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Pacific Northwest
NATIONAL LABORATORY

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

Volume 2: Raw Analytical Data

July 2020

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CJ Freeman
TM Brouns

U.S. DEPARTMENT OF
ENERGY

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Pacific Northwest National Laboratory
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/Project Description

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

Volume 1 of this report summarizes data analysis of APR and PAPR cartridge testing on vapors from the AP tank farm exhauster. Previous testing of APR cartridges was conducted on the AP exhauster in June 2016. However, an AP exhauster upgrade was completed in September 2016. Two different APR cartridges from SCOTT Safety (Monroe, North Carolina) were assessed for the new AP exhauster source, along with two different PAPR cartridges—one from MSA Safety Inc. (Pittsburgh, Pennsylvania) and another from 3M (Maplewood, Minnesota).

Volume 2 provides an introduction to the raw data, including analytical laboratory analysis results that supported the analysis and conclusions documented in Volume 1.

2.0 References

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

Appendix C

Raw Analytical Data

Appendix C

Raw Analytical Data

In previously published cartridge reports, raw data for all contaminants analyzed during testing were provided in Appendix C to the document. However, the extensive amount of data (over 1200 pages for this report) resulted in unwieldy document file sizes. To solve this problem, raw data are provided in a separate Volume 2. Appendix C of Volume 1 provides introductory information regarding the content of Volume 2, but the complete raw data set is provided only in this Volume 2.

C.1 Description

This appendix includes raw data of flow rate, temperature, pressure, and humidity, as well as analytical data for the Hanford AP tank farm exhauster. Calculations using these data are given in Appendix D.

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

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

The use of the RL or a DL varied among analytical laboratories. The term RL (equivalent to a limit of quantification) was used instead of a DL by ALS Environmental Salt Lake City, Columbia Basin Analytical Laboratory, and 222S–Wastren Hanford Laboratory (see Tables F.1 and F.2 in Appendix F for a complete correlation of which Chemicals of Potential Concern (COPC) 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 also is assigned, identifying the year and a five-digit ID for each of the cartridges tested. For the AP tank farm exhauster, the PAPR

survey IDs included 18-02350 for TL1 and 18-02351 for TL2. For the tank AP exhauster, the APR survey IDs included 18-02348 for SD1 and 18-02349 for SC1.

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

The sample IDs embed the information given above. For example, sample ID 18-02351-8-TL2-IN-1 corresponds to a particular cartridge survey (18-02351) identified as the 3M FR-57 cartridge with the (TL2), sample media line 8, influent (IN) sample bundle, and the first (0 to 2 hours) sample (1). The target flow rate passing through the respirator cartridge was 30 L/min for the APR tests, and 95 L/min for the PAPR tests. The target sampling flow rates through the sorption tubes ranged between 30 and 2000 mL/min for different chemicals that were being collected. WRPS provided these flow rates as Excel files according to Table C.1.

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

Tank	Cartridge	Filename
AP Exhauster	SCOTT 7422-SC1	AP Exhauster SC-1 3_23_18.xlsx
AP Exhauster	SCOTT 7422-SD1	AP Exhauster SD-1 3_24_18 .xlsx
AP Exhauster	MSA TL (TL1)	AP Exhauster TL 3_23_18 .xlsx
AP Exhauster	3M FR-57 (TL2)	AP Exhauster 3M FR-57 3_24_18.xlsx

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

- Pre' and 'Post' indicate the general time signature when the direct read instrument measurements were taken. 'Pre' refers to the beginning of the 2-hour sample duration, and 'Post' refers to the end of the 2-hour sample duration.
- 'Influent' and 'Effluent' indicate the location of the measurement within the test system. 'Influent' measurements are taken at the inlet of the system upstream of the respirator cartridge. 'Effluent' measurements are taken downstream of the respirator cartridge. The pressure, temperature, and humidity effluent sensors are located at the end of the test system near the vacuum pump, whereas the DRI measurements for ammonia and volatile organic compounds (VOC) are 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).
- Columns labeled "Mach. Base 1" and "Mach. Base 2" refer to the 'BASE' baseline samples for influent and effluent, respectively, to verify machine cleanliness prior to experimental measurements.

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

Tank	Cartridge	Filename
AP Exhauster	SCOTT 7422-SC1	Temp Pressure Humidity AP Exhaust_SC1.xlsx
AP Exhauster	SCOTT 7422-SD1	Temp Pressure Humidity AP Exhaust_SD1_Corrected.xlsx
AP Exhauster	MSA TL (TL1)	Temp Pressure Humidity AP Exhaust_MSA TL.xlsx
AP Exhauster	3M FR-57 (TL2)	Temp Pressure Humidity AP Exhaust_FR-57.xlsx

The raw analytical data for chemicals in each analyte category are summarized in Section C.4. Some analytes are measured using more than one method (primary and secondary). A crosswalk of COPC to analyte category, media, and analytical method for both primary and secondary methods is provided in Table C.3. In general, the primary method was used for cartridge performance analysis except in cases for which the secondary method provides improved quantitation for the specific COPC and its concentration range during a specific test.

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

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

COPC#	Analyte Name	Primary Analysis Method (Analyte Category | Media | Method)	Secondary Analysis Method (Analyte Category | Media | Method)
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] A TIC designation 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 VOC method, as the original primary method (Furans) 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.

Three emails included below document corrections made to originally received data files as a result of reviews conducting before and during data analysis and reporting.

From: Way, Zachary K
To: Brouns, Thomas M
Subject: RE: AP Exhauster Data
Date: Monday, September 17, 2018 11:01:39 AM
Attachments: AP Exhauster SC-1 3_23_18.xlsx
AP Exhauster SD-1 3_24_18.xlsx
AP Exhauster TL 3_23_18.xlsx
AP Exhauster 3M FR-57 3_24_18.xlsx

Tom,

1.) The headers have been changed to reflect the actual dates of the AP test and are attached.
2.) The sequence was changed for the AP test. The reason for this was that the IHT filling out the CoC's the day prior to testing swapped the order and to save us from having to redo the paperwork we just ran with the swap.
3.) The words on the field log are "combo" which is the SD-1 cartridge.
4.) For some reason, the IHT filling out the paperwork decided to write "MSA TO" for the cartridge when in reality it was the Scott SC-1. I have no question in my mind as to whether or not this log is correct… the APR and PAPR logs are different enough that I am certain this log was not used for the MSA TL testing. Conversely, the MSA cartridge log was filled in "Scott SC-1" but for the same reasoning, I am confident that the logs were filled out correctly for their respective tests. I think this was just a matter of confusion from the IHT's performing the recording as to what cartridge was in their machine since they hadn't seen either machine before.
5.) As for the other half of the analytical data for Nitrosamines… I just rechecked in the Laboratory Results folder I pull the data from and only the one Nitrosamine file is present. I will make some calls and get back to you on that one.

I have zipped all files down and will upload once I am done with this email. If the link does not work anymore I will ask you for another. Following that I will be finishing up with the temperature, pressure and humidity data.

Best,

-Zack

From: Brouns, Thomas M <tom.brouns@pnnl.gov>
Sent: Friday, September 14, 2018 11:15 AM
To: Way, Zachary K <Zachary_K_Way@rl.gov>
Cc: Bottenus, Courtney L <courtney.bottenus@pnnl.gov>
Subject: RE: AP Exhauster Data

Zack – sorry for the number of messages regarding AP… but completed an initial file check of what we received so far, and had a few red flags/questions for you.

Flowrate Files:

- Each of the flowrate files still have the BY-108 or BY-110 headers (top of the worksheets) , and

February (rather than March) dates for the testing. Please send us corrected flowrate files with the correct AP Exhauster and test dates identified at the top of the worksheets.

