				
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.4	NA	NA	0.050
Acetaldehyde	3.1	NA	NA	0.050
Acetone	2.3	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.22	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	0.077	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	0.088	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724327**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033632	Collected: 08/27/2017			
Lab ID: 1724327014	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	NA	NA	0.050
Acetaldehyde	3.2	NA	NA	0.050
Acetone	2.5	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.24	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.26	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	0.11	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	0.13	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033633	Collected: 08/27/2017			
Lab ID: 1724327015	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.4	NA	NA	0.050
Acetaldehyde	2.9	NA	NA	0.050
Acetone	2.4	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.25	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	0.13	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	0.10	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724327**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033634	Collected: 08/27/2017			
Lab ID: 1724327016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.3	NA	NA	0.050
Acetaldehyde	2.8	NA	NA	0.050
Acetone	2.2	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.22	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: S17T033635	Collected: 08/27/2017			
Lab ID: 1724327017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.60	NA	NA	0.050
Acetaldehyde	1.9	NA	NA	0.050
Acetone	1.9	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.13	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.12	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: **34-1724327**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033636	Collected: 08/27/2017			
Lab ID: 1724327018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.2	NA	NA	0.050
Acetaldehyde	3.0	NA	NA	0.050
Acetone	2.1	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.22	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	0.061	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	0.098	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033637	Collected: 08/27/2017			
Lab ID: 1724327019	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198134)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.2	NA	NA	0.050
Acetaldehyde	3.1	NA	NA	0.050
Acetone	1.9	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.21	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	0.074	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724327**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033638	Collected: 08/27/2017			
Lab ID: 1724327020	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198134)			
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.2	NA	NA	0.050
Acetaldehyde	3.3	NA	NA	0.050
Acetone	2.1	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.22	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	0.11	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Comments

Quality Control: EPA TO-11A - (HBN: 198134)

LMB was used to blank correct QC and field samples for acetaldehyde and acetone.

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

Method	Analyst	Peer Review
EPA TO-11A	i/s/ Easton Welcher 09/08/2017 10:35	i/s/ Lyle Edwards 09/11/2017 14:56

Laboratory Contact Information

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

Phone: (801) 266-7700
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 Web: www.alst.com



ANALYTICAL REPORT

Workorder: **34-1724327**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS DNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724327

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/15810 (HBN: 198134)
Analyzed By: Easton Welcher

Blank

LMB: 564363 Analyzed: 09/03/2017 00:00 Units: ug/sample			
Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	0.0762	NA	0.0500
Acetone	1.56	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: 564364 Analyzed: 09/03/2017 00:00 Dilution: 1 Units: ug/sample					LCSD: 564365 Analyzed: 09/03/2017 00:00 Dilution: 1 Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Formaldehyde	3.11	3.00	104	87.8 116.8	3.03	101	2.61	0.0 20.0	
Acetaldehyde	3.09	3.00	103	94.7 110.5	3.11	104	0.644	0.0 20.0	
Acetone	3.00	3.00	100	69.2 119.9	3.00	100	0.00	0.0 20.0	
Acrolein	3.08	3.00	103	83.5 120.2	3.00	100	2.63	0.0 20.0	
Propionaldehyde	3.11	3.00	104	92.2 117.2	3.13	104	0.641	0.0 20.0	
Crotonaldehyde	3.17	3.00	106	93.1 114.8	3.31	110	4.32	0.0 20.0	
Butyraldehyde	3.25	3.00	108	86.6 120.8	3.28	109	0.919	0.0 20.0	
Benzaldehyde	3.25	3.00	108	96.0 112.3	3.27	109	0.614	0.0 20.0	
Isovaleraldehyde	3.11	3.00	104	95.4 121.6	3.04	101	2.28	0.0 20.0	
Valeraldehyde	3.08	3.00	103	85.3 120.4	3.30	110	6.90	0.0 20.0	
m,p-Tolualdehyde	3.15	3.00	105	80.0 120.0	3.15	105	0.00	0.0 20.0	
o-Tolualdehyde	3.15	3.00	105	91.6 111.4	3.15	105	0.00	0.0 20.0	
Hexanal	3.13	3.00	104	85.4 127.6	3.13	104	0.00	0.0 20.0	
2,5-Dimethylbenzaldehyde	3.05	3.00	102	99.6 118.7	3.11	104	1.95	0.0 20.0	

Comments

LMB was used to blank correct QC and field samples for acetaldehyde and acetone.



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724327		
Limits: Historical/Performance	Preparation: NA	Analysis: EPA TO-11A
Basis: ALS Laboratory Group	Batch: NA	Batch: ILC/15810 (HBN: 198134)
	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 09/08/2017 10:35	/S/ Lyle Edwards 09/11/2017 14:56

Symbols and Definitions

- | | |
|--|---|
| <ul style="list-style-type: none"> * - 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. | <ul style="list-style-type: none"> 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 |
|--|---|



1724327

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST											
Assembler N/A	C.O.C. No. 20173054 Page 1 of 2										
Contact/Requestor CARL HOWARD IV	Telephone No. 373-6861	MSIN TG-05	FAX 372-1878								
Sample Origin 2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203067/020										
Project Title 2017 CARTRIDGE EVALUATION	Logbook/Work Package No. N/A	Temp. ON	ICC JCC								
Shipped To (Lab) ALS	Bill of Lading/Air Bill No. 7701 4792 0780										
Protocol N/A	Data Turnaround 10 DAYS										
Parts and Return No. 42951											
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative					
	S17T033619	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-BA-EF	25C or low					
	S17T033620	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-BA-IN	25C or low					
	S17T033621	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EL-EF	25C or low					
	S17T033622	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EL-IN	25C or low					
	S17T033623	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EF-1	25C or low					
	S17T033624	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EF-2	25C or low					
	S17T033625	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EF-3	25C or low					
	S17T033626	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EF-4	25C or low					
	S17T033627	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EF-5	25C or low					
	S17T033628	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EF-6	25C or low					
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl Howard 481.941.4411 and Keisha_R_Garcia@el. gov See SOW for email. Release 15 Reference Contract # 55502 NIOSH 2016 MOD / EPA 10-11A											
Relinquished By Dianne Turner VA Grisham WRPS Garcia	Print 8/30/17	Sign Dianne Turner	Received By JA Grisham	Date/Time 8/30/17 0900	Print JA Grisham	Sign JA Grisham	Received By FEDEX	Date/Time 8/30/17 0800	Print FEDEX	Sign FEDEX	
Relinquished By WRPS Garcia	Print 8/30/17	Sign WRPS Garcia	Received By WRPS Garcia	Date/Time 8/30/17 1400	Print WRPS Garcia	Sign WRPS Garcia	Received By WRPS Garcia	Date/Time 8/30/17 1400	Print WRPS Garcia	Sign WRPS Garcia	
Relinquished By WRPS Garcia	Print 8/30/17	Sign WRPS Garcia	Received By WRPS Garcia	Date/Time 8/30/17 1400	Print WRPS Garcia	Sign WRPS Garcia	Received By WRPS Garcia	Date/Time 8/30/17 1400	Print WRPS Garcia	Sign WRPS Garcia	
FINAL SAMPLE DISPOSITION Consumed	Disposal Method (e.g. Return to customer, per lab procedures, used in process)						Date/Time 8/30/17 10:05				

A-6003-962 (03/05)

C.O.C. No. 20173054		Page 2 of 2					
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							
Assembler N/A	Contact/Requestor CARL HOWARD IV	Telephone No. 373-6861	MISIN FAX 372-1878				
Collector JONES	Sample Origin 2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CR20					
SAF No. N/A	Logbook/Work Package No. N/A	Ice Chest No. WIS-033	Temp. ON ICE				
Project Title 2017 CARTRIDGE EVALUATION	Method of Shipment	Bill of Lading/Air Bill No. 7701 4792 0780					
Shipped To (Lab) ALS	Data Turnaround 10 DAYS	Parts and Return No. 42951					
Protocol N/A							
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative	
	S17T033629	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EP-7	25C or low	
	S17T033630	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-EP-8	25C or low	
	S17T033631	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-1	25C or low	
	S17T033632	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-2	25C or low	
	S17T033633	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-3	25C or low	
	S17T033634	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-4	25C or low	
	S17T033635	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-5	25C or low	
	S17T033636	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-6	25C or low	
	S17T033637	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-7	25C or low	
	S17T033638	VA	8/27/17	SILICA GEL	Aldehyde 17-05613-8-SCI-IN-8	25C or low	
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl Howard and Keisha Garcia gov. See SOW for email. Release 15 Reference Contract # 55502 NIOSH 2016 R0D / EPA TO-11A</p>							
Relinquished By Dianne Turner	Print Turner	Sign Turner	Date/Time 8/30/17	Received By JA Grady	Print Grady	Sign Grady	Date/Time 8/30/17
Relinquished By WRPS	Print Grady	Sign Grady	Date/Time 8/30/17	Received By FEDEX	Print FEDEX	Sign FEDEX	Date/Time 8/29/17
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method (e.g. Return to customer, per lab procedure, used in process)						Date/Time 8/30/17 10:00

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: September 12, 2017

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
20173055

Workorder: **34-1724328**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033645	Collected: 08/26/2017			
Lab ID: 1724328001	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198135)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	0.050	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: S17T033646	Collected: 08/26/2017			
Lab ID: 1724328002	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/03/2017 (198135)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.11	NA	NA	0.050
Acetaldehyde	0.098	NA	NA	0.050

Results Continued on Next Page

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
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Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

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Tue, 09/12/17 3:25 PM



ANALYTICAL REPORT

Workorder: **34-1724328**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033646	Collected: 08/26/2017			
Lab ID: 1724328002	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Acetone	0.16	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: S17T033647	Collected: 08/26/2017			
Lab ID: 1724328003	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	<0.050	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: **34-1724328**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033648	Collected: 08/26/2017			
Lab ID: 1724328004	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	<0.050	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: S17T033649	Collected: 08/26/2017			
Lab ID: 1724328005	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.096	NA	NA	0.050
Acetaldehyde	1.6	NA	NA	0.050
Acetone	<0.050	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



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Workorder: **34-1724328**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033650	Collected: 08/26/2017			
Lab ID: 1724328006	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.12	NA	NA	0.050
Acetaldehyde	2.6	NA	NA	0.050
Acetone	<0.050	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: S17T033653	Collected: 08/26/2017			
Lab ID: 1724328007	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.13	NA	NA	0.050
Acetaldehyde	2.7	NA	NA	0.050
Acetone	<0.050	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



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Workorder: **34-1724328**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033654	Collected: 08/26/2017			
Lab ID: 1724328008	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.12	NA	NA	0.050
Acetaldehyde	2.4	NA	NA	0.050
Acetone	<0.050	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: S17T033655	Collected: 08/26/2017			
Lab ID: 1724328009	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.11	NA	NA	0.050
Acetaldehyde	2.3	NA	NA	0.050
Acetone	0.080	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



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Workorder: **34-1724328**
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Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033656	Collected: 08/26/2017			
Lab ID: 1724328010	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.11	NA	NA	0.050
Acetaldehyde	2.7	NA	NA	0.050
Acetone	<0.050	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: S17T033657	Collected: 08/26/2017			
Lab ID: 1724328011	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.086	NA	NA	0.050
Acetaldehyde	2.5	NA	NA	0.050
Acetone	0.060	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



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Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033658	Collected: 08/26/2017			
Lab ID: 1724328012	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.062	NA	NA	0.050
Acetaldehyde	2.5	NA	NA	0.050
Acetone	0.10	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: S17T033659	Collected: 08/26/2017			
Lab ID: 1724328013	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	NA	NA	0.050
Acetaldehyde	3.2	NA	NA	0.050
Acetone	3.5	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.23	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.26	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	0.12	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



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Workorder: **34-1724328**
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Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033660	Collected: 08/26/2017			
Lab ID: 1724328014	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	NA	NA	0.050
Acetaldehyde	3.3	NA	NA	0.050
Acetone	3.3	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.24	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.24	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	0.11	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033661	Collected: 08/26/2017			
Lab ID: 1724328015	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	NA	NA	0.050
Acetaldehyde	2.9	NA	NA	0.050
Acetone	2.8	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.25	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	0.12	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724328**
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Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033662	Collected: 08/26/2017			
Lab ID: 1724328016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	NA	NA	0.050
Acetaldehyde	3.1	NA	NA	0.050
Acetone	2.9	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.24	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.23	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	0.087	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033663	Collected: 08/26/2017			
Lab ID: 1724328017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.3	NA	NA	0.050
Acetaldehyde	3.2	NA	NA	0.050
Acetone	2.9	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.22	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	0.081	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



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Workorder: **34-1724328**
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Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033665	Collected: 08/26/2017			
Lab ID: 1724328018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.3	NA	NA	0.050
Acetaldehyde	3.5	NA	NA	0.050
Acetone	2.7	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.23	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.24	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: S17T033666	Collected: 08/26/2017			
Lab ID: 1724328019	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/03/2017 (198135)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.3	NA	NA	0.050
Acetaldehyde	3.5	NA	NA	0.050
Acetone	2.6	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.23	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.21	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	0.11	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724328**
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 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033667	Collected: 08/26/2017			
Lab ID: 1724328020	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/03/2017 (198135)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.0	NA	NA	0.050
Acetaldehyde	3.3	NA	NA	0.050
Acetone	2.3	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.22	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.21	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

Comments

Quality Control: **EPA TO-11A - (HBN: 198135)**

LMB was used to blank correct QC and field samples for acetaldehyde and acetone.

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

Method	Analyst	Peer Review
EPA TO-11A	iS/ Easton Welcher 09/08/2017 11:22	iS/ Christopher Winter 09/12/2017 15:10

Laboratory Contact Information

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ANALYTICAL REPORT

Workorder: **34-1724328**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724328

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/15811 (HBN: 198135)
Analyzed By: Easton Welcher

Blank

LMB: 564366			
Analyzed: 09/03/2017 00:00			
Units: ug/sample			
Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	0.0976	NA	0.0500
Acetone	1.53	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: 564367					LCSD: 564368				
Analyzed: 09/03/2017 00:00					Analyzed: 09/03/2017 00:00				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Formaldehyde	2.92	3.00	97.3	87.8 116.8	2.90	96.7	0.687	0.0	20.0
Acetaldehyde	2.92	3.00	97.4	94.7 110.5	2.94	98.1	0.682	0.0	20.0
Acetone	2.49	3.00	83.0	69.2 119.9	2.53	84.3	1.59	0.0	20.0
Acrolein	2.78	3.00	92.7	83.5 120.2	2.79	93.0	0.359	0.0	20.0
Propionaldehyde	2.95	3.00	98.3	92.2 117.2	2.97	99.0	0.676	0.0	20.0
Crotonaldehyde	3.31	3.00	110	93.1 114.8	3.30	110	0.303	0.0	20.0
Butyraldehyde	3.08	3.00	103	86.6 120.8	3.13	104	1.61	0.0	20.0
Benzaldehyde	3.02	3.00	101	96.0 112.3	3.01	100	0.332	0.0	20.0
Isovaleraldehyde	3.20	3.00	107	95.4 121.6	3.18	106	0.627	0.0	20.0
Valeraldehyde	2.82	3.00	94.0	85.3 120.4	2.78	92.7	1.43	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	3.00	3.00	100	91.6 111.4	3.07	102	2.31	0.0	20.0
Hexanal	2.92	3.00	97.3	85.4 127.6	2.91	97.0	0.343	0.0	20.0
2,5-Dimethylbenzaldehyde	3.05	3.00	102	99.6 118.7	2.99	99.7	1.99	0.0	20.0

Comments

LMB was used to blank correct QC and field samples for acetaldehyde and acetone.



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724328		
Limits: Historical/Performance	Preparation: NA	Analysis: EPA TO-11A
Basis: ALS Laboratory Group	Batch: NA	Batch: ILC/15811 (HBN: 198135)
	Prepared By: NA	Analyzed By: Easton Welcher

Comments

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

Analyst	Peer Review
/S/ Easton Welcher 09/08/2017 11:22	/S/ Christopher Winter 09/12/2017 15:10

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



1724328

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173055 Page 1 of 2

Telephone No. 313-6661 MSIN To-05 FAX 372-1878

Sample Origin 2017 CARTRIDGE EVALUATION

Logbook/Work Package No. N/A

Project Title 2017 CARTRIDGE EVALUATION

Shipped To (Lab) ALS

Ice Chest No. 105-033

Temp. 20C

Bill of Lading/Air Bill No. 7701 4792 0780

Parts and Return No. 42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-BA-EF	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-BA-DN	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-BL-EF	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-BL-IN	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-EF-1	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-EF-2	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-EF-3	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-EF-4	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-EF-5	25C or Low
	SILICA GEL	VA	8/26/17		Aldehyde 17-05614-8-SD1-EF-6	25C or Low

Protocol N/A

10 DAYS

MSDS Yes No

SPECIAL INSTRUCTIONS
 Send Results to Carl Rowald & Keisha Garcia
 Carl W Rowald@rl.gov and Keisha_R_Garcia@rl.gov See SOW for email
 Release 15
 Reference Contract # 55502
 NIOSH 2016 MOD / EPA TO-11A

Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time	Matrix*
Don Jensen	[Signature]	[Signature]	JA Gredan	JA Gredan	JA Gredan	8/30/17	0900	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
WRPS	[Signature]	[Signature]	Received By	FEDEX				DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Dispersed By [Signature]

Date/Time 8/30/17 13:00

FINAL SAMPLE DISPOSITION Consumed

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



ANALYTICAL REPORT

Report Date: September 11, 2017

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

20173056

Workorder: **34-1724329**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15

Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033673	Collected: 08/26/2017			
Lab ID: 1724329001	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/01/2017 (198136)			
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.058	NA	NA	0.050
Acetaldehyde	0.069	NA	NA	0.050
Acetone	0.15	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: S17T033674	Collected: 08/26/2017			
Lab ID: 1724329002	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/01/2017 (198136)			
Sampling Location: 2017 CARTRIDGE EVALU				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.075	NA	NA	0.050
Acetaldehyde	0.12	NA	NA	0.050

Results Continued on Next Page

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ANALYTICAL REPORT

Workorder: **34-1724329**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033674		Collected: 08/26/2017	
Lab ID: 1724329002		Received: 08/31/2017	
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	
		Instrument: HPLC13	
		Sampling Info: Air Volume Not Provided	
		Analyzed: 09/01/2017 (198136)	
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)
Acetone	0.33	NA	NA
Acrolein	<0.050	NA	NA
Propionaldehyde	<0.050	NA	NA
Crotonaldehyde	<0.050	NA	NA
Butyraldehyde	<0.050	NA	NA
Benzaldehyde	<0.050	NA	NA
Isovaleraldehyde	<0.050	NA	NA
Valeraldehyde	<0.050	NA	NA
m,p-Tolualdehyde	<0.050	NA	NA
o-Tolualdehyde	<0.050	NA	NA
Hexanal	<0.050	NA	NA
2,5-Dimethylbenzaldehyde	<0.050	NA	NA

Sample ID: S17T033675		Collected: 08/26/2017	
Lab ID: 1724329003		Received: 08/31/2017	
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	
		Instrument: HPLC13	
		Sampling Info: Air Volume Not Provided	
		Analyzed: 09/01/2017 (198136)	
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)
Formaldehyde	<0.050	NA	NA
Acetaldehyde	<0.050	NA	NA
Acetone	0.19	NA	NA
Acrolein	<0.050	NA	NA
Propionaldehyde	<0.050	NA	NA
Crotonaldehyde	<0.050	NA	NA
Butyraldehyde	<0.050	NA	NA
Benzaldehyde	<0.050	NA	NA
Isovaleraldehyde	<0.050	NA	NA
Valeraldehyde	<0.050	NA	NA
m,p-Tolualdehyde	<0.050	NA	NA
o-Tolualdehyde	<0.050	NA	NA
Hexanal	<0.050	NA	NA
2,5-Dimethylbenzaldehyde	<0.050	NA	NA



ANALYTICAL REPORT

Workorder: **34-1724329**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033677	Collected: 08/26/2017			
Lab ID: 1724329004	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	0.17	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: S17T033678	Collected: 08/26/2017			
Lab ID: 1724329005	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.13	NA	NA	0.050
Acetaldehyde	1.9	NA	NA	0.050
Acetone	<0.050	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: 34-1724329
Client Project ID: 2017 CARTRIDGE EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Formaldehyde, Acetaldehyde, Acetone, Acrolein, Propionaldehyde, Crotonaldehyde, Butyraldehyde, Benzaldehyde, Isovaleraldehyde, Valeraldehyde, m,p-Tolualdehyde, o-Tolualdehyde, Hexanal, 2,5-Dimethylbenzaldehyde.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Formaldehyde, Acetaldehyde, Acetone, Acrolein, Propionaldehyde, Crotonaldehyde, Butyraldehyde, Benzaldehyde, Isovaleraldehyde, Valeraldehyde, m,p-Tolualdehyde, o-Tolualdehyde, Hexanal, 2,5-Dimethylbenzaldehyde.



ANALYTICAL REPORT

Workorder: **34-1724329**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033681		Collected: 08/26/2017		
Lab ID: 1724329008		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		
		Instrument: HPLC13		
		Sampling Info: Air Volume Not Provided		
		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.27	NA	NA	0.050
Acetaldehyde	3.4	NA	NA	0.050
Acetone	<0.050	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: S17T033683		Collected: 08/26/2017		
Lab ID: 1724329009		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		
		Instrument: HPLC13		
		Sampling Info: Air Volume Not Provided		
		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.32	NA	NA	0.050
Acetaldehyde	3.2	NA	NA	0.050
Acetone	<0.050	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: **34-1724329**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033685		Collected: 08/26/2017		
Lab ID: 1724329010		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		
		Instrument: HPLC13		
		Sampling Info: Air Volume Not Provided		
		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.31	NA	NA	0.050
Acetaldehyde	3.2	NA	NA	0.050
Acetone	<0.050	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: S17T033686		Collected: 08/26/2017		
Lab ID: 1724329011		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		
		Instrument: HPLC13		
		Sampling Info: Air Volume Not Provided		
		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.26	NA	NA	0.050
Acetaldehyde	2.8	NA	NA	0.050
Acetone	<0.050	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: **34-1724329**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033687	Collected: 08/26/2017			
Lab ID: 1724329012	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.21	NA	NA	0.050
Acetaldehyde	2.7	NA	NA	0.050
Acetone	<0.050	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: S17T033688	Collected: 08/26/2017			
Lab ID: 1724329013	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	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	0.24	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.28	NA	NA	0.050
Benzaldehyde	0.051	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: **34-1724329**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033689		Collected: 08/26/2017		
Lab ID: 1724329014		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		
		Instrument: HPLC13		
		Sampling Info: Air Volume Not Provided		
		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.14	NA	NA	0.050
Acetaldehyde	3.7	NA	NA	0.050
Acetone	<0.050	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: S17T033690		Collected: 08/26/2017		
Lab ID: 1724329015		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		
		Instrument: HPLC13		
		Sampling Info: Air Volume Not Provided		
		Analyzed: 09/01/2017 (198136)		
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.23	NA	NA	0.050
Acetaldehyde	3.9	NA	NA	0.050
Acetone	<0.050	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: 34-1724329
Client Project ID: 2017 CARTRIDGE EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Formaldehyde, Acetaldehyde, Acetone, Acrolein, Propionaldehyde, Crotonaldehyde, Butyraldehyde, Benzaldehyde, Isovaleraldehyde, Valeraldehyde, m,p-Tolualdehyde, o-Tolualdehyde, Hexanal, and 2,5-Dimethylbenzaldehyde.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Formaldehyde, Acetaldehyde, Acetone, Acrolein, Propionaldehyde, Crotonaldehyde, Butyraldehyde, Benzaldehyde, Isovaleraldehyde, Valeraldehyde, m,p-Tolualdehyde, o-Tolualdehyde, Hexanal, and 2,5-Dimethylbenzaldehyde.



ANALYTICAL REPORT

Workorder: **34-1724329**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033694		Collected: 08/26/2017		
Lab ID: 1724329018		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13	
		Sampling Info: Air Volume Not Provided	Analyzed: 09/01/2017 (198136)	
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.3	NA	NA	0.050
Acetaldehyde	3.7	NA	NA	0.050
Acetone	2.9	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.25	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.25	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	0.13	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033695		Collected: 08/26/2017		
Lab ID: 1724329019		Received: 08/31/2017		
Method: EPA TO-11A		Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13	
		Sampling Info: Air Volume Not Provided	Analyzed: 09/01/2017 (198136)	
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.1	NA	NA	0.050
Acetaldehyde	3.2	NA	NA	0.050
Acetone	2.1	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.20	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.22	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	0.13	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: 34-1724329
Client Project ID: 2017 CARTRIDGE EVALUATION
Purchase Order: 55502 Rel 15
Project Manager: Rand Potter

Analytical Results

Table with columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Formaldehyde, Acetaldehyde, Acetone, Acrolein, Propionaldehyde, Crotonaldehyde, Butyraldehyde, Benzaldehyde, Isovaleraldehyde, Valeraldehyde, m,p-Tolualdehyde, o-Tolualdehyde, Hexanal, 2,5-Dimethylbenzaldehyde.

Comments

Quality Control: EPA TO-11A - (HBN: 198136)
LMB was used to blank correct QC and field samples for acetaldehyde and acetone.

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

Table with columns: Method, Analyst, Peer Review. Row: EPA TO-11A, /S/ Easton Welcher, /S/ Christopher Winter.

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724329**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA 1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwl/abservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/insideDNR/RegulatoryWater.aspx
	Texas (TNI)	T 104704456-11-1	http://www.tceq.texas.gov/fieldqa/lab_accred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Industrial Hygiene	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	CPSC	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724329

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/15812 (HBN: 198136)
Analyzed By: Easton Welcher

Blank

LMB: 564369 Analyzed: 09/01/2017 00:00 Units: ug/sample			
Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	0.0646	NA	0.0500
Acetone	1.49	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: 564370 Analyzed: 09/01/2017 00:00 Dilution: 1 Units: ug/sample					LCSD: 564371 Analyzed: 09/01/2017 00:00 Dilution: 1 Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Formaldehyde	3.01	3.00	100	87.8 116.8	3.10	103	2.95	0.0 20.0	
Acetaldehyde	3.01	3.00	100	94.7 110.5	3.06	102	1.65	0.0 20.0	
Acetone	2.95	3.00	98.3	69.2 119.9	3.00	100	1.68	0.0 20.0	
Acrolein	3.00	3.00	100	83.5 120.2	3.00	100	0.00	0.0 20.0	
Propionaldehyde	3.04	3.00	101	92.2 117.2	3.10	103	1.95	0.0 20.0	
Crotonaldehyde	3.10	3.00	103	93.1 114.8	3.26	109	5.03	0.0 20.0	
Butyraldehyde	3.14	3.00	105	86.6 120.8	3.21	107	2.20	0.0 20.0	
Benzaldehyde	3.09	3.00	103	96.0 112.3	3.18	106	2.87	0.0 20.0	
Isovaleraldehyde	2.90	3.00	96.7	95.4 121.6	3.04	101	4.71	0.0 20.0	
Valeraldehyde	3.30	3.00	110	85.3 120.4	3.51	117	6.17	0.0 20.0	
m,p-Tolualdehyde	3.01	3.00	100	80.0 120.0	3.07	102	1.97	0.0 20.0	
o-Tolualdehyde	3.00	3.00	100	91.6 111.4	3.03	101	0.995	0.0 20.0	
Hexanal	3.02	3.00	101	85.4 127.6	3.10	103	2.61	0.0 20.0	
2,5-Dimethylbenzaldehyde	3.15	3.00	105	99.6 118.7	3.09	103	1.92	0.0 20.0	

Comments

LMB was used to blank correct QC and field samples for acetaldehyde and acetone.



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724329

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/15812 (HBN: 198136)
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 09/08/2017 11:49	/S/ Christopher Winter 09/11/2017 16:32

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



17-04101

Assembler		C.O.C. No. 20173056				
N/A		Page 1 of 2				
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						
Collector JONES	Contact/Requestor CARL HOWARD IV	Telephone No. 373-6861	MSIN 16-05 FAX 372-1878			
SAF No.	Sample Origin 2017 CHEMICALS EVALUATION	Purchase Order/Charge Code 20300476500				
Project Title 2017 CHEMICALS EVALUATION	Logbook Work Package No.	Ice Chest No. W45-033	Temp. ON ICE			
Shipped To (Lab)	Method of Shipment	Bill of Lading/Air Bill No. 7701 4792 0780				
Plus		Parts and Return No. 42951				
Protocol	Data Turnaround 10 DAYS					
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033673	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-BA-EF 6	25C or low
	S17T033674	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-BA-IN	25C or low
	S17T033675	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-B1-EF	25C or low
	S17T033677	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-B1-IN	25C or low
	S17T033678	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-EF-1	25C or low
	S17T033679	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-EF-2	25C or low
	S17T033680	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-EF-3	25C or low
	S17T033681	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-EF-4	25C or low
	S17T033683	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-EF-5	25C or low
	S17T033685	VA	8/26/17	SILICA GEL	Aldehyde 17-05615-8-TL1-EF-6	25C or low
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No Hold Time .						
SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@rl.gov and Keisha.R.Garcia@rl.gov gov See SOW for email Release 15 Reference Contract # 55502 NIOSH 2016 MOD / EPA TO-11A						
Relinquished By <i>Dianne Turner</i>	Print	Sign	Date/Time 8/30/17 0900	Received By <i>RE ROYERS</i>	Print	Date/Time 8/30/17 0900
Relinquished By <i>RE ROYERS</i>	Print	Sign	Date/Time 8/30/17 1400	Received By <i>FEDEX</i>	Print	Date/Time 8/30/17 1400
Relinquished By	Print	Sign	Date/Time	Received By	Print	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Date/Time
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) <i>Conserved</i>						
All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.						
Date/Time <i>8/30/17 1300</i>						

A-6003-962 (03/05)



ANALYTICAL REPORT

Report Date: September 12, 2017

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

20173057

Workorder: **34-1724330**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033700	Collected: 08/27/2017			
Lab ID: 1724330001	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/01/2017 (198138)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	<0.050	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: S17T033701	Collected: 08/27/2017			
Lab ID: 1724330002	Received: 08/31/2017			
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			
	Instrument: HPLC13			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/01/2017 (198138)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.14	NA	NA	0.050
Acetaldehyde	0.14	NA	NA	0.050

Results Continued on Next Page

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company



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Tue, 09/12/17 4:10 PM



ANALYTICAL REPORT

Workorder: **34-1724330**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033701	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724330002		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Acetone	0.28	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: S17T033702	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724330003		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	0.14	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: **34-1724330**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033703	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724330004		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	0.41	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: S17T033704	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724330005		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.050	NA	NA	0.050
Acetaldehyde	1.6	NA	NA	0.050
Acetone	<0.050	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: **34-1724330**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033705	Collected: 08/27/2017			
Lab ID: 1724330006	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.26	NA	NA	0.050
Acetaldehyde	3.7	NA	NA	0.050
Acetone	<0.050	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: S17T033706	Collected: 08/27/2017			
Lab ID: 1724330007	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.64	NA	NA	0.050
Acetaldehyde	5.1	NA	NA	0.050
Acetone	0.11	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: **34-1724330**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033707	Collected: 08/27/2017			
Lab ID: 1724330008	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.79	NA	NA	0.050
Acetaldehyde	5.2	NA	NA	0.050
Acetone	<0.050	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: S17T033708	Collected: 08/27/2017			
Lab ID: 1724330009	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.70	NA	NA	0.050
Acetaldehyde	3.8	NA	NA	0.050
Acetone	<0.050	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: **34-1724330**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033709	Collected: 08/27/2017			
Lab ID: 1724330010	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.46	NA	NA	0.050
Acetaldehyde	2.8	NA	NA	0.050
Acetone	<0.050	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: S17T033710	Collected: 08/27/2017			
Lab ID: 1724330011	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.48	NA	NA	0.050
Acetaldehyde	3.3	NA	NA	0.050
Acetone	<0.050	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: **34-1724330**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033711	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724330012		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	0.33	NA	NA	0.050
Acetaldehyde	3.1	NA	NA	0.050
Acetone	0.11	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: S17T033712	Sampling Location: 2017 CARTRIDGE EVALU	Collected: 08/27/2017		
Lab ID: 1724330013		Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.4	NA	NA	0.050
Acetaldehyde	3.4	NA	NA	0.050
Acetone	2.3	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.25	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	0.093	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724330**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033713		Collected: 08/27/2017		
Lab ID: 1724330014	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	NA	NA	0.050
Acetaldehyde	3.2	NA	NA	0.050
Acetone	2.5	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.24	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.24	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	0.095	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033715		Collected: 08/27/2017		
Lab ID: 1724330015	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.4	NA	NA	0.050
Acetaldehyde	3.0	NA	NA	0.050
Acetone	2.3	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.23	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.24	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	0.11	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724330**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033717	Collected: 08/27/2017			
Lab ID: 1724330016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.4	NA	NA	0.050
Acetaldehyde	3.1	NA	NA	0.050
Acetone	2.5	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.23	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.26	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	0.12	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033718	Collected: 08/27/2017			
Lab ID: 1724330017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.5	NA	NA	0.050
Acetaldehyde	3.3	NA	NA	0.050
Acetone	2.5	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.25	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	0.10	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724330**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033719	Collected: 08/27/2017			
Lab ID: 1724330018	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.4	NA	NA	0.050
Acetaldehyde	3.1	NA	NA	0.050
Acetone	2.4	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.21	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.25	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	0.11	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: S17T033720	Collected: 08/27/2017			
Lab ID: 1724330019	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)	Instrument: HPLC13		
Sampling Info: Air Volume Not Provided		Analyzed: 09/01/2017 (198138)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.2	NA	NA	0.050
Acetaldehyde	3.1	NA	NA	0.050
Acetone	2.3	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.20	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.22	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	0.12	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050



ANALYTICAL REPORT

Workorder: **34-1724330**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033721	Collected: 08/27/2017
Lab ID: 1724330020	Received: 08/31/2017
Method: EPA TO-11A	Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)
	Instrument: HPLC13
	Sampling Info: Air Volume Not Provided
	Analyzed: 09/01/2017 (198138)
	Sampling Location: 2017 CARTRIDGE EVALU

Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Formaldehyde	1.3	NA	NA	0.050
Acetaldehyde	3.4	NA	NA	0.050
Acetone	2.4	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	0.22	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	0.26	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	0.10	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Comments

Quality Control: EPA TO-11A - (HBN: 198138)

LMB was used to blank correct QC and field samples for acetaldehyde and acetone.

Crotonaldehyde and acrolein were outside acceptable parameters for QC samples; however, both analytes were absent from the field samples so no Non-Conformance Report was generated.

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

Method	Analyst	Peer Review
EPA TO-11A	/S/ Easton Welcher 09/08/2017 13:08	/S/ Lyle Edwards 09/12/2017 16:02

Laboratory Contact Information

ALS Environmental
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ANALYTICAL REPORT

Workorder: **34-1724330**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724330

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/15813 (HBN: 198138)
Analyzed By: Easton Welcher

Blank

LMB: 564375			
Analyzed: 09/01/2017 00:00			
Units: ug/sample			
Analyte	Result	MDL	RL
Formaldehyde	ND	NA	0.0500
Acetaldehyde	0.0987	NA	0.0500
Acetone	1.50	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: 564376					LCSD: 564377				
Analyzed: 09/01/2017 00:00					Analyzed: 09/01/2017 00:00				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Formaldehyde	2.92	3.00	97.3	87.8 116.8	2.90	96.7	0.687	0.0	20.0
Acetaldehyde	2.92	3.00	97.4	94.7 110.5	2.93	97.7	0.342	0.0	20.0
Acetone	2.53	3.00	84.3	69.2 119.9	2.56	85.3	1.18	0.0	20.0
Acrolein	2.73	3.00	91.0	83.5 120.2	2.81	93.7	2.89	0.0	20.0
Propionaldehyde	2.91	3.00	97.0	92.2 117.2	2.97	99.0	2.04	0.0	20.0
Crotonaldehyde	3.25	3.00	108	93.1 114.8	3.29	110	1.22	0.0	20.0
Butyraldehyde	3.04	3.00	101	86.6 120.8	3.12	104	2.60	0.0	20.0
Benzaldehyde	2.99	3.00	99.7	96.0 112.3	3.06	102	2.31	0.0	20.0
Isovaleraldehyde	3.16	3.00	105	95.4 121.6	3.22	107	1.88	0.0	20.0
Valeraldehyde	2.77	3.00	92.3	85.3 120.4	2.82	94.0	1.79	0.0	20.0
m,p-Tolualdehyde	2.92	3.00	97.3	80.0 120.0	2.96	98.7	1.36	0.0	20.0
o-Tolualdehyde	3.01	3.00	100	91.6 111.4	3.06	102	1.65	0.0	20.0
Hexanal	2.93	3.00	97.7	85.4 127.6	2.91	97.0	0.685	0.0	20.0
2,5-Dimethylbenzaldehyde	3.05	3.00	102	99.6 118.7	3.02	101	0.988	0.0	20.0

Comments

LMB was used to blank correct QC and field samples for acetaldehyde and acetone.



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724330		
Limits: Historical/Performance	Preparation: NA	Analysis: EPA TO-11A
Basis: ALS Laboratory Group	Batch: NA	Batch: ILC/15813 (HBN: 198138)
	Prepared By: NA	Analyzed By: Easton Welcher

Comments

Crotonaldehyde and acrolein were outside acceptable parameters for QC samples; however, both analytes were absent from the field samples so no Non-Conformance Report was generated.

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

Analyst	Peer Review
/S/ Easton Welcher 09/08/2017 13:08	/S/ Lyle Edwards 09/12/2017 16:02

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



1724330

1724330

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST											
Assembler N/A		C.O.C. No. 20173057 Page 1 of 2									
Collector JONES		Telephone No. 373-6861 FAX 372-1878									
SAF No. N/A		Purchase Order/Charge Code 203006/0520									
Project Title 2017 CARTRIDGE EVALUATION		Sample Origin 2017 CARTRIDGE EVALUATION									
Shipped To (Lab) ALS		Logbook/Work Package No. N/A									
Protocol N/A		Method of Shipment Data Turnaround 10 DAYS									
Contact/Requestor CARL HOWARD IV		Ice Chest No. WFS-033 Temp. ON ICE									
Bill of Lading/Air Bill No.		77014792 0780									
Parts and Return No.		42951									
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative	MSDS	MSDS	MSDS		
	S17T033700	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-BA-EF	25C or low					
	S17T033701	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-BA-IN	25C or low					
	S17T033702	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-BL-EF	25C or low					
	S17T033703	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-BL-IN	25C or low					
	S17T033704	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-EF-1	25C or low					
	S17T033705	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-EF-2	25C or low					
	S17T033706	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-EF-3	25C or low					
	S17T033707	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-EF-4	25C or low					
	S17T033708	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-EF-5	25C or low					
	S17T033709	VA	8/27/17	SILICA GEL	Aldehyde 17-05616-8-TL2-EF-6	25C or low					
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>EPA 70-11A</p> <p>Special Instructions: Send Results to Carl Howard & Kaisha Garcia Carl.W.Howard@rl.gov and Kaisha.R.Garcia@rl.gov See SOW for email Release 15 Reference Contract # 55502 NICSR 2016 MOD / EPA TO-11A</p>											
Relinquished By Dianne Turner	Print 8/27/17	Sign Dianne Turner	Date/Time 8/27/17 0900	Received By KE Rogers	Print 8/27/17	Sign KE Rogers	Date/Time 8/27/17 0900	Received By FEDEX	Print 8/27/17	Sign FEDEX	Date/Time 8/27/17 1000
Relinquished By KE Rogers	Print 8/27/17	Sign KE Rogers	Date/Time 8/27/17 1400	Received By WPA	Print 8/27/17	Sign WPA	Date/Time 8/27/17 1400	Received By WPA	Print 8/27/17	Sign WPA	Date/Time 8/27/17 1500
Relinquished By WPA	Print 8/27/17	Sign WPA	Date/Time 8/27/17 1400	Received By WPA	Print 8/27/17	Sign WPA	Date/Time 8/27/17 1400	Received By WPA	Print 8/27/17	Sign WPA	Date/Time 8/27/17 1500
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedures, used in process)										
Conserved											
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		C.O.C. No.	
N/A		20173057	
Collector		Page 2 of 2	
JONES		MSIN 16-03 FAX 372-1878	
SAF No.		Telephone No. 373-6861	
N/A		Purchase Order/Charge Code	
2017 CARTRIDGE EVALUATION		2030067026	
Project Title		Ice Chest No.	
2017 CARTRIDGE EVALUATION		N/A	
Shipped To (Lab)		Bill of Lading/Air Bill No.	
R-5		7701 4282 0780	
Protocol		Parts and Return No.	
N/A		42951	
Sample Analysis			
Sample No.	Lab ID	Date	Preservative
S17T033710	VA	8/27/17	25C or low
S17T033711	VA	8/27/17	25C or low
S17T033712	VA	8/27/17	25C or low
S17T033713	VA	8/27/17	25C or low
S17T033715	VA	8/27/17	25C or low
S17T033717	VA	8/27/17	25C or low
S17T033718	VA	8/27/17	25C or low
S17T033719	VA	8/27/17	25C or low
S17T033720	VA	8/27/17	25C or low
S17T033721	VA	8/27/17	25C or low
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No			
EPA TO-11A			
SPECIAL INSTRUCTIONS			
Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@rl.gov and Keisha.R.Garcia@rl.gov See SOM for email			
Release 15 Reference Contract # 55502 NIOGH 2016 MOD / EPA TO-11A			
Relinquished By	Print	Sign	Date/Time
Diane Turner			8/30/17 0900
Relinquished By	Print	Sign	Date/Time
KE ROGERS			8/30/17 1400
Relinquished By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time
Received By	Print	Sign	Date/Time
KE ROGERS			8/30/17 0900
Received By	Print	Sign	Date/Time
Received By	Print	Sign	Date/Time
Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By		Date/Time
Conserved	Carton		8/30/17 15:00
All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.			

C.4.10 1,3-Butadiene



ANALYTICAL REPORT

Report Date: September 08, 2017

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

20173040

Workorder: **34-1724316**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033258	Collected: 08/27/2017			
Lab ID: 1724316001	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033259	Collected: 08/27/2017			
Lab ID: 1724316002	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033260	Collected: 08/27/2017			
Lab ID: 1724316003	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

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ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS HIGH PARTNER



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033261	Collected: 08/27/2017			
Lab ID: 1724316004	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033262	Collected: 08/27/2017			
Lab ID: 1724316005	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033263	Collected: 08/27/2017			
Lab ID: 1724316006	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033264	Collected: 08/27/2017			
Lab ID: 1724316007	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033269	Collected: 08/27/2017			
Lab ID: 1724316012	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033270	Collected: 08/27/2017			
Lab ID: 1724316013	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033271	Collected: 08/27/2017			
Lab ID: 1724316014	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033272	Collected: 08/27/2017			
Lab ID: 1724316015	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033273	Collected: 08/27/2017			
Lab ID: 1724316016	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033274	Collected: 08/27/2017			
Lab ID: 1724316017	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033275	Collected: 08/27/2017			
Lab ID: 1724316018	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033276	Collected: 08/27/2017			
Lab ID: 1724316019	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033277	Collected: 08/27/2017			
Lab ID: 1724316020	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033278	Collected: 08/27/2017			
Lab ID: 1724316021	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033279	Collected: 08/27/2017			
Lab ID: 1724316022	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033280	Collected: 08/27/2017			
Lab ID: 1724316023	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033281	Collected: 08/27/2017			
Lab ID: 1724316024	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033282	Collected: 08/27/2017			
Lab ID: 1724316025	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033283	Collected: 08/27/2017			
Lab ID: 1724316026	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033284	Collected: 08/27/2017			
Lab ID: 1724316027	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033285	Collected: 08/27/2017			
Lab ID: 1724316028	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033286	Collected: 08/27/2017			
Lab ID: 1724316029	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033287	Collected: 08/27/2017			
Lab ID: 1724316030	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033288	Collected: 08/27/2017			
Lab ID: 1724316031	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033289	Collected: 08/27/2017			
Lab ID: 1724316032	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033290	Collected: 08/27/2017			
Lab ID: 1724316033	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033291	Collected: 08/27/2017			
Lab ID: 1724316034	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033292	Collected: 08/27/2017			
Lab ID: 1724316035	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033293	Collected: 08/27/2017			
Lab ID: 1724316036	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033294	Collected: 08/27/2017			
Lab ID: 1724316037	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033295	Collected: 08/27/2017			
Lab ID: 1724316038	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033296	Collected: 08/27/2017			
Lab ID: 1724316039	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033297	Collected: 08/27/2017			
Lab ID: 1724316040	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198392)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1724316
QC/QD pair 564951/564952 relate to samples 1724316001-020
QC/QD pair 565162/565163 relate to samples 1724316021-040

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 09/08/2017 12:45	/S/ Lyle Edwards 09/08/2017 15:04

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724316**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS/Dnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/Regulatory/Water.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724316

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: NIOSH 1024
Batch: IFID/8808 (HBN: 198392)
Analyzed By: Fred Rejali

Blank

MB: 564950
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565161
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565164
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565167
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565170
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565173
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565176
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724316		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Blank

MB: 565179
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565182
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565185
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564951					LCSD: 564952				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0371	0.0342	108	78.0 117.6	0.0369	108	0.541	0.0 20.0	

LCS: 565162					LCSD: 565163				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0332	0.0342	97.1	78.0 117.6	0.0333	97.4	0.301	0.0 20.0	

LCS: 565165					LCSD: 565166				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0330	0.0342	96.5	78.0 117.6	0.0329	96.2	0.303	0.0 20.0	

LCS: 565168					LCSD: 565169				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0322	0.0342	94.2	78.0 117.6	0.0321	93.9	0.311	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724316		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 565171 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565172 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0316	0.0342	92.4	78.0 117.6	0.0317	92.7	0.316	0.0 20.0	
LCS: 565174 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565175 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0297	0.0342	86.8	78.0 117.6	0.0318	93.0	6.83	0.0 20.0	
LCS: 565177 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565178 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0329	0.0342	96.2	78.0 117.6	0.0305	89.2	7.57	0.0 20.0	
LCS: 565180 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565181 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0327	0.0342	95.6	78.0 117.6	0.0329	96.2	0.610	0.0 20.0	
LCS: 565183 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565184 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0308	0.0342	90.1	78.0 117.6	0.0308	90.1	0.00	0.0 20.0	
LCS: 565186 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565187 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0338	0.0342	98.8	78.0 117.6	0.0338	98.8	0.00	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724316		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HEN: 198392)
	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 09/08/2017 12:55	/S/ Lyle Edwards 09/08/2017 15:04

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



704316

ASSEMBLER N/A		C.O.C. NO. 20173040	
Project Title 2017 CARTRIDGE EVALUATION		Page 1 of 4	
Shipped To (Lab) ALS		Termin ON ICC	
Protocol N/A		Parts and Return No. 42951	
Data Turnaround 10 DAYS		Telephone No. 373-6861	
Contact/Requestor CARL HOWARD IV		MSIN T6-05	
Sample Origin 2017 CARTRIDGE EVALUATION		Purchase Order/Charge Code	
Logbook/Work Package No. N/A		Ice Chest No. WTS-033	
Method of Shipment		Bill of Lading/Air Bill No. 1701 492 0780	

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033258	VA	8/27/17	1,3-Butadiene 17-05613-9-SCI-BA-EFA		CHILL -4C
	S17T033259	VA	8/27/17	1,3-Butadiene 17-05613-10-SCI-BA-EFB		CHILL -4C
	S17T033260	VA	8/27/17	1,3-Butadiene 17-05613-9-SCI-BA-INA		CHILL -4C
	S17T033261	VA	8/27/17	1,3-Butadiene 17-05613-10-SCI-BA-INS		CHILL -4C
	S17T033262	VA	8/27/17	1,3-Butadiene 17-05613-9-SCI-BL-EFA		CHILL -4C
	S17T033263	VA	8/27/17	1,3-Butadiene 17-05613-10-SCI-BL-EFB		CHILL -4C
	S17T033264	VA	8/27/17	1,3-Butadiene 17-05613-9-SCI-BL-INA		CHILL -4C
	S17T033265	VA	8/27/17	1,3-Butadiene 17-05613-10-SCI-BL-INS		CHILL -4C
	S17T033266	VA	8/27/17	1,3-Butadiene 17-05613-9-SCI-EF-1-A		CHILL -4C
	S17T033267	VA	8/27/17	1,3-Butadiene 17-05613-10-SCI-EF-1-B		CHILL -4C

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard & Keisha Garcia
Carl.W.Howard@rl.gov and Keisha.R.Garcia@rl.gov
See SOW for email
Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By Print Signature of Date/Time 8/30/17 0900	Received By Print Signature of Date/Time 8/30/17 0900	Sign Date/Time 8/30/17 0900	Matrix* DL = Dnum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By Print WRPS Date/Time 8/30/17 1400	Received By Print Signature Date/Time 8/30/17 1400	Sign Date/Time 8/30/17 1400	Matrix* S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
Relinquished By Print Signature Date/Time	Received By Print Signature Date/Time	Sign Date/Time	Matrix* DL = Dnum 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 procedural, used in process)	Date/Time
	Fred Rejal.	09/08/17 1100

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

Assembler N/A		C.O.C. No. 20173040 Page 2 of 4				
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						
Collector JONES	Contact/Requestor CARL HOWARD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1879			
SAF No. N/A	Sample Origin 2017 CHARLEIZE EVALUATION	Purchase Order/Charge Code 213006/CE20				
Project Title 2017 CHARLEIZE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WYS 033	Temp ON ICE			
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 1701 4792 0780				
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 42951				
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033268	VA 8/27/17		1,3-Butadiene 17-05613-9-SCL-EF-2-A		CHILL -4C
	S17T033269	VA 8/27/17		1,3-Butadiene 17-05613-10-SCL-EF-2-B		CHILL -4C
	S17T033270	VA 8/27/17		1,3-Butadiene 17-05613-9-SCL-EF-3-A		CHILL -4C
	S17T033271	VA 8/27/17		1,3-Butadiene 17-05613-10-SCL-EF-3-B		CHILL -4C
	S17T033272	VA 8/27/17		1,3-Butadiene 17-05613-9-SCL-EF-4-A		CHILL -4C
	S17T033273	VA 8/27/17		1,3-Butadiene 17-05613-10-SCL-EF-4-B		CHILL -4C
	S17T033274	VA 8/27/17		1,3-Butadiene 17-05613-9-SCL-EF-5-A		CHILL -4C
	S17T033275	VA 8/27/17		1,3-Butadiene 17-05613-10-SCL-EF-5-B		CHILL -4C
	S17T033276	VA 8/27/17		1,3-Butadiene 17-05613-9-SCL-EF-6-A		CHILL -4C
	S17T033277	VA 8/27/17		1,3-Butadiene 17-05613-10-SCL-EF-6-B		CHILL -4C
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No SPECIAL INSTRUCTIONS Hold Time Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@rl.gov and Keisha.R.Garcia@rl.gov See SOW for email Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C						
Relinquished By Don Jackson	Print [Signature]	Sign [Signature]	Received By JA Graham	Print [Signature]	Sign [Signature]	Date/Time 8/30/17
Relinquished By WRPS	Print [Signature]	Sign [Signature]	Received By FEDEX	Print [Signature]	Sign [Signature]	Date/Time 8/30/17
Relinquished By [Signature]	Print [Signature]	Sign [Signature]	Received By [Signature]	Print [Signature]	Sign [Signature]	Date/Time 8/30/17
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure used in process)					Date/Time 09108/17
Dispersed By Fred Rejali						Date/Time 1100

A-9003-962 (03/05)

Assembler N/A		C.O.C. No. 20173040				
Page 3 of 4		MSIN FAX 372-1878				
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						
Contact/Requestor CARL HOWARD IV	Telephone No. 373-6861	Purchase Order/Charge Code 203006/CB20				
Sample Origin 2017 CHARLOTTE EVALUATION	Logbook/Work Package No. N/A	Ice Chest No. WLS-033				
Project Title 2017 CHARLOTTE EVALUATION	Shipped To (Lab) N/A	Bill of Lading/Air Bill No. 7701 4792 0780				
Method of Shipment N/A	Data Turnaround 10 DAYS	Parts and Return No. 42951				
Protocol N/A	Sample Analysis					
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033278	VA	8/27/17		1,3-Butadiene 17-05613-9-SCI-EF-7-A	CHILL -4C
	S17T033279	VA	8/27/17		1,3-Butadiene 17-05613-10-SCI-EF-7-B	CHILL -4C
	S17T033280	VA	8/27/17		1,3-Butadiene 17-05613-9-SCI-EF-8-A	CHILL -4C
	S17T033281	VA	8/27/17		1,3-Butadiene 17-05613-10-SCI-EF-8-B	CHILL -4C
	S17T033282	VA	8/27/17		1,3-Butadiene 17-05613-9-SCI-IN-1-A	CHILL -4C
	S17T033283	VA	8/27/17		1,3-Butadiene 17-05613-10-SCI-IN-1-B	CHILL -4C
	S17T033284	VA	8/27/17		1,3-Butadiene 17-05613-9-SCI-IN-2-A	CHILL -4C
	S17T033285	VA	8/27/17		1,3-Butadiene 17-05613-10-SCI-IN-2-B	CHILL -4C
	S17T033286	VA	8/27/17		1,3-Butadiene 17-05613-9-SCI-IN-3-A	CHILL -4C
	S17T033287	VA	8/27/17		1,3-Butadiene 17-05613-10-SCI-IN-3-B	CHILL -4C
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Hold Time</p> <p>SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl.M.Howard@tri.gov and Keisha.F.Garcia@tri.gov see SON for email Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C</p>						
Relinquished By Don Jackson	Print 8/30/17	Sign [Signature]	Received By DAG	Print 8/30/17	Sign [Signature]	Date/Time 09:00
Relinquished By WRPS	Print 8/30/17	Sign [Signature]	Received By FEDEX	Print 8/30/17	Sign [Signature]	Date/Time 09:00
Relinquished By [Signature]	Print 8/30/17	Sign [Signature]	Received By [Signature]	Print 8/30/17	Sign [Signature]	Date/Time 09:00
Relinquished By [Signature]	Print 8/30/17	Sign [Signature]	Received By [Signature]	Print 8/30/17	Sign [Signature]	Date/Time 09:00
<p>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</p>						
Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Date/Time 09/08/17
Disposed By Fred Rejali						Date/Time 11:00

A-6003-962 (03/05)



ANALYTICAL REPORT

Report Date: September 08, 2017

Robert (Buddy) Sosa
Washington River Protection So
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20173041

Workorder: **34-1724318**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033298		Collected: 08/26/2017		
Lab ID: 1724318001		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube		Instrument: GCI07
		Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198392)
		Sampling Location: 2017 CARTRIDGE EVALU		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033299		Collected: 08/26/2017		
Lab ID: 1724318002		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube		Instrument: GCI07
		Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198392)
		Sampling Location: 2017 CARTRIDGE EVALU		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033300		Collected: 08/26/2017		
Lab ID: 1724318003		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube		Instrument: GCI07
		Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198392)
		Sampling Location: 2017 CARTRIDGE EVALU		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

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Fri, 09/08/17 5:18 PM



ANALYTICAL REPORT

Workorder: **34-1724318**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033301	Collected: 08/26/2017			
Lab ID: 1724318004	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033302	Collected: 08/26/2017			
Lab ID: 1724318005	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033303	Collected: 08/26/2017			
Lab ID: 1724318006	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033304	Collected: 08/26/2017			
Lab ID: 1724318007	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033305	Collected: 08/26/2017			
Lab ID: 1724318008	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033306	Collected: 08/26/2017			
Lab ID: 1724318009	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033307	Collected: 08/26/2017			
Lab ID: 1724318010	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033308	Collected: 08/26/2017			
Lab ID: 1724318011	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033309	Collected: 08/26/2017
Lab ID: 1724318012	Received: 08/31/2017
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube
	Instrument: GC107
	Analyzed: 09/08/2017 (198392)
	Sampling Info: Air Volume Not Provided
	Sampling Location: 2017 CARTRIDGE EVALU
	Result (mg/sample)
	Result (mg/m ³)
	Result (ppm)
	RL (mg/sample)
Analyte	
1,3-Butadiene	<0.0010
	NA
	NA
	0.0010

Sample ID: S17T033310	Collected: 08/26/2017
Lab ID: 1724318013	Received: 08/31/2017
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube
	Instrument: GC107
	Analyzed: 09/08/2017 (198392)
	Sampling Info: Air Volume Not Provided
	Sampling Location: 2017 CARTRIDGE EVALU
	Result (mg/sample)
	Result (mg/m ³)
	Result (ppm)
	RL (mg/sample)
Analyte	
1,3-Butadiene	<0.0010
	NA
	NA
	0.0010

Sample ID: S17T033311	Collected: 08/26/2017
Lab ID: 1724318014	Received: 08/31/2017
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube
	Instrument: GC107
	Analyzed: 09/08/2017 (198392)
	Sampling Info: Air Volume Not Provided
	Sampling Location: 2017 CARTRIDGE EVALU
	Result (mg/sample)
	Result (mg/m ³)
	Result (ppm)
	RL (mg/sample)
Analyte	
1,3-Butadiene	<0.0010
	NA
	NA
	0.0010

Sample ID: S17T033312	Collected: 08/26/2017
Lab ID: 1724318015	Received: 08/31/2017
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube
	Instrument: GC107
	Analyzed: 09/08/2017 (198392)
	Sampling Info: Air Volume Not Provided
	Sampling Location: 2017 CARTRIDGE EVALU
	Result (mg/sample)
	Result (mg/m ³)
	Result (ppm)
	RL (mg/sample)
Analyte	
1,3-Butadiene	<0.0010
	NA
	NA
	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033313	Collected: 08/26/2017			
Lab ID: 1724318016	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033314	Collected: 08/26/2017			
Lab ID: 1724318017	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033315	Collected: 08/26/2017			
Lab ID: 1724318018	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033316	Collected: 08/26/2017			
Lab ID: 1724318019	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033317	Collected: 08/26/2017			
Lab ID: 1724318020	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033318	Collected: 08/26/2017			
Lab ID: 1724318021	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033319	Collected: 08/26/2017			
Lab ID: 1724318022	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033320	Collected: 08/26/2017			
Lab ID: 1724318023	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033321	Collected: 08/26/2017			
Lab ID: 1724318024	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033322	Collected: 08/26/2017			
Lab ID: 1724318025	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033323	Collected: 08/26/2017			
Lab ID: 1724318026	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033324	Collected: 08/26/2017			
Lab ID: 1724318027	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033325	Collected: 08/26/2017			
Lab ID: 1724318028	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033326	Collected: 08/26/2017			
Lab ID: 1724318029	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033327	Collected: 08/26/2017			
Lab ID: 1724318030	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033328	Collected: 08/26/2017			
Lab ID: 1724318031	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033329	Collected: 08/26/2017			
Lab ID: 1724318032	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033330	Collected: 08/26/2017			
Lab ID: 1724318033	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033331	Collected: 08/26/2017			
Lab ID: 1724318034	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033332	Collected: 08/26/2017			
Lab ID: 1724318035	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033333	Collected: 08/26/2017			
Lab ID: 1724318036	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033334	Collected: 08/26/2017			
Lab ID: 1724318037	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033335	Collected: 08/26/2017			
Lab ID: 1724318038	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033336	Collected: 08/26/2017			
Lab ID: 1724318039	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724318**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033337	Collected: 08/26/2017
Lab ID: 1724318040	Received: 08/31/2017
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube
	Instrument: GCI07
	Sampling Info: Air Volume Not Provided
	Analyzed: 09/08/2017 (198392)
	Sampling Location: 2017 CARTRIDGE EVALU

Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1724318
QC/QD pair 565165/565166 relate to samples 1724318001-020
QC/QD pair 565168/565169 relate to samples 1724318021-40

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 09/08/2017 12:45	/S/ Lyle Edwards 09/08/2017 15:04

Laboratory Contact Information

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ANALYTICAL REPORT

Workorder: **34-1724318**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS DNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724318

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: NIOSH 1024
Batch: IFID/8808 (HBN: 198392)
Analyzed By: Fred Rejali

Blank

MB: 564950 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565161 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565164 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565167 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565170 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565173 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565176 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724318		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Blank

MB: 565179
 Analyzed: 09/08/2017 00:00
 Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565182
 Analyzed: 09/08/2017 00:00
 Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565185
 Analyzed: 09/08/2017 00:00
 Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564951 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 564952 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0371	0.0342	108	78.0 117.6	0.0369	108	0.541	0.0 20.0	

LCS: 565162 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565163 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0332	0.0342	97.1	78.0 117.6	0.0333	97.4	0.301	0.0 20.0	

LCS: 565165 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565166 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0330	0.0342	96.5	78.0 117.6	0.0329	96.2	0.303	0.0 20.0	

LCS: 565168 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565169 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0322	0.0342	94.2	78.0 117.6	0.0321	93.9	0.311	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724318		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 565171 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565172 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0316	0.0342	92.4	78.0 117.6	0.0317	92.7	0.316	0.0 20.0	
LCS: 565174 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565175 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0297	0.0342	86.8	78.0 117.6	0.0318	93.0	6.83	0.0 20.0	
LCS: 565177 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565178 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0329	0.0342	96.2	78.0 117.6	0.0305	89.2	7.57	0.0 20.0	
LCS: 565180 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565181 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0327	0.0342	95.6	78.0 117.6	0.0329	96.2	0.610	0.0 20.0	
LCS: 565183 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565184 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0308	0.0342	90.1	78.0 117.6	0.0308	90.1	0.00	0.0 20.0	
LCS: 565186 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565187 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0338	0.0342	98.8	78.0 117.6	0.0338	98.8	0.00	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724318		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HEN: 198392)
	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/ Lyle Edwards
09/08/2017 12:55	09/08/2017 15:04

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

Assembler		C.O.C. No.				
N/A		20173041				
		Page 2 of 4				
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						
Collector	MSIN	Telephone No.	FAX			
JONES	373-6861	373-6861	372-1878			
SAF No.	Sample Origin	Purchase Order/Charge Code				
N/A	2017 CHARLIDGE EVALUATION	203006/0320				
Project Title	Logbook/ Work Package No.	Ice Chest No.	Temp.			
2017 CHARLIDGE EVALUATION	N/A	WTS 033	ON ICE			
Shipped To (Lab)	Method of Shipment	Bill of Lading/Air Bill No.				
ALS		7701 4792 0700				
Protocol	Data Turnaround	Parts and Return No.				
N/A	10 DNS	T2951				
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033308	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-EF-2-A	CHILL -4C
	S17T033309	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-EF-2-B	CHILL -4C
	S17T033310	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-EF-3-A	CHILL -4C
	S17T033311	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-EF-3-B	CHILL -4C
	S17T033312	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-EF-4-A	CHILL -4C
	S17T033313	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-EF-4-B	CHILL -4C
	S17T033314	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-EF-5-A	CHILL -4C
	S17T033315	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-EF-5-B	CHILL -4C
	S17T033316	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-EF-6-A	CHILL -4C
	S17T033317	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-EF-6-B	CHILL -4C
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No SPECIAL INSTRUCTIONS Send Results to Carl Rowald & Keisha Garcia Carl A. Rowald: 1.901 and Keisha R. Garcia: 1.901 gov see SW for email. Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C						
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
Don Jones			JA Gradshe	JA Gradshe		8/30/17
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
JA Gradshe			FEDEX			0900
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
WRPS						0910/17
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
						0910/17
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 Rejahi Date/Time: 0910/17						Date/Time: 1100

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173041 Page 3 of 4

Assembler N/A

Collector JONES
N/A

SAF No. N/A

Project Title 2017 CARTRIDGE EVALUATION
N/A

Shipped To (Lab) ALE

Contact/Requestor CARL HOWARD IV
2017 CARTRIDGE EVALUATION
N/A

Sample Origin Logbook/Work Package No. N/A

Method of Shipment Data Turnaround 10 DAYS

Telephone No. 373-6861 MSIN T6-05 FAX 372-1878

Purchase Order/Charge Code WTS-033

Ice Chest No. 8191 ICE

Bill of Lading/Air Bill No. 7701 4792 0780

Parts and Return No. 42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033318	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-EF-7-A	CHILL -4C
	S17T033319	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-EF-7-B	CHILL -4C
	S17T033320	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-EF-8-A	CHILL -4C
	S17T033321	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-EF-8-B	CHILL -4C
	S17T033322	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-1-A	CHILL -4C
	S17T033323	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-1-B	CHILL -4C
	S17T033324	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-2-A	CHILL -4C
	S17T033325	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-2-B	CHILL -4C
	S17T033326	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-3-A	CHILL -4C
	S17T033327	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-3-B	CHILL -4C

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

SPECIAL INSTRUCTIONS
Send results to Carl Howard & Keisha Garcia
Carl.W.Howard@del.gov and Keisha.R.Garcia@del.gov see SOW for email
Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By: Carl Howard
Date/Time: 8/30/17 0900
Sign: [Signature]