- Also noticed that the SD-1 and SC-1 flowrate file names indicate that the usual sequence of SD1 on Friday and SC1 on Saturday testing appears to have been changed for the AP Exhauster test. I assumed this was just a mistake in the file naming, but when I looked at the field logs, it appeared that in fact the SD-1 test was performed on Saturday-Sunday, and the SC-1 test was performed Friday-Saturday. Please confirm.

Field Logs

- In looking at the logs to confirm SD-1 and SC-1 test days, I noticed that the cartridge type field for the SD-1 log was either illegible or blank, but the lot # appeared to be consistent with the SD-1 cartridge lot noted on the BY test. So assumed it was correctly labeled on the file name, and confirms a 3/24 (Saturday) start of the test.
- For the SC-1 field log, I noticed that the cover page showed 3/23-24 (fri-sat) test... but the cover page noted both MSA T0 and SCOTT SC-1... so it added some confusion about whether the log was correct.

Analytical Files.

- We only received a single nitrosamines file (Nitrosamines 20180934.xls), and the data only covers the SD-1 and TL1 cartridges. It appears we are missing a second nitrosamine file that covers SC1 and 3M FR-57

And then as I noted in my earlier notes... the companion, official pdf analytical reports that accompany the excel files are needed, along with the CoC file (mainly to make sure we have them for those analytical reports (i.e., furans, VOA, SVOA) where the analytical report doesn't contain the CoC directly.

From: Way, Zachary K
To: Bottenus, Courtney L
Cc: Brouns, Thomas M
Subject: RE: AP Exhauster Flow Volume Checks
Date: Tuesday, November 20, 2018 10:30:58 AM
Attachments: AP Exhauster SD-1 3_23_18.xlsx
AP Exhauster TL 3_23_18.xlsx

Courtney,

I have completed my review of the sample volume data. The SC-1 and FR-57 data are all valid with no corrections. Attached are the SD-1 and MSA TL excel spreadsheets with changes made where appropriate.

The only changes made are:

SD-1 → G1 Ethylamine corrected

MSA TL → E2 VOC/Hg/Furan all corrected

All other flags are valid with respect to the field logs.

I apologize for the delay and hope you have an excellent Thanksgiving!

-Zack

From: Bottenus, Courtney L <courtney.bottenus@pnnl.gov>
Sent: Tuesday, November 20, 2018 9:34 AM
To: Way, Zachary K <zachary_k_way@rl.gov>
Cc: Brouns, Thomas M <tom.brouns@pnnl.gov>
Subject: RE: AP Exhauster Flow Volume Checks

Thank you Zack.

Courtney L. H. Bottenus, PhD

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From: Way, Zachary K [mailto:zachary_k_way@rl.gov]
Sent: Monday, November 19, 2018 3:36 PM
To: Bottenus, Courtney L <courtney.bottenus@pnnl.gov>
Cc: Brouns, Thomas M <tom.brouns@pnnl.gov>
Subject: RE: AP Exhauster Flow Volume Checks

Courtney,

I promise I have not forgotten about you. I am actively working through these data tables and making changes as appropriate or denoting no change necessary.

I hope to have these to you by COB tomorrow.

-Zack

From: Bottenus, Courtney L <courtney.bottenus@pnnl.gov>
Sent: Tuesday, November 6, 2018 2:50 PM
To: Way, Zachary K <zachary_k_way@rl.gov>
Cc: Brouns, Thomas M <tom.brouns@pnnl.gov>
Subject: AP Exhauster Flow Volume Checks

Zack,
I've been looking through the flow worksheets for the AP Exhauster (2018 set) of cartridge data. I have included pictures with highlighted cells in the flow volumes. The highlights represent a cell value that is larger than +/- 10% of the average of all of the flow volumes for that line (ignoring any zero value cells). If you could, once again, provide a comment on each of these that would be very helpful. I also note that Methanol seems to be miss-spelled on a consistent basis (I am assuming these are all being entered into a template).

TL1
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	3.981	4.068075	4.108865	4.1274	4.2198	3.44066	4.0176	4.0908	4.1268	3.8478	4.0236	4.1814	4.1046	3.9744	4.0938	4.2097	4.132	4.1094
VOC	B	3.9618	3.836775	3.955795	3.8118	3.732	3.50493	3.9462	4.0014	4.3355	4.1394	3.9752	2.97108	3.6492	4.3362	4.098	3.7758	4.008	3.732
Methonol	C	4.0848	3.9324	4.093075	4.2234	3.7938	3.65971	3.9036	4.0266	4.3338	4.1682	4.1348	4.1058	4.146	4.1544	3.9876	4.1484	3.993	4.0698
Furans	D	5.83155	5.97135	6.172445	6.1674	6.2868	5.48988	6.1104	6.0624	5.9514	5.8248	5.8476	4.08767	5.8038	6.1788	5.8758	6.2838	5.744	6.3102
Ethylamine	E	11.7558	11.95785	12.5874	12.6078	11.392	11.5483	12.104	12.797	11.856	11.566	11.471	12.5448	11.294	12.643	11.509	12.232	11.41	12.209
Acetonitrile	F	11.82105	11.884425	13.1688	12.4554	11.307	11.501	11.986	12.227	11.612	11.432	11.692	12.336	12.023	11.738	12.224	11.795	12.15	11.59
Mercury	G	29.57865	29.610375	31.5468	31.0752	30.292	28.4876	30.346	30.654	30.168	29.97	30.755	20.1289	30.62	29.748	30.545	29.774	30.28	29.741
Ammonia	H	20.98635	23.98035	24.9162	24.9402	24.63	22.826	24.077	24.466	24.029	24.587	23.89	24.6984	24.664	24.877	24.645	24.916	24.82	24.818
Aldehyde	I	22.73145	24.03045	24	23.7774	24.004	22.5141	24.227	24.073	23.409	25.172	23.224	24.0786	23.577	23.95	23.696	24.094	23.62	23.834
1, 3-Butadiene	J	23.785425	23.6445	25.0464	22.9614	24.47	22.5384	23.815	24.354	23.617	25.038	23.595	24.4236	23.892	24.275	24.079	23.999	23.95	24.017
Pyridine	K	121.98	118.5	116.926	122.4	122.4	114.464	119.34	121.2	119.1	124.2	119.53	123.6	114.07	123	126.32	123	115.4	125.4
Nitrosamines	L	236.625	239.4	272.4	238.8	245.4	223.824	243.6	255	235.2	237	236.4	235.2	239.4	244.8	233.4	245.4	234.6	242.4

TL2 (SM: FR-57)

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	2.9964	3.2544	5.1828	4.926	4.1946	4.3218	3.8256	3.987	3.6876	3.9738	3.8292	3.987	3.9192	4.2612	3.8862	4.1022	3.946	4.1472
VOC	B	3.2094	4.5078	5.0946	4.98379	4.1844	4.1064	4.2192	4.1778	4.1502	4.1898	4.2192	4.02	4.1788	4.3536	3.8622	3.8186	3.831	3.7806
Methonol	C	3.0264	2.5572	5.199	5.25032	4.2714	4.12154	4.1628	3.8372	3.9852	3.9498	4.1958	4.0554	4.1988	4.0924	3.9642	3.7464	3.908	3.849
Furans	D	5.79989	5.06856	7.6704	7.8708	6.2815	6.4122	5.9598	6.0954	5.8902	6.0468	6.0666	6.1122	6.3438	6.2844	6.3864	6.3036	6.267	6.2646
Ethylamine	E	9.8955	7.7406	15.1122	14.9538	12.4	12.5839	12.252	12.07	12.106	11.906	12.196	11.976	12.379	11.959	12.604	12.273	12.21	12.452
Acetonitrile	F	9.8244	9.6138	14.4612	13.9669	12.186	12.0888	12.295	12.019	12.101	11.871	12.25	11.8548	12.445	11.8	12.445	11.787	12.46	12.202
Mercury	G	25.83	25.8114	35.1444	35.4936	30.265	30.426	29.754	30.289	29.63	30.35	29.803	30.1434	30.049	30.429	30.202	30.722	30.27	30.584
Ammonia	H	20.86497	21.1068	26.60837	28.6572	24.638	24.1416	24.205	24.299	24.386	24.306	23.954	24.621	24.755	24.93	25.653	24.946	24.43	24.82
Aldehyde	I	21.538455	20.514	30.2964	29.1438	24.334	24.2892	24.164	24.041	23.964	24.052	24.417	24.078	24.423	24.917	25.082	24.316	24.55	24.591
1, 3-Butadiene	J	20.4282	21.70836	29.2062	26.57888	24.756	23.6503	24.113	24.073	23.977	24.139	24.549	24.1656	24.983	23.941	24.913	23.683	24.72	23.82
Pyridine	K	94.5114	118.428	160.65	127.8	129.6	124.2	133.8	123.6	131.4	122.4	127.3	115.8	127.2	120.9	128.4	121.2	123	120.6
Nitrosamines	L	210.54	212.88	272.204	262.32	236.4	250.2	238.8	243.6	240.6	247.8	241.8	238.8	240	237.6	235.8	237.6	238.2	238.2

SC1

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	3.91182	4.5598	3.89826	4.23246	3.8033	3.99114	3.7717	4.1964	3.75	4.194	3.912	4.236	3.99	3.978	3.852	4.044	2.058	4.0752
VOC	B	3.810015	4.096755	3.83262	3.8424	4.0639	3.8196	4.3362	3.753	4.176	3.708	4.074	3.984	4.188	4.062	3.882	4.08	3.8496	3.7872
Furans	C	5.99256	5.847	5.913	5.47224	5.8813	6.93491	6.1458	6.2148	6.15	6.192	6.096	6.132	6.078	6.156	6.054	5.994	6.0912	6.0582
Ethylamine	D	12.0606	11.89944	12.03594	11.7084	11.884	11.6289	11.809	11.461	11.682	11.454	11.952	12.258	12.108	12.504	12.024	12.69	11.982	11.676
Acetonitrile	E	11.81358	13.323	11.5914	13.1568	11.438	13.0866	12.082	12.996	12.193	12.702	12.024	12.486	12.078	12.99	12.216	12.234	12.108	12.329
Mercury	F	30.3402	29.817	29.8344	29.4402	29.679	29.49	29.707	29.561	29.659	29.203	30.108	30.888	30.546	30.144	29.844	29.958	29.883	30.111
Ammonia	G	24.0516	23.877	23.7366	23.3352	23.808	23.7796	24.055	24.035	23.97	23.988	23.784	24.318	24.156	24.522	24.276	24.78	23.994	24.673
Aldehyde	H	23.952	24.0678	23.8566	23.8776	23.403	23.6046	23.491	23.338	23.148	23.346	24.078	24.894	24.222	24.738	24.144	23.134	24.223	24.005
1, 3-Butadiene	I	24.0834	23.718	23.4246	22.791	23.572	23.2397	24.381	24.389	24.06	24.204	24.054	24.138	24.33	24.132	24.355	24.306	24.294	24.337
Pyridine	J	122.1	125.58	119.976	122.484	120.36	120.3	120.3	121.5	121.8	123	120.6	121.8	121.2	120	120.6	118.8	123.6	119.4
Nitrosamines	K	244.2	246.24	241.548	242.88	242.7	239.94	241.5	239.46	240.6	241.8	239.4	240	240	226.2	234	253.8	241.2	252.6

SD1

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	3.9918	4.104	3.7794	4.0992	3.906	4.248	3.99	4.152	3.9858	4.1154	4.0014	4.1094	4.0068	4.0266	4.02	4.1508	3.7828	4.0872
VOC	B	3.87446	4.254	4.0182	4.167	4.0987	4.11	3.7762	4.14	3.9456	3.8274	3.921	3.7746	3.9072	3.7344	3.9312	3.913	3.8574	4.0878
Furans	C	5.826	5.85	5.911005	5.5974	6.078	5.664	6.096	5.64	6.1458	6.0558	6.0732	5.4528	6.087	5.7756	6.108	5.8272	6.0954	5.9682
Ethylamine	D	11.94	11.748	11.508	11.6172	11.911	11.934	12.246	12.132	12.275	12.041	11.942	11.853	12.163	11.816	13.591	11.927	11.945	11.905
Acetonitrile	E	12	11.784	11.76642	11.976	11.638	12.666	11.769	12.642	12.099	12.642	11.914	12.5298	11.873	12.285	11.983	12.275	11.666	12.259
Mercury	F	29.9135	30.432	30.4067	29.5494	31.158	30.348	30.612	30.252	30.192	30.588	30.19	30.2946	30.632	29.947	30.304	29.611	30.365	29.38
Ammonia	G	23.952	23.928	23.6538	24.2484	24.384	25.02	24.756	24.896	24.746	24.617	24.288	24.4308	24.06	24.371	23.73	24.55	24.365	24.068
Aldehyde	H	23.778	24.174	24.47722	23.4858	24.72	24.252	24.822	23.88	24.14	24.488	24.026	24.5717	23.831	24.018	23.905	23.941	23.907	23.38
1, 3-Butadiene	I	23.652	24.638	24.3498	23.8902	24.702	24.204	24.642	24.258	23.837	24.726	25.089	24.1378	22.664	23.953	23.431	23.762	24.43	24.534
Pyridine	J	124.8	126.6	144	124.2	123	117.36	119.4	116.16	121.8	119.4	120.1	117.36	120	119.4	115.92	118.8	122.4	117.6
Nitrosamines	K	240	246	238.2	231.6	238.8	236.4	238.2	234	238.2	241.8	236.4	246.6	237	233.78	238.8	243.6	240	243

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From: Way, Zachary K
To: Brouns, Thomas M
Subject: RE: AP SD1
Date: Tuesday, April 30, 2019 6:42:32 AM
Attachments: image004.png
image005.png
image006.png
image007.png
image008.png
image009.png

Tom,

After reviewing the email, I concur with your teams' assessment and agree with the corrective actions.

Best,

-Zack

From: Brouns, Thomas M <tom.brouns@pnnl.gov>
Sent: Thursday, April 25, 2019 5:28 PM
To: Way, Zachary K <zachary_k_way@rl.gov>
Subject: FW: AP SD1

Zack,

We were trying to figure out a significant difference in service life estimate for the AP SD1 and saw a large drop in RH% at the 6th sample time. However, in further interrogation, it became abundantly clear from the pressure that this was actually the effluent side readings (see the low pressure readings for sample 6 (F). I looked at the log sheet and it looks like the true influent DRI readings show relatively normal readings here. Could you simply send us a confirmatory email reflecting what the true readings should be for the 6th sample (F) for SD1. We'll use that email to correct the SD1 table. Alternately, you can just send us a corrected SD1 table.

Thanks. Tom

From: Liu, Jian (LSL2) <Jian.Liu@pnnl.gov>
Sent: Friday, April 12, 2019 1:21 PM
To: Brouns, Thomas M <tom.brouns@pnnl.gov>
Cc: Freeman, Charles J <Charles.Freeman@pnnl.gov>
Subject: RE: AP SD1

Hi Tom,

Thanks for pointing out this. If the RH really changed (dropped significantly in this case), it will definitely affect the adsorption of ammonia. Lower RH will lead to shorted breakthrough time for ammonia as we know. So I agree with your point. It looks like they might swap the RH-T-P data for column F and G in the Influent-Pre table. A post measurement from the previous sample is only several minutes away from a pre measurement for the current sample as you can see in those pairs connected by green arrows (we always observe this in the past). However, the two pairs connected with red arrows do not follow the trend until we swap the data in column G and H.