Received By: J.A. Gardner
Date/Time: 8/30/17 0900
Sign: [Signature]

Relinquished By: WRPS
Date/Time: 8/30/17 1400
Sign: [Signature]

Received By: FEDEX
Date/Time: 8/31/17
Sign: [Signature]

Relinquished By: [Signature]
Date/Time: [Signature]

Received By: [Signature]
Date/Time: [Signature]

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: Fred Rejali
Date/Time: 09/08/17 1100

FINAL SAMPLE DISPOSITION

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		C.O.C. No.				
N/A		20173041				
Page 4 of 4		MISIN FAX 372-1878				
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						
Collector	Telephone No.	Purchase Order/Charge Code				
JONES	373-6861	2030167CB20				
SAF No.	Sample Origin	Ice Chest No.				
N/A	2017 CARTRIDGE EVALUATION	WTS-033				
Project Title	Logbook/ Work Package No.	Bill of Lading/Air Bill No.				
2017 CARTRIDGE EVALUATION	N/A	7701 4792 0780				
Shipped To (Lab)	Method of Shipment	Parts and Return No.				
ALS		42951				
Protocol	Data Turnaround	Sample Analysis				
N/A	10 DAYS					
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033328	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-4-A	CHILL -4C
	S17T033329	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-4-B	CHILL -4C
	S17T033330	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-5-A	CHILL -4C
	S17T033331	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-5-B	CHILL -4C
	S17T033332	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-6-A	CHILL -4C
	S17T033333	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-6-B	CHILL -4C
	S17T033334	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-7-A	CHILL -4C
	S17T033335	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-7-B	CHILL -4C
	S17T033336	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-9-SD1-IN-8-A	CHILL -4C
	S17T033337	VA	8/26/17	CHARCOAL TUBE	1,3-Butadiene 17-05614-10-SD1-IN-8-B	CHILL -4C
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Hold Time						
SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@cl.gov and Keisha.R.Garcia@cl.gov see SOW for email Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C						
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
Donner			JAGradem	JAGradem		8/30/17 0800
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
WRPS			JAGradem	FEDEX		8/30/17 1400
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure used in process)						
Disposed By Fred Rejali 09/08/17 1100						

A-8003-962 (03/05)



ANALYTICAL REPORT

Report Date: September 08, 2017

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
20173042

Workorder: **34-1724319**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03338		Collected: 08/26/2017		
Lab ID: 1724319001		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube		Instrument: GCI07
		Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198392)
		Sampling Location: 2017 CARTRIDGE EVALU		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03339		Collected: 08/26/2017		
Lab ID: 1724319002		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube		Instrument: GCI07
		Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198392)
		Sampling Location: 2017 CARTRIDGE EVALU		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03340		Collected: 08/26/2017		
Lab ID: 1724319003		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube		Instrument: GCI07
		Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198392)
		Sampling Location: 2017 CARTRIDGE EVALU		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

1724319 - Page 1 of 20

Fri, 09/08/17 5:20 PM



ANALYTICAL REPORT

Workorder: **34-1724319**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03341	Collected: 08/26/2017			
Lab ID: 1724319004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03342	Collected: 08/26/2017			
Lab ID: 1724319005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03343	Collected: 08/26/2017			
Lab ID: 1724319006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03344	Collected: 08/26/2017			
Lab ID: 1724319007	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03345	Collected: 08/26/2017			
Lab ID: 1724319008	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03346	Collected: 08/26/2017			
Lab ID: 1724319009	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03347	Collected: 08/26/2017			
Lab ID: 1724319010	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03348	Collected: 08/26/2017			
Lab ID: 1724319011	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03349	Collected: 08/26/2017			
Lab ID: 1724319012	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03350	Collected: 08/26/2017			
Lab ID: 1724319013	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03351	Collected: 08/26/2017			
Lab ID: 1724319014	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03352	Collected: 08/26/2017			
Lab ID: 1724319015	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03353	Collected: 08/26/2017			
Lab ID: 1724319016	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03354	Collected: 08/26/2017			
Lab ID: 1724319017	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03355	Collected: 08/26/2017			
Lab ID: 1724319018	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03356	Collected: 08/26/2017			
Lab ID: 1724319019	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03361	Collected: 08/26/2017			
Lab ID: 1724319024	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03362	Collected: 08/26/2017			
Lab ID: 1724319025	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03363	Collected: 08/26/2017			
Lab ID: 1724319026	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03364	Collected: 08/26/2017			
Lab ID: 1724319027	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03365	Collected: 08/26/2017			
Lab ID: 1724319028	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03366	Collected: 08/26/2017			
Lab ID: 1724319029	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03367	Collected: 08/26/2017			
Lab ID: 1724319030	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03368	Collected: 08/26/2017			
Lab ID: 1724319031	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03369	Collected: 08/26/2017			
Lab ID: 1724319032	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03370	Collected: 08/26/2017			
Lab ID: 1724319033	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03371	Collected: 08/26/2017			
Lab ID: 1724319034	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03372	Collected: 08/26/2017			
Lab ID: 1724319035	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03373	Collected: 08/26/2017			
Lab ID: 1724319036	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03374	Collected: 08/26/2017			
Lab ID: 1724319037	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03375	Collected: 08/26/2017			
Lab ID: 1724319038	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T03376	Collected: 08/26/2017			
Lab ID: 1724319039	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724319**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T03377	Collected: 08/26/2017
Lab ID: 1724319040	Received: 08/31/2017
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube
	Instrument: GCI07
	Sampling Info: Air Volume Not Provided
	Analyzed: 09/08/2017 (198392)
	Sampling Location: 2017 CARTRIDGE EVALU

Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1724319
QC/QD pair 565171/565172 relate to samples 1724319001-020
QC/QD pair 565174/565175 relate to samples 1724319021-040

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 09/08/2017 12:45	/S/ Lyle Edwards 09/08/2017 15:04

Laboratory Contact Information

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ANALYTICAL REPORT

Workorder: **34-1724319**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS/Dnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724319		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Blank

MB: 564950
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565161
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565164
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565167
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565170
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565173
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565176
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724319		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Blank

MB: 565179
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565182
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565185
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564951					LCSD: 564952				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0371	0.0342	108	78.0 117.6	0.0369	108	0.541	0.0 20.0	

LCS: 565162					LCSD: 565163				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0332	0.0342	97.1	78.0 117.6	0.0333	97.4	0.301	0.0 20.0	

LCS: 565165					LCSD: 565166				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0330	0.0342	96.5	78.0 117.6	0.0329	96.2	0.303	0.0 20.0	

LCS: 565168					LCSD: 565169				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0322	0.0342	94.2	78.0 117.6	0.0321	93.9	0.311	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724319		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 565171 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565172 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0316	0.0342	92.4	78.0 117.6	0.0317	92.7	0.316	0.0 20.0	
LCS: 565174 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565175 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0297	0.0342	86.8	78.0 117.6	0.0318	93.0	6.83	0.0 20.0	
LCS: 565177 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565178 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0329	0.0342	96.2	78.0 117.6	0.0305	89.2	7.57	0.0 20.0	
LCS: 565180 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565181 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0327	0.0342	95.6	78.0 117.6	0.0329	96.2	0.610	0.0 20.0	
LCS: 565183 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565184 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0308	0.0342	90.1	78.0 117.6	0.0308	90.1	0.00	0.0 20.0	
LCS: 565186 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565187 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0338	0.0342	98.8	78.0 117.6	0.0338	98.8	0.00	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724319		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HEN: 198392)
	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/ Lyle Edwards
09/08/2017 12:55	09/08/2017 15:04

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



1724319

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173042
Page 1 of 4

Assembler: N/A
Collector: JONES
SAF No. N/A
Project Title: 2017 CARTRIDGE EVALUATION
Shipped to (Lab): ALS
Protocol: N/A

Contact/Requestor: CARL HOWARD IV
Sample Origin: 2017 CARTRIDGE EVALUATION
Logbook/Work Package No. N/A
Method of Shipment: N/A
Data Turnaround: 10 DAYS

Telephone No. 373-6861
Purchase Order/Charge Code: 20369/6820
MSIN: T6-05 FAX: 372-1878
Ice Chest No. **WMS-033**
Temp. **ON ICE**
Bill of Lading/Air Bill No. **7701 4792 DT80**
Parts and Return No. **42951**

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033338	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-9-TL1-BA-EFA	CHILL -4C
	S17T033339	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-10-TL1-BA-EFB	CHILL -4C
	S17T033340	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-9-TL1-BA-INA	CHILL -4C
	S17T033341	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-10-TL1-BA-INB	CHILL -4C
	S17T033342	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-9-TL1-BL-EFA	CHILL -4C
	S17T033343	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-10-TL1-BL-EFB	CHILL -4C
	S17T033344	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-9-TL1-BL-INA	CHILL -4C
	S17T033345	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-10-TL1-BL-INB	CHILL -4C
	S17T033346	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-9-TL1-EF-1-A	CHILL -4C
	S17T033347	VA 8/26/17		CHARCOAL TUBE	1,3-Butadiene 17-05615-10-TL1-EF-1-B	CHILL -4C

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard & Keisha Garcia
Carl.W.Howard@tri.gov and Keisha.R.Garcia@tri.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 Scary			8/26/17	JA Gradisher			8/30/17 0900
Relinquished By				Received By			
WRPS			1400		FEDEX		
Relinquished By				Received By			8/30/17
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

Disposal Method (e.g., Return to customer, per lab procedure used in process) Disposed By **Fred Rejab** Date/Time **09/08/17 1100**

A-6003-962 (03/05)

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

Assembler
N/A

C.O.C. No.
20173042

Page 2 of 4

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Telephone No. 373-6861 MSIN Te-05 FAX 372-1878

Contact/Requestor
CARL HOWARD IV

Sample Origin
2017 CHARLIZE EVALUATION

Logbook/Work Package No.
N/A

Method of Shipment
N/A

Data Turnaround
10 DAYS

Protocol
N/A

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033348	VA 8/26/17		1,3-Butadiene 17-05615-9-TL1-EF-2-A		CHILL -4C
	S17T033349	VA 8/26/17		1,3-Butadiene 17-05615-10-TL1-EF-2-B		CHILL -4C
	S17T033350	VA 8/26/17		1,3-Butadiene 17-05615-9-TL1-EF-3-A		CHILL -4C
	S17T033351	VA 8/26/17		1,3-Butadiene 17-05615-10-TL1-EF-3-B		CHILL -4C
	S17T033352	VA 8/26/17		1,3-Butadiene 17-05615-9-TL1-EF-4-A		CHILL -4C
	S17T033353	VA 8/26/17		1,3-Butadiene 17-05615-10-TL1-EF-4-B		CHILL -4C
	S17T033354	VA 8/26/17		1,3-Butadiene 17-05615-9-TL1-EF-5-A		CHILL -4C
	S17T033355	VA 8/26/17		1,3-Butadiene 17-05615-10-TL1-EF-5-B		CHILL -4C
	S17T033356	VA 8/26/17		1,3-Butadiene 17-05615-9-TL1-EF-6-A		CHILL -4C
	S17T033357	VA 8/26/17		1,3-Butadiene 17-05615-10-TL1-EF-6-B		CHILL -4C

Parts and Return No. 42951

Hold Time

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howald & Keisha Garcia
Carl W Howald@eri.gov and Keisha.F.Garcia@eri.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	Matrix*
Don Spenser			8/30/17 0900	JA Gradisher			8/30/17 0902	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
JA Gradisher			8/30/17 1400	FEDEX				DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By				Received By				
Relinquished By				Received By				

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By Fred Reja 09/08/17 1100

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

Assembler		C.O.C. No.				
N/A		20173042				
Collector		Page				
JONES		3 of 4				
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						
Contact/Requestor CARL HOWARD IV		Telephone No.	373-6861			
Sample Origin 2017 CHARLESE EVALUATION		MSIN	T6-05			
Logbook/Work Package No. N/A		Purchase Order/Charge Code 432007/0020	FAX 372-1878			
Method of Shipment N/A		Ice Chest No.	WIS-033			
Data Turnaround 10 DAYS		Bill of Lading/Air Bill No.	7701 4792 0180			
Protocol N/A		Parts and Return No.	42951			
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033358	VA	8/26/17	1, 3-Butadiene	17-05615-9-TLL-EF-7-A	CHILL -4C
	S17T033359	VA	8/26/17	1, 3-Butadiene	17-05615-10-TLL-EF-7-B	CHILL -4C
	S17T033360	VA	8/26/17	1, 3-Butadiene	17-05615-9-TLL-EF-8-A	CHILL -4C
	S17T033361	VA	8/26/17	1, 3-Butadiene	17-05615-10-TLL-EF-8-B	CHILL -4C
	S17T033362	VA	8/26/17	1, 3-Butadiene	17-05615-9-TLL-IN-1-A	CHILL -4C
	S17T033363	VA	8/26/17	1, 3-Butadiene	17-05615-10-TLL-IN-1-B	CHILL -4C
	S17T033364	VA	8/26/17	1, 3-Butadiene	17-05615-9-TLL-IN-2-A	CHILL -4C
	S17T033365	VA	8/26/17	1, 3-Butadiene	17-05615-10-TLL-IN-2-B	CHILL -4C
	S17T033366	VA	8/26/17	1, 3-Butadiene	17-05615-9-TLL-IN-3-A	CHILL -4C
	S17T033367	VA	8/26/17	1, 3-Butadiene	17-05615-10-TLL-IN-3-B	CHILL -4C
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No Hold Time						
SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@epl.gov and Keisha.R.Garcia@epl.gov See SOM for email Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C						
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	8/30/17 0900
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	8/30/17 1400
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	8/30/17 1400
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time
JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	JA Gradsheer	8/30/17 1400
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						Date/Time
Disposed By Fred Rejaki						09/08/17 1100

A-6003-962 (03/05)

Assembler N/A		C.O.C. No. 20173042	
Collector JONES		Page 4 of 4	
SAF No. N/A		Telephone No. 373-6861 MSIN T6-05 FAX 372-1879	
Project Title 2017 CHERLIDGE EVALUATION		Purchase Order/Charge Code 203006/0320	
Shipped To (Lab) PLUS		Ice Chest No. 033 WYS Bill of Lading/Air Bill No. 7701 4792 0780	
Protocol N/A		Parts and Return No. 42951	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			
Contact/Requestor CARL HOWARD IV		Sample Origin 2017 CHERLIDGE EVALUATION	
Logbook/ Work Package No. N/A		Method of Shipment N/A	
Data Turnaround 10 DAYS		Date 8/26/17	
Sample No.		Lab ID	
No./Type Container		Time	
Sample Analysis		Preservative	
1,3-Butadiene 17-05615-9-TLL-IN-4-A		CHILL -4C	
1,3-Butadiene 17-05615-10-TLL-IN-4-B		CHILL -4C	
1,3-Butadiene 17-05615-9-TLL-IN-5-A		CHILL -4C	
1,3-Butadiene 17-05615-10-TLL-IN-5-B		CHILL -4C	
1,3-Butadiene 17-05615-9-TLL-IN-6-A		CHILL -4C	
1,3-Butadiene 17-05615-10-TLL-IN-6-B		CHILL -4C	
1,3-Butadiene 17-05615-9-TLL-IN-7-A		CHILL -4C	
1,3-Butadiene 17-05615-10-TLL-IN-7-B		CHILL -4C	
1,3-Butadiene 17-05615-9-TLL-IN-8-A		CHILL -4C	
1,3-Butadiene 17-05615-10-TLL-IN-8-B		CHILL -4C	
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>SPECIAL INSTRUCTIONS Hold Time Send Results to Carl Howard & Keisha Garcia Carl.W.Howard@chl.gov and Keisha.F.Garcia@chl.gov See SW 402 email Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C</p>			
Relinquished By <i>Donna</i>	Print 8/30/17	Received By <i>GA Gardner</i>	Sign 8/30/17
Relinquished By JA Gradisher	Date/Time 8/30/17 1400	Received By <i>GA Gardner</i>	Date/Time 8/30/17 0900
Relinquished By WRPS	Date/Time 8/30/17 1400	Received By <i>GA Gardner</i>	Date/Time 8/30/17 0900
Relinquished By <i>WRPS</i>	Date/Time 8/30/17 1400	Received By <i>GA Gardner</i>	Date/Time 8/30/17 0900
Disposal Method (e.g., Return to customer, per lab procedure used in process)		Disposed By <i>Fred Rejahn</i>	
FINAL SAMPLE DISPOSITION		Date/Time 09/08/17	
Date/Time		Date/Time 1100	

A-6003-962 (03/05)



ANALYTICAL REPORT

Report Date: September 08, 2017

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

20173043

Workorder: **34-1724320**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033378		Collected: 08/27/2017		
Lab ID: 1724320001		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube	Instrument: GCI07	
		Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)	
	Result	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Analyte	(mg/sample)			
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033379		Collected: 08/27/2017		
Lab ID: 1724320002		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube	Instrument: GCI07	
		Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)	
	Result	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Analyte	(mg/sample)			
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033380		Collected: 08/27/2017		
Lab ID: 1724320003		Received: 08/31/2017		
Method: NIOSH 1024		Media: SKC 226-37 Sorbent Tube	Instrument: GCI07	
		Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)	
	Result	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
Analyte	(mg/sample)			
1,3-Butadiene	<0.0010	NA	NA	0.0010

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www.alsglobal.com

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Fri, 09/08/17 3:22 PM



ANALYTICAL REPORT

Workorder: **34-1724320**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033381	Collected: 08/27/2017			
Lab ID: 1724320004	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033382	Collected: 08/27/2017			
Lab ID: 1724320005	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033383	Collected: 08/27/2017			
Lab ID: 1724320006	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033384	Collected: 08/27/2017			
Lab ID: 1724320007	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033385	Collected: 08/27/2017			
Lab ID: 1724320008	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033386	Collected: 08/27/2017			
Lab ID: 1724320009	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033387	Collected: 08/27/2017			
Lab ID: 1724320010	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033388	Collected: 08/27/2017			
Lab ID: 1724320011	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033389	Collected: 08/27/2017			
Lab ID: 1724320012	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033390	Collected: 08/27/2017			
Lab ID: 1724320013	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033391	Collected: 08/27/2017			
Lab ID: 1724320014	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033392	Collected: 08/27/2017			
Lab ID: 1724320015	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033393	Collected: 08/27/2017			
Lab ID: 1724320016	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033394	Collected: 08/27/2017			
Lab ID: 1724320017	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033395	Collected: 08/27/2017			
Lab ID: 1724320018	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033396	Collected: 08/27/2017			
Lab ID: 1724320019	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033401	Collected: 08/27/2017			
Lab ID: 1724320024	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033402	Collected: 08/27/2017			
Lab ID: 1724320025	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033403	Collected: 08/27/2017			
Lab ID: 1724320026	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033404	Collected: 08/27/2017			
Lab ID: 1724320027	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033405	Collected: 08/27/2017			
Lab ID: 1724320028	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033406	Collected: 08/27/2017			
Lab ID: 1724320029	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033407	Collected: 08/27/2017			
Lab ID: 1724320030	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033408	Collected: 08/27/2017			
Lab ID: 1724320031	Received: 08/31/2017			
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GCI07			
	Analyzed: 09/08/2017 (198392)			
	Sampling Info: Air Volume Not Provided			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033409	Collected: 08/27/2017			
Lab ID: 1724320032	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033410	Collected: 08/27/2017			
Lab ID: 1724320033	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033411	Collected: 08/27/2017			
Lab ID: 1724320034	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033412	Collected: 08/27/2017			
Lab ID: 1724320035	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube	Instrument: GC107		
	Sampling Info: Air Volume Not Provided	Analyzed: 09/08/2017 (198392)		
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033413	Collected: 08/27/2017			
Lab ID: 1724320036	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033414	Collected: 08/27/2017			
Lab ID: 1724320037	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033415	Collected: 08/27/2017			
Lab ID: 1724320038	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: S17T033416	Collected: 08/27/2017			
Lab ID: 1724320039	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube			
	Instrument: GC107			
	Analyzed: 09/08/2017 (198392)			
Sampling Info: Air Volume Not Provided				
Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010



ANALYTICAL REPORT

Workorder: **34-1724320**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033417	Collected: 08/27/2017
Lab ID: 1724320040	Received: 08/31/2017
Method: NIOSH 1024	Media: SKC 226-37 Sorbent Tube
	Instrument: GC107
	Sampling Info: Air Volume Not Provided
	Analyzed: 09/08/2017 (198392)
	Sampling Location: 2017 CARTRIDGE EVALU

Analyte	Result (mg/sample)	Result (mg/m ³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1724320
QC/QD pair 565177/565178 relate to samples 1724320001-020
QC/QD pair 565180/565181 relate to samples 1724320021-040

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 09/08/2017 12:45	/S/ Lyle Edwards 09/08/2017 15:04

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724320**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS/Dnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/Regulatory/Water.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724320		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Blank

MB: 564950 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565161 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565164 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565167 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565170 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565173 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100
MB: 565176 Analyzed: 09/08/2017 00:00 Units: mg/sample			
Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724320		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Blank

MB: 565179
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565182
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 565185
Analyzed: 09/08/2017 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 564951					LCSD: 564952				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0371	0.0342	108	78.0 117.6	0.0369	108	0.541	0.0 20.0	

LCS: 565162					LCSD: 565163				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0332	0.0342	97.1	78.0 117.6	0.0333	97.4	0.301	0.0 20.0	

LCS: 565165					LCSD: 565166				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0330	0.0342	96.5	78.0 117.6	0.0329	96.2	0.303	0.0 20.0	

LCS: 565168					LCSD: 565169				
Analyzed: 09/08/2017 00:00					Analyzed: 09/08/2017 00:00				
Dilution: 1					Dilution: 1				
Units: mg/sample					Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0322	0.0342	94.2	78.0 117.6	0.0321	93.9	0.311	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724320		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HBN: 198392)
	Prepared By: NA	Analyzed By: Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 565171 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565172 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0316	0.0342	92.4	78.0 117.6	0.0317	92.7	0.316	0.0 20.0	
LCS: 565174 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565175 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0297	0.0342	86.8	78.0 117.6	0.0318	93.0	6.83	0.0 20.0	
LCS: 565177 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565178 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0329	0.0342	96.2	78.0 117.6	0.0305	89.2	7.57	0.0 20.0	
LCS: 565180 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565181 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0327	0.0342	95.6	78.0 117.6	0.0329	96.2	0.610	0.0 20.0	
LCS: 565183 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565184 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0308	0.0342	90.1	78.0 117.6	0.0308	90.1	0.00	0.0 20.0	
LCS: 565186 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample					LCSD: 565187 Analyzed: 09/08/2017 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0338	0.0342	98.8	78.0 117.6	0.0338	98.8	0.00	0.0 20.0	



Quality Control Sample Batch Report

Analysis Information

Workorder: 1724320		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1024
Basis: ALS Laboratory Group	Batch: NA	Batch: IFID/8808 (HEN: 198392)
	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/ Lyle Edwards
09/08/2017 12:55	09/08/2017 15:04

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



1724320

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173043
Page 1 of 4

Assembler N/A

Collector JONES

SAF No. N/A

Project Title 2017 CARTRIDGE EVALUATION

Shipped To (Lab) RUS

Protocol N/A

Contact/Requestor CARL HOWARD IV

Sample Origin 2017 CARTRIDGE EVALUATION

Logbook/ Work Package No. N/A

Method of Shipment N/A

Data Turnaround 10 DAYS

Telephone No. 373-6861

Purchase Order/Charge Code 2030067/020

MSIN T6-05 FAX 372-1878

Job Chest No. **WRS-033**

Bill of Lading/Air Bill No. **7701 4792 0700**

Parts and Return No. **42951**

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033378	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-BA-EFA	CHILL -4C
	S17T033379	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-BA-EFB	CHILL -4C
	S17T033380	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-BA-INA	CHILL -4C
	S17T033381	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-BA-INB	CHILL -4C
	S17T033382	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-BL-EFA	CHILL -4C
	S17T033383	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-BL-EFB	CHILL -4C
	S17T033384	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-BL-INA	CHILL -4C
	S17T033385	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-BL-INB	CHILL -4C
	S17T033386	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-EF-1-A	CHILL -4C
	S17T033387	VA 8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-EF-1-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

Send Results to Carl Howard & Keisha Garcia
Carl.W.Howard@rl.gov and Keisha.R.Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOGH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix*
JA Gradisher	JA Gradisher	JA Gradisher	8/30/17 0900	JA Gradisher	JA Gradisher	JA Gradisher	8/30/17 0900	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
WRPS	WRPS	WRPS	8/30/17 1400	WRPS	WRPS	WRPS	8/30/17 1400	DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other

Disposal Method (e.g., Return to customer, per lab procedure) used in process

Disposed By Fred Rejali 09/08/17 1100

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

Assembler N/A		C.O.C. No. 20173043	
Collector JONES		Page 2 of 4	
SAF No. N/A		MMSIN 16-05 FAX 372-1876	
Project Title 2017 CARTRIDGE EVALUATION		Telephone No. 373-6861	
Shipped To (Lab) ALS		Purchase Order/Charge Code 20306/320	
Protocol N/A		Use Chgst No. 016 ICE	
Data Turnaround 10 DAYS		Bill of Lading/Air Bill No. 7701 4792 0780	
Sample No.		Parts and Return No. 42951	
Lab ID	Date	Time	Sample Analysis
S17T033388	VA 8/27/17	1,3-Butadiene 17-05616-9-TL2-EF-2-A	CHILL -4C
S17T033389	VA 8/27/17	1,3-Butadiene 17-05616-10-TL2-EF-2-B	CHILL -4C
S17T033390	VA 8/27/17	1,3-Butadiene 17-05616-9-TL2-EF-3-A	CHILL -4C
S17T033391	VA 8/27/17	1,3-Butadiene 17-05616-10-TL2-EF-3-B	CHILL -4C
S17T033392	VA 8/27/17	1,3-Butadiene 17-05616-9-TL2-EF-4-A	CHILL -4C
S17T033393	VA 8/27/17	1,3-Butadiene 17-05616-10-TL2-EF-4-B	CHILL -4C
S17T033394	VA 8/27/17	1,3-Butadiene 17-05616-9-TL2-EF-5-A	CHILL -4C
S17T033395	VA 8/27/17	1,3-Butadiene 17-05616-10-TL2-EF-5-B	CHILL -4C
S17T033396	VA 8/27/17	1,3-Butadiene 17-05616-9-TL2-EF-6-A	CHILL -4C
S17T033397	VA 8/27/17	1,3-Butadiene 17-05616-10-TL2-EF-6-B	CHILL -4C
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>SPECIAL INSTRUCTIONS Hold Time Send Results to Carl Rowald & Keisha Garcia Carl.W.Rowald@epa.gov and Keisha.R.Garcia@epa.gov See SOW for email Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C</p>			
Relinquished By Don Johnson	Print 8/30/17	Sign JAGraden	Date/Time 0900
Relinquished By WRPS	Print 8/30/17	Sign JAGraden	Date/Time 1400
Relinquished By	Print	Sign	Date/Time
Relinquished By	Print	Sign	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		
Disposal Method (e.g., Return to customer, per lab procedure)	Disposed By Fred Rejab	Date/Time 09/08/17	Date/Time 1100

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST									
Assembler N/A	C.O.C. No. 20173043 Page 3 of 4								
Collector JONES	Contact/Requestor CARL HOWARD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878							
SAF No. N/A	Sample Origin 2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code 20309/020							
Project Title 2017 CARTRIDGE EVALUATION	Logbook/Work Package No. N/A	Job Chest No. WIS-033 Temp. ON ICE							
Shipped To (Lab) ALS	Method of Shipment N/A	Bill of Lading/AV Bill No. 1701 4792 0780							
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 42951							
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative			
	S17T033398	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-EF-7-A	CHILL -4C			
	S17T033399	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-EF-7-B	CHILL -4C			
	S17T033400	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-EF-8-A	CHILL -4C			
	S17T033401	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-EF-8-B	CHILL -4C			
	S17T033402	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-IN-1-A	CHILL -4C			
	S17T033403	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-IN-1-B	CHILL -4C			
	S17T033404	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-IN-2-A	CHILL -4C			
	S17T033405	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-IN-2-B	CHILL -4C			
	S17T033406	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-9-TL2-IN-3-A	CHILL -4C			
	S17T033407	8/27/17		CHARCOAL TUBE	1,3-Butadiene 17-05616-10-TL2-IN-3-B	CHILL -4C			
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>SPECIAL INSTRUCTIONS Hold Time Send Results to Carl Howard & Keisha Garcia Carl_Howard@ri.gov and Keisha_R.Garcia@ri.gov See SOW for email Reference Contract # 55502 RELEASE 15 NIOSH 1024 CHILL BELOW -4 C</p>									
Relinquished By Don Simpson	Print JA Gradisher	Sign JA Gradisher	Date/Time 8/30/17 0900	Received By JA Gradisher	Print JA Gradisher	Sign JA Gradisher	Date/Time 8/30/17 0900	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
Relinquished By WRPS	Print WRPS	Sign WRPS	Date/Time 8/30/17 1400	Received By WRPS	Print WRPS	Sign WRPS	Date/Time 8/30/17 1400	FEDEX	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure used in process)							Date/Time 09/08/17	Date/Time 1100

A-5003-952 (03/05)

C.4.11 Pyridines



ANALYTICAL REPORT

Report Date: September 08, 2017

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
20173062

Workorder: **34-1724335**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033821	Collected: 08/27/2017			
Lab ID: 1724335001	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198408)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033822	Collected: 08/27/2017			
Lab ID: 1724335002	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198408)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033823	Collected: 08/27/2017			
Lab ID: 1724335003	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198408)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.



ANALYTICAL REPORT

Workorder: **34-1724335**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033824	Collected: 08/27/2017			
Lab ID: 1724335004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033825	Collected: 08/27/2017			
Lab ID: 1724335005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033826	Collected: 08/27/2017			
Lab ID: 1724335006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033827	Collected: 08/27/2017			
Lab ID: 1724335007	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724335**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033828	Collected: 08/27/2017			
Lab ID: 1724335008	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033829	Collected: 08/27/2017			
Lab ID: 1724335009	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033830	Collected: 08/27/2017			
Lab ID: 1724335010	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033831	Collected: 08/27/2017			
Lab ID: 1724335011	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198408)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: 34-1724335
Client Project ID: 2017 CARTRIDGE EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Pyridine and 2,4-Dimethylpyridine with results <0.50 and NA.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Pyridine and 2,4-Dimethylpyridine with results <0.50 and NA.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Pyridine and 2,4-Dimethylpyridine with results <0.50 and NA.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Pyridine and 2,4-Dimethylpyridine with results <0.50 and NA.