Anyway, it looks like something happened during the measurement of data F (hour 12) so the temperature of the chamber increase by about 10F and the relative humidity dropped by 40%.

The concentration variance could not explain why SureLife calculator gave a higher predicted value. I asked Scott to run the calculation again with the maximum inlet concentration instead of average concentration, the predicted service life is about 16.8h which is still longer than what we saw from experiment. So I think the sudden change in temperature, RH and temperature impact the performance of the cartridge.

Best regards,

Jian

C.3 Experimental Parameters

C.3.1 Flow Rates

Sample Date: 3/24/2018	Location: AP Exhauster	Type: Scott APR Cartridge Testing (SD-1)

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	3.99	4.10	3.78	4.10	3.91	4.25	3.99	4.15	3.99	4.12	4.00	4.11	4.01	4.03	4.02	4.15	3.78	4.09
VOC	B	3.87	4.25	4.02	4.17	4.10	4.11	3.78	4.14	3.95	3.83	3.92	3.77	3.91	3.73	3.93	3.91	3.86	4.09
Furans	C	5.83	5.85	5.91	5.60	6.08	5.66	6.10	5.64	6.15	6.06	6.07	5.45	6.09	5.78	6.11	5.83	6.10	5.97
Ethylamine	D	11.9	11.7	11.5	11.6	11.9	11.9	12.2	12.1	12.3	12.0	11.9	11.9	12.2	11.8	12.0	11.9	11.9	11.9
Acetonitrile	E	12.0	11.8	11.8	12.0	11.6	12.7	11.8	12.6	12.1	12.6	11.9	12.5	11.9	12.3	12.0	12.3	11.7	12.2
Mercury	F	29.9	30.4	30.4	29.5	31.2	30.3	30.6	30.3	30.2	30.6	30.2	30.3	30.6	29.9	30.3	29.6	30.4	29.4
Ammonia	G	24.0	23.9	23.7	24.2	24.4	25.0	24.8	24.9	24.7	24.6	24.3	24.4	24.1	24.4	23.7	24.6	24.4	24.1
Aldehyde	H	23.8	24.2	24.5	23.5	24.7	24.3	24.8	23.9	24.1	24.5	24.0	24.6	23.8	24.0	23.9	23.9	23.9	23.4
1, 3-Butadiene	I	23.7	24.6	24.3	23.9	24.7	24.2	24.6	24.3	23.8	24.7	25.0	24.1	22.7	24.0	23.4	23.8	24.4	24.5
Pyridine	J	125	127	144	124	123	117	119	116	122	119	120	117	120	119	116	119	122	118
Nitrosamines	K	240	246	238	232	239	236	238	234	238	242	236	247	237	234	239	244	240	243

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	33.3	34.2	31.5	34.2	32.6	35.4	33.3	34.6	33.2	34.3	33.3	34.2	33.4	33.6	33.5	34.6	31.5	34.1
VOC	B	32.3	35.5	33.5	34.7	34.2	34.3	31.5	34.5	32.9	31.9	32.7	31.5	32.6	31.1	32.8	32.6	32.1	34.1
Furans	C	48.6	48.8	49.3	46.6	50.7	47.2	50.8	47.0	51.2	50.5	50.6	45.4	50.7	48.1	50.9	48.6	50.8	49.7
Ethylamine	D	99.5	97.9	95.9	96.8	99.3	99.5	102	101	102	100	99.5	98.8	101	98.5	100	99.4	99.5	99.2
Acetonitrile	E	100	98.2	98.1	99.8	97.0	106	98.1	105	101	105	99.3	104	98.9	102	99.9	102	97.2	102
Mercury	F	249	254	253	246	260	253	255	252	252	255	252	252	255	250	253	247	253	245
Ammonia	G	200	199	197	202	203	209	206	207	206	205	202	204	201	203	198	205	203	201
Aldehyde	H	198	201	204	196	206	202	207	199	201	204	200	205	199	200	199	200	199	195
1, 3-Butadiene	I	197	205	203	199	206	202	205	202	199	206	209	201	189	200	195	198	204	204
Pyridine	J	1040	1055	1200	1035	1025	978	995	968	1015	995	1001	978	1000	995	966	990	1020	980
Nitrosamines	K	2000	2050	1985	1930	1990	1970	1985	1950	1985	2015	1970	2055	1975	1948	1990	2030	2000	2025

Sample Date: 3/23/2018	Location: AP Exhauster	Type: Scott APR Cartridge Testing (SC-1)

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	3.91	4.56	3.90	4.23	3.80	3.99	3.77	4.20	3.75	4.19	3.91	4.24	3.99	3.98	3.85	4.04	2.06	4.08
VOC	B	3.81	4.10	3.83	3.84	4.06	3.82	4.34	3.75	4.18	3.71	4.07	3.98	4.19	4.06	3.88	4.08	3.85	3.79
Furans	C	5.99	5.85	5.91	5.47	5.88	6.93	6.15	6.21	6.15	6.19	6.10	6.13	6.08	6.16	6.05	5.99	6.09	6.06
Ethylamine	D	12.1	11.9	12.0	11.7	11.9	11.6	11.8	11.5	11.7	11.5	12.0	12.3	12.1	12.5	12.0	12.7	12.0	11.7
Acetonitrile	E	11.8	13.3	11.6	13.2	11.4	13.1	12.1	13.0	12.2	12.7	12.0	12.5	12.1	13.0	12.2	12.2	12.1	12.3
Mercury	F	30.3	29.8	29.8	29.4	29.7	29.5	29.7	29.6	29.7	29.2	30.1	30.9	30.5	30.1	29.8	30.0	29.9	30.1
Ammonia	G	24.1	23.9	23.7	23.3	23.8	23.8	24.1	24.0	24.0	24.0	23.8	24.3	24.2	24.5	24.3	24.8	24.0	24.7
Aldehyde	H	24.0	24.1	23.9	23.9	23.4	23.6	23.5	23.3	23.1	23.3	24.1	24.9	24.2	24.7	24.1	23.1	24.2	24.0
1, 3-Butadiene	I	24.1	23.7	23.4	22.8	23.6	23.2	24.4	24.4	24.1	24.2	24.1	24.1	24.3	24.1	24.4	24.3	24.3	24.3
Pyridine	J	122	126	120	122	120	120	120	122	122	123	121	122	121	120	121	119	124	119
Nitrosamines	K	244	246	242	243	243	240	242	239	241	242	239	240	240	226	234	254	241	253

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	32.6	38.0	32.5	35.3	31.7	33.3	31.4	35.0	31.3	35.0	32.6	35.3	33.3	33.2	32.1	33.7	17.2	34.0
VOC	B	31.8	34.1	31.9	32.0	33.9	31.8	36.1	31.3	34.8	30.9	34.0	33.2	34.9	33.9	32.4	34.0	32.1	31.6
Furans	C	49.9	48.7	49.3	45.6	49.0	57.8	51.2	51.8	51.3	51.6	50.8	51.1	50.7	51.3	50.5	50.0	50.8	50.5
Ethylamine	D	101	99.2	100	97.6	99.0	96.9	98.4	95.5	97.4	95.5	99.6	102	101	104	100	106	99.9	97.3
Acetonitrile	E	98.4	111	97	110	95	109	101	108	102	106	100	104	101	108	102	102	101	103
Mercury	F	253	248	249	245	247	246	248	246	247	243	251	257	255	251	249	250	249	251
Ammonia	G	200	199	198	194	198	198	200	200	200	200	198	203	201	204	202	207	200	206
Aldehyde	H	200	201	199	199	195	197	196	194	193	195	201	207	202	206	201	193	202	200
1, 3-Butadiene	I	201	198	195	190	196	194	203	203	201	202	200	201	203	201	203	203	202	203
Pyridine	J	1018	1047	1000	1021	1003	1003	1003	1013	1015	1025	1005	1015	1010	1000	1005	990	1030	995
Nitrosamines	K	2035	2052	2013	2024	2023	2000	2013	1996	2005	2015	1995	2000	2000	1885	1950	2115	2010	2105

Sample Date: 3/23/2018	Location: AP Exhauster	Type: MSA TL

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	3.98	4.07	4.11	4.13	4.22	3.44	4.02	4.09	4.13	3.85	4.02	4.18	4.10	3.97	4.09	4.21	4.13	4.11
VOC	B	3.96	3.84	3.96	3.81	3.73	3.50	3.95	4.00	4.34	4.14	3.98	4.40	3.65	4.34	4.10	3.78	4.01	3.73
Methonol	C	4.08	3.93	4.09	4.22	3.79	3.66	3.90	4.03	4.33	4.17	4.13	4.11	4.15	4.15	3.99	4.15	3.99	4.07
Furans	D	5.83	5.97	6.17	6.17	6.29	5.49	6.11	6.06	5.95	5.82	5.85	6.06	5.80	6.18	5.88	6.28	5.74	6.31
Ethylamine	E	11.8	12.0	12.6	12.6	11.4	11.5	12.1	12.8	11.9	11.6	11.5	12.5	11.3	12.6	11.5	12.2	11.4	12.2
Acetonitrile	F	11.8	11.9	13.2	12.5	11.3	11.5	12.0	12.2	11.6	11.4	11.7	12.3	12.0	11.7	12.2	11.8	12.2	11.6
Mercury	G	29.6	29.6	31.5	31.1	30.3	28.5	30.3	30.7	30.2	30.0	30.8	29.8	30.6	29.7	30.5	29.8	30.3	29.7
Ammonia	H	21.0	24.0	24.9	24.9	24.6	22.8	24.1	24.5	24.0	24.6	23.9	24.7	24.7	24.9	24.6	24.9	24.8	24.8
Aldehyde	I	22.7	24.0	24.0	23.8	24.0	22.5	24.2	24.1	23.4	25.2	23.2	24.1	23.6	24.0	23.7	24.1	23.6	23.8
1, 3-Butadiene	J	23.8	23.6	25.0	23.0	24.5	22.5	23.8	24.4	23.6	25.0	23.6	24.4	23.9	24.3	24.1	24.0	24.0	24.0
Pyridine	K	122	119	117	122	122	114	119	121	119	124	120	124	114	123	126	123	115	125
Nitrosamines	L	237	239	272	239	245	224	244	255	235	237	236	235	239	245	233	245	235	242

AVG Flow Rate (ml/min)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	33.2	33.9	34.2	34.4	35.2	28.7	33.5	34.1	34.4	32.1	33.5	34.8	34.2	33.1	34.1	35.1	34.4	34.2
VOC	B	33.0	32.0	33.0	31.8	31.1	29.2	32.9	33.3	36.1	34.5	33.1	36.7	30.4	36.1	34.2	31.5	33.4	31.1
Methonol	C	34.0	32.8	34.1	35.2	31.6	30.5	32.5	33.6	36.1	34.7	34.5	34.2	34.6	34.6	33.2	34.6	33.3	33.9
Furans	D	48.6	49.8	51.4	51.4	52.4	45.7	50.9	50.5	49.6	48.5	48.7	50.5	48.4	51.5	49.0	52.4	47.9	52.6
Ethylamine	E	98.0	99.6	105	105	94.9	96.2	101	107	98.8	96.4	95.6	105	94.1	105	95.9	102	95.1	102
Acetonitrile	F	98.5	99.0	110	104	94.2	95.8	99.9	102	96.8	95.3	97.4	103	100	97.8	102	98.3	101	96.6
Mercury	G	246	247	263	259	252	237	253	255	251	250	256	249	255	248	255	248	252	248
Ammonia	H	175	200	208	208	205	190	201	204	200	205	199	206	206	207	205	208	207	207
Aldehyde	I	189	200	200	198	200	188	202	201	195	210	194	201	196	200	197	201	197	199
1, 3-Butadiene	J	198	197	209	191	204	188	198	203	197	209	197	204	199	202	201	200	200	200
Pyridine	K	1017	988	974	1020	1020	954	995	1010	993	1035	996	1030	951	1025	1053	1025	962	1045
Nitrosamines	L	1972	1995	2270	1990	2045	1865	2030	2125	1960	1975	1970	1960	1995	2040	1945	2045	1955	2020

Sample Date: 3/24/2018	Location: AP Exhauster	Type: 3M: FR-57

Volumes Air Collected (L)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	3.00	3.25	5.18	4.93	4.19	4.32	3.83	3.99	3.69	3.97	3.83	3.99	3.92	4.26	3.89	4.10	3.95	4.15
VOC	B	3.21	4.51	5.09	4.98	4.18	4.11	4.22	4.18	4.15	4.19	4.22	4.02	4.18	4.35	3.86	3.82	3.83	3.78
Methonol	C	3.03	2.56	5.20	5.25	4.27	4.12	4.16	3.84	3.99	3.95	4.20	4.06	4.20	4.09	3.96	3.75	3.91	3.85
Furans	D	5.80	5.07	7.67	7.87	6.28	6.41	5.96	6.10	5.89	6.05	6.07	6.11	6.34	6.28	6.39	6.30	6.29	6.26
Ethylamine	E	9.90	7.74	15.1	15.0	12.4	12.6	12.3	12.1	12.1	11.9	12.2	12.0	12.4	12.0	12.6	12.3	12.2	12.5
Acetonitrile	F	9.82	9.61	14.5	14.0	12.2	12.1	12.3	12.0	12.1	11.9	12.2	11.9	12.4	11.8	12.4	11.8	12.5	12.2
Mercury	G	25.8	25.8	35.1	35.5	30.3	30.4	29.8	30.3	29.6	30.3	29.8	30.1	30.0	30.4	30.2	30.7	30.3	30.6
Ammonia	H	20.9	21.1	26.6	28.7	24.6	24.1	24.2	24.3	24.4	24.3	24.0	24.6	24.8	24.9	25.7	24.9	24.4	24.8
Aldehyde	I	21.5	20.5	30.3	29.1	24.3	24.3	24.2	24.0	24.0	24.1	24.4	24.1	24.4	24.9	25.1	24.3	24.6	24.6
1, 3-Butadiene	J	20.4	21.7	29.2	26.6	24.8	23.7	24.1	24.1	24.0	24.1	24.5	24.2	25.0	23.9	24.9	23.7	24.7	23.8
Pyridine	K	94.5	118	161	128	130	124	134	124	131	122	127	116	127	121	128	121	123	121
Nitrosamines	L	211	213	273	262	236	250	239	244	241	248	242	239	240	238	236	238	238	238

AVG Flow Rate (ml/min)