ANALYTICAL REPORT

Workorder: **34-1724335**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033836	Collected: 08/27/2017			
Lab ID: 1724335016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/07/2017 (198408)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033837	Collected: 08/27/2017			
Lab ID: 1724335017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198408)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033838	Collected: 08/27/2017			
Lab ID: 1724335018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198408)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033839	Collected: 08/27/2017			
Lab ID: 1724335019	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198408)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724335**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033840	Collected: 08/27/2017			
Lab ID: 1724335020	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198408)			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Comments

Quality Control: NIOSH 1613 Mod. - (HBN: 198408)

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Method	Analyst	Peer Review
NIOSH 1613 Mod.	/S/ Benson Boy 09/08/2017 11:01	/S/ David Teynor 09/08/2017 18:37

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724335**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS DNnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724335		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1613 Mod.
Basis: ALS Laboratory Group	Batch: NA	Batch: ISVO/3606 (HBN: 198408)
	Prepared By: NA	Analyzed By: Benson Boy

Blank

LMB: 565001			
Analyzed: 09/07/2017 12:27			
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: 565002					LCSD: 565003				
Analyzed: 09/07/2017 12:48					Analyzed: 09/07/2017 13:08				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Pyridine	0.795	1.00	79.5	28.7 141.2	0.790	79.0	0.681	0.0 22.1	
2,4-Dimethylpyridine	0.721	1.00	72.1	18.3 119.1	0.644	64.4	11.2	0.0 22.2	

Comments

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Analyst	Peer Review
/S/ Benson Boy 09/08/2017 11:13	/S/ David Teynor 09/08/2017 18:36

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



4

174995

Assembler: N/A
 C.O.C. No.: 20173062
 Page 1 of 2

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Contact/Requestor: Carl Howard IV
 Company: WRS
 SAF No.: N/A
 Project Title: 2017 CARBONIDE EVALUATION
 Shipped To (Lab): A&E
 Protocol: N/A

Telephone No.: 373-6861
 Purchase Order/Charge Code: 203006/CS20
 Ice Chest No.: N/A
 Bill of Lading/Air Bill No.: 7701 4792 0780
 Parts and Return No.: 42951

Temp: ON ICE

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	SI77033821	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-BA-2F	N/A
	SI77033822	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-BA-IN	N/A
	SI77033823	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-BI-2F	N/A
	SI77033824	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-BI-IN	N/A
	SI77033825	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-EF-1	N/A
	SI77033826	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-EF-2	N/A
	SI77033827	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-EF-3	N/A
	SI77033828	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-EF-4	N/A
	SI77033829	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-EF-5	N/A
	SI77033830	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCI-EF-6	N/A

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

SPECIAL INSTRUCTIONS
 Send Results to Carl Howard IV and Keisha Garcia
 Carl.W.Howard@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 Taylor	[Signature]	[Signature]	8/28/17 0900	J.A. Guelman	[Signature]	[Signature]	8/30/17 0900
WRPS	[Signature]	[Signature]	8/30/17 1400	FEDEX	[Signature]	[Signature]	8/30/17 1400

Relinquished By: [Signature]
 Date/Time: 8/30/17 1400

Relinquished By: [Signature]
 Date/Time: 8/30/17 1400

FINAL SAMPLE DISPOSITION
 Disposal Method (e.g., Return to customer, per lab procedure, used in process)
 Per Lab Procedure

Date/Time: 8/30/17 1400

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

A-8003-962 (03/09)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173062
Page 2 of 2

Telephone No. 373-6881 MSIN T6-05 FAX 372-1878
Purchase Order/Charge Code 203006/CB20

Contract/Generator CARL HOWARD IV
Scarpis Origin EVALUATION
2017 CARBONISE EVALUATION

SAF No. N/A
Project Title 17 CARBONISE EVALUATION
Temp. ON JOE

Shipped To (Lab) Logbook/Work Package No. 7701 4192 0780
Bill of Lading/Air Bill No. 42951

Method of Shipment Parts and Return No.

Data Turnaround 1C 2KMS

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033831	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-EP-7	N/A
	S17T033832	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-EP-8	N/A
	S17T033833	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-1	N/A
	S17T033834	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-2	N/A
	S17T033835	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-3	N/A
	S17T033836	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-4	N/A
	S17T033837	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-5	N/A
	S17T033838	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-6	N/A
	S17T033839	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-7	N/A
	S17T033840	VA	8/27/17	CHARCOAL TUBE	Pyridines 17-05613-11-SCL-IN-8	N/A

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard IV and Keisha Garcia
Carl W. Howard@rl.gov and Keisha R. Garcia@rl.gov
See SON for email

RELEASE 15 Reference Contract # 55502

Received By	Date/Time	Received By	Date/Time	Matrix*
JA Gradisher	8/30/17 0800	JA Gradisher	8/30/17 0900	S = Soil DL = Drum Liquids T = Tissue SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
WRPS	8/30/17 1400	FEDEX		DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other

Reinquired By: Print Sign
Reinquired By: JA Gradisher
Reinquired By: WRPS
Reinquired By: [Signature]

Reinquired By: [Signature]
Reinquired By: [Signature]

Disposal Method (e.g., Return to customer, per lab procedure, used in process)
Per Lab Procedure

Date/Time: 9/7/17 1000

A-6003-862 (03/05)



ANALYTICAL REPORT

Report Date: September 08, 2017

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

20173063

Workorder: 34-1724336

Client Project ID: 2017 CARTRIDGE EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033841 and analytes Pyridine and 2,4-Dimethylpyridine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033842 and analytes Pyridine and 2,4-Dimethylpyridine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Includes sample ID S17T033843 and analytes Pyridine and 2,4-Dimethylpyridine.

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
ALS GROUP USA, CORP. An ALS Limited Company



RIGHT SOLUTIONS RIGHT PARTNER

1724336 - Page 1 of 10



ANALYTICAL REPORT

Workorder: **34-1724336**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033844	Collected: 08/26/2017			
Lab ID: 1724336004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033845	Collected: 08/26/2017			
Lab ID: 1724336005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033846	Collected: 08/26/2017			
Lab ID: 1724336006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033847	Collected: 08/26/2017			
Lab ID: 1724336007	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724336**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033848	Collected: 08/26/2017			
Lab ID: 1724336008	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033849	Collected: 08/26/2017			
Lab ID: 1724336009	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033850	Collected: 08/26/2017			
Lab ID: 1724336010	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033851	Collected: 08/26/2017			
Lab ID: 1724336011	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724336**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033852	Collected: 08/26/2017			
Lab ID: 1724336012	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198418)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033853	Collected: 08/26/2017			
Lab ID: 1724336013	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198418)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033854	Collected: 08/26/2017			
Lab ID: 1724336014	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198418)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033855	Collected: 08/26/2017			
Lab ID: 1724336015	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/07/2017 (198418)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724336**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033856	Collected: 08/26/2017			
Lab ID: 1724336016	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/07/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033857	Collected: 08/26/2017			
Lab ID: 1724336017	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033858	Collected: 08/26/2017			
Lab ID: 1724336018	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033859	Collected: 08/26/2017			
Lab ID: 1724336019	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198418)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724336**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033860	Collected: 08/26/2017			
Lab ID: 1724336020	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198418)			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Comments

Quality Control: NIOSH 1613 Mod. - (HBN: 198418)

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Method	Analyst	Peer Review
NIOSH 1613 Mod.	/S/ Stacy Stewart 09/08/2017 12:19	/S/ David Teynor 09/08/2017 17:52

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724336**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS/Dnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/Regulatory/Water.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing:			
CPSC	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724336		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1613 Mod.
Basis: ALS Laboratory Group	Batch: NA	Batch: ISVO/3607 (HBN: 198418)
	Prepared By: NA	Analyzed By: Stacy Stewart

Blank

LMB: 565045			
Analyzed: 09/07/2017 13:35			
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: 565046					LCSD: 565047				
Analyzed: 09/07/2017 13:53					Analyzed: 09/07/2017 14:12				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Pyridine	0.993	1.00	99.3	28.7 141.2	1.02	102	2.86	0.0 22.1	
2,4-Dimethylpyridine	0.845	1.00	84.5	18.3 119.1	0.828	82.8	2.00	0.0 22.2	

Comments

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Analyst	Peer Review
/S/ Stacy Stewart 09/08/2017 12:19	/S/ David Teynor 09/08/2017 17:51

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



1724336

Assembler N/A		C.O.C. No. 20173063		Page 1 of 2		
Collector JONES		Telephone No. 313-6861		MSIN FAX 372-1878		
SAF No. N/A		Sample Origin 2017 CARTRIDGE EVALUATION		Purchase Order/Charge Code 203006/CS20		
Project Title 2017 CARTRIDGE EVALUATION		Logbook/Work Package No. N/A		Ice Chest No. N/A		
Shipped To (Lab) ALS		Method of Shipment		Bill of Lading/Air Bill No. 7701 4792 0780		
Protocol N/A		Data Turnaround 10 DAYS		Parts and Return No. A2951		
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17F033841	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-BA-EF	N/A
	S17F033842	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-BA-2M	N/A
	S17F033843	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-B1-EF	N/A
	S17F033844	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-BE-2M	N/A
	S17F033845	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-EF-1	N/A
	S17F033846	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-EF-2	N/A
	S17F033847	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-EF-3	N/A
	S17F033848	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-EF-4	N/A
	S17F033849	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-EF-5	N/A
	S17F033850	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05614-11-SD1-EF-6	N/A

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

SPECIAL INSTRUCTIONS
Send results to Carl Rowald IV and Keisha Garcia
Carl.W.Rowald@rl.gov and Keisha_R.Garcia@rl.gov see SOW for email

RELEASE 15
Reference Contract # 55502

Relinquished By Diana Turner WRPS	Print Diana Turner	Sign Diana Turner	Date/Time 8/30/17 0900	Received By J.A. Gradian	Date/Time 8/30/17 1400
Relinquished By WRPS	Print J.A. Gradian	Sign J.A. Gradian	Date/Time 8/30/17 1400	Received By J.A. Gradian	Date/Time 8/30/17 1400
Relinquished By	Print	Sign	Date/Time	Received By	Date/Time

Disposal Method (esg, Return to customer, per lab procedure, used in process)
Per Lab Procedure

Disposed By
J.A. Gradian

Date/Time
8/30/17

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

9/17/17 1200



ANALYTICAL REPORT

Report Date: September 11, 2017

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

20173064

Workorder: **34-1724337**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033861	Collected: 08/26/2017			
Lab ID: 1724337001	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
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: S17T033862	Collected: 08/26/2017			
Lab ID: 1724337002	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
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: S17T033863	Collected: 08/26/2017			
Lab ID: 1724337003	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
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

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Mon, 09/11/17 8:55 AM



ANALYTICAL REPORT

Workorder: 34-1724337
Client Project ID: 2017 CARTRIDGE EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Sample ID: S17T033864, Lab ID: 1724337004, Method: NIOSH 1613 Mod., Media: SKC 226-01, Charcoal Tube 100/50mg, Instrument: 5975-A, and results for Pyridine and 2,4-Dimethylpyridine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Sample ID: S17T033865, Lab ID: 1724337005, Method: NIOSH 1613 Mod., Media: SKC 226-01, Charcoal Tube 100/50mg, Instrument: 5975-A, and results for Pyridine and 2,4-Dimethylpyridine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Sample ID: S17T033866, Lab ID: 1724337006, Method: NIOSH 1613 Mod., Media: SKC 226-01, Charcoal Tube 100/50mg, Instrument: 5975-A, and results for Pyridine and 2,4-Dimethylpyridine.

Table with 5 columns: Analyte, Result (ug/sample), Result (mg/m³), Result (ppm), RL (ug/sample). Rows include Sample ID: S17T033867, Lab ID: 1724337007, Method: NIOSH 1613 Mod., Media: SKC 226-01, Charcoal Tube 100/50mg, Instrument: 5975-A, and results for Pyridine and 2,4-Dimethylpyridine.



ANALYTICAL REPORT

Workorder: **34-1724337**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033868	Collected: 08/26/2017			
Lab ID: 1724337008	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033869	Collected: 08/26/2017			
Lab ID: 1724337009	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033870	Collected: 08/26/2017			
Lab ID: 1724337010	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033871	Collected: 08/26/2017			
Lab ID: 1724337011	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724337**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033872	Collected: 08/26/2017			
Lab ID: 1724337012	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198439)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033873	Collected: 08/26/2017			
Lab ID: 1724337013	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198439)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033874	Collected: 08/26/2017			
Lab ID: 1724337014	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198439)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033875	Collected: 08/26/2017			
Lab ID: 1724337015	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198439)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724337**
Client Project ID: 2017 CARTRIDGE
EVALUATION
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033876	Collected: 08/26/2017			
Lab ID: 1724337016	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033877	Collected: 08/26/2017			
Lab ID: 1724337017	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/09/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033878	Collected: 08/26/2017			
Lab ID: 1724337018	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/09/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033879	Collected: 08/26/2017			
Lab ID: 1724337019	Sampling Location: 2017 CARTRIDGE EVALU	Received: 08/31/2017		
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-A		
Sampling Info: Air Volume Not Provided		Analyzed: 09/09/2017 (198439)		
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724337**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033880	Collected: 08/26/2017			
Lab ID: 1724337020	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-A			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/09/2017 (198439)			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Comments

Quality Control: NIOSH 1613 Mod. - (HBN: 198439)

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Method	Analyst	Peer Review
NIOSH 1613 Mod.	/S/ David Teynor 09/09/2017 09:23	/S/ Thomas J. Masoian 09/11/2017 08:48

Laboratory Contact Information

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

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



ANALYTICAL REPORT

Workorder: **34-1724337**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS/Dnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
Industrial Hygiene	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Lead Testing: CPSC Soil, Dust, Paint, Air	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724337		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1613 Mod.
Basis: ALS Laboratory Group	Batch: NA	Batch: ISVO/3608 (HBN: 198439)
	Prepared By: NA	Analyzed By: David Teynor

Blank

LMB: 565073			
Analyzed: 09/08/2017 12:11			
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: 565074					LCSD: 565075				
Analyzed: 09/08/2017 12:32					Analyzed: 09/08/2017 12:52				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Pyridine	0.859	1.00	85.9	28.7 141.2	0.795	79.5	7.67	0.0 22.1	
2,4-Dimethylpyridine	0.900	1.00	90.0	18.3 119.1	0.763	76.3	16.6	0.0 22.2	

Comments

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Analyst	Peer Review
/S/ David Teynor 09/09/2017 09:23	/S/ Thomas J. Masoian 09/11/2017 08:48

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



1724337

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173064 Page 1 of 2

Telephone No. 373-6861 MSIN 16-03 FAX 372-1878

Requester: CARL HOWARD IV
 Sample Origin: 2017 CARTRIDGE EVALUATION
 Logbook/Work Package No. WIS-033
 Shipper: Bill of Lading/Air Bill No. 7701 7792 0780
 Parts and Return No. 42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	817T033861	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-BA-EF	N/A
	817T033862	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-BA-IN	N/A
	817T033863	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-BL-EF	N/A
	817T033864	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-BL-IN	N/A
	817T033865	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-EP-1	N/A
	817T033866	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-EP-2	N/A
	817T033867	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-EP-3	N/A
	817T033868	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-EP-4	N/A
	817T033869	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-EP-5	N/A
	817T033870	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-EP-6	N/A

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

SPECIAL INSTRUCTIONS
 Send results to Carl Howard IV and Keisha Garcia
 Carl.W.Howard@rl.gov and Keisha.R.Garcia@rl.gov
 gov See SOW for email

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Maint*
WRPS	J. Gredler	J. Gredler	8/30/17 1400	J. Gredler	J. Gredler	J. Gredler	8/30/17 0900	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
								DL = Drum Liquids T = Tissue WI = Waste L = Liquid V = Vapor X = Other

Relinquished By: J. Gredler
 Date/Time: 8/30/17 1400

Received By: J. Gredler
 Date/Time: 8/30/17 0900

Relinquished By: J. Gredler
 Date/Time: 8/30/17 1400

Received By: J. Gredler
 Date/Time: 8/30/17 0900

Disposal Method (e.g., Return to customer, per lab procedure, used in process)
 Disposed By: J. Gredler
 Date/Time: 8/30/17 0900

Per Lab Procedure

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

Assembler N/A		C.O.C. No. 20173064					
Collector N/A		Page 2 of 2					
SAF No. N/A		Telephone No. 373-6861 MSIN 76-05 FAX 372-1878					
Project Title 2017 CHEMICALS EVALUATION		Purchase Order/Charge Code 203009230					
Shipped To (Lab) N/A		Job Order No. N/A					
Protocol N/A		Bill of Lading/Air Bill No. 7701 4792 0780					
Date Turnaround 10 DAYS		Parts and Return No. 42951					
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							
Container/Requestor CARL HOWARD IV		Sample Origin 2017 CHEMICALS EVALUATION					
Logbook/Work Package No. N/A		Method of Shipment N/A					
Date Turnaround 10 DAYS		Parts and Return No. 42951					
Sample Analysis							
Sample No.	Lab ID	Date	Time	No./Type Container	Pyridines 17-05615-11-TL1-BP-7	Preservative	
	S17T033871	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-BP-8	N/A	
	S17T033872	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-1	N/A	
	S17T033873	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-2	N/A	
	S17T033874	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-3	N/A	
	S17T033875	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-4	N/A	
	S17T033876	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-5	N/A	
	S17T033877	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-6	N/A	
	S17T033878	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-7	N/A	
	S17T033879	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-8	N/A	
	S17T033880	VA	8/26/17	CHARCOAL TUBE	Pyridines 17-05615-11-TL1-IN-9	N/A	
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No				SPECIAL INSTRUCTIONS			
Send Results to Carl Howard IV and Keisha Garcia Carl W. Howald@rl.gov and Keisha R. Garcia@rl.gov gov #66 SOM for email				Reference Contract # 55502			
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	
Denise			8/26/17 0900	J.A. Gradisher		8/30/17 0900	
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	
J.A. Gradisher			8/30/17 1400	WRPS		8/30/17 1400	
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	
WRPS			8/30/17 1400	WRPS		8/30/17 1400	
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	
WRPS			8/30/17 1400	WRPS		8/30/17 1400	
Disposal Method (e.g., Return to customer, per lab procedure, used in process)				Disposal Method (e.g., Return to customer, per lab procedure, used in process)			
Per Lab Procedure				Per Lab Procedure			
Date/Time				Date/Time			
8/17/17				8/17/17			



ANALYTICAL REPORT

Report Date: September 11, 2017

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

20173065

Workorder: **34-1724338**

Client Project ID: 2017 CARTRIDGE
EVALUATION

Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033881	Collected: 08/27/2017			
Lab ID: 1724338001	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-G		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198444)		
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: S17T033882	Collected: 08/27/2017			
Lab ID: 1724338002	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-G		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198444)		
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: S17T033883	Collected: 08/27/2017			
Lab ID: 1724338003	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg	Instrument: 5975-G		
Sampling Info: Air Volume Not Provided		Analyzed: 09/08/2017 (198444)		
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

ADDRESS 960 West LeVoy Drive, Salt Lake City, Utah, 84123 USA | PHONE +1 801 266 7700 | FAX +1 801 268 9992
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Mon, 09/11/17 9:10 AM



ANALYTICAL REPORT

Workorder: **34-1724338**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033884	Collected: 08/27/2017			
Lab ID: 1724338004	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198444)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033885	Collected: 08/27/2017			
Lab ID: 1724338005	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198444)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033886	Collected: 08/27/2017			
Lab ID: 1724338006	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198444)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033887	Collected: 08/27/2017			
Lab ID: 1724338007	Received: 08/31/2017			
Sampling Location: 2017 CARTRIDGE EVALU				
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
Sampling Info: Air Volume Not Provided				
Analyzed: 09/08/2017 (198444)				
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724338**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033888	Collected: 08/27/2017			
Lab ID: 1724338008	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033889	Collected: 08/27/2017			
Lab ID: 1724338009	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033890	Collected: 08/27/2017			
Lab ID: 1724338010	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033891	Collected: 08/27/2017			
Lab ID: 1724338011	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724338**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033892	Collected: 08/27/2017			
Lab ID: 1724338012	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033893	Collected: 08/27/2017			
Lab ID: 1724338013	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033894	Collected: 08/27/2017			
Lab ID: 1724338014	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033895	Collected: 08/27/2017			
Lab ID: 1724338015	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724338**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033896	Collected: 08/27/2017			
Lab ID: 1724338016	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033897	Collected: 08/27/2017			
Lab ID: 1724338017	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/08/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033898	Collected: 08/27/2017			
Lab ID: 1724338018	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/09/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Sample ID: S17T033899	Collected: 08/27/2017			
Lab ID: 1724338019	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/09/2017 (198444)			
	Sampling Location: 2017 CARTRIDGE EVALU			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50



ANALYTICAL REPORT

Workorder: **34-1724338**
 Client Project ID: 2017 CARTRIDGE EVALUATION
 Purchase Order: 55502 Rel15
 Project Manager: Rand Potter

Analytical Results

Sample ID: S17T033900	Collected: 08/27/2017			
Lab ID: 1724338020	Received: 08/31/2017			
Method: NIOSH 1613 Mod.	Media: SKC 226-01, Charcoal Tube 100/50mg			
	Instrument: 5975-G			
	Sampling Info: Air Volume Not Provided			
	Analyzed: 09/09/2017 (198444)			
Analyte	Result (ug/sample)	Result (mg/m ³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

Comments

Quality Control: NIOSH 1613 Mod. - (HBN: 198444)

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Method	Analyst	Peer Review
NIOSH 1613 Mod.	/S/ David Teynor 09/09/2017 10:15	/S/ Thomas J. Masoian 09/11/2017 09:03

Laboratory Contact Information

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

Phone: (801) 266-7700
 Email: als@alstlab.com
 Web: www.alssl.com



ANALYTICAL REPORT

Workorder: **34-1724338**
 Client Project ID: 2017 CARTRIDGE
 EVALUATION
 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	ANAB (DoD ELAP)	ADE-1420	http://www.anab.org/accredited-organizations/
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwlabservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CS/Dnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_aocred_certif.html
	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
Industrial Hygiene	Kansas	E-10416	http://www.kdheks.gov/lipo/index.html
	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing: CPSC Soil, Dust, Paint, Air	Washington	C596-16	http://www.ecy.wa.gov/programs/eap/labs/index.html
	ANAB (ISO 17025, CPSC)	ADE-1420	http://www.anab.org/accredited-organizations/
Soil, Dust, Paint, Air	AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
	DIETARY SUPPLEMENTS	ADE-1420	http://www.aiclasscorp.com
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aiclasscorp.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 Environmental 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: 1724338		
Limits: Historical/Performance	Preparation: NA	Analysis: NIOSH 1613 Mod.
Basis: ALS Laboratory Group	Batch: NA	Batch: ISVO/3609 (HBN: 198444)
	Prepared By: NA	Analyzed By: David Teynor

Blank

LMB: 565080			
Analyzed: 09/08/2017 12:42			
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: 565081					LCSD: 565082				
Analyzed: 09/08/2017 13:01					Analyzed: 09/08/2017 13:19				
Dilution: 1					Dilution: 1				
Units: ug/sample					Units: ug/sample				
Analyte	Result	Target	% Rec	QC Limits	Result	% Rec	RPD	QC Limits	
Pyridine	1.17	1.00	117	28.7 | 141.2	1.15	115	1.74	0.0 | 22.1	
2,4-Dimethylpyridine	0.939	1.00	93.9	18.3 | 119.1	0.894	89.4	4.98	0.0 | 22.2	

Comments

The referenced method has not been validated for 2,4-dimethylpyridine. Additionally, studies regarding media collection efficiency, sample storage stability, analyte retention capability, and/or analyte desorption efficiency have not been performed.

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

Analyst	Peer Review
/S/ David Teynor 09/09/2017 10:15	/S/ Thomas J. Masoian 09/11/2017 09:03

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



1724338

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173065
Page 1 of 2

Telephone No. 373-6861 MSIN 56-05 FAX 372-1878
Purchase Order/Charge Code 203005/CS20

Contact/Requestor CARL HOWARD IV
Sample Origin 2017 CHRYSLER EVALUATION
Logbook Work Package No. N/A
Project Title 2017 CHRYSLER EVALUATION
Shipped To (Lab) N/A
Temp. ON ICE
Bill of Lading/Air Bill No. 7101 4792 0780
Parts and Return No. 42951

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	6177033881	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BA-BF	N/A
	6177033882	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BA-IN	N/A
	6177033883	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BL-BF	N/A
	6177033884	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BL-IN	N/A
	6177033885	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BF-1	N/A
	6177033886	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BF-2	N/A
	6177033887	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BF-3	N/A
	6177033888	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BF-4	N/A
	6177033889	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BF-5	N/A
	6177033890	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-BF-6	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS Yes No
SPECIAL INSTRUCTIONS
Send Results to Carl Howard IV and Keisha Carl W. Howald@rl.gov and Keisha R. Garcia@rl.gov See SON for email
RELEASE 15
Reference Contract # 55502
Print Sign

Relinquished By <i>[Signature]</i>	Date/Time 8/30/17	Received By <i>[Signature]</i>	Date/Time 8/30/17
Relinquished By WRPS	Date/Time 8/30/17	Received By FEDEX	Date/Time
Relinquished By <i>[Signature]</i>	Date/Time 8/27/17	Received By <i>[Signature]</i>	Date/Time 8/27/17
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)
per Lab Procedure
Disposed By *[Signature]*
Date/Time 8/18/17 10:00

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

A-8003-962 (03/06)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20173065
Page 2 of 2

Assembler N/A	Contact/Requestor CARL HOWARD IV	Telephone No. 373-6661 MSIN 56-05 FAX 372-1878	Purchase Order/Charge Code 203006/CB20
Collector SAF No. N/A	Sample Origin 2017 CHARTRISE EVALUATION	Ice Chest No. WTS-033	Temp. ON ICE
Project Title 2017 CHARTRISE EVALUATION Shipped To (Lab) ALS	Logbook/Work Package No. N/A	Bill of Lading/Air Bill No. 7701 A7920180	
Protocol N/A	Method of Shipment Data Turnaround 10 DAYS	Parts and Return No. 42951	Preservative N/A

Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033891	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-EP-7	N/A
	S17T033892	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-EP-8	N/A
	S17T033893	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-1	N/A
	S17T033894	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-2	N/A
	S17T033895	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-3	N/A
	S17T033896	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-4	N/A
	S17T033897	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-5	N/A
	S17T033898	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-6	N/A
	S17T033899	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-7	N/A
	S17T033900	8/27/17		CHARCOAL TUBE	Pyridines 17-05616-11-TL2-IN-8	N/A

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

SPECIAL INSTRUCTIONS
Send Results to Carl Howard IV and Keisha Garcia
Carl Howard IV and Keisha Garcia
507 562 5067 for email

Relinquished By <i>Donovan DF</i>	Print 8/30/17	Sign JA Gradisher	Received By JA Gradisher	Date/Time 8/30/17	Date/Time 8/30/17	Matrix* S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids
Relinquished By WRPS	Print 8/30/17	Sign JA Gradisher	Received By WRPS	Date/Time 8/30/17	Date/Time 8/30/17	DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation VA = Vapor X = Other
Relinquished By <i>SAW</i>	Print 8/30/17	Sign WRPS	Received By <i>WRPS</i>	Date/Time 8/30/17	Date/Time 8/30/17	

Date/Time
8/30/17 10:00

Disposal Method (e.g., Return to customer, per lab procedure, used in process)
Per Lab Procedure

Disposed By
SAW

A-6003-962 (09/05)

C.4.12 Nitrosamines

W708216, 1 of 15



RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratories
 2710 North 20th Avenue, Pasco WA 99301
 Tel: (509) 545-4989 | Fax: (509) 544-6010

Carl Howald IV

10/03/17

Washington River Protection Solutions, LLC
 P.O. Box 850 MSIN H1-40
 Richland, WA 99352

Contract No.: 55503 R9

Project: 2017 Cartridge Evaluation

Subject: Nitrosamines Analysis Report, Group Number 20173046

Enclosed is the final report for group 20173046 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20173046 has been assigned a Columbia Basin Analytical Laboratories login order number of W708216. 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 20 samples on 08/30/17 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.

*- Analyte not detected at or above MRL on initial analysis. Analyte detected at or above MRL on confirmation analysis. Analyte not confirmed.

X- Analyte detected at or above MRL on initial analysis. Analyte not detected at or above MRL on confirmation analysis. Analyte not confirmed.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples:

SampleName	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	

Columbia Basin Analytical Laboratories | 2710 North 20th Avenue, Pasco WA 99301 | 509.545.4989

QA-17-024

WWW.RJLEEGROUP.COM

Report Template: WRPS_SpecialNitrosamines.rpt

Approved: 10/3/17 12:05
 Report Time Stamp: 10/03/17 12:11


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17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-BA-EF	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosomorpholine	59-89-2	0.021	0.011	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-BA-IN	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-EF	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-BL-IN	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-1	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-1	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-1	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-1	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-1	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube

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17-05613-12-SC1-EF-1	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-1	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-1	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-2	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-3	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-4	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-5	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-5	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-5	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-5	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube

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17-05613-12-SC1-EF-5	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-5	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-5	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-5	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-6	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-7	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-EF-8	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-1	09/15/17	N-Nitrosodiethylamine	55-18-5	0.017	0.011	µg/tube X
17-05613-12-SC1-IN-1	09/15/17	N-Nitrosodimethylamine	62-75-9	0.114	0.012	µg/tube
17-05613-12-SC1-IN-1	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube

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17-05613-12-SC1-IN-1	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-1	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube *
17-05613-12-SC1-IN-1	09/15/17	N-Nitrosomorpholine	59-89-2	0.260	0.011	µg/tube
17-05613-12-SC1-IN-1	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-1	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosodiethylamine	55-18-5	0.014	0.011	µg/tube X
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosodimethylamine	62-75-9	0.107	0.012	µg/tube
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.011	µg/tube
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube *
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosomorpholine	59-89-2	0.283	0.011	µg/tube
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-2	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosodiethylamine	55-18-5	0.014	0.011	µg/tube X
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosodimethylamine	62-75-9	0.109	0.012	µg/tube
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosodi-n-butylamine	924-16-3	0.019	0.011	µg/tube
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosomorpholine	59-89-2	0.297	0.011	µg/tube
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-3	09/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosodiethylamine	55-18-5	0.016	0.011	µg/tube X
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosodimethylamine	62-75-9	0.118	0.012	µg/tube
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube *
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosomorpholine	59-89-2	0.270	0.011	µg/tube
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-4	09/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube
17-05613-12-SC1-IN-5	09/16/17	N-Nitrosodiethylamine	55-18-5	0.013	0.011	µg/tube X
17-05613-12-SC1-IN-5	09/16/17	N-Nitrosodimethylamine	62-75-9	0.101	0.012	µg/tube

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17-05613-12-SC1-IN-5	09/16/17	N-Nitrosodi-n-butylamine	924-16-3	0.015	0.011	µg/tube	X
17-05613-12-SC1-IN-5	09/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-5	09/16/17	N-Nitrosomethylethylamine	10595-95-6	0.011	0.011	µg/tube	
17-05613-12-SC1-IN-5	09/16/17	N-Nitrosomorpholine	59-89-2	0.282	0.011	µg/tube	
17-05613-12-SC1-IN-5	09/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-5	09/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosodiethylamine	55-18-5	0.013	0.011	µg/tube	X
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosodimethylamine	62-75-9	0.106	0.012	µg/tube	
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosomethylethylamine	10595-95-6	0.015	0.011	µg/tube	
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosomorpholine	59-89-2	0.301	0.011	µg/tube	
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-6	09/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosodiethylamine	55-18-5	0.018	0.011	µg/tube	X
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosodimethylamine	62-75-9	0.099	0.012	µg/tube	
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosodi-n-butylamine	924-16-3	0.012	0.011	µg/tube	X
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosomorpholine	59-89-2	0.271	0.011	µg/tube	
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-7	09/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosodiethylamine	55-18-5	0.014	0.011	µg/tube	X
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosodimethylamine	62-75-9	0.121	0.012	µg/tube	
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	*
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosomethylethylamine	10595-95-6	0.015	0.011	µg/tube	
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosomorpholine	59-89-2	0.289	0.011	µg/tube	
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05613-12-SC1-IN-8	09/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	

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Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV, LCS, MRL.

RSD Failures in the LCS

There were no RSD failures between the laboratory control samples.

Measurable Blank Values

There were no measurable analytes in the blank samples.

Calibration Curves

The calibration curves for the Nitrosamines had an R-value that was 0.997 or better, over a range of 5.0 ng/mL to 200 ng/mL.

General Lab Comments

The results provided in this report relate only to the items tested. Samples were received in acceptable conditions unless otherwise noted in the comments above. Samples have not been field blank corrected unless otherwise noted in the general set comments above. This test report shall not be reproduced, except in full, without written approval of Columbia Basin Analytical Laboratories.

I certify that this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the Laboratory Director or a designee as verified by the following signature.

 10/03/17

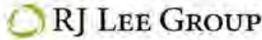
Scientist II DeNomy Dage

If you have any questions, please feel free to contact DeNomy Dage at ddage@rjlg.com or at 509-545-4989.