Sample Box Number		Mach.	Mach.	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2
Analyte	Line	Base 1	Base 2																
SVOC	A	25.0	27.1	43.2	41.1	35.0	36.0	31.9	33.2	30.7	33.1	31.9	33.2	32.7	35.5	32.4	34.2	32.9	34.6
VOC	B	26.7	37.6	42.5	41.5	34.9	34.2	35.2	34.8	34.6	34.9	35.2	33.5	34.8	36.3	32.2	31.8	31.9	31.5
Methonol	C	25.2	21.3	43.3	43.8	35.6	34.3	34.7	32.0	33.2	32.9	35.0	33.8	35.0	34.1	33.0	31.2	32.6	32.1
Furans	D	48.3	42.2	63.9	65.6	52.3	53.4	49.7	50.8	49.1	50.4	50.6	50.9	52.9	52.4	53.2	52.5	52.4	52.2
Ethylamine	E	82.5	64.5	126	125	103	105	102	101	101	99	102	100	103	100	105	102	102	104
Acetonitrile	F	81.9	80.1	121	116	102	101	102	100	101	99	102	99	104	98	104	98	104	102
Mercury	G	215	215	293	296	252	254	248	252	247	253	248	251	250	254	252	256	252	255
Ammonia	H	174	176	222	239	205	201	202	202	203	203	200	205	206	208	214	208	204	207
Aldehyde	I	179	171	252	243	203	202	201	200	200	200	203	201	204	208	209	203	205	205
1, 3-Butadiene	J	170	181	243	221	206	197	201	201	200	201	205	201	208	200	208	197	206	199
Pyridine	K	788	987	1339	1065	1080	1035	1115	1030	1095	1020	1061	965	1060	1008	1070	1010	1025	1005
Nitrosamines	L	1755	1774	2277	2186	1970	2085	1990	2030	2005	2065	2015	1990	2000	1980	1965	1980	1985	1985

C.3.2 Temperature, Pressure, and Relative Humidity

AP Exhauster SD-1 3/24/2018 30 L/min through main respirator

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		86.1	89.4	80.2	83	78.8	71.2	64.8	63.5
Temperature	F		51.1	59.2	61.2	59.2	54.9	55.7	54.1	52.9
Pressure	Torr		724.2	724.5	725.1	725.5	724.1	742.7	726.5	725.9
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		86	77.1	86.9	79.4	73.2	67.1	66.7	66.9
Temperature	F		57.9	62.9	59	55.4	55.4	53.5	52	52.3
Pressure	Torr		724.7	724.9	724.8	725.9	739.6	725.4	726.4	726.3
NH3	ppm									
VOC	ppm									

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		35.2	40.7	37.2	38.6	35.4	33.1	30.7	31.1
Temperature	F		52.7	60.5	64.8	63	61.1	63.9	63.5	61.7
Pressure	Torr		435.7	445.7	447.5	446.5	450.5	452.2	432.9	452.2
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		40.3	37.9	37.2	35.8	50.2	31.7	32.4	31.9
Temperature	F		58.7	65.5	64.8	61.6	64.1	63.6	61.6	62.5
Pressure	Torr		447.4	453.2	447.5	453.3	739.2	457.3	738.6	459
NH3	ppm			1	1		0			
VOC	ppm			0	0		0			

AP Exhauster SC-1 3/23/2018 30 L/min through main respirator

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	64.1	90.2	80.7	85.8	82.6	80.2	75.6	67.2	67.7
Temperature	F	43	57.2	58.5	55.4	51.7	50.3	49.6	53.3	51.4
Pressure	Torr	730.6	726	726	725.6	725.2	724.6	723.6	722.4	722.3
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	59.1	81.1	85.6	84.1	82.4	76.2	72	70.1	69.8
Temperature	F	55.9	59.2	55.1	52	49	48.8	50.4	50.8	49.3
Pressure	Torr	732.2	726.6	726	725.2	725.1	723.9	722.7	721.9	722.7
NH3	ppm									
VOC	ppm									

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	35.6	36.4	36.8	38.5	37.3	37.9	34.8	34.2	31.9
Temperature	F	46.6	59.4	60.8	59.4	57.2	55.3	59.3	60.9	62.9
Pressure	Torr	405.3	427.7	429.3	436.4	434.3	429.9	437.5	426.1	437.6
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	29.4	37.5	38.9	38.4	39.2	35.7	35.5	32.7	34.1
Temperature	F	59	61.8	59.6	58	55.7	59	60.6	63.7	59.3
Pressure	Torr	433.8	439.3	441.7	440.6	440	442.2	441.6	443.7	442.3
NH3	ppm									
VOC	ppm									

AP Exhauster MSA TL 3/23/2018 95 L/min through main respirator

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	56.8	87.6	76.6	78.1	79.9	74.4	68.2	64.6	62.2
Temperature	F	45.3	57.1	56.8	55.8	50.4	50.9	51.7	52.3	53.1
Pressure	Torr	500.3	685	689.3	690.5	705.9	701.9	700.5	698.7	697.2
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		75.3	79.3	75.9	76.3	68.9	67.3	66.6	67.5
Temperature	F		57.1	55.4	52.5	50	50.6	51.3	51.2	48.9
Pressure	Torr		693.9	705.4	706.1	703.3	701.2	699.5	697.3	697
NH3	ppm									
VOC	ppm									

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	49.4	62.9	60.2	64.7	53.4	72.5	64.4	63.1	59.1
Temperature	F	46.2	58.4	61.4	59.7	71.2	52	53.6	54	55.8
Pressure	Torr	495.5	678.8	683.3	684.4	702.3	698	696.6	694.9	694
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%		58.1	63.8	70.3	51.5	64.6	64	69.5	60.7
Temperature	F		62.4	59.9	54.4	72.8	52.7	63.9	54.6	52.4
Pressure	Torr		688	701.3	702.1	699.5	697.4	695.7	693.8	693.1
NH3	ppm									
VOC	ppm									

AP Exhauster 3M FR-57 3/24/2018 95 L/min through main respirator

Influent- Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	49.9	94.7	90.1	83	89.9	74.7	67.2	61.1	60.9
Temperature	F	50.2	51.1	58.4	59.4	59.3	54.3	55.2	53.7	52.5
Pressure	Torr	584.4	699.1	699.1	699.6	699.4	699	702.1	702.2	701.3
NH3	ppm									
VOC	ppm									

Influent - Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	42.1	87.3	81.1	89.6	79.6	69.9	62.9	64.5	64.3
Temperature	F	52.1	56.5	60.1	58.9	54.2	54.2	53.2	51.5	52
Pressure	Torr	578.9	700.9	699.6	699.2	700.2	700.4	702.4	701.5	701.6
NH3	ppm									
VOC	ppm									

Effluent - Pre		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	44.5	54.1	64.9	68.6	82.2	38	65	59.4	59.6
Temperature	F	53.4	61.6	64.6	63.5	61.5	58.7	57	56.3	54.9
Pressure	Torr	580.3	694.8	694.6	695.2	694.9	695.6	697.6	697.5	697.4
NH3	ppm									
VOC	ppm									

Effluent- Post		After Sample Taken								
Reading	UOM	Baseline	A	B	C	D	E	F	G	H
Relative Humidty	%	42.3	61.7	67.6	45.9	75.3	65.4	59.4	60.6	59.8
Temperature	F	52.2	63.1	64.1	61.4	56.2	56.6	56	54.6	55.2
Pressure	Torr	574.8	696.2	695.1	344.3	695.6	696	698.3	741.5	697.1
NH3	ppm				9	7				
VOC	ppm				0.4	0.15				