This report has been reviewed and approved by the following individual:

 10/03/17

Office Manager JJ Furlong



Carl Howald IV
 Washington River Protection
 Solutions, LLC
 P.O. Box 850 MSIN H1-40
 Richland, WA 99352

Laboratory Report
 NIOSH 2522-Modified
 Air/Emissions No Vol on GC/TEA10
 Summary Table

RJ Lee Group No.: W708216
 Samples Received: 8/30/17
 Report Date: 10/3/17
 COC No.: 20173046
 Extraction Date: 9/12/17

Client Project: 2017 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05613-12-SC1-BA-EF | S17T033456	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-BA-IN | S17T033459	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	0.021	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-BL-EF | S17T033460	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-BL-IN | S17T033461	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-EF-1 | S17T033462	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	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 µg/tube	RL	Qualifiers
17-05613-12-SC1-EF-2 | S17T033463	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-EF-3 | S17T033464	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-EF-4 | S17T033465	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-EF-5 | S17T033466	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-EF-6 | S17T033467	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-EF-7 | S17T033468	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05613-12-SC1-EF-7 | S17T033468	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-EF-8 | S17T033469	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-IN-1 | S17T033470	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	0.017	0.011	X
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	0.114	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	*
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	0.260	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-IN-2 | S17T033471	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	0.014	0.011	X
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	0.107	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	0.011	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	*
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	0.283	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-IN-3 | S17T033472	8/27/17	9/15/17	N-Nitrosodiethylamine	55-18-5	0.014	0.011	X
	8/27/17	9/15/17	N-Nitrosodimethylamine	62-75-9	0.108	0.012	
	8/27/17	9/15/17	N-Nitrosodi-n-butylamine	924-16-3	0.019	0.011	
	8/27/17	9/15/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosomorpholine	59-89-2	0.297	0.011	
	8/27/17	9/15/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/15/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-IN-4 | S17T033473	8/27/17	9/16/17	N-Nitrosodiethylamine	55-18-5	0.016	0.011	X
	8/27/17	9/16/17	N-Nitrosodimethylamine	62-75-9	0.118	0.012	
	8/27/17	9/16/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	*
	8/27/17	9/16/17	N-Nitrosomorpholine	59-89-2	0.270	0.011	
	8/27/17	9/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-IN-5 | S17T033474	8/27/17	9/16/17	N-Nitrosodiethylamine	55-18-5	0.013	0.011	X
	8/27/17	9/16/17	N-Nitrosodimethylamine	62-75-9	0.101	0.012	
	8/27/17	9/16/17	N-Nitrosodi-n-butylamine	924-16-3	0.015	0.011	X
	8/27/17	9/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	

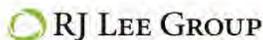
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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05613-12-SC1-IN-5 | S17T033474	8/27/17	9/16/17	N-Nitrosomethylethylamine	10595-95-6	0.011	0.011	
	8/27/17	9/16/17	N-Nitrosomorpholine	59-89-2	0.282	0.011	
	8/27/17	9/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
17-05613-12-SC1-IN-6 | S17T033475	8/27/17	9/16/17	N-Nitrosodiethylamine	55-18-5	0.013	0.011	X
	8/27/17	9/16/17	N-Nitrosodimethylamine	62-75-9	0.106	0.012	
	8/27/17	9/16/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosomethylethylamine	10595-95-6	0.015	0.011	
	8/27/17	9/16/17	N-Nitrosomorpholine	59-89-2	0.301	0.011	
	8/27/17	9/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
17-05613-12-SC1-IN-7 | S17T033476	8/27/17	9/16/17	N-Nitrosodiethylamine	55-18-5	0.018	0.011	X
	8/27/17	9/16/17	N-Nitrosodimethylamine	62-75-9	0.099	0.012	
	8/27/17	9/16/17	N-Nitrosodi-n-butylamine	924-16-3	0.012	0.011	X
	8/27/17	9/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosomorpholine	59-89-2	0.271	0.011	
	8/27/17	9/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
17-05613-12-SC1-IN-8 | S17T033477	8/27/17	9/16/17	N-Nitrosodiethylamine	55-18-5	0.014	0.011	X
	8/27/17	9/16/17	N-Nitrosodimethylamine	62-75-9	0.121	0.012	
	8/27/17	9/16/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosomethylethylamine	10595-95-6	0.015	0.011	
	8/27/17	9/16/17	N-Nitrosomorpholine	59-89-2	0.289	0.011	
	8/27/17	9/16/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/27/17	9/16/17	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	

Report Qualifiers:

A = Target Analyte not in breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantization limits, concentration is estimated

P = Library spectrum match, rsl >90% to RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected

Scientist II DeNomy Dage

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under ORELAP Lab Code 4061. AIHA-LAP, LLC Lab ID 178656 EPA ID WA01195 and WA DOE Lab ID C859. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or to the sample(s) as received by the laboratory. Any reproduction of this document must be in full for the report to be valid. Quality control data is available upon request.

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QA-17-024

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Report Template: WRPS_SpecialNitrosamines.rpt

Approved: 10/3/17 12:05
Report Time Stamp: 10/03/17 12:11



Carl Howald IV
Washington River Protection
Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352
Client Project: 2017 Cartridge Evaluation

Quality Control

NIOSH 2522-Modified

RJ Lee Group No.: W708216
Samples Received: 8/30/17
Report Date: 10/3/17
COC No.: 20173046
Extraction Date: 9/12/17

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	9/15/17	0.200	0.179	0.90		2.10	89.6	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-1	9/15/17	0.200	0.164	0.85		4.16	81.8	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	9/15/17	0.200	0.188	0.94		2.81	93.8	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	9/15/17	0.200	0.165	0.88		6.22	82.4	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	9/15/17	0.200	0.172	0.88		2.33	85.9	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-1	9/15/17	0.200	0.181	0.93		2.08	90.5	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-1	9/15/17	0.200	0.168	0.88		4.97	84.1	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-1	9/15/17	0.200	0.172	0.89		4.98	85.8	69.2 - 124	
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	9/15/17	0.200	0.176	0.90		2.10	88.0	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-2	9/15/17	0.200	0.170	0.85		4.16	85.0	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	9/15/17	0.200	0.185	0.94		2.81	92.2	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	9/15/17	0.200	0.178	0.88		6.22	89.0	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	9/15/17	0.200	0.180	0.88		2.33	89.7	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-2	9/15/17	0.200	0.189	0.93		2.08	94.3	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-2	9/15/17	0.200	0.172	0.88		4.97	86.1	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-2	9/15/17	0.200	0.176	0.89		4.98	88.1	69.2 - 124	
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	9/15/17	0.200	0.184	0.90		2.10	91.7	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-3	9/15/17	0.200	0.178	0.85		4.16	88.9	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	9/15/17	0.200	0.195	0.94		2.81	97.4	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	9/15/17	0.200	0.187	0.88		6.22	93.3	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	9/15/17	0.200	0.178	0.88		2.33	89.1	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-3	9/15/17	0.200	0.186	0.93		2.08	93.0	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-3	9/15/17	0.200	0.185	0.88		4.97	92.4	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-3	9/15/17	0.200	0.189	0.89		4.98	94.4	69.2 - 124	
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	9/15/17		<0.010	0.90	<0.011				
N-Nitrosodimethylamine	62-75-9	MB	9/15/17		<0.010	0.85	<0.012				
N-Nitrosodi-n-butylamine	924-16-3	MB	9/15/17		<0.010	0.94	<0.011				
N-Nitrosodi-n-propylamine	621-64-7	MB	9/15/17		<0.010	0.88	<0.011				
N-Nitrosomethylethylamine	10595-95-6	MB	9/15/17		<0.010	0.88	<0.011				
N-Nitrosomorpholine	59-89-2	MB	9/15/17		<0.010	0.93	<0.011				

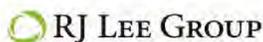
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Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosopiperidine	100-75-4	MB	9/15/17		<0.010	0.88	<0.011				
N-Nitrosopyrrolidine	930-55-2	MB	9/15/17		<0.010	0.89	<0.011				
Analyte	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	9/15/17	0.010	0.009	0.90	0.010		103	39.6 - 158	
N-Nitrosodimethylamine	62-75-9	MRL	9/15/17	0.010	0.012	0.85	0.014		141	71.6 - 181	
N-Nitrosodi-n-butylamine	924-16-3	MRL	9/15/17	0.010	0.009	0.94	0.010		97.2	27.4 - 210	
N-Nitrosodi-n-propylamine	621-64-7	MRL	9/15/17	0.010	0.014	0.88	0.016		158	47.8 - 163	
N-Nitrosomethylethylamine	10595-95-6	MRL	9/15/17	0.010	0.013	0.88	0.015		148	50.8 - 164	
N-Nitrosomorpholine	59-89-2	MRL	9/15/17	0.010	0.010	0.93	0.011		112	36 - 169	
N-Nitrosopiperidine	100-75-4	MRL	9/15/17	0.010	0.012	0.88	0.014		135	26.8 - 171	
N-Nitrosopyrrolidine	930-55-2	MRL	9/15/17	0.010	0.012	0.89	0.013		130	43.3 - 163	

Report Qualifiers:

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsl > 90% w RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected

Scientist II DeNomy Dage

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under ORELAP Lab Code 4061 A111A-LAP, LLC Lab ID 178656 EPA ID WA01195 and WA DOE Lab ID C859. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or to the sample(s) as received by the laboratory. Any reproduction of this document must be in full for the report to be valid. Quality control data is available upon request.

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Report Template: WRPS_SpecialNitrosamines.rpt

Approved: 10/3/17 12:05

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W708216 (112)

Assembled				C.O.C. No. 20173046			
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				Page 1 of 2			
Collector Jones	Contact/Requestor	Chr. HOWARD 19	Telephone No.	773-6861	MSIN	16-05	FAX 372-1878
SAF No.	Sample Origin	2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code	263006/CR20			
Project Title	Logbook/ Work Package No.	N/A	Ice Chest No.		Temp.	24°C	
Shipped To (Lab)	Method of Shipment		Bill of Lading/Air Bill No.				
Protocol	Data Turnaround	18 DAYS	Parts and Return No.				
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative	
	S17T033458	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-BA-EF	N/A	
	S17T033459	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-BA-1N	N/A	
	S17T033460	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-BL-EF	N/A	
	S17T033461	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-BL-1N	N/A	
	S17T033462	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-EF-1	N/A	
	S17T033463	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-EF-2	N/A	
	S17T033464	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-EF-3	N/A	
	S17T033465	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-EF-4	N/A	
	S17T033466	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-EF-5	N/A	
	S17T033467	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05613-12-SCL-EF-6	N/A	
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl_W_Howard@rl.gov and Keisha_R_Garcia@rl.gov see SOM for email CONTRACT 55503 RELEASE 9 Hold Time							
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	DAVID W. JONES	[Signature]	0900	Received By	KE ROGERS	[Signature]	8/30/17 0900
Relinquished By	KE ROGERS	[Signature]	8/30/17 1310	Received By	Mr. Zales	[Signature]	08/30/17 1310
Relinquished By				Received By			
Relinquished By				Received By			
FINAL SAMPLE DISPOSITION	Disposed Method (e.g., Return to customer, per lab procedure, used in process)	CONSUMED BY PROCESS		Disposed By	[Signature]		
					09/29/17 8:50am		

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

W 708216 (2/2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. No. 20173046		
				Page 2 of 2		
Collector JONES	Contact/Requestor CARL HOWALD IV	Telephone No 373-6861	MSIN 16-05	FAX 372-1878		
SAF No. N/A	Sample Origin 2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CE20	Ice Chest No.	Temp. 26.30c		
Project Title 2017 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Method of Shipment	Bill of Lading/Air Bill No.	Parts and Return No.		
Shipped To (Lab) CEAL	Data Turnaround 10 DAYS					
Protocol N/A						
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033468	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-EF-7	N/A
	S17T033469	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-EF-8	N/A
	S17T033470	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-1	N/A
	S17T033471	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-2	N/A
	S17T033472	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-3	N/A
	S17T033473	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-4	N/A
	S17T033474	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-5	N/A
	S17T033475	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-6	N/A
	S17T033476	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-7	N/A
	S17T033477	VA	8/27/17	Thermosorb-N	Nitrosamines 17-05613-12-SCI-IN-8	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No						Hold Time
SPECIAL INSTRUCTIONS Send Results to Carl Howald & Keisha Garcia Carl W. Howald@1.gov and Keisha_R.Garcia@1.gov see SOM for email. CONTRACT 55503 RELEASE 9						
Relinquished By Danson	Print 	Sign	Date/Time 8/30/17 0900	Received By Reese	Print 	Date/Time 8/30/17 0900
Relinquished By Reese	Print 	Sign	Date/Time 8/30/17 1310	Received By Mr. Zeleski	Print 	Date/Time 08/30/17 1310
Relinquished By			Date/Time	Received By		Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process) CONSUMED BY PROCESS		Disposed By The 2-11s	Date/Time 09/29/17	8:50AM	

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 LeeGroup, Inc. | Columbia Basin Analytical Laboratories
 2710 North 20th Avenue, Pasco WA 99301
 Tel: (509) 545-4989 | Fax: (509) 544-6010

Carl Howald IV

09/14/17

Washington River Protection Solutions, LLC
 P.O. Box 850 MSIN H6-16
 Richland, WA 99352

Contract No.: 55503 R9

Project: 2017 Cartridge Evaluation

Subject: Nitrosamines Analysis Report, Group Number 20173047

Enclosed is the final report for group 20173047 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20173047 has been assigned a Columbia Basin Analytical Laboratories login order number of W708217. 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 20 samples on 08/30/17 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.

*- Analyte not detected at or above MRL on initial analysis. Analyte detected at or above MRL on confirmation analysis. Analyte not confirmed.

X- Analyte detected at or above MRL on initial analysis. Analyte not detected at or above MRL on confirmation analysis. Analyte not confirmed.

C- Analyte detected at or above MRL on initial analysis and confirmation analysis. Poor mass agreement between initial and confirmation analysis indicates interference such that this result should be considered qualitative only.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples.

SampleName	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µgtube	
17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µgtube	
17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µgtube	
17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µgtube	
17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µgtube	

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17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-BA-EF	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-BA-IN	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-EF	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-BL-IN	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-1	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-1	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-1	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-1	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube

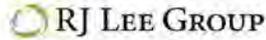
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17-05614-12-SD1-EF-1	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-1	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-1	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-1	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-2	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-3	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-4	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-5	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-5	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-5	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube

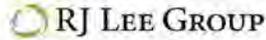
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17-05614-12-SD1-EF-5	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-5	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-5	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-5	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-5	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-6	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-7	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-EF-8	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-IN-1	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube *
17-05614-12-SD1-IN-1	09/07/17	N-Nitrosodimethylamine	62-75-9	0.096	0.013	µg/tube C

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17-05614-12-SD1-IN-1	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-1	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-1	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube *
17-05614-12-SD1-IN-1	09/07/17	N-Nitrosomorpholine	59-89-2	0.249	0.012	µg/tube
17-05614-12-SD1-IN-1	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-1	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube *
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosodimethylamine	62-75-9	0.130	0.013	µg/tube
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosomethylethylamine	10595-95-6	0.016	0.012	µg/tube X
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosomorpholine	59-89-2	0.288	0.012	µg/tube
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube *
17-05614-12-SD1-IN-2	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube *
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosodimethylamine	62-75-9	0.156	0.013	µg/tube
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	0.015	0.011	µg/tube X
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosomorpholine	59-89-2	0.278	0.012	µg/tube
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube *
17-05614-12-SD1-IN-3	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube *
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosodimethylamine	62-75-9	0.108	0.013	µg/tube
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosomorpholine	59-89-2	0.266	0.012	µg/tube
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube
17-05614-12-SD1-IN-4	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube
17-05614-12-SD1-IN-5	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube

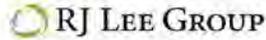
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17-05614-12-SD1-IN-5	09/07/17	N-Nitrosodimethylamine	62-75-9	0.087	0.013	µg/tube	C
17-05614-12-SD1-IN-5	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-5	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-5	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
17-05614-12-SD1-IN-5	09/07/17	N-Nitrosomorpholine	59-89-2	0.289	0.012	µg/tube	
17-05614-12-SD1-IN-5	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-5	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube	
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	*
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosodimethylamine	62-75-9	0.077	0.013	µg/tube	C
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosomorpholine	59-89-2	0.278	0.012	µg/tube	
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-6	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube	
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	*
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosodimethylamine	62-75-9	0.053	0.013	µg/tube	C
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosomorpholine	59-89-2	0.292	0.012	µg/tube	
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-7	09/07/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube	
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	*
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosodimethylamine	62-75-9	0.032	0.013	µg/tube	C
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosomorpholine	59-89-2	0.255	0.012	µg/tube	
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
17-05614-12-SD1-IN-8	09/13/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	µg/tube	

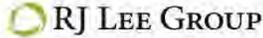
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Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV, LCS, MRL.

RSD Failures in the LCS

There were no RSD failures between the laboratory control samples.

Measurable Blank Values

There were no measurable analytes in the blank samples.

Calibration Curves

The calibration curves for the Nitrosamines had an R-value that was 0.997 or better, over a range of 5.0 ng/mL to 200 ng/mL.

General Lab Comments

The results provided in this report relate only to the items tested. Samples were received in acceptable conditions unless otherwise noted in the comments above. Samples have not been field blank corrected unless otherwise noted in the general set comments above. This test report shall not be reproduced, except in full, without written approval of Columbia Basin Analytical Laboratories.

I certify that this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the Laboratory Director or a designee as verified by the following signature.

09/14/17

Scientist II Dennese Smith

If you have any questions, please feel free to contact Dennese Smith at dennese.smith@rjleegroup.com or at 509-545-4989.

This report has been reviewed and approved by the following individual:

09/14/17

Scientist I Fernanda Pincheira



Carl Howald IV
 Washington River Protection
 Solutions, LLC
 P.O. Box 850 MSIN HG-16
 Richland, WA 99352

Laboratory Report
 NIOSH 2522-Modified
 Air/Emissions No Vol on GC/MS
 Summary Table

RJ Lee Group No.: W708217
 Samples Received: 8/30/17
 Report Date: 9/14/17
 COC No.: 20173047
 Extraction Date: 9/6/17

Client Project: 2017 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05614-12-SD1-BA-EF | S17T033478	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-BA-IN | S17T033479	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-BL-EF | S17T033480	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-BL-IN | S17T033481	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-EF-1 | S17T033482	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	

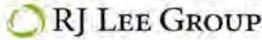
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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05614-12-SD1-EF-2 | S17T033483	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-EF-3 | S17T033484	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-EF-4 | S17T033485	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-EF-5 | S17T033486	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-EF-6 | S17T033487	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-EF-7 | S17T033488	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	

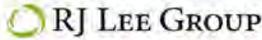
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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05614-12-SD1-EF-7 | S17T033488	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-EF-8 | S17T033489	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	<0.013	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-1 | S17T033490	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	0.096	0.013	C
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	*
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	0.249	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-2 | S17T033491	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	0.130	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	0.016	0.012	X
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	0.288	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-3 | S17T033492	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	0.156	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	0.015	0.011	X
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	0.278	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-4 | S17T033493	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	0.108	0.013	
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	0.266	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-5 | S17T033494	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	0.087	0.013	C
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	

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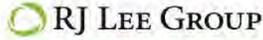
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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05614-12-SD1-IN-5 | S17T033494	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	0.289	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-6 | S17T033495	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	0.077	0.013	C
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	0.278	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-7 | S17T033496	8/26/17	9/7/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	*
	8/26/17	9/7/17	N-Nitrosodimethylamine	62-75-9	0.053	0.013	C
	8/26/17	9/7/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/7/17	N-Nitrosomorpholine	59-89-2	0.292	0.012	
	8/26/17	9/7/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/7/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	
17-05614-12-SD1-IN-8 | S17T033497	8/26/17	9/13/17	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	*
	8/26/17	9/13/17	N-Nitrosodimethylamine	62-75-9	0.032	0.013	C
	8/26/17	9/13/17	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
	8/26/17	9/13/17	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
	8/26/17	9/13/17	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
	8/26/17	9/13/17	N-Nitrosomorpholine	59-89-2	0.255	0.012	
	8/26/17	9/13/17	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
	8/26/17	9/13/17	N-Nitrosopyrrolidine	930-55-2	<0.012	0.012	

Report Qualifiers:

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsl >90% w RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected

Scientist II Dennese Smith

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 Washington River Protection
 Solutions, LLC
 P.O. Box 850 MSIN H6-16
 Richland, WA 99352
 Client Project: 2017 Cartridge Evaluation

Quality Control
 NIOSH 2522-Modified

RJ Lee Group No.: W708217
 Samples Received: 8/30/17
 Report Date: 9/14/17
 COC No.: 20173047
 Extraction Date: 9/6/17

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	9/7/17	0.200	0.175	0.88		1.60	87.5	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-1	9/7/17	0.200	0.159	0.79		2.25	79.2	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	9/7/17	0.200	0.186	0.90		5.91	93.1	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	9/7/17	0.200	0.187	0.93		2.07	93.5	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	9/7/17	0.200	0.165	0.84		6.00	82.5	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-1	9/7/17	0.200	0.176	0.85		4.38	87.7	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-1	9/7/17	0.200	0.175	0.88		3.08	87.4	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-1	9/7/17	0.200	0.181	0.83		9.64	90.4	69.2 - 124	
N-Nitrosodiethylamine	55-18-5	LCS-2	9/7/17	0.200	0.180	0.88		1.60	90.1	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-2	9/7/17	0.200	0.154	0.79		2.25	77.1	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	9/7/17	0.200	0.186	0.90		5.91	93.0	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	9/7/17	0.200	0.189	0.93		2.07	94.6	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	9/7/17	0.200	0.162	0.84		6.00	80.7	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-2	9/7/17	0.200	0.175	0.85		4.38	87.4	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-2	9/7/17	0.200	0.183	0.88		3.08	91.6	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-2	9/7/17	0.200	0.167	0.83		9.64	83.3	69.2 - 124	
N-Nitrosodiethylamine	55-18-5	LCS-3	9/7/17	0.200	0.176	0.88		1.60	87.9	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-3	9/7/17	0.200	0.161	0.79		2.25	80.6	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	9/7/17	0.200	0.168	0.90		5.91	83.8	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	9/7/17	0.200	0.182	0.93		2.07	90.9	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	9/7/17	0.200	0.181	0.84		6.00	90.2	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-3	9/7/17	0.200	0.162	0.85		4.38	81.1	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-3	9/7/17	0.200	0.173	0.88		3.08	86.4	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-3	9/7/17	0.200	0.149	0.83		9.64	74.5	69.2 - 124	
N-Nitrosodiethylamine	55-18-5	MB	9/7/17		<0.010	0.88	<0.011				
N-Nitrosodimethylamine	62-75-9	MB	9/7/17		<0.010	0.79	<0.013				
N-Nitrosodi-n-butylamine	924-16-3	MB	9/7/17		<0.010	0.90	<0.011				
N-Nitrosodi-n-propylamine	621-64-7	MB	9/7/17		<0.010	0.93	<0.011				
N-Nitrosomethylethylamine	10595-95-6	MB	9/7/17		<0.010	0.84	<0.012				
N-Nitrosomorpholine	59-89-2	MB	9/7/17		<0.010	0.85	<0.012				

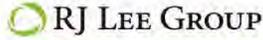
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Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosopiperidine	100-75-4	MB	9/7/17		<0.010	0.88	<0.011				
N-Nitrosopyrrolidine	930-55-2	MB	9/7/17		<0.010	0.83	<0.012				

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	9/7/17	0.010	0.013	0.88	0.015		151	39.6 - 158	
N-Nitrosodimethylamine	62-75-9	MRL	9/7/17	0.010	0.009	0.79	0.012		117	71.6 - 181	
N-Nitrosodi-n-butylamine	924-16-3	MRL	9/7/17	0.010	0.014	0.90	0.015		152	27.4 - 210	
N-Nitrosodi-n-propylamine	621-64-7	MRL	9/7/17	0.010	0.013	0.93	0.014		137	47.8 - 163	
N-Nitrosomethylethylamine	10595-95-6	MRL	9/7/17	0.010	0.010	0.84	0.012		124	50.8 - 164	
N-Nitrosomorpholine	59-89-2	MRL	9/7/17	0.010	0.009	0.85	0.011		107	36 - 169	
N-Nitrosopiperidine	100-75-4	MRL	9/7/17	0.010	0.010	0.88	0.011		113	26.8 - 171	
N-Nitrosopyrrolidine	930-55-2	MRL	9/7/17	0.010	0.012	0.83	0.015		147	43.3 - 163	

Report Qualifiers:

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsl >90% w RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not FIAP accredited analyte

ND = Not Detected

Scientist II Dennese Smith

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under ORELAP Lab Code 4061 AIHA-LAP, LLC Lab ID 178656 EPA ID WA01195 and WA.DOE Lab ID C859. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or to the sample(s) as received by the laboratory. Any reproduction of this document must be in full for the report to be

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W708217 (1/2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							C.O.C. No. 20173047	
Assembler							Page 1 of 2	
Collector JONES	Contact/Requestor CARL HOWARD IV			Telephone No. 373-6861	MSIN TE-05		FAX 372-1878	
SAF No. N/A	Sample Origin 2017 CASPERIDGE EVALUATION			Purchase Order/Charge Code 2030067/CR20	Ice Chest No.		Temp. 27.9°C	
Project Title 2017 CASPERIDGE EVALUATION	Logbook/Work Package No. N/A			Method of Shipment		Bill of Lading/Air Bill No.		
Shipped To (Lab) CARL	Data Turnaround 10 DAYS			Parts and Return No.				
Protocol N/A				Sample Analysis		Preservative		
Sample No.	Lab ID	Date	Time	No./Type Container				
	S17T033478	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-BA-EF	-		N/A
	S17T033479	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-BA-IN	-		N/A
	S17T033480	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-BU-EF	-		N/A
	S17T033481	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-BU-IN	-		N/A
	S17T033482	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-EF-1	-		N/A
	S17T033483	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-EF-2	-		N/A
	S17T033484	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-EF-3	-		N/A
	S17T033485	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-EF-4	-		N/A
	S17T033486	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-EF-5	-		N/A
	S17T033487	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05614-12-SD1-EF-6	-		N/A
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes)					MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No			
SPECIAL INSTRUCTIONS					Hold Time			
Send Results to Carl Howard & Keisha Garcia Carl W Howard@gl.gov and Keisha_R_Garcia@gl.gov see SOM for email					COMPACT 55503 REFRASE 9			
Relinquished By	Print Carl Howard	Sign	Date/Time 8/30/17 0900	Received By	Print Rekegoes	Sign	Date/Time 8/30/17 0900	
Relinquished By	Print Rekegoes	Sign	Date/Time 8/30/17 1310	Received By	Print Mrs. Boker	Sign	Date/Time 08/30/17 1310	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g. Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		
	CONSUMED			Dennace Smith		09/14/17 16:03		

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

W708217 (2/2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST										C.O.C. No. 20173047	
										Page 2 of 2	
Assembler											
Collector JONES	Contract/Requestor CARL HOWARD IV			Telephone No. 373-6861			MSJN T5-05			FAX 372-1878	
SAF No. N/A	Sample Origin 2017 CARTRIDGE EVALUATION			Purchase Order/Charge Code 203008/CS20							
Project Title 2017 CARTRIDGE EVALUATION	Logbook Work Package No. N/A			Ice Chest No.			Temp. 25.79C				
Shipped To (Lab) CAL	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					
S17T033488	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-EP-7	N/A					
S17T033489	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-EP-8	N/A					
S17T033490	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-1	N/A					
S17T033491	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-2	N/A					
S17T033492	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-3	N/A					
S17T033493	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-4	N/A					
S17T033494	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-5	N/A					
S17T033495	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-6	N/A					
S17T033496	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-7	N/A					
S17T033497	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05614-12-SD1-IN-8	N/A					
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl W Howard@eri.gov and Keisha_R_Garcia@eri.gov See SOM for email CONTRACT 55503 RELEASE 9</p> <p>Hold Time</p>											
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time				
Relinquished By	<i>[Signature]</i>	<i>[Signature]</i>	8/30/17 0900	Received By	<i>[Signature]</i>	<i>[Signature]</i>	8/30/17 0900				
Relinquished By	<i>[Signature]</i>	<i>[Signature]</i>	8/30/17 1510	Received By	<i>[Signature]</i>	<i>[Signature]</i>	13:10				
Relinquished By				Received By							
Disposal Method (e.g. Return to customer, per lab procedure, used in process)	CONSUMED						Disposed By <i>[Signature]</i>				
FINAL SAMPLE DISPOSITION	CONSUMED						Date/Time 09/14/17 16:03				

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



RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratories
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Carl Howald IV

10/03/17

Washington River Protection Solutions, LLC
 P.O. Box 850 MSIN H1-40
 Richland, WA 99352

Contract No.: 55503.R9

Project: 2017 Cartridge Evaluation

Subject: Nitrosamines Analysis Report, Group Number 20173048

Enclosed is the final report for group 20173048 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20173048 has been assigned a Columbia Basin Analytical Laboratories login order number of W708218. 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 20 samples on 08/30/17 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.

*- Analyte not detected at or above MRL on initial analysis. Analyte detected at or above MRL on confirmation analysis. Analyte not confirmed.

X- Analyte detected at or above MRL on initial analysis. Analyte not detected at or above MRL on confirmation analysis. Analyte not confirmed.

C- Analyte detected at or above MRL on initial analysis and confirmation analysis. Poor mass agreement between initial and confirmation analysis indicates interference such that this result should be considered qualitative only.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples.

<u>SampleName</u>	<u>Analyzed</u>	<u>Analyte</u>	<u>CAS Number</u>	<u>Results</u>	<u>RL</u>	<u>Units</u>	<u>Flags</u>
17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µgtube	
17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µgtube	
17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µgtube	
17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µgtube	
17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µgtube	

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17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-EF	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-BA-IN	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-EF	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-BL-IN	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-1	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-1	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-1	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-EF-1	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube

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17-05615-12-TL1-EF-1	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-1	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-1	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-1	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosodiethylamine	55-18-5	0.016	0.010	µg/tube X
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosodimethylamine	62-75-9	0.146	0.010	µg/tube
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube *
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube *
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosomorpholine	59-89-2	0.329	0.010	µg/tube
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-2	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosodiethylamine	55-18-5	0.018	0.010	µg/tube X
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosodimethylamine	62-75-9	0.121	0.010	µg/tube
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube *
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosomorpholine	59-89-2	0.318	0.010	µg/tube
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-3	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-4	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-5	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-5	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-5	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube

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17-05615-12-TL1-EF-5	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-5	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-5	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-5	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-5	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-6	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-7	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-EF-8	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-1	09/21/17	N-Nitrosodiethylamine	55-18-5	0.012	0.010	µg/tube X
17-05615-12-TL1-IN-1	09/21/17	N-Nitrosodimethylamine	62-75-9	0.133	0.010	µg/tube

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17-05615-12-TL1-IN-1	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-IN-1	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-1	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube *
17-05615-12-TL1-IN-1	09/21/17	N-Nitrosomorpholine	59-89-2	0.300	0.010	µg/tube
17-05615-12-TL1-IN-1	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-1	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-2	09/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-3	09/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosodiethylamine	55-18-5	0.014	0.010	µg/tube X
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosodimethylamine	62-75-9	0.130	0.010	µg/tube
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube *
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube *
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosomorpholine	59-89-2	0.328	0.010	µg/tube
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-4	09/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-5	09/22/17	N-Nitrosodiethylamine	55-18-5	0.013	0.010	µg/tube X

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17-05615-12-TL1-IN-5	09/22/17	N-Nitrosodimethylamine	62-75-9	0.125	0.010	µg/tube
17-05615-12-TL1-IN-5	09/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-IN-5	09/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-5	09/22/17	N-Nitrosomethylethylamine	10595-95-6	0.015	0.010	µg/tube
17-05615-12-TL1-IN-5	09/22/17	N-Nitrosomorpholine	59-89-2	0.316	0.010	µg/tube
17-05615-12-TL1-IN-5	09/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-5	09/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosodiethylamine	55-18-5	0.015	0.010	µg/tube X
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosodimethylamine	62-75-9	0.135	0.010	µg/tube
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosomethylethylamine	10595-95-6	0.011	0.010	µg/tube C
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosomorpholine	59-89-2	0.331	0.010	µg/tube
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-6	09/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosodiethylamine	55-18-5	0.015	0.010	µg/tube X
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosodimethylamine	62-75-9	0.122	0.010	µg/tube
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube *
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosomethylethylamine	10595-95-6	0.012	0.010	µg/tube
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosomorpholine	59-89-2	0.304	0.010	µg/tube
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-7	09/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosodiethylamine	55-18-5	0.013	0.010	µg/tube X
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosodimethylamine	62-75-9	0.121	0.010	µg/tube
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	µg/tube *
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosomorpholine	59-89-2	0.228	0.010	µg/tube
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	µg/tube
17-05615-12-TL1-IN-8	09/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	µg/tube

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Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV, LCS, MRL.

RSD Failures in the LCS

There were no RSD failures between the laboratory control samples.

Measurable Blank Values

There were no measurable analytes in the blank samples.

Calibration Curves

The calibration curves for the Nitrosamines had an R-value that was 0.997 or better, over a range of 5.0 ng/mL to 200 ng/mL.

General Lab Comments

The results provided in this report relate only to the items tested. Samples were received in acceptable conditions unless otherwise noted in the comments above. Samples have not been field blank corrected unless otherwise noted in the general set comments above. This test report shall not be reproduced, except in full, without written approval of Columbia Basin Analytical Laboratories.

I certify that this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the Laboratory Director or a designee as verified by the following signature.