C.4 Raw Data

C.4.1 SVOC and SVOCTIC

25 - Jun - 2018 8:29:52
DSRHardcopyWOLimits 3.0.13a
DSR.Jer v. 3.0.14

2018 Cartridge Evaluation
Data Summary of All Results

Daniel Hansen
Daniel Hansen
6-25-2018

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-BA-EF
Customer Sample ID: 18-02349-1-SC1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011703			3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	5.7	n/a	n/a	n/a	n/a	1.2	n/a	JY
S18T011703			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S18T011703			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S18T011703			92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	UY
S18T011703			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	UY
S18T011703			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S18T011703			112-40-3	Dodecane	NGS	110	<1.5	21	n/a	n/a	n/a	n/a	1.5	n/a	Y
S18T011703			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S18T011703			629-59-4	Tetradecane	NGS	100	<1.4	11	n/a	n/a	n/a	n/a	1.4	n/a	Y
S18T011703			126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S18T011703			629-50-5	Tridecane	NGS	110	<1.9	13	n/a	n/a	n/a	n/a	1.9	n/a	Y
S18T011703			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S18T011703			629-62-9	Pentadecane	NGS	97	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	UY

Q - Qualitative
J - Estimated
Y - Comment
NA = Not Analyzed, ND = Not Detected
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-BA-IN
Customer Sample ID: 18-02349-1-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														
S18T011704		3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	9.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011704		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011704		108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011704		92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011704		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011704		84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011704		112-40-3	Dodecane	NGS	110	<1.5	44	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011704		544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011704		629-59-4	Tetradecane	NGS	100	<1.4	16	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011704		126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011704		629-50-5	Tridecane	NGS	110	<1.9	26	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011704		629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011704		629-62-9	Pentadecane	NGS	97	<1.1	3.4	n/a	n/a	n/a	n/a	1.1	n/a	J

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-BL-EF
Customer Sample ID: 18-02349-1-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															
S18T011705			3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011705			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011705			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011705			92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011705			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T011705			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011705			112-40-3	Dodecane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011705			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011705			629-59-4	Tetradecane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011705			126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011705			629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011705			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011705			629-62-9	Pentadecane	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-BL-IN
Customer Sample ID: 18-02349-1-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														
S18T011706		3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011706		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011706		108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011706		92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011706		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011706		84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011706		112-40-3	Dodecane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011706		544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011706		629-59-4	Tetradecane	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011706		126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011706		629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011706		629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011706		629-62-9	Pentadecane	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-2
Customer Sample ID: 18-02349-1-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															
S18T011707			3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	2.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011707			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011707			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011707			92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011707			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011707			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011707			112-40-3	Dodecane	NGS	110	<1.5	7.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011707			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011707			629-59-4	Tetradecane	NGS	100	<1.4	8.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011707			126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011707			629-50-5	Tridecane	NGS	110	<1.9	9.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011707			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011707			629-62-9	Pentadecane	NGS	97	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	J

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-3
Customer Sample ID: 18-02349-1-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															
S18T011708			3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011708			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011708			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011708			92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011708			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011708			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011708			112-40-3	Dodecane	NGS	110	<1.5	9.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011708			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011708			629-59-4	Tetradecane	NGS	100	<1.4	7.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011708			126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	QU
S18T011708			629-50-5	Tridecane	NGS	110	<1.9	7.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011708			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	QU
S18T011708			629-62-9	Pentadecane	NGS	97	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-4
Customer Sample ID: 18-02349-1-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															
S18T011709			3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	3.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011709			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011709			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011709			92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011709			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011709			84-66-2	Diethylphthalate	NGS	92	<2.0	2.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011709			112-40-3	Dodecane	NGS	110	<1.5	3.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011709			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011709			629-59-4	Tetradecane	NGS	100	<1.4	5.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011709			126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011709			629-50-5	Tridecane	NGS	110	<1.9	3.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011709			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011709			629-62-9	Pentadecane	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

Q - Qualitative J - Estimated Y - Comment NA = Not Analyzed, ND = Not Detected U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-5
Customer Sample ID: 18-02349-1-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															
S18T011710			3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011710			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011710			108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011710			92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011710			78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011710			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011710			112-40-3	Dodecane	NGS	110	<1.5	8.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011710			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011710			629-59-4	Tetradecane	NGS	100	<1.4	6.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011710			126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011710			629-50-5	Tridecane	NGS	110	<1.9	5.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011710			629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011710			629-62-9	Pentadecane	NGS	97	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

Q - Qualitative J - Estimated Y - Comment

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-6
Customer Sample ID: 18-02349-1-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														
S18T011711		3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011711		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011711		108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011711		92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011711		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011711		84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011711		112-40-3	Dodecane	NGS	110	<1.5	8.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011711		544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011711		629-59-4	Tetradecane	NGS	100	<1.4	5.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011711		126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011711		629-50-5	Tridecane	NGS	110	<1.9	6.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011711		629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011711		629-62-9	Pentadecane	NGS	97	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180935
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-7
Customer Sample ID: 18-02349-1-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														
S18T011712		3891-98-3	2,6,10-Trimethyldodecane	NGS	98	<1.2	3.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011712		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011712		108-39-4M	Cresol (m & p)	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011712		92-52-4	Biphenyl	NGS	90	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011712		78-46-6	Dibutyl butylphosphonate	NGS	89	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011712		84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011712		112-40-3	Dodecane	NGS	110	<1.5	7.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011712		544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011712		629-59-4	Tetradecane	NGS	100	<1.4	9.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011712		126-73-8	Tributyl phosphate	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011712		629-50-5	Tridecane	NGS	110	<1.9	12	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011712		629-78-7	Heptadecane	NGS	120	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011712		629-62-9	Pentadecane	NGS	97	<1.1	2.8	n/a	n/a	n/a	n/a	1.1	n/a	J

Daniel Hansen
Daniel Hansen
6-21-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-BA-EF
Customer Sample ID: 18-02348-1-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															
S18T011713			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011713			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011713			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011713			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011713			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011713			84-66-2	Diethylphthalate	NGS	96	<2.0	6.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011713			112-40-3	Dodecane	NGS	100	<1.5	6.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011713			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011713			629-59-4	Tetradecane	NGS	97	<1.4	4.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011713			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011713			629-50-5	Tridecane	NGS	110	<1.9	5.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011713			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011713			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-BA-IN
Customer Sample ID: 18-02348-1-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															
S18T011714			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	4.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011714			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011714			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011714			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011714			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011714			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011714			112-40-3	Dodecane	NGS	100	<1.5	13	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011714			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011714			629-59-4	Tetradecane	NGS	97	<1.4	6.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011714			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011714			629-50-5	Tridecane	NGS	110	<1.9	9.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011714			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011714			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-BL-EF
Customer Sample ID: 18-02348-1-SD1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011715			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011715			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011715			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011715			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011715			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T011715			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011715			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011715			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011715			629-59-4	Tetradecane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011715			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011715			629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011715			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011715			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-BL-IN
Customer Sample ID: 18-02348-1-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															
S18T011716			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011716			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011716			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011716			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011716			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T011716			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011716			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011716			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011716			629-59-4	Tetradecane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011716			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011716			629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011716			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011716			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-3
Customer Sample ID: 18-02348-1-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															
S18T011718			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	3.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011718			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011718			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011718			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011718			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011718			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011718			112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011718			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011718			629-59-4	Tetradecane	NGS	97	<1.4	8.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011718			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011718			629-50-5	Tridecane	NGS	110	<1.9	9.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011718			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011718			629-62-9	Pentadecane	NGS	95	<1.1	2.5	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-4
Customer Sample ID: 18-02348-1-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															
S18T011719			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	4.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011719			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011719			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011719			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011719			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011719			84-66-2	Diethylphthalate	NGS	96	<2.0	3.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011719			112-40-3	Dodecane	NGS	100	<1.5	5.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011719			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011719			629-59-4	Tetradecane	NGS	97	<1.4	8.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011719			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011719			629-50-5	Tridecane	NGS	110	<1.9	5.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011719			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011719			629-62-9	Pentadecane	NGS	95	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-5
Customer Sample ID: 18-02348-1-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															
S18T011720			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	2.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011720			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011720			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011720			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011720			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011720			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011720			112-40-3	Dodecane	NGS	100	<1.5	9.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011720			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011720			629-59-4	Tetradecane	NGS	97	<1.4	7.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011720			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011720			629-50-5	Tridecane	NGS	110	<1.9	5.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011720			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011720			629-62-9	Pentadecane	NGS	95	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-6
Customer Sample ID: 18-02348-1-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															
S18T011721			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011721			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011721			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011721			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011721			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011721			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011721			112-40-3	Dodecane	NGS	100	<1.5	9.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011721			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011721			629-59-4	Tetradecane	NGS	97	<1.4	6.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011721			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011721			629-50-5	Tridecane	NGS	110	<1.9	7.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011721			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011721			629-62-9	Pentadecane	NGS	95	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180936
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-7
Customer Sample ID: 18-02348-1-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															
S18T011722			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	3.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011722			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011722			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011722			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011722			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011722			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011722			112-40-3	Dodecane	NGS	100	<1.5	7.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011722			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011722			629-59-4	Tetradecane	NGS	97	<1.4	8.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011722			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011722			629-50-5	Tridecane	NGS	110	<1.9	11	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011722			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011722			629-62-9	Pentadecane	NGS	95	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