10/03/17

Scientist II DeNomy Dage

If you have any questions, please feel free to contact DeNomy Dage at ddage@rjlg.com or at 509-545-4989.

This report has been reviewed and approved by the following individual:

10/03/17

Office Manager JJ Furlong

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Carl Howald IV
 Washington River Protection
 Solutions, LLC
 P.O. Box 850 MSIN HI-40
 Richland, WA 99352

Laboratory Report
 NIOSH 2522-Modified
 Air/Emissions No Vol on GC/TEA10
 Summary Table

RJ Lee Group No.: W708218
 Samples Received: 8/30/17
 Report Date: 10/3/17
 COC No.: 20173048
 Extraction Date: 9/5/17

Client Project: 2017 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05615-12-TL1-BA-EF | S17T033498	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-BA-IN | S17T033499	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-BL-EF | S17T033500	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-BL-IN | S17T033501	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-EF-1 | S17T033502	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	

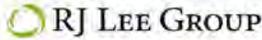
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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05615-12-TL1-EF-2 | S17T033503	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	0.016	0.010	X
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	0.146	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	*
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	0.329	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-EF-3 | S17T033504	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	0.018	0.010	X
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	0.121	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	*
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	0.318	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-EF-4 | S17T033505	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-EF-5 | S17T033506	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-EF-6 | S17T033507	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-EF-7 | S17T033508	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	

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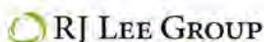
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Report Template: WRPS_SpecialNitrosamines.rpt

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05615-12-TL1-EF-7 | S17T033508	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-EF-8 | S17T033509	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
17-05615-12-TL1-IN-1 | S17T033510	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	0.012	0.010	X
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	0.133	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	*
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	0.300	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
17-05615-12-TL1-IN-2 | S17T033511	8/26/17	9/21/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/21/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/21/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
17-05615-12-TL1-IN-3 | S17T033512	8/26/17	9/22/17	N-Nitrosodiethylamine	55-18-5	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosomorpholine	59-89-2	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
17-05615-12-TL1-IN-4 | S17T033513	8/26/17	9/22/17	N-Nitrosodiethylamine	55-18-5	0.014	0.010	X
	8/26/17	9/22/17	N-Nitrosodimethylamine	62-75-9	0.130	0.010	
	8/26/17	9/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
	8/26/17	9/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	*
	8/26/17	9/22/17	N-Nitrosomorpholine	59-89-2	0.320	0.010	
	8/26/17	9/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
17-05615-12-TL1-IN-5 | S17T033514	8/26/17	9/22/17	N-Nitrosodiethylamine	55-18-5	0.013	0.010	X
	8/26/17	9/22/17	N-Nitrosodimethylamine	62-75-9	0.125	0.010	
	8/26/17	9/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	

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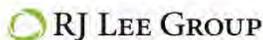
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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05615-12-TL1-IN-5 | S17T033514	8/26/17	9/22/17	N-Nitrosomethylethylamine	10595-95-6	0.015	0.010	
	8/26/17	9/22/17	N-Nitrosomorpholine	59-89-2	0.316	0.010	
	8/26/17	9/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010	
17-05615-12-TL1-IN-6 | S17T033515	8/26/17	9/22/17	N-Nitrosodiethylamine	55-18-5	0.015	0.010	X
	8/26/17	9/22/17	N-Nitrosodimethylamine	62-75-9	0.135	0.010	
	8/26/17	9/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosomethylethylamine	10595-95-6	0.011	0.010	C
	8/26/17	9/22/17	N-Nitrosomorpholine	59-89-2	0.331	0.010	
	8/26/17	9/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
17-05615-12-TL1-IN-7 | S17T033516	8/26/17	9/22/17	N-Nitrosodiethylamine	55-18-5	0.015	0.010	X
	8/26/17	9/22/17	N-Nitrosodimethylamine	62-75-9	0.122	0.010	
	8/26/17	9/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
	8/26/17	9/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosomethylethylamine	10595-95-6	0.012	0.010	
	8/26/17	9/22/17	N-Nitrosomorpholine	59-89-2	0.304	0.010	
	8/26/17	9/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
17-05615-12-TL1-IN-8 | S17T033517	8/26/17	9/22/17	N-Nitrosodiethylamine	55-18-5	0.013	0.010	X
	8/26/17	9/22/17	N-Nitrosodimethylamine	62-75-9	0.121	0.010	
	8/26/17	9/22/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/26/17	9/22/17	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
	8/26/17	9/22/17	N-Nitrosomethylethylamine	10595-95-6	<0.010	0.010	*
	8/26/17	9/22/17	N-Nitrosomorpholine	59-89-2	0.228	0.010	
	8/26/17	9/22/17	N-Nitrosopiperidine	100-75-4	<0.010	0.010	
8/26/17	9/22/17	N-Nitrosopyrrolidine	930-55-2	<0.010	0.010		

Report Qualifiers:

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsl >90% w RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected

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 Washington River Protection
 Solutions, LLC
 P.O. Box 850 MSIN H1-40
 Richland, WA 99352
 Client Project: 2017 Cartridge Evaluation

Quality Control

NIOSH 2522-Modified

RJ Lee Group No.: W708218
 Samples Received: 8/30/17
 Report Date: 10/3/17
 COC No.: 20173048
 Extraction Date: 8/31/17

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	9/21/17	0.200	0.207	1.04		0.86	103	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-1	9/21/17	0.200	0.212	1.05		2.61	106	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	9/21/17	0.200	0.210	1.07		3.27	105	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	9/21/17	0.200	0.205	1.04		2.16	103	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	9/21/17	0.200	0.204	1.03		2.38	102	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-1	9/21/17	0.200	0.211	1.05		1.75	105	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-1	9/21/17	0.200	0.214	1.03		4.07	107	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-1	9/21/17	0.200	0.212	1.04		3.91	106	69.2 - 124	
N-Nitrosodiethylamine	55-18-5	LCS-2	9/21/17	0.200	0.209	1.04		0.86	105	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-2	9/21/17	0.200	0.204	1.05		2.61	102	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	9/21/17	0.200	0.210	1.07		3.27	105	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	9/21/17	0.200	0.214	1.04		2.16	107	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	9/21/17	0.200	0.203	1.03		2.38	101	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-2	9/21/17	0.200	0.212	1.05		1.75	106	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-2	9/21/17	0.200	0.197	1.03		4.07	98.5	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-2	9/21/17	0.200	0.199	1.04		3.91	99.2	69.2 - 124	
N-Nitrosodiethylamine	55-18-5	LCS-3	9/21/17	0.200	0.206	1.04		0.86	103	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-3	9/21/17	0.200	0.214	1.05		2.61	107	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	9/21/17	0.200	0.222	1.07		3.27	111	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	9/21/17	0.200	0.207	1.04		2.16	104	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	9/21/17	0.200	0.212	1.03		2.38	106	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-3	9/21/17	0.200	0.205	1.05		1.75	103	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-3	9/21/17	0.200	0.206	1.03		4.07	103	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-3	9/21/17	0.200	0.214	1.04		3.91	107	69.2 - 124	
N-Nitrosodiethylamine	55-18-5	MB	9/21/17		<0.010	1.04	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	9/21/17		<0.010	1.05	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	9/21/17		<0.010	1.07	<0.009				
N-Nitrosodi-n-propylamine	621-64-7	MB	9/21/17		<0.010	1.04	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	9/21/17		<0.010	1.03	<0.010				
N-Nitrosomorpholine	59-89-2	MB	9/21/17		<0.010	1.05	<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-Nitrosopiperidine	100-75-4	MB	9/21/17		<0.010	1.03	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	9/21/17		<0.010	1.04	<0.010				

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	9/21/17	0.010	0.011	1.04	0.011		111	39.6 - 158	
N-Nitrosodimethylamine	62-75-9	MRL	9/21/17	0.010	0.012	1.05	0.011		114	71.6 - 181	
N-Nitrosodi-n-butylamine	924-16-3	MRL	9/21/17	0.010	0.009	1.07	0.008		82.1	27.4 - 210	
N-Nitrosodi-n-propylamine	621-64-7	MRL	9/21/17	0.010	0.010	1.04	0.009		92.8	47.8 - 163	
N-Nitrosomethylethylamine	10595-95-6	MRL	9/21/17	0.010	0.012	1.03	0.012		117	50.8 - 164	
N-Nitrosomorpholine	59-89-2	MRL	9/21/17	0.010	0.012	1.05	0.011		112	36 - 169	
N-Nitrosopiperidine	100-75-4	MRL	9/21/17	0.010	0.012	1.03	0.012		119	26.8 - 171	
N-Nitrosopyrrolidine	930-55-2	MRL	9/21/17	0.010	0.012	1.04	0.012		119	43.3 - 163	

Report Qualifiers:

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsl >90% w RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not FIAP accredited analyte

ND = Not Detected

Scientist II DeNomy Dage

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under ORELAP Lab Code 4061 AIHA-LAP, LLC Lab ID 178656 EPA ID WA01195 and WA.DOE Lab ID C859. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or to the sample(s) as received by the laboratory. Any reproduction of this document must be in full for the report to be

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QA-17-024

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Report Template: WRPS_SpecialNitrosamines.rpt

Approved: 10/3/17 15:37
Report Time Stamp: 10/03/17 15:45

W708218 (12)

Assembled		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. No. 20173048	
		Page 1 of 2					
Collector JONES		Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861	MISN 16-05	FAX 372-1878		
SAF No.		Sample Origin 2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code 20306/CB20	Temp. 25.1°C			
Project Title 2017 CARTRIDGE EVALUATION		Logbook/Work Package No. N/A	Ice Chest No.	Bill of Lading/Air Bill No.			
Shipped To (Lab) CERL		Method of Shipment Data Turnaround 10 DAYS	Parts and Return No.				
Protocol N/A							
Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S17T033498	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-BA-EF	N/A
	S17T033499	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-BA-IN	N/A
	S17T033500	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-BL-EF	N/A
	S17T033501	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-BL-IN	N/A
	S17T033502	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-1	N/A
	S17T033503	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-2	N/A
	S17T033504	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-3	N/A
	S17T033505	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-4	N/A
	S17T033506	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-5	N/A
	S17T033507	VA	8/26/17		Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-6	N/A
<p>POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>SPECIAL INSTRUCTIONS Send Results to Carl Howald & Keisha Garcia Carl M Howald@rl.gov and Keisha R Garcia@rl.gov See SOM for email CONTRACT 55503 RELEASE 9</p>							
Relinquished By D. JONES	Print Sign	Date/Time 8/30/17 09:00	Received By KE ROYERS	Print Sign	Date/Time 8/30/17 09:00		
Relinquished By KE ROYERS	Print Sign	Date/Time 8/30/17 13:10	Received By MRS FERRIS	Print Sign	Date/Time 08/30/17 13:10		
Relinquished By		Date/Time	Received By		Date/Time		
Relinquished By		Date/Time	Received By		Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Consumed by Process		Disposed By The Hunter		
					Date/Time 09/29/17 8:50 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)

W708218 (2/12)

Assembler		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. No. 20173048	
		Page 2 of 2					
Collector JONES	Contact/Requestor CARL HOWALD IV	Telephone No 373-6861	MSN 78-05	FAX 372-1878			
SAF No. N/A	Sample Origin 2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/C920					
Project Title 2017 CARTRIDGE EVALUATION	Logbook/Work Package No. N/A	Ice Chest No.	Temp. 25.2°C				
Shipped To (Lab) CRL	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	
	S17T033508	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-7	N/A	
	S17T033509	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-EF-8	N/A	
	S17T033510	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-1	N/A	
	S17T033511	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-2	N/A	
	S17T033512	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-3	N/A	
	S17T033513	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-4	N/A	
	S17T033514	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-5	N/A	
	S17T033515	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-6	N/A	
	S17T033516	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-7	N/A	
	S17T033517	VA	8/26/17	Thermosorb-N	Nitrosamines 17-05615-12-TL1-IN-8	N/A	
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes)				MSDS	<input type="radio"/> Yes <input checked="" type="radio"/> No	Hold Time	
SPECIAL INSTRUCTIONS				Send Results to Carl Howald & Keisha Garcia Carl W Howald@st1.gov and Keisha R Garcia@st1.gov see SOM for email			
CONTRACT# 55503				RELEASE 9			
Relinquished By <i>[Signature]</i>	Print Date/Time 8/30/17 09:00	Received By <i>[Signature]</i>	Print Date/Time 8/30/17 09:00	Relinquished By <i>[Signature]</i>	Print Date/Time 8/30/17 09:00	Received By <i>[Signature]</i>	Print Date/Time 8/30/17 09:00
Relinquished By <i>[Signature]</i>	Print Date/Time 8/30/17 13:10	Received By <i>[Signature]</i>	Print Date/Time 8/30/17 13:10	Relinquished By <i>[Signature]</i>	Print Date/Time 8/30/17 13:10	Received By <i>[Signature]</i>	Print Date/Time 8/30/17 13:10
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method (e.g. <u>DESTROYED BY P KOLLES</u>)		Disposed By <i>[Signature]</i>		Date/Time 09/29/17 8:50AM		

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



RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratories
 2710 North 20th Avenue, Pasco WA 99301
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Carl Howald IV

10/03/17

Washington River Protection Solutions, LLC
 P.O. Box 850 MSIN H6-16
 Richland, WA 99352

Contract No.: 55503.R9

Project: 2017 Cartridge Evaluation

Subject: Nitrosamines Analysis Report, Group Number 20173049

Enclosed is the final report for group 20173049 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20173049 has been assigned a Columbia Basin Analytical Laboratories login order number of W708219. 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 20 samples on 08/30/17 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.

*- Analyte not detected at or above MRL on initial analysis. Analyte detected at or above MRL on confirmation analysis. Analyte not confirmed.

X- Analyte detected at or above MRL on initial analysis. Analyte not detected at or above MRL on confirmation analysis. Analyte not confirmed.

C- Analyte detected at or above MRL on initial analysis and confirmation analysis. Poor mass agreement between initial and confirmation analysis indicates interference such that this result should be considered qualitative only.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples.

SampleName	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	

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17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-EF	09/18/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosomorpholine	59-89-2	0.013	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-BA-IN	09/18/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-EF	09/18/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-BL-IN	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-1	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-1	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-1	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-1	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube

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17-05616-12-TL2-EF-1	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-1	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-1	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-1	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-2	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-3	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-4	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-5	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-5	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-5	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube

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17-05616-12-TL2-EF-5	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-5	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-5	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-5	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-5	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-6	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-7	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-EF-8	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-1	09/19/17	N-Nitrosodiethylamine	55-18-5	0.013	0.009	µg/tube X
17-05616-12-TL2-IN-1	09/19/17	N-Nitrosodimethylamine	62-75-9	0.137	0.009	µg/tube

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17-05616-12-TL2-IN-1	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.010	0.009	µg/tube	X
17-05616-12-TL2-IN-1	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-1	09/19/17	N-Nitrosomethylethylamine	10595-95-6	0.014	0.009	µg/tube	
17-05616-12-TL2-IN-1	09/19/17	N-Nitrosomorpholine	59-89-2	0.286	0.009	µg/tube	
17-05616-12-TL2-IN-1	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-1	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosodiethylamine	55-18-5	0.014	0.009	µg/tube	X
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosodimethylamine	62-75-9	0.134	0.009	µg/tube	
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.014	0.009	µg/tube	
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosomethylethylamine	10595-95-6	0.012	0.009	µg/tube	
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosomorpholine	59-89-2	0.294	0.009	µg/tube	
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-2	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosodiethylamine	55-18-5	0.021	0.009	µg/tube	X
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosodimethylamine	62-75-9	0.111	0.009	µg/tube	
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	*
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	*
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosomorpholine	59-89-2	0.278	0.009	µg/tube	
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	*
17-05616-12-TL2-IN-3	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosodiethylamine	55-18-5	0.016	0.009	µg/tube	X
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosodimethylamine	62-75-9	0.133	0.009	µg/tube	
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.013	0.009	µg/tube	C
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosomethylethylamine	10595-95-6	0.013	0.009	µg/tube	
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosomorpholine	59-89-2	0.301	0.009	µg/tube	
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-4	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
17-05616-12-TL2-IN-5	09/19/17	N-Nitrosodiethylamine	55-18-5	0.016	0.009	µg/tube	X

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17-05616-12-TL2-IN-5	09/19/17	N-Nitrosodimethylamine	62-75-9	0.133	0.009	µg/tube
17-05616-12-TL2-IN-5	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.009	0.009	µg/tube C
17-05616-12-TL2-IN-5	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-5	09/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube *
17-05616-12-TL2-IN-5	09/19/17	N-Nitrosomorpholine	59-89-2	0.305	0.009	µg/tube
17-05616-12-TL2-IN-5	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-5	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosodiethylamine	55-18-5	0.012	0.009	µg/tube X
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosodimethylamine	62-75-9	0.125	0.009	µg/tube
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.010	0.009	µg/tube X
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosomethylethylamine	10595-95-6	0.012	0.009	µg/tube
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosomorpholine	59-89-2	0.290	0.009	µg/tube
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube *
17-05616-12-TL2-IN-6	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosodiethylamine	55-18-5	0.015	0.009	µg/tube X
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosodimethylamine	62-75-9	0.107	0.009	µg/tube
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube *
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosomethylethylamine	10595-95-6	0.009	0.009	µg/tube C
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosomorpholine	59-89-2	0.264	0.009	µg/tube
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube *
17-05616-12-TL2-IN-7	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosodiethylamine	55-18-5	0.017	0.009	µg/tube X
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosodimethylamine	62-75-9	0.106	0.009	µg/tube
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube *
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosomethylethylamine	10595-95-6	0.010	0.009	µg/tube
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosomorpholine	59-89-2	0.284	0.009	µg/tube
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	µg/tube
17-05616-12-TL2-IN-8	09/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube

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Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV, MRL. There were recovery failures in the LCS.

RSD Failures in the LCS

There were no RSD failures between the laboratory control samples.

Measurable Blank Values

There were no measurable analytes in the blank samples.

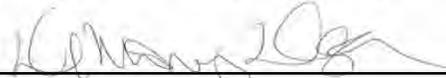
Calibration Curves

The calibration curves for the Nitrosamines had an R-value that was 0.997 or better, over a range of 5.0 ng/mL to 200 ng/mL.

General Lab Comments

The results provided in this report relate only to the items tested. Samples were received in acceptable conditions unless otherwise noted in the comments above. Samples have not been field blank corrected unless otherwise noted in the general set comments above. This test report shall not be reproduced, except in full, without written approval of Columbia Basin Analytical Laboratories.

I certify that this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the Laboratory Director or a designee as verified by the following signature.


10/02/17
Scientist II DeNomy Dage

If you have any questions, please feel free to contact DeNomy Dage at ddage@rjlg.com or at 509-545-4989.

This report has been reviewed and approved by the following individual:


10/03/17
Office Manager JJ Furlong



Carl Howald IV
 Washington River Protection
 Solutions, LLC
 P.O. Box 850 MSIN H6-16
 Richland, WA 99352

Laboratory Report
 NIOSH 2522-Modified
 Air/Emissions No Vol on GC/MS
 Summary Table

RJ Lee Group No.: W708219
 Samples Received: 8/30/17
 Report Date: 10/3/17
 COC No.: 20173049
 Extraction Date: 9/8/17

Client Project: 2017 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05616-12-TL2-BA-EF | S17T033518	8/27/17	9/18/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-BA-IN | S17T033519	8/27/17	9/18/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosomorpholine	59-89-2	0.013	0.009	
	8/27/17	9/18/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-BL-EF | S17T033520	8/27/17	9/18/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/18/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-BL-IN | S17T033521	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-EF-1 | S17T033522	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	

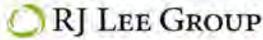
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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05616-12-TL2-EF-2 | S17T033523	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-EF-3 | S17T033524	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-EF-4 | S17T033525	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-EF-5 | S17T033526	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-EF-6 | S17T033527	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-EF-7 | S17T033528	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	

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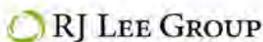
QA-17-024

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05616-12-TL2-EF-7 | S17T033528	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-EF-8 | S17T033529	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-IN-1 | S17T033530	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.013	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.137	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.010	0.009	X
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	0.014	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.274	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.012	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
17-05616-12-TL2-IN-2 | S17T033531	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.014	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.134	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.014	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	0.012	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.294	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-IN-3 | S17T033532	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.021	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.111	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	*
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.276	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	*
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-IN-4 | S17T033533	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.016	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.133	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.013	0.009	C
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	0.013	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.301	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-IN-5 | S17T033534	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.016	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.124	0.009	
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.009	0.009	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration µg/tube	RL	Qualifiers
17-05616-12-TL2-IN-5 | S17T033534	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.009	0.009	C
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	*
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.287	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.017	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
17-05616-12-TL2-IN-6 | S17T033535	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.012	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.125	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	0.010	0.009	X
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	0.012	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.290	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	*
17-05616-12-TL2-IN-7 | S17T033536	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.015	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.107	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	0.009	0.009	C
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.264	0.009	
	8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009	*
17-05616-12-TL2-IN-8 | S17T033537	8/27/17	9/19/17	N-Nitrosodiethylamine	55-18-5	0.017	0.009	X
	8/27/17	9/19/17	N-Nitrosodimethylamine	62-75-9	0.106	0.009	
	8/27/17	9/19/17	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	*
	8/27/17	9/19/17	N-Nitrosodi-n-propylamine	621-64-7	<0.009	0.009	
	8/27/17	9/19/17	N-Nitrosomethylethylamine	10595-95-6	0.010	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.272	0.009	
	8/27/17	9/19/17	N-Nitrosomorpholine	59-89-2	0.012	0.009	
8/27/17	9/19/17	N-Nitrosopiperidine	100-75-4	<0.009	0.009		
8/27/17	9/19/17	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009		

Report Qualifiers:

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsl > 90% w/ RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

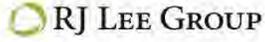
L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected



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 Washington River Protection
 Solutions, LLC
 P.O. Box 850 MSIN H6-16
 Richland, WA 99352
 Client Project: 2017 Cartridge Evaluation

Quality Control
 NIOSH 2522-Modified

RJ Lee Group No.: W708219
 Samples Received: 8/30/17
 Report Date: 10/3/17
 COC No.: 20173049
 Extraction Date: 9/8/17

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	9/18/17	0.200	0.226	1.09		3.18	113	74.6 - 118	
N-Nitrosodiethylamine	55-18-5	LCS-1	9/19/17	0.200	0.233	1.17		1.57	116	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-1	9/18/17	0.200	0.213	1.07		1.37	106	66 - 119	
N-Nitrosodimethylamine	62-75-9	LCS-1	9/19/17	0.200	0.228	1.15		1.55	114	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	9/19/17	0.200	0.231	1.16		3.29	115	75.1 - 120	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	9/18/17	0.200	0.226	1.10		5.91	113	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	9/18/17	0.200	0.218	1.10		0.74	109	74.9 - 119	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	9/19/17	0.200	0.226	1.19		5.66	113	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	9/18/17	0.200	0.234	1.12		4.76	117	73.7 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	9/19/17	0.200	0.221	1.14		3.43	110	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-1	9/18/17	0.200	0.221	1.10		2.34	110	72.5 - 124	
N-Nitrosomorpholine	59-89-2	LCS-1	9/19/17	0.200	0.216	1.14		6.76	108	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-1	9/18/17	0.200	0.226	1.10		2.08	113	71.9 - 121	
N-Nitrosopiperidine	100-75-4	LCS-1	9/19/17	0.200	0.230	1.17		2.04	115	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-1	9/19/17	0.200	0.229	1.16		1.19	115	69.2 - 124	
N-Nitrosopyrrolidine	930-55-2	LCS-1	9/18/17	0.200	0.220	1.07		4.81	110	69.2 - 124	
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	9/18/17	0.200	0.212	1.09		3.18	106	74.6 - 118	
N-Nitrosodiethylamine	55-18-5	LCS-2	9/19/17	0.200	0.232	1.17		1.57	116	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-2	9/18/17	0.200	0.211	1.07		1.37	105	66 - 119	
N-Nitrosodimethylamine	62-75-9	LCS-2	9/19/17	0.200	0.229	1.15		1.55	115	66 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	9/19/17	0.200	0.227	1.16		3.29	113	75.1 - 120	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	9/18/17	0.200	0.230	1.10		5.91	115	75.1 - 120	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	9/18/17	0.200	0.220	1.10		0.74	110	74.9 - 119	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	9/19/17	0.200	0.235	1.19		5.66	117	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	9/18/17	0.200	0.227	1.12		4.76	113	73.7 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	9/19/17	0.200	0.227	1.14		3.43	113	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-2	9/19/17	0.200	0.225	1.14		6.76	112	72.5 - 124	
N-Nitrosomorpholine	59-89-2	LCS-2	9/18/17	0.200	0.224	1.10		2.34	112	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-2	9/18/17	0.200	0.217	1.10		2.08	108	71.9 - 121	
N-Nitrosopiperidine	100-75-4	LCS-2	9/19/17	0.200	0.235	1.17		2.04	117	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-2	9/18/17	0.200	0.201	1.07		4.81	101	69.2 - 124	
N-Nitrosopyrrolidine	930-55-2	LCS-2	9/19/17	0.200	0.233	1.16		1.19	117	69.2 - 124	
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	9/19/17	0.200	0.239	1.17		1.57	119	74.6 - 118	S

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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	9/18/17	0.200	0.218	1.09		3.18	109	74.6 - 118	
N-Nitrosodimethylamine	62-75-9	LCS-3	9/18/17	0.200	0.217	1.07		1.37	108	66 - 119	
N-Nitrosodimethylamine	62-75-9	LCS-3	9/19/17	0.200	0.235	1.15		1.55	117	86 - 119	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	9/18/17	0.200	0.205	1.10		5.91	103	75.1 - 120	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	9/19/17	0.200	0.241	1.16		3.29	121	75.1 - 120 S	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	9/19/17	0.200	0.252	1.19		5.66	126	74.9 - 119 S	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	9/18/17	0.200	0.221	1.10		0.74	111	74.9 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	9/18/17	0.200	0.213	1.12		4.76	106	73.7 - 119	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	9/19/17	0.200	0.236	1.14		3.43	118	73.7 - 119	
N-Nitrosomorpholine	59-89-2	LCS-3	9/18/17	0.200	0.214	1.10		2.34	107	72.5 - 124	
N-Nitrosomorpholine	59-89-2	LCS-3	9/19/17	0.200	0.246	1.14		6.76	123	72.5 - 124	
N-Nitrosopiperidine	100-75-4	LCS-3	9/18/17	0.200	0.220	1.10		2.08	110	71.9 - 121	
N-Nitrosopiperidine	100-75-4	LCS-3	9/19/17	0.200	0.239	1.17		2.04	120	71.9 - 121	
N-Nitrosopyrrolidine	930-55-2	LCS-3	9/18/17	0.200	0.218	1.07		4.81	109	69.2 - 124	
N-Nitrosopyrrolidine	930-55-2	LCS-3	9/19/17	0.200	0.234	1.16		1.19	117	69.2 - 124	
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	9/19/17		<0.010	1.17	<0.009				
N-Nitrosodiethylamine	55-18-5	MB	9/18/17		<0.010	1.09	<0.009				
N-Nitrosodimethylamine	62-75-9	MB	9/19/17		<0.010	1.15	<0.009				
N-Nitrosodimethylamine	62-75-9	MB	9/18/17		<0.010	1.07	<0.009				
N-Nitrosodi-n-butylamine	924-16-3	MB	9/18/17		<0.010	1.10	<0.009				
N-Nitrosodi-n-butylamine	924-16-3	MB	9/19/17		<0.010	1.16	<0.009				
N-Nitrosodi-n-propylamine	621-64-7	MB	9/18/17		<0.010	1.10	<0.009				
N-Nitrosodi-n-propylamine	621-64-7	MB	9/19/17		<0.010	1.19	<0.008				
N-Nitrosomethylethylamine	10595-95-6	MB	9/19/17		<0.010	1.14	<0.009				
N-Nitrosomethylethylamine	10595-95-6	MB	9/18/17		<0.010	1.12	<0.009				
N-Nitrosomorpholine	59-89-2	MB	9/18/17		<0.010	1.10	<0.009				
N-Nitrosomorpholine	59-89-2	MB	9/19/17		<0.010	1.14	<0.009				
N-Nitrosopiperidine	100-75-4	MB	9/18/17		<0.010	1.10	<0.009				
N-Nitrosopiperidine	100-75-4	MB	9/19/17		<0.010	1.17	<0.009				
N-Nitrosopyrrolidine	930-55-2	MB	9/18/17		<0.010	1.07	<0.009				
N-Nitrosopyrrolidine	930-55-2	MB	9/19/17		<0.010	1.16	<0.009				
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	9/19/17	0.010	0.011	1.17	0.009		92.9	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	9/18/17	0.010	0.010	1.09	0.009		92.3	39.6 - 158	
N-Nitrosodimethylamine	62-75-9	MRL	9/19/17	0.010	0.012	1.15	0.011		106	71.6 - 181	
N-Nitrosodimethylamine	62-75-9	MRL	9/18/17	0.010	0.013	1.07	0.012		118	71.6 - 181	
N-Nitrosodi-n-butylamine	924-16-3	MRL	9/19/17	0.010	0.011	1.16	0.009		91.8	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	9/18/17	0.010	0.013	1.10	0.012		121	27.4 - 210	
N-Nitrosodi-n-propylamine	621-64-7	MRL	9/19/17	0.010	0.011	1.19	0.009		93.1	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	9/18/17	0.010	0.010	1.10	0.009		91.0	47.8 - 163	
N-Nitrosomethylethylamine	10595-95-6	MRL	9/18/17	0.010	0.013	1.12	0.011		111	50.8 - 164	

Columbia Basin Analytical Laboratories | 2710 North 20th Avenue, Pasco WA 93301 | 509.545.4989

QA-17-024

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Report Template: WRPS_SpecialNitrosamines.rpt

Approved: 10/2/17 20:41
Report Time Stamp: 10/03/17 07:27



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	MRL	9/19/17	0.010	0.012	1.14	0.011		107	50.8 - 164	
N-Nitrosomorpholine	59-89-2	MRL	9/18/17	0.010	0.012	1.10	0.011		109	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	9/19/17	0.010	0.012	1.14	0.010		101	36 - 169	
N-Nitrosopiperidine	100-75-4	MRL	9/18/17	0.010	0.010	1.10	0.009		86.1	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	9/19/17	0.010	0.009	1.17	0.008		77.7	26.8 - 171	
N-Nitrosopyrrolidine	930-55-2	MRL	9/19/17	0.010	0.010	1.16	0.009		88.9	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	9/18/17	0.010	0.009	1.07	0.008		82.7	43.3 - 163	

Report Qualifiers

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsl > 90% w RT match

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

N/A = Not Applicable

B = Analyte detected in the associated blank

d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected

Scientist II DeNomy Dage

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under ORELAP Lab Code 4061. AHA-LAP, LLC Lab ID 178656 EPA ID WA01195 and WA DOE Lab ID C859. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or to the sample(s) as received by the laboratory. Any reproduction of this document must be in full for the report to be valid.

W708219 (1/2)

Assembled				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. No. 20173049	
				Page 1 of 2					
Collector	JONES	Contact/Requestor	CARL HOWARD IV	Telephone No	373-6861	MSIN	T6-05	FAX	372-1878
SAF No.	N/A	Sample Origin	2017 CARTRIDGE EVALUATION	Purchase Order/Charge Code	20306/CE20				
Project Title	2017 CARTRIDGE EVALUATION	Labbook/ Work Package No.	N/A	Ice Chest No.		Temp.	25.0°C		
Shipped To (Lab)	CEHL	Method of Shipment		Bill of Lading/Air Bill No.					
Protocol	N/A	Data Turnaround	10 DAYS	Pack and Return No.					
Sample No.	Lab ID	Date	Time	No./Type Container	Sample Analysis	Preservative			
	S17F033518	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BA-BF	N/A			
	S17F033519	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BA-IN	N/A			
	S17F033520	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BL-EF	N/A			
	S17F033521	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BL-IN	N/A			
	S17F033522	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BF-1	N/A			
	S17F033523	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BF-2	N/A			
	S17F033524	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BF-3	N/A			
	S17F033525	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BF-4	N/A			
	S17F033526	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BF-5	N/A			
	S17F033527	8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-TL2-BF-6	N/A			
POSSIBLE SAMPLE HAZARD/REMARKS (List all known wastes)				MSDS	<input type="radio"/> Yes <input checked="" type="radio"/> No	Hold Time			
				<p>SPECIAL INSTRUCTIONS</p> <p>Send Results to Carl Howard & Keisha Garcia Carl W. Howard@rl.gov and Keisha_R.Garcia@rl.gov see SOW for email</p> <p>CONTRACT 55503 RELEASE 9</p>					
Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	Matrix*			
Relinquished By	Don Jensen	8/30/17 0900	Received By	RS Rogers	8/30/17 0900	S = Soil DL = Drum Liquids			
Relinquished By	RE ROGERS	8/30/17 13:10	Received By	Mick Zolner	08/30/17 1310	SE = Sediment T = Tissue			
Relinquished By			Received By			SO = Solid VM = Wipe			
Relinquished By			Received By			SL = Sludge L = Liquid			
Relinquished By			Received By			W = Water V = Vegetation			
Relinquished By			Received By			O = Oil VA = Vapor			
Relinquished By			Received By			A = Air X = Other			
Relinquished By			Received By			DS = Drum Solids			
FINAL SAMPLE DISPOSITION	Consumed by process				Disposed By	See Miller	Date/Time	09/29/17	8:50 AM

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

W 708219 (2/2)

Assembled				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. No. 20173049		
				Page 2 of 2						
Collector SONES		Contact/Requestor CARL HOWARD IV		Telephone No. 373-6861	MISIN 16-05	FAX 372-1878				
SAF No.		Sample Origin 2017 CARTRIDGE EVALUATION		Purchase Order/Charge Code 203006/CB20						
Project Title 2017 CARTRIDGE EVALUATION		Lookbook/ Work Package No. N/A		Ice Chest No.	Temp. <i>24.7 °C</i>					
Shipped To (Lab) CEAL		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				
	S17T033528	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-EF-7	N/A				
	S17T033529	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-EF-8	N/A				
	S17T033530	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-1	N/A				
	S17T033531	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-2	N/A				
	S17T033532	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-3	N/A				
	S17T033533	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-4	N/A				
	S17T033534	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-5	N/A				
	S17T033535	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-6	N/A				
	S17T033536	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-7	N/A				
	S17T033537	VA 8/27/17		Thermosorb-N	Nitrosamines 17-05616-12-T12-IN-8	N/A				
POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS <input type="radio"/> Yes <input checked="" type="radio"/> No				SPECIAL INSTRUCTIONS Send Results to Carl Howard & Keisha Garcia Carl_Howard@rl.gov and Keisha_R_Garcia@rl.gov See SOM for email CONTRACT 55503 RELEASE 9.					Hold Time	
Relinquished By	Print <i>Carl Howard</i>	Sign	Date/Time 8/30/17 0900	Received By	Print <i>Keisha Garcia</i>	Sign	Date/Time 8/30/17 0900	Matrix*		
Relinquished By			Date/Time	Received By			Date/Time	S = Soil	DL = Drum Liquids	
Relinquished By			Date/Time	Received By			Date/Time	SE = Sediment	T = Tissue	
Relinquished By			Date/Time	Received By			Date/Time	SO = Solid	WI = Waste	
Relinquished By			Date/Time	Received By			Date/Time	SL = Sludge	L = Liquid	
Relinquished By			Date/Time	Received By			Date/Time	W = Water	V = Vegetation	
Relinquished By			Date/Time	Received By			Date/Time	O = Oil	VA = Vapor	
Relinquished By			Date/Time	Received By			Date/Time	A = Air	X = Other	
Relinquished By			Date/Time	Received By			Date/Time	DS = Drum Solids		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process) CONSUMED BY PROCESS			Disposed By	Date/Time <i>Carl Howard</i> 09/29/17 8:50 AM					

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

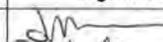
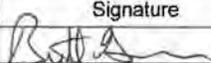
A-6003-962 (03/05)

C.4.13 Chain of Custody (CoC) Forms

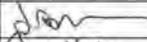
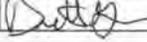
222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST			ATS-LO-090-101 Rev DH-1
Date Samples Received: <u>8/29/17</u>		Total Number of Samples: <u>1000</u>		Group No.:
Sample Custodian: <u>Don Sorenson</u>		IH Technician: <u>Brett [Signature] 8/29/17</u>		
Sample Custodian to Complete				
Action	Yes	No	N/A	Comments
RSR provided?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Verify GKI is complete	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="checkbox"/> In Project File
Received from an alpha facility?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/> Contact PC for approval to release
Check that outer custody seal is intact, if present	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Record cooler temperature in centigrade, as appropriate	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/> Check if no cooler and/or no ice <u>7.2°</u>
Samples are intact and in good condition	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Date and time of sampling	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Sampling location or origin	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Container type, size, and number	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Preservatives (if used) noted on the COC/RSA and sample bottles	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
• Analysis request is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Signature of persons relinquishing and receiving samples	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
• Date and/or time of sample custody exchange	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Verify that sample numbers on containers match the COC and/or RSA	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Samples stored properly (e.g., refrigeration)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		PC/SC Initials: <u>LD</u>		Date: <u>8/28/17</u>
If No, comment on communication and resolution:				
<u>WRPS ship</u> <u>Run</u>				
<u>WML NH3 80 Hg 80</u>				
<u>Acetonitrile - 80</u>				
Number of IH Samples Received:				
Aldehyde Screen: <u>80</u>	Amines: <u>80</u>	Ammonia: <u>80</u>	Aromatic HC: _____	Asbestos: _____
Beryllium: _____	Be-Bulk: _____	Be-Filter: _____	Be-Wipe: _____	1, 3-Butadiene: <u>160</u>
Formaldehyde: _____	Furans: <u>80</u>	Mercury: <u>80</u>	Methanol: <u>40</u>	Nitrosamines: <u>80</u>
Nitrous Oxide: _____	Pyridines: <u>80</u>	SVOA: <u>80</u>	VOA: <u>80</u>	Other-IH: _____

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

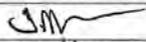
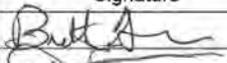
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202943 ON 8/22/17 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L.			Phone: (509)373-4966		Turnaround: N/A
Return Report To: Maxwell, Sally A				MSIN: R1-06	Phone: (509)373-3324
Laboratory Log No.	Sample ID/Type/Description	Required Analysis			
	17-05615-9-TL1-BA-EFA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-BA-EFB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-BA-INA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-BA-INB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-BL-EFA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-BL-EFB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-BL-INA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBIE	MO 252	8/26/17	0800
Retrieved from Storage:		Brett Gorman		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gorman	8/28/17	1320	
Received By:		Don Johnson	8/28/17	1330	
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: 8/26/17	
CACN: 202845 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-10-TL1-BL-INB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-EF-1-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-EF-1-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-EF-2-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-EF-2-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-EF-3-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-EF-3-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBIFF	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Gerner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gerner	8/28/17	1330	
Received By:		Don Johnson	8/29/17	1330	
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: 8/26/17	
CACN: DV 8/22/17 202643 203006		COA: CB20		Survey No.: 17-05815 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L.			Phone: (509)373-4966		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			
	17-05615-9-TL1-EF-4-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-EF-4-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-EF-5-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-EF-5-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-EF-6-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-EF-6-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-EF-7-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0800
Retrieved from Storage:		Brutt George		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brutt George	8/28/17	1330	
Received By:		Don Jordan	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

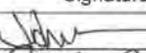
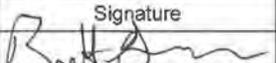
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202843 OV 8/22/17 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-10-TL1-EF-7-B / Charcoal Tube (SKC-226-37) / [Barcode]	1,3-Butadiene Source			
	17-05615-9-TL1-EF-8-A / Charcoal Tube (SKC-226-37) / [Barcode]	1,3-Butadiene Source			
	17-05615-10-TL1-EF-8-B / Charcoal Tube (SKC-226-37) / [Barcode]	1,3-Butadiene Source			
	17-05615-9-TL1-IN-1-A / Charcoal Tube (SKC-226-37) / [Barcode]	1,3-Butadiene Source			
	17-05615-10-TL1-IN-1-B / Charcoal Tube (SKC-226-37) / [Barcode]	1,3-Butadiene Source			
	17-05615-9-TL1-IN-2-A / Charcoal Tube (SKC-226-37) / [Barcode]	1,3-Butadiene Source			
	17-05615-10-TL1-IN-2-B / Charcoal Tube (SKC-226-37) / [Barcode]	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Dan Johnson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

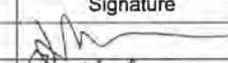
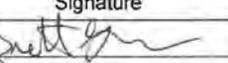
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 3/22/17} 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-9-TL1-IN-3-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-IN-3-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-IN-4-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-IN-4-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-IN-5-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-IN-5-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-IN-6-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garcia		8/26/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garcia	8/28/17	1330	
Received By:		Don Johnston	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

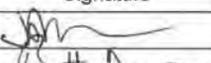
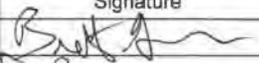
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202848 8/22/17 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-10-TL1-IN-6-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-IN-7-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-IN-7-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-IN-8-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-IN-8-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-5-TL1-BA-EF / Charcoal Tube (SKC-226-09)  E/W 07-19-17	Acetonitrile Source			
	17-05615-5-TL1-BA-IN / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		WAKE ROBLEE	MO 25C	8/26/17	0600
Retrieved from Storage:		Bratt Gerner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Bratt Gerner	8/28/17	1330	
Received By:		Don Johnson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

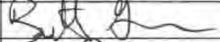
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled:	
CACN: ^{OV 8/22/17} 202845 ²⁰³⁰⁰⁶		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-10-TL1-IN-6-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-IN-7-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-IN-7-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-9-TL1-IN-8-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-10-TL1-IN-8-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05615-5-TL1-BA-EF / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-BA-IN / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROLLES	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Sorenson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

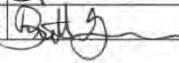
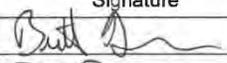
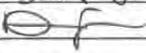
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 08/26/17	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
	17-05615-5-TL1-BL-EF / Charcoal Tube (SKC-226-09) 			Acetonitrile Source	
	17-05615-5-TL1-BL-IN / Charcoal Tube (SKC-226-09) 			Acetonitrile Source	
	17-05615-5-TL1-EF-1 / Charcoal Tube (SKC-226-09) 			Acetonitrile Source	
	17-05615-5-TL1-EF-2 / Charcoal Tube (SKC-226-09) 			Acetonitrile Source	
	17-05615-5-TL1-EF-3 / Charcoal Tube (SKC-226-09) 			Acetonitrile Source	
	17-05615-5-TL1-EF-4 / Charcoal Tube (SKC-226-09) 			Acetonitrile Source	
	17-05615-5-TL1-EF-5 / Charcoal Tube (SKC-226-09) 			Acetonitrile Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JOKE ROSLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Johnson	8/28/17	1330	
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: 08/26/2017	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-5-TL1-EF-6 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-EF-7 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-EF-8 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-IN-1 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-IN-2 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-IN-3 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-IN-4 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKEROSLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Jensen	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

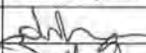
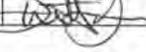
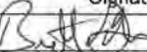
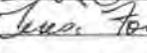
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 08/26/17	
CACN: 202843 DV 8/22/17 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
a	17-05615-5-TL1-IN-5 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
e	17-05615-5-TL1-IN-6 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
b	17-05615-5-TL1-IN-7 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
a	17-05615-5-TL1-IN-8 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
17-05615-8-TL1-BA-EF / Silica Gel (SKC 226-119) 					
17-05615-8-TL1-BA-IN / Silica Gel (SKC 226-119)  EHV 12-19-17					
17-05615-8-TL1-BL-EF / Silica Gel (SKC 226-119) 					
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	1330	
Received By:		Don Sorenson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

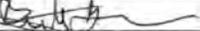
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DU 8/22/17} 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-5-TL1-IN-5 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-IN-6 / Charcoal Tube (SKC-226-09)  <i>DU 07-17-17</i>	Acetonitrile Source			
	17-05615-5-TL1-IN-7 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-5-TL1-IN-8 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05615-8-TL1-BA-EF / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-BA-IN / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-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:		JAKE ROBLEE	MOZSL	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

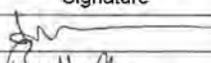
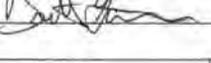
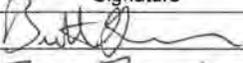
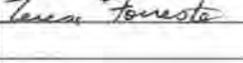
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions		Date Sampled: 8/26/17	
CACN: 202843 DN 45/22/17 203006	COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L		Phone: (509)373-4966	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	
	17-05615-8-TL1-BL-IN / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A	
	17-05615-8-TL1-EF-1 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A	
	17-05615-8-TL1-EF-2 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A	
	17-05615-8-TL1-EF-3 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A	
	17-05615-8-TL1-EF-4 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A	
	17-05615-8-TL1-EF-5 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A	
	17-05615-8-TL1-EF-6 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A	
Special Instructions:			
	Signature	Printed Name	Location
Delivered to Storage:		JAKE ROBLIE	M0252
Retrieved from Storage:		Brett Garner	
	Signature	Printed Name	Date
Relinquished By:		Brett Garner	8/28/17
Received By:		TERESA FORRESTER	8/28/17
Relinquished By:			
Received By:			
Relinquished By:			
Received By:			
Additional Comments:			

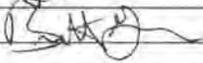
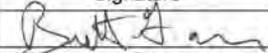
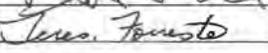
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 8/22/17 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-8-TL1-EF-7 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-EF-8 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-1 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-2 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-3 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-4 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-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:		JAKE ROSLIFE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
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: 8/26/17	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-8-TL1-IN-6 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-7 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-8 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-4-TL1-BA-EF / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-BA-IN / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-BL-EF / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-BL-IN / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M0252	8/26/17	0600
Retrieved from Storage:		BRAH GERAR		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRAH GERAR	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

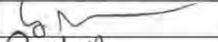
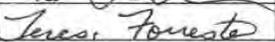
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DY 8/22/17} 202643 ₂₀₃₀₀₆		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-8-TL1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-8-TL1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source Method: EPA TO-11A			
	17-05615-4-TL1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	<i>[Signature]</i>	JAKERLEE	MO 252	8/26/17	0600
Retrieved from Storage:	<i>[Signature]</i>	Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	<i>[Signature]</i>	Brett Garner	8/28/17	1330	
Received By:	<i>[Signature]</i>	TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

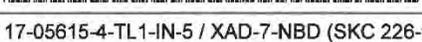
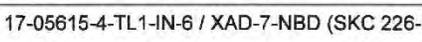
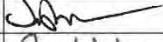
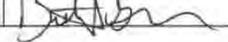
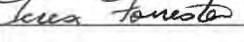
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 8/22/17 202643 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-4-TL1-EF-1 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-EF-2 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-EF-3 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-EF-4 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-EF-5 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-EF-6 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-EF-7 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M0 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
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Received By:					
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Received By:					
Additional Comments:					

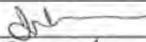
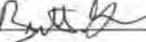
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/24/17	
CACN: DV 5/22/17 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-4-TL1-EF-8 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-IN-1 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-IN-2 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-IN-3 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-IN-4 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-IN-5 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-IN-6 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLEE	MO 252	8/24/17	0600
Retrieved from Storage:		Best Corner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Best Corner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

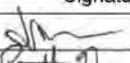
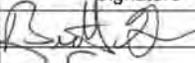
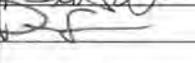
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/20/17	
CACN: 0V 8/22/17 202043 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-4-TL1-IN-7 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-4-TL1-IN-8 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-3-TL1-BA-EF / TDU (Tenax) 	Furans Source			
	17-05615-3-TL1-BA-IN / TDU (Tenax) 	Furans Source			
	17-05615-3-TL1-BL-EF / TDU (Tenax) 	Furans Source			
	17-05615-3-TL1-BL-IN / TDU (Tenax) 	Furans Source			
	17-05615-3-TL1-EF-1 / TDU (Tenax) 	Furans Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	M025L	8/26/17	0600
Retrieved from Storage:		Beit Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Beit Garner	8/28/17	1330	
Received By:	Theresa Forrester	TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

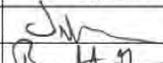
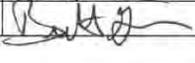
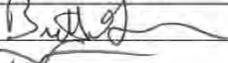
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202643 ²⁰³⁰⁰⁶		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-4-TL1-IN-7 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source <i>SPN 07-17-17</i>			
	17-05615-4-TL1-IN-8 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05615-3-TL1-BA-EF / TDU (Tenax) 	Furans Source 2049114			
	17-05615-3-TL1-BA-IN / TDU (Tenax) 	Furans Source 2049809			
	17-05615-3-TL1-BL-EF / TDU (Tenax) 	Furans Source 2055258			
	17-05615-3-TL1-BL-IN / TDU (Tenax) 	Furans Source 2070321			
	17-05615-3-TL1-EF-1 / TDU (Tenax) 	Furans Source 2047377			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBERT	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Johnson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

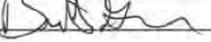
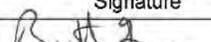
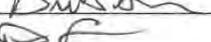
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

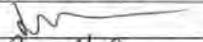
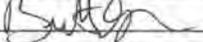
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		Turnaround: N/A
Return Report To: Maxwell, Sally A				MSIN: R1-06	
Phone: (509)373-3324					
Laboratory Log No.	Sample ID/Type/Description	Required Analysis			
	17-05615-3-TL1-EF-2 / TDU (Tenax) 	Furans Source 2049364			
	17-05615-3-TL1-EF-3 / TDU (Tenax) 	Furans Source 2049361			
	17-05615-3-TL1-EF-4 / TDU (Tenax) 	Furans Source 2049285			
	17-05615-3-TL1-EF-5 / TDU (Tenax) 	Furans Source 2047396			
	17-05615-3-TL1-EF-6 / TDU (Tenax) 	Furans Source 2049296			
	17-05615-3-TL1-EF-7 / TDU (Tenax) 	Furans Source 2049375			
	17-05615-3-TL1-EF-8 / TDU (Tenax) 	Furans Source 2048221			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROUSE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1320	
Received By:		Don Sorenson	8/28/17	1330	
Relinquished By:					
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Received By:					
Additional Comments:					

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

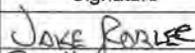
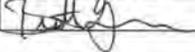
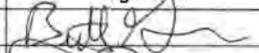
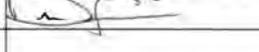
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 5/22/17 202643 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		Turnaround: N/A
Return Report To: Maxwell, Sally A				MSIN: R1-06	Phone: (509)373-3324
Laboratory Log No.	Sample ID/Type/Description	Required Analysis			
	17-05615-3-TL1-IN-1 / TDU (Tenax) 	Furans Source 2050227			
	17-05615-3-TL1-IN-2 / TDU (Tenax) 	Furans Source 2049357			
	17-05615-3-TL1-IN-3 / TDU (Tenax) 	Furans Source 2049297			
	17-05615-3-TL1-IN-4 / TDU (Tenax) 	Furans Source 2049164			
	17-05615-3-TL1-IN-5 / TDU (Tenax) 	Furans Source 2049358			
	17-05615-3-TL1-IN-6 / TDU (Tenax) 	Furans Source 2049353			
	17-05615-3-TL1-IN-7 / TDU (Tenax) 	Furans Source 2049366			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 25C	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Johnson	8/28/17	1330	
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: 8/26/17	
CACN: DV 8/22/17 202643 203004		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-3-TL1-IN-8 / TDU (Tenax) 	Furans Source 2049360			
SW 02-19-17					
	17-05615-6-TL1-BA-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05615-6-TL1-BA-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05615-6-TL1-BL-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05615-6-TL1-BL-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05615-6-TL1-EF-1 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05615-6-TL1-EF-2 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Jensen	8/28/17	1330	
Relinquished By:					
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Received By:					
Additional Comments:					

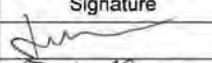
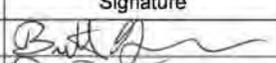
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/20/17	
CACN: 202643 OV 5/22/17 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-3-TL1-IN-8 / TDU (Tenax)  07-19-17	Furans Source			
✓	17-05615-6-TL1-BA-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-BA-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-BL-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-BL-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-EF-1 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-EF-2 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Parker	M0252	8/28/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Sorenson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

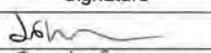
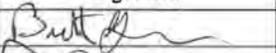
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202043 <i>203006</i>		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-6-TL1-EF-3 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-EF-4 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-EF-5 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-EF-6 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-EF-7 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-EF-8 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-IN-1 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE PARKER	M0 252	8/26/17	0600
Retrieved from Storage:		Brett Gerner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gerner	8/28/17	1330	
Received By:		Don Johnson	8/28/17	1330	
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: 8/26/17	
CACN: 202243 ^{DU 8/22/17} 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-6-TL1-IN-2 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-IN-3 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-IN-4 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-IN-5 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-IN-6 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-IN-7 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
✓	17-05615-6-TL1-IN-8 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLEE	M0252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		DON JENSEN	8/23/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

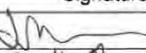
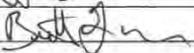
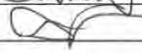
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 08/26/17	
CACN: DV 5/22/17 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-13-TL1-BA-EF / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-BA-IN / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-BL-EFF / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-BL-INF / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-EF-1 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-EF-2 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
	17-05615-13-TL1-EF-3 / Silica Gel (SKC-226-51) [Barcode]	Methanol Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[Signature]	JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:	[Signature]	Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:	[Signature]	Brett Garner	8/28/17	1330	
Received By:	[Signature]	Don Sorenson	8/28/17	1330	
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: 08/26/17	
CACN: DV 8/22/17 202643 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
	17-05615-13-TL1-EF-4 / Silica Gel (SKC-226-51) 			Methanol Source	
	17-05615-13-TL1-EF-5 / Silica Gel (SKC-226-51) 			Methanol Source	
	17-05615-13-TL1-EF-6 / Silica Gel (SKC-226-51) 			Methanol Source	
	17-05615-13-TL1-EF-7 / Silica Gel (SKC-226-51) 			Methanol Source	
	17-05615-13-TL1-EF-8 / Silica Gel (SKC-226-51) 			Methanol Source	
	17-05615-13-TL1-IN-1 / Silica Gel (SKC-226-51) 			Methanol Source	
	17-05615-13-TL1-IN-2 / Silica Gel (SKC-226-51) 			Methanol Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	1330	
Received By:		Don Sorenson	8/29/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

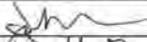
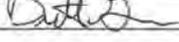
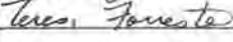
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 08/24/2017	
CACN: ^{DV 8/22/17} 202843 203004		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-13-TL1-IN-3 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-4 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-5 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-6 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-7 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-8 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-7-TL1-BA-EF / CISA (SKC 226-29) 	NH3 Source ^{SW 07-19-17}			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE POOLFE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Sorenson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

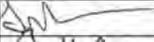
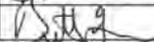
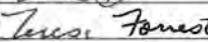
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DI 8/22/17} 202843 ²⁰³⁰⁰⁶		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-13-TL1-IN-3 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-4 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-5 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-6 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-7 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-13-TL1-IN-8 / Silica Gel (SKC-226-51) 	Methanol Source			
	17-05615-7-TL1-BA-EF / CISA (SKC 226-29) 	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAYE PORRLEE	MO 252	8/25/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		TERESA PORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

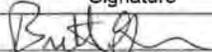
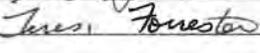
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/24/17	
CACN: DV 8/22/17 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-7-TL1-BA-IN / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-BL-EF / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-BL-IN / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-EF-1 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-EF-2 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-EF-3 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-EF-4 / CISA (SKC 226-29) 	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

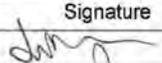
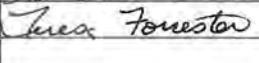
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{pv 8/22/17} 202043 ²⁰³⁰⁰⁶		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-7-TL1-EF-5 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-EF-6 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-EF-7 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-EF-8 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-IN-1 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-IN-2 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-IN-3 / CISA (SKC 226-29) 	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO 252	8/26/17	0600
Retrieved from Storage:		Bratt Garnie		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Bratt Garnie	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
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: 8/26/17	
CACN: DV 8/22/17 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L.			Phone: (509)373-4966		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			
	17-05615-7-TL1-IN-4 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-IN-5 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-IN-6 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-IN-7 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-7-TL1-IN-8 / CISA (SKC 226-29) 	NH3 Source			
	17-05615-12-TL1-BA-EF / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05615-12-TL1-BA-IN / Thermosorb-N (TDX) 	Nitrosamines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBBER	MO 252	8/26/17	0600
Retrieved from Storage:		Bruce Gardner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Bruce Gardner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

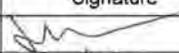
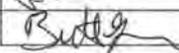
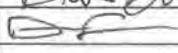
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{01 8/22/17} 202043 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
	17-05615-7-TL1-IN-4 / CISA (SKC 226-29)			NH3 Source	
	17-05615-7-TL1-IN-5 / CISA (SKC 226-29)			NH3 Source	
	17-05615-7-TL1-IN-6 / CISA (SKC 226-29)			NH3 Source	
	17-05615-7-TL1-IN-7 / CISA (SKC 226-29)			NH3 Source	
	17-05615-7-TL1-IN-8 / CISA (SKC 226-29)			NH3 Source	
	17-05615-12-TL1-BA-EF / Thermosorb-N (TDX)			Nitrosamines Source	
	17-05615-12-TL1-BA-IN / Thermosorb-N (TDX)			Nitrosamines Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		DON JOHNSON	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

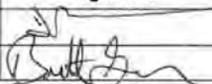
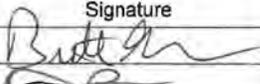
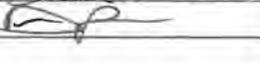
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{OV 8/22/17} 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-12-TL1-BL-EF / ThermoSorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-BL-IN / ThermoSorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-EF-1 / ThermoSorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-EF-2 / ThermoSorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-EF-3 / ThermoSorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-EF-4 / ThermoSorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-EF-5 / ThermoSorb-N (TDX) 	Nitrosamines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M0252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Sorenson	8/22/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

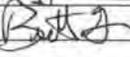
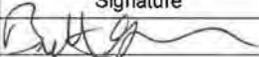
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions		Date Sampled: 8/26/17	
CACN: DV 8/23/17 202843 203006	COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L		Phone: (509)373-4966	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	
✓	17-05615-12-TL1-EF-6 / Thermosorb-N (TDX) 	Nitrosamines Source	
✓	17-05615-12-TL1-EF-7 / Thermosorb-N (TDX) 	Nitrosamines Source	
✓	17-05615-12-TL1-EF-8 / Thermosorb-N (TDX) 	Nitrosamines Source	
✓	17-05615-12-TL1-IN-1 / Thermosorb-N (TDX) 	Nitrosamines Source	
✓	17-05615-12-TL1-IN-2 / Thermosorb-N (TDX) 	Nitrosamines Source	
✓	17-05615-12-TL1-IN-3 / Thermosorb-N (TDX) 	Nitrosamines Source	
✓	17-05615-12-TL1-IN-4 / Thermosorb-N (TDX) 	Nitrosamines Source	
Special Instructions:			
	Signature	Printed Name	Location
Delivered to Storage:		JAKE ROBLE	MO 252
Retrieved from Storage:		Brett Garner	
	Signature	Printed Name	Date
Relinquished By:		Brett Garner	8/28/17
Received By:		Don Johnson	8/28/17
Relinquished By:			
Received By:			
Relinquished By:			
Received By:			
Additional Comments:			

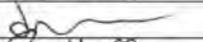
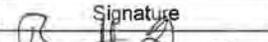
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202843 ₂₀₃₀₀₆		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-12-TL1-IN-5 / Thermosorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-IN-6 / Thermosorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-IN-7 / Thermosorb-N (TDX) 	Nitrosamines Source			
✓	17-05615-12-TL1-IN-8 / Thermosorb-N (TDX) 	Nitrosamines Source			
17-05615-11-TL1-BA-EF / Charcoal Tube (SKC 226-01)  SW 07-19-17					
17-05615-11-TL1-BA-IN / Charcoal Tube (SKC 226-01) 					
17-05615-11-TL1-BL-EF / Charcoal Tube (SKC 226-01) 					
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Babler	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Don Sorenson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

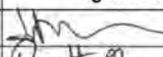
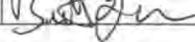
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/20/17	
CACN: 202043 ^{OV 8/22/17} 203004		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-12-TL1-IN-5 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05615-12-TL1-IN-6 / Thermosorb-N (TDX)  <i>FW 07-19-12</i>	Nitrosamines Source			
	17-05615-12-TL1-IN-7 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05615-12-TL1-IN-8 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05615-11-TL1-BA-EF / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05615-11-TL1-BA-IN / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05615-11-TL1-BL-EF / Charcoal Tube (SKC 226-01) 	Pyridines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M0252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		DON STENSON	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

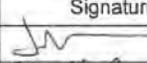
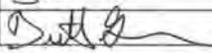
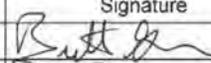
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			Date Sampled: 8/26/17		
CACN: DV 8/22/17 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-11-TL1-BL-IN / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-EF-1 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-EF-2 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-EF-3 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-EF-4 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-EF-5 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-EF-6 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/26/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/26/17	1330	
Received By:		Don Sorenson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

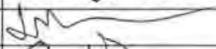
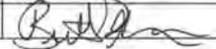
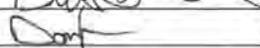
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202043 01 8/22/17 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-11-TL1-EF-7 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-EF-8 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-IN-1 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-IN-2 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-IN-3 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-IN-4 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-IN-5 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/25/17	1330	
Received By:		Don Johnson	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

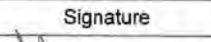
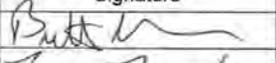
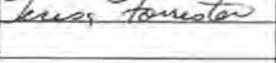
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DN 8/22/17} 202843 ²⁰³⁰⁰⁶		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-11-TL1-IN-6 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-IN-7 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
✓	17-05615-11-TL1-IN-8 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
17-05615-1-TL1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G) 					
17-05615-1-TL1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G) ^{DN 02-19-17} 					
17-05615-1-TL1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G) 					
17-05615-1-TL1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G) 					
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700 0800 xx 9/28/17
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		DON JORENSON	8/29/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

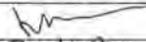
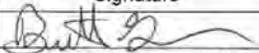
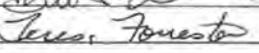
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

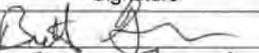
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202643 203006		COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	Turnaround: N/A		
Return Report To: Maxwell, Sally A			MSIN: R1-06	Phone: (509)373-3324	
Laboratory Log No.	Sample ID/Type/Description	Required Analysis			
	17-05615-11-TL1-IN-6 / Charcoal Tube (SKC 226-01) 	Pyridines Source <i>SW 02-19-17</i>			
	17-05615-11-TL1-IN-7 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05615-11-TL1-IN-8 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05615-1-TL1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069286			
	17-05615-1-TL1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069416			
	17-05615-1-TL1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069339			
	17-05615-1-TL1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069471			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROJEE	MO 252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

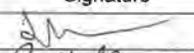
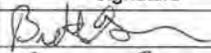
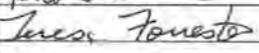
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{OV 8/22/17} 202643 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		Turnaround: N/A
Return Report To: Maxwell, Sally A				MSIN: R1-06	Phone: (509)373-3324
Laboratory Log No.	Sample ID/Type/Description				Required Analysis
	17-05615-1-TL1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G) 				Semi-VOC Source 2069331
	17-05615-1-TL1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G) 				Semi-VOC Source 2069301
	17-05615-1-TL1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G) 				Semi-VOC Source 2069338
	17-05615-1-TL1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G) 				Semi-VOC Source 2069354
	17-05615-1-TL1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G) 				Semi-VOC Source 2049066
	17-05615-1-TL1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G) 				Semi-VOC Source 2049074
	17-05615-1-TL1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G) 				Semi-VOC Source 2049010
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MU 252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
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: 8/26/17	
CACN: ^{DV 8/22/17} 202843 203006		COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac		
Contact Name: Jones, Parker L.		Phone: (509)373-4966	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			
	17-05615-1-TL1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2049056			
	17-05615-1-TL1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069346			
	17-05615-1-TL1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069290			
	17-05615-1-TL1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069293			
	17-05615-1-TL1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2049025			
	17-05615-1-TL1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2049008			
	17-05615-1-TL1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2049017			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROEJFF	MO 252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
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: 8/26/17	
CACN: ^{DU 8/22/17} 202843 203006		COA: CB20	Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
	17-05615-1-TL1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2049023			
	17-05615-1-TL1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2047311			
	17-05615-2-TL1-BA-EF / TDU-VOC (Carbotrap300/PE/G) 	VOC Source			
	17-05615-2-TL1-BA-IN / TDU-VOC (Carbotrap300/PE/G) 	VOC Source			
	17-05615-2-TL1-BL-EF / TDU-VOC (Carbotrap300/PE/G) 	VOC Source			
	17-05615-2-TL1-BL-IN / TDU-VOC (Carbotrap300/PE/G) 	VOC Source			
	17-05615-2-TL1-EF-1 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MU 252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

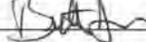
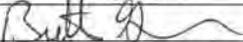
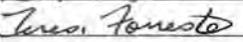
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 8/22/17 202843 203004		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05615-1-TL1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source			
	17-05615-1-TL1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source			
✓	17-05615-2-TL1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049523			
✓	17-05615-2-TL1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046150			
✓	17-05615-2-TL1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049472			
✓	17-05615-2-TL1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046057			
✓	17-05615-2-TL1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049488			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JOHN ROYCE	MO 252	8/26/17	0600
Retrieved from Storage:		Brent Gerner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brent Gerner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
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Received By:					
Additional Comments:					

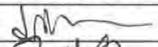
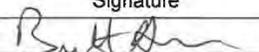
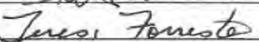
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 8/22/17 202643 203004		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-2-TL1-EF-2 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049480			
✓	17-05615-2-TL1-EF-3 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049515			
✓	17-05615-2-TL1-EF-4 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049497			
✓	17-05615-2-TL1-EF-5 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049475			
✓	17-05615-2-TL1-EF-6 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049474			
✓	17-05615-2-TL1-EF-7 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049489			
✓	17-05615-2-TL1-EF-8 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049483			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		DAVE ROYCE	M0 252	8/26/17	0600
Retrieved from Storage:		Barth Green		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Barth Green	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

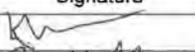
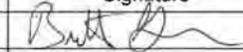
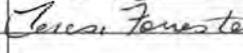
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DY 8/22/17 202843 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05615-2-TL1-IN-1 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2046182			
✓	17-05615-2-TL1-IN-2 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2046174			
✓	17-05615-2-TL1-IN-3 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049493			
✓	17-05615-2-TL1-IN-4 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049482			
✓	17-05615-2-TL1-IN-5 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049503			
✓	17-05615-2-TL1-IN-6 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049512			
✓	17-05615-2-TL1-IN-7 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049479			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

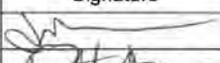
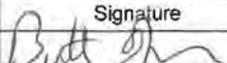
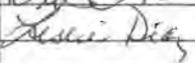
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202643 ^{04 8/22/17} 203006		COA: CB20		Survey No.: 17-05615 - AX-Farm Cartridge Testing Fri-Sat Green Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
	17-05615-2-TL1-IN-8 / TDU-VOC (Carbotrap300/PE/G)			VOC Source	
				2049507	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Gurne		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gurne	8/28/17	1330	
Received By:		TERESA FORRESTER	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

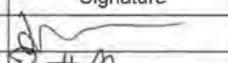
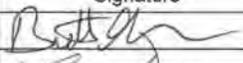
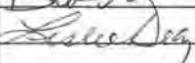
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{pv 8/22/17} 202243 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05614-9-SD1-BA-EFA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-BA-EFB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-BA-INA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-BA-INB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-BL-EFA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-BL-EFB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-BL-INA / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE PORLES	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	13:30	
Received By:		Leslie DIAZ	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

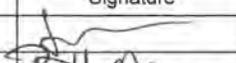
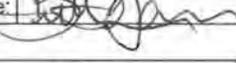
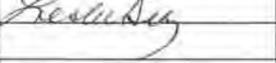
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 5/22/17} 282843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05614-10-SD1-BL-INB / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-EF-1-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-EF-1-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-EF-2-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-EF-2-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-EF-3-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-EF-3-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		WAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	13:30	
Received By:		Leslie Diaz	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

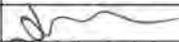
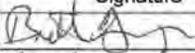
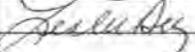
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{by 8/22/17} 282643 ²⁰³⁰⁰⁴		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-9-SD1-EF-4-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-10-SD1-EF-4-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-9-SD1-EF-5-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-10-SD1-EF-5-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-9-SD1-EF-6-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-10-SD1-EF-6-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-9-SD1-EF-7-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBIEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	13:30	
Received By:		LINDA DIAZ	8/28/17	13:30	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

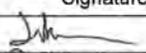
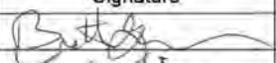
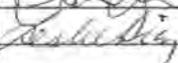
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202845 <i>07 8/23/17</i> <i>203006</i>		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05614-10-SD1-EF-7-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-EF-8-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-EF-8-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-IN-1-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-IN-1-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-IN-2-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-IN-2-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RENLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		08/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	13:30	
Received By:		Leslie Diaz	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

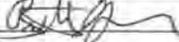
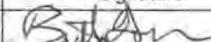
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 5/22/17 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05614-9-SD1-IN-3-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-IN-3-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-IN-4-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-IN-4-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-IN-5-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-10-SD1-IN-5-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
✓	17-05614-9-SD1-IN-6-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLES	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		08/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	1330	
Received By:		LESLIE DICK	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

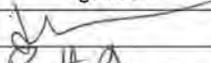
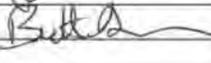
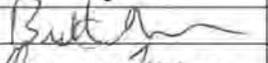
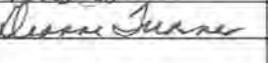
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			Date Sampled: 8/24/17		
CACN: <i>JN 8/22/17</i> <i>202845 203004</i>		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-10-SD1-IN-6-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-9-SD1-IN-7-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-10-SD1-IN-7-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-9-SD1-IN-8-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-10-SD1-IN-8-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-5-SD1-BA-EF / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-BA-IN / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M10-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Leslie Ditz	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

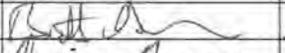
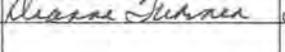
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			Date Sampled: 8/26/17		
CACN: 202843 ^{DV 8/22/17} 203004		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-10-SD1-IN-6-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-9-SD1-IN-7-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-10-SD1-IN-7-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-9-SD1-IN-8-A / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-10-SD1-IN-8-B / Charcoal Tube (SKC-226-37) 	1,3-Butadiene Source			
	17-05614-5-SD1-BA-EF / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-BA-IN / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLEE	MU-25L	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

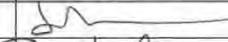
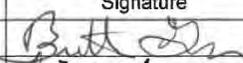
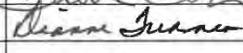
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202643 8/22/17 203004		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-5-SD1-BL-EF / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-BL-IN / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-EF-1 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-EF-2 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-EF-3 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-EF-4 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-EF-5 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

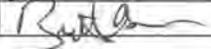
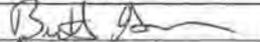
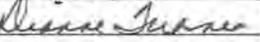
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202843 ^{OV 8/22/17} 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-5-SD1-EF-6 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-EF-7 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-EF-8 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-IN-1 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-IN-2 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-IN-3 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-IN-4 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-25Z	8/26/17	0600
Retrieved from Storage:		BRET GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRET GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
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Additional Comments:					

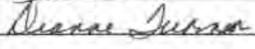
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{07 8/22/17} 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-5-SD1-IN-5 / Charcoal Tube (SKC-226-09) - 	Acetonitrile Source			
	17-05614-5-SD1-IN-6 / Charcoal Tube (SKC-226-09) - 	Acetonitrile Source			
	17-05614-5-SD1-IN-7 / Charcoal Tube (SKC-226-09) - 	Acetonitrile Source			
	17-05614-5-SD1-IN-8 / Charcoal Tube (SKC-226-09) - 	Acetonitrile Source			
	17-05614-8-SD1-BA-EF / Silica Gel (SKC 226-119) 	Aldehyde Panel Source <i>Method: EPA TO-11A</i>			
	17-05614-8-SD1-BA-IN / Silica Gel (SKC 226-119) 	Aldehyde Panel Source <i>Method: EPA TO-11A</i>			
	17-05614-8-SD1-BL-EF / Silica Gel (SKC 226-119) 	Aldehyde Panel Source <i>Method: EPA TO-11A</i>			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROULFE	M6-252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

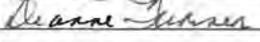
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-5-SD1-IN-5 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-IN-6 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-IN-7 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-5-SD1-IN-8 / Charcoal Tube (SKC-226-09) 	Acetonitrile Source			
	17-05614-8-SD1-BA-EF / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-BA-IN / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-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:		JAKE ROBLE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett George		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett George	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
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Received By:					
Additional Comments:					

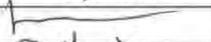
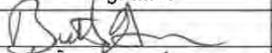
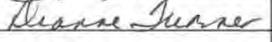
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/23/17} 202843 203004		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-8-SD1-BL-IN / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-EF-1 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-EF-2 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-EF-3 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-EF-4 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-EF-5 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-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:		JAKE RORLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Gann		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gann	8/26/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
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Additional Comments:					

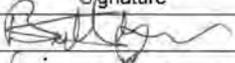
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{ON 8/22/17} 202848 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-8-SD1-EF-7 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-EF-8 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-1 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-2 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-3 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-4 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-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:		JAKE ROBLES	MO-252	8/26/17	0600
Retrieved from Storage:		Brent Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brent Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

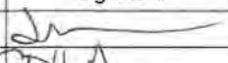
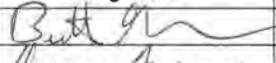
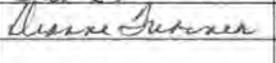
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			Date Sampled: 8/26/17		
CACN: ^{DJ 6/22/17} 202643 ²¹³⁰⁰⁶		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-8-SD1-IN-6 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-7 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-8 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-4-SD1-BA-EF / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-BA-IN / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-BL-EF / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-BL-IN / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBISE	MO-252	8/26/17	0600
Retrieved from Storage:		Bart Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Bart Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
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Received By:					
Additional Comments:					

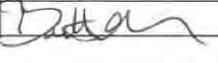
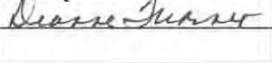
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202843 ^{DV 8/22/17} 203004		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-8-SD1-IN-6 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-7 / Silica Gel (SKC 226-119) ^{CS}  7-19-17	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-8-SD1-IN-8 / Silica Gel (SKC 226-119) 	Aldehyde Panel Source Method: EPA TO-11A			
	17-05614-4-SD1-BA-EF / XAD-7-NBD (SKC 226-96) ✓ 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-BA-IN / XAD-7-NBD (SKC 226-96) ✓ 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-BL-EF / XAD-7-NBD (SKC 226-96) ✓ 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-BL-IN / XAD-7-NBD (SKC 226-96) ✓ 	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RONJEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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Additional Comments:					

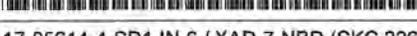
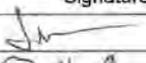
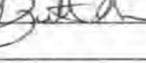
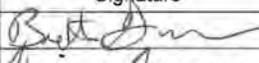
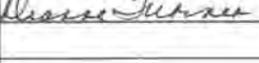
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 8/22/17 202643 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-4-SD1-EF-1 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-EF-2 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-EF-3 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-EF-4 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-EF-5 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-EF-6 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-EF-7 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	1330	
Received By:		Dianne Turner	8/28/17	1330	
Relinquished By:					
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Additional Comments:					

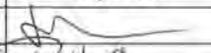
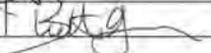
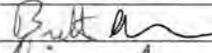
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			Date Sampled: 8/26/17		
CACN: DV 5/22/17 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-4-SD1-EF-8 / XAD-7-NBD (SKC 226-96) < 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-IN-1 / XAD-7-NBD (SKC 226-96). 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-IN-2 / XAD-7-NBD (SKC 226-96) . 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-IN-3 / XAD-7-NBD (SKC 226-96) . 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-IN-4 / XAD-7-NBD (SKC 226-96) . 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-IN-5 / XAD-7-NBD (SKC 226-96) . 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-IN-6 / XAD-7-NBD (SKC 226-96) . 	Dimethylamine/ethylamine/methylamine Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:20	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

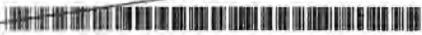
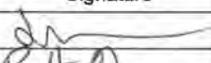
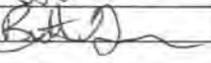
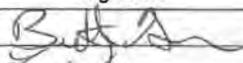
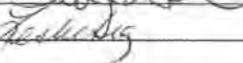
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

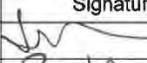
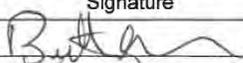
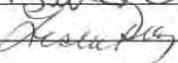
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 3/22/17 202643 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		Turnaround: N/A
Return Report To: Maxwell, Sally A				MSIN: R1-06	
Phone: (509)373-3324					
Laboratory Log No.	Sample ID/Type/Description	Required Analysis			
	17-05614-4-SD1-IN-7 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-4-SD1-IN-8 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source			
	17-05614-3-SD1-BA-EF / TDU (Tenax) 	Furans Source			
	17-05614-3-SD1-BA-IN / TDU (Tenax) 	Furans Source CS 7-19-17			
	17-05614-3-SD1-BL-EF / TDU (Tenax) 	Furans Source			
	17-05614-3-SD1-BL-IN / TDU (Tenax) 	Furans Source			
	17-05614-3-SD1-EF-1 / TDU (Tenax) 	Furans Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		LAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

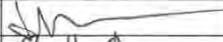
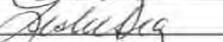
Contractor: Washington River Protection Solutions		Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202845 203006	COA: CB20	Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L		Phone: (509)373-4986	Turnaround: N/A
Return Report To: Maxwell, Sally A		MSIN: R1-06	Phone: (509)373-3324
Laboratory Log No.	Sample ID/Type/Description	Required Analysis	
	17-05614-4-SD1-IN-7 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source CS 7-19-17	
	17-05614-4-SD1-IN-8 / XAD-7-NBD (SKC 226-96) 	Dimethylamine/ethylamine/methylamine Source	
	17-05614-3-SD1-BA-EF / TDU (Tenax) 	Furans Source 2049323	
	17-05614-3-SD1-BA-IN / TDU (Tenax) 	Furans Source 2049144	
	17-05614-3-SD1-BL-EF / TDU (Tenax) 	Furans Source 2049162	
	17-05614-3-SD1-BL-IN / TDU (Tenax) 	Furans Source 2049181	
	17-05614-3-SD1-EF-1 / TDU (Tenax) 	Furans Source 2049125	
Special Instructions:			
	Signature	Printed Name	Location
Delivered to Storage:		JAYE ROUFFE	MO-252
Retrieved from Storage:		Brett Garner	
	Signature	Printed Name	Date
Relinquished By:		Brett Garner	8/28/17
Received By:		Leslie Dietz	8/28/17
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: 8/26/17	
CACN: ^{OV 8/22/17} 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-3-SD1-EF-2 / TDU (Tenax) 	Furans Source 2049319			
	17-05614-3-SD1-EF-3 / TDU (Tenax) 	Furans Source 2049247			
	17-05614-3-SD1-EF-4 / TDU (Tenax) 	Furans Source 2049300			
	17-05614-3-SD1-EF-5 / TDU (Tenax) 	Furans Source 2049248			
	17-05614-3-SD1-EF-6 / TDU (Tenax) 	Furans Source 2049147			
	17-05614-3-SD1-EF-7 / TDU (Tenax) 	Furans Source 2049138			
	17-05614-3-SD1-EF-8 / TDU (Tenax) 	Furans Source 2049307			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAYE ROBBIE	M0252	8/26/17	0600
Retrieved from Storage:		Bratt Gunn		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Bratt Gunn	8/26/17	13:30	
Received By:		Leslie Ditt	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

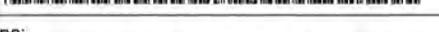
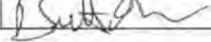
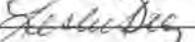
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 5/22/17 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-3-SD1-IN-1 / TDU (Tenax) 	Furans Source 2049230			
	17-05614-3-SD1-IN-2 / TDU (Tenax) 	Furans Source 2049356			
	17-05614-3-SD1-IN-3 / TDU (Tenax) 	Furans Source 2049267			
	17-05614-3-SD1-IN-4 / TDU (Tenax) 	Furans Source 2049217			
	17-05614-3-SD1-IN-5 / TDU (Tenax) 	Furans Source 2049210			
	17-05614-3-SD1-IN-6 / TDU (Tenax) 	Furans Source 2049337			
	17-05614-3-SD1-IN-7 / TDU (Tenax) 	Furans Source 2049158			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MU-252	8/26/17	0600
Retrieved from Storage:		Bratt Gunn		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Bratt Gunn	8/28/17	1330	
Received By:		Leslie Ditt	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

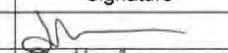
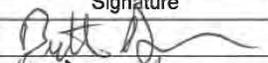
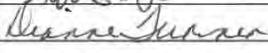
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202843 ²⁰³⁰⁰⁶		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-3-SD1-IN-8 / TDU (Tenax) 	Furans Source <i>2049391</i>			
	17-05614-6-SD1-BA-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-BA-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-BL-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-BL-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-1 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-2 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Bruce Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Bruce Garner	8/28/17	1330	
Received By:		Leslie Diaz	8/28/17	1330	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

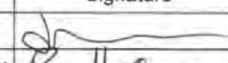
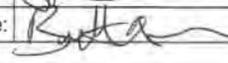
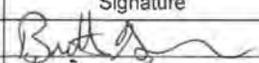
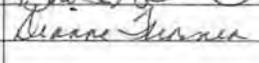
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/24/17	
CACN: 202643 8/22/17 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-3-SD1-IN-8 / TDU (Tenax)  CS 719-17	Furans Source			
	17-05614-6-SD1-BA-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-BA-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-BL-EF / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-BL-IN / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-1 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-2 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORIFF	MO-252	8/24/17	0600
Retrieved from Storage:		Brett Gorman		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gorman	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

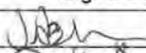
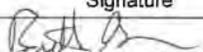
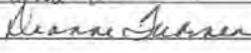
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/20/17	
CACN: ^{DV 8/22/17} 202643 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-6-SD1-EF-3 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-4 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-5 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-6 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-7 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-EF-8 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-IN-1 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Gurner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Gurner	8/28/17	15:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

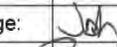
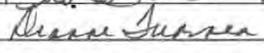
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/20/17	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-6-SD1-IN-2 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-IN-3 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-IN-4 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-IN-5 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-IN-6 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-IN-7 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
	17-05614-6-SD1-IN-8 / Hydrar (SKC 226-17-1A) 	Hg-Elemental Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JOKE ROUSE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

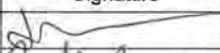
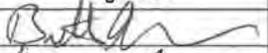
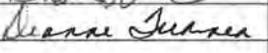
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/20/17	
CACN: 202643 8/22/17 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-7-SD1-BA-EF / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-BA-IN / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-BL-EF / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-BL-IN / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-EF-1 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-EF-2 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-EF-3 / CISA (SKC 226-29) 	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORISE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

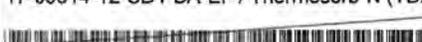
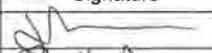
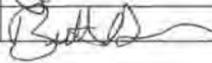
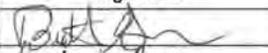
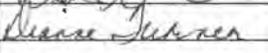
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

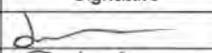
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202843 <i>203006</i>		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		Turnaround: N/A
Return Report To: Maxwell, Sally A				MSIN: R1-06	Phone: (509)373-3324
Laboratory Log No.	Sample ID/Type/Description	Required Analysis			
	17-05614-7-SD1-EF-4 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-EF-5 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-EF-6 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-EF-7 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-EF-8 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-1 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-2 / CISA (SKC 226-29) 	NH3 Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE PORLISE	MO-252	8/26/17	0600
Retrieved from Storage:		Nett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Nett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

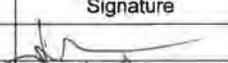
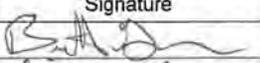
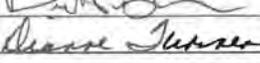
Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202843 8/22/17 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		Turnaround: N/A
Return Report To: Maxwell, Sally A				MSIN: R1-06	Phone: (509)373-3324
Laboratory Log No.	Sample ID/Type/Description	Required Analysis			
	17-05614-7-SD1-IN-3 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-4 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-5 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-6 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-7 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-8 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-12-SD1-BA-EF / ThermoSorb-N (TDX) 	CS 7-19-17		Nitrosamines Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBIEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 8/26/17	
CACN: ^{DV 8/22/17} 202643 203006		COA: CB20	Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac		
Contact Name: Jones, Parker L		Phone: (509)373-4966	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			
	17-05614-7-SD1-IN-3 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-4 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-5 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-6 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-7 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-7-SD1-IN-8 / CISA (SKC 226-29) 	NH3 Source			
	17-05614-12-SD1-BA-EF / Thermosorb-N (TDX) 	Nitrosamines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAYE RORIEE	MO-252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

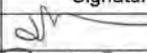
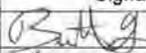
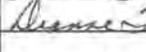
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 9/22/17 202643 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-12-SD1-BA-IN / Thermosorb-N (TDX) - 	Nitrosamines Source			
	17-05614-12-SD1-BL-EF / Thermosorb-N (TDX) - 	Nitrosamines Source			
	17-05614-12-SD1-BL-IN / Thermosorb-N (TDX) - 	Nitrosamines Source			
	17-05614-12-SD1-EF-1 / Thermosorb-N (TDX) - 	Nitrosamines Source			
	17-05614-12-SD1-EF-2 / Thermosorb-N (TDX) - 	Nitrosamines Source			
	17-05614-12-SD1-EF-3 / Thermosorb-N (TDX) - 	Nitrosamines Source			
	17-05614-12-SD1-EF-4 / Thermosorb-N (TDX) - 	Nitrosamines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
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Additional Comments:					

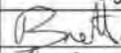
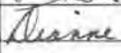
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 8/22/17 202273 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-12-SD1-EF-5 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-EF-6 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-EF-7 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-EF-8 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-IN-1 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-IN-2 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-IN-3 / Thermosorb-N (TDX) 	Nitrosamines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RORLEE	MO-252	8/26/17	6:00
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

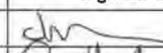
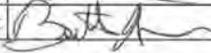
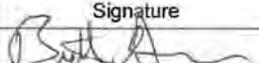
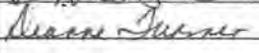
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202043 203004		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
	17-05614-12-SD1-IN-4 / Thermosorb-N (TDX) 			Nitrosamines Source	
	17-05614-12-SD1-IN-5 / Thermosorb-N (TDX) 			Nitrosamines Source	
	17-05614-12-SD1-IN-6 / Thermosorb-N (TDX) 			Nitrosamines Source	
	17-05614-12-SD1-IN-7 / Thermosorb-N (TDX) 			Nitrosamines Source	
	17-05614-12-SD1-IN-8 / Thermosorb-N (TDX) 			Nitrosamines Source	
	17-05614-11-SD1-BA-EF / Charcoal Tube (SKC 226-01) 			Pyridines Source	
	17-05614-11-SD1-BA-IN / Charcoal Tube (SKC 226-01) 			Pyridines Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		LAKE RUSLEE	MO-252	8/24/17	0600
Retrieved from Storage:		BRETT GARNER		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		BRETT GARNER	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
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Additional Comments:					

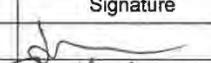
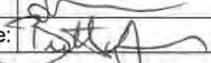
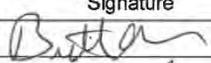
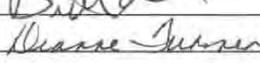
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 08/26/17	
CACN: <i>DN 8/22/17</i> 202043 <i>203006</i>		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4866		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			
	17-05614-12-SD1-IN-4 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-IN-5 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-IN-6 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-IN-7 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-12-SD1-IN-8 / Thermosorb-N (TDX) 	Nitrosamines Source			
	17-05614-11-SD1-BA-EF / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05614-11-SD1-BA-IN / Charcoal Tube (SKC 226-01) 	Pyridines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEG	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

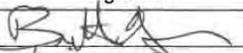
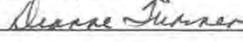
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 08/26/17	
CACN: 04 8/22/17 202843 203004		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
	17-05614-11-SD1-BL-EF / Charcoal Tube (SKC 226-01) . 			Pyridines Source	
	17-05614-11-SD1-BL-IN / Charcoal Tube (SKC 226-01) . 			Pyridines Source	
	17-05614-11-SD1-EF-1 / Charcoal Tube (SKC 226-01). 			Pyridines Source	
	17-05614-11-SD1-EF-2 / Charcoal Tube (SKC 226-01) . 			Pyridines Source	
	17-05614-11-SD1-EF-3 / Charcoal Tube (SKC 226-01) . 			Pyridines Source	
	17-05614-11-SD1-EF-4 / Charcoal Tube (SKC 226-01) . 			Pyridines Source	
	17-05614-11-SD1-EF-5 / Charcoal Tube (SKC 226-01) 			Pyridines Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 08/26/17	
CACN: DY 8/22/17 202643 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-11-SD1-EF-6 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05614-11-SD1-EF-7 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05614-11-SD1-EF-8 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05614-11-SD1-IN-1 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05614-11-SD1-IN-2 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05614-11-SD1-IN-3 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
	17-05614-11-SD1-IN-4 / Charcoal Tube (SKC 226-01) 	Pyridines Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RONLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	08/28/17	13:30	
Received By:		Dianne Turner	8/28/17	13:30	
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: 08/26/2017	
CACN: ^{04 8/22/17} 202843 203004		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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	
	17-05614-11-SD1-IN-5 / Charcoal Tube (SKC 226-01)			Pyridines Source	
	17-05614-11-SD1-IN-6 / Charcoal Tube (SKC 226-01)			Pyridines Source	
	17-05614-11-SD1-IN-7 / Charcoal Tube (SKC 226-01)			Pyridines Source	
	17-05614-11-SD1-IN-8 / Charcoal Tube (SKC 226-01)			Pyridines Source	
	17-05614-1-SD1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)			Semi-VOC Source	
	17-05614-1-SD1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)			Semi-VOC Source	
	17-05614-1-SD1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)			Semi-VOC Source	
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		MIKE POBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/2017	13:30	
Received By:		Dianne Turner	8/28/2017	13:30	
Relinquished By:					
Received By:					
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Additional Comments:					

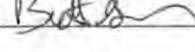
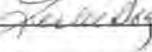
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/28/17	
CACN: 202843-203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-11-SD1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source			
	17-05614-11-SD1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source			
	17-05614-11-SD1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source			
	17-05614-11-SD1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source			
✓	17-05614-1-SD1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069499 2069480			
✓	17-05614-1-SD1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069480			
✓	17-05614-1-SD1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069512			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO 252	8/28/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Leslie Diaz	8/28/17	18:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

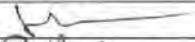
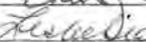
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 8/22/17 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
✓	17-05614-1-SD1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069513			
✓	17-05614-1-SD1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069446			
✓	17-05614-1-SD1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069481			
✓	17-05614-1-SD1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069462			
✓	17-05614-1-SD1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069501			
✓	17-05614-1-SD1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069521			
✓	17-05614-1-SD1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069522			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	Mo - 252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		LP Steiner	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

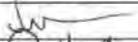
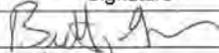
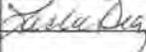
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions		Date Sampled: 8/26/17	
CACN: 202843 ^{IN 8/22/17} 203004	COA: CB20	Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L		Phone: (509)373-4966	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	
✓	17-05614-1-SD1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069454	
✓	17-05614-1-SD1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069468	
✓	17-05614-1-SD1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069432	
✓	17-05614-1-SD1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2048954	
✓	17-05614-1-SD1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2048883	
✓	17-05614-1-SD1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069436	
✓	17-05614-1-SD1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069462	
Special Instructions:			
	Signature	Printed Name	Location
Delivered to Storage:		JAKE ROBLEE	MO 252
Retrieved from Storage:		Brett Garner	8/28/17 0700
	Signature	Printed Name	Date
Relinquished By:		Brett Garner	8/28/17
Received By:		Leslie Diaz	8/28/17
Relinquished By:			
Received By:			
Relinquished By:			
Received By:			
Additional Comments:			

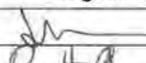
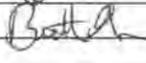
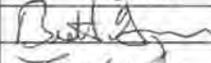
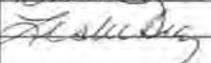
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 202845 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
J	17-05614-1-SD1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069497			
J	17-05614-1-SD1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069457			
J	17-05614-1-SD1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source 2069452			
17-05614-2-SD1-BA-EF / TDU-VOC (Carbotrap300/PE/G) 		VOC Source			
17-05614-2-SD1-BA-IN / TDU-VOC (Carbotrap300/PE/G) 		VOC Source CS 7-19-17			
17-05614-2-SD1-BL-EF / TDU-VOC (Carbotrap300/PE/G) 		VOC Source			
17-05614-2-SD1-BL-IN / TDU-VOC (Carbotrap300/PE/G) 		VOC Source			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBBIEG	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	13:30	
Received By:		Leslie DIAZ	8/28/17	13:30	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

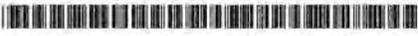
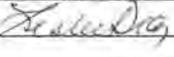
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-1-SD1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source			
	17-05614-1-SD1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source			
	17-05614-1-SD1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G) 	Semi-VOC Source			
	17-05614-2-SD1-BA-EF / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049536			
	17-05614-2-SD1-BA-IN / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049468			
	17-05614-2-SD1-BL-EF / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049624			
	17-05614-2-SD1-BL-IN / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049610			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time 13:30	
Relinquished By:		Brett Garner	8/28/17	0700	
Received By:		Leslie Ditz	8/28/17	13:30	
Relinquished By:					
Received By:					
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Received By:					
Additional Comments:					

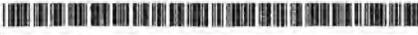
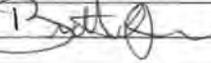
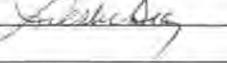
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: ^{DV 8/22/17} 202649 203006		COA: CB20	Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac		
Contact Name: Jones, Parker L.		Phone: (509)373-4966	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			
	17-05614-2-SD1-EF-1 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2050165			
	17-05614-2-SD1-EF-2 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049525			
	17-05614-2-SD1-EF-3 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049530			
	17-05614-2-SD1-EF-4 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049629			
	17-05614-2-SD1-EF-5 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049658			
	17-05614-2-SD1-EF-6 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049609			
	17-05614-2-SD1-EF-7 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049625			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBIKE	M0-252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	0730	
Received By:		Lashedia?	8/28/17	1330	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					

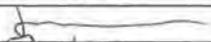
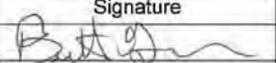
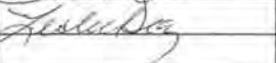
SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions				Date Sampled: 8/26/17	
CACN: DV 5/27/17 202043 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L.			Phone: (509)373-4966		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			
	17-05614-2-SD1-EF-8 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049541			
	17-05614-2-SD1-IN-1 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049572			
	17-05614-2-SD1-IN-2 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049601			
	17-05614-2-SD1-IN-3 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049578			
	17-05614-2-SD1-IN-4 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049598			
	17-05614-2-SD1-IN-5 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049550			
	17-05614-2-SD1-IN-6 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049544			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO -252	8/26/17	0600
Retrieved from Storage:		Brett Garner		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Brett Garner	8/28/17	0700 1330	
Received By:		Leslie Ditz	8/28/17	1330	
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: 8/26/17	
CACN: 202843 203006		COA: CB20		Survey No.: 17-05614 - AX-Farm Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Jones, Parker L			Phone: (509)373-4966		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			
	17-05614-2-SD1-IN-7 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049106			
	17-05614-2-SD1-IN-8 / TDU-VOC (Carbotrap300/PE/G) 	VOC Source 2049514			
Special Instructions:					
	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLIE	MO-252	8/26/17	0600
Retrieved from Storage:		Brett Currier		8/28/17	0700
	Signature	Printed Name	Date	Time	
Relinquished By:		Christie Moore	8/28/17	0750 13:30	
Received By:		Lashley Diaz	8/28/17	1330 8/28	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					
Additional Comments:					



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Northwest**
NATIONAL LABORATORY

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1-888-375-PNNL (7665)

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