Daniel Hansen
Daniel Hansen
6-21-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-BA-EF
Customer Sample ID: 18-02350-1-TL1-BA-EF

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T011723		3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011723		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011723		108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011723		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011723		78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011723		84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011723		112-40-3	Dodecane	NGS	100	<1.5	6.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011723		544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011723		629-59-4	Tetradecane	NGS	97	<1.4	3.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011723		126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011723		629-50-5	Tridecane	NGS	110	<1.9	5.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011723		629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011723		629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-BA-IN
Customer Sample ID: 18-02350-1-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															
S18T011724			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011724			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011724			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011724			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011724			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011724			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011724			112-40-3	Dodecane	NGS	100	<1.5	21	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011724			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011724			629-59-4	Tetradecane	NGS	97	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011724			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011724			629-50-5	Tridecane	NGS	110	<1.9	4.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011724			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011724			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-BL-EF
Customer Sample ID: 18-02350-1-TL1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011725			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011725			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011725			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011725			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011725			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011725			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011725			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011725			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011725			629-59-4	Tetradecane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011725			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011725			629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011725			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011725			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-BL-IN
Customer Sample ID: 18-02350-1-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															
S18T011726			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011726			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011726			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011726			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011726			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011726			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011726			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011726			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011726			629-59-4	Tetradecane	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011726			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011726			629-50-5	Tridecane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011726			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011726			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-2
Customer Sample ID: 18-02350-1-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															
S18T011727			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011727			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011727			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011727			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011727			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011727			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011727			112-40-3	Dodecane	NGS	100	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011727			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011727			629-59-4	Tetradecane	NGS	97	<1.4	3.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011727			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011727			629-50-5	Tridecane	NGS	110	<1.9	4.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011727			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011727			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-3
Customer Sample ID: 18-02350-1-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														
S18T011728		3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011728		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011728		108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011728		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011728		78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011728		84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011728		112-40-3	Dodecane	NGS	100	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011728		544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011728		629-59-4	Tetradecane	NGS	97	<1.4	2.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011728		126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011728		629-50-5	Tridecane	NGS	110	<1.9	3.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011728		629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011728		629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-4
Customer Sample ID: 18-02350-1-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															
S18T011729			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	2.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011729			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011729			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011729			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011729			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011729			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011729			112-40-3	Dodecane	NGS	100	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011729			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011729			629-59-4	Tetradecane	NGS	97	<1.4	7.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011729			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011729			629-50-5	Tridecane	NGS	110	<1.9	8.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011729			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011729			629-62-9	Pentadecane	NGS	95	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-5
Customer Sample ID: 18-02350-1-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															
S18T011730			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	3.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011730			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011730			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011730			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011730			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011730			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011730			112-40-3	Dodecane	NGS	100	<1.5	14	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011730			544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011730			629-59-4	Tetradecane	NGS	97	<1.4	5.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011730			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011730			629-50-5	Tridecane	NGS	110	<1.9	6.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011730			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011730			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-6
Customer Sample ID: 18-02350-1-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															
S18T011731			3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011731			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011731			108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011731			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011731			78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T011731			84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011731			112-40-3	Dodecane	NGS	100	<1.5	17	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011731			544-76-3	Hexadecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011731			629-59-4	Tetradecane	NGS	97	<1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011731			126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011731			629-50-5	Tridecane	NGS	110	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011731			629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011731			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180937
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-7
Customer Sample ID: 18-02350-1-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														
S18T011732		3891-98-3	2,6,10-Trimethyldodecane	NGS	99	<1.2	4.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011732		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011732		108-39-4M	Cresol (m & p)	NGS	94	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011732		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011732		78-46-6	Dibutyl butylphosphonate	NGS	88	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011732		84-66-2	Diethylphthalate	NGS	96	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011732		112-40-3	Dodecane	NGS	100	<1.5	15	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011732		544-76-3	Hexadecane	NGS	95	<1.2	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011732		629-59-4	Tetradecane	NGS	97	<1.4	5.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011732		126-73-8	Tributyl phosphate	NGS	88	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011732		629-50-5	Tridecane	NGS	110	<1.9	8.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011732		629-78-7	Heptadecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011732		629-62-9	Pentadecane	NGS	95	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

Daniel Hansen
Daniel Hansen
6-25-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-BA-EF
Customer Sample ID: 18-02351-1-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															
S18T011733			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	1.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011733			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011733			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011733			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011733			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011733			84-66-2	Diethylphthalate	NGS	90	<2.0	8.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011733			112-40-3	Dodecane	NGS	100	<1.5	6.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011733			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011733			629-59-4	Tetradecane	NGS	96	<1.4	2.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011733			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011733			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011733			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011733			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-BA-IN
Customer Sample ID: 18-02351-1-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															
S18T011734			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011734			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011734			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011734			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011734			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011734			84-66-2	Diethylphthalate	NGS	90	<2.0	2.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011734			112-40-3	Dodecane	NGS	100	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011734			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011734			629-59-4	Tetradecane	NGS	96	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011734			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011734			629-50-5	Tridecane	NGS	100	<1.9	3.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011734			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011734			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-BL-EF
Customer Sample ID: 18-02351-1-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														
S18T011735		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011735		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011735		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011735		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011735		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T011735		84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011735		112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011735		544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011735		629-59-4	Tetradecane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011735		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011735		629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011735		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011735		629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-BL-IN
Customer Sample ID: 18-02351-1-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															
S18T011736			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011736			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011736			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011736			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011736			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T011736			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011736			112-40-3	Dodecane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011736			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011736			629-59-4	Tetradecane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011736			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011736			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011736			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011736			629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-2
Customer Sample ID: 18-02351-1-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														
S18T011737		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011737		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011737		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011737		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011737		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011737		84-66-2	Diethylphthalate	NGS	90	<2.0	4.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011737		112-40-3	Dodecane	NGS	100	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011737		544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011737		629-59-4	Tetradecane	NGS	96	<1.4	4.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011737		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011737		629-50-5	Tridecane	NGS	100	<1.9	4.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011737		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011737		629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

J - Estimated

U - Less Than Detection Limit

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-3
Customer Sample ID: 18-02351-1-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														
S18T011738		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011738		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011738		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011738		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011738		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011738		84-66-2	Diethylphthalate	NGS	90	<2.0	3.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011738		112-40-3	Dodecane	NGS	100	<1.5	22	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011738		544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011738		629-59-4	Tetradecane	NGS	96	<1.4	3.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011738		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011738		629-50-5	Tridecane	NGS	100	<1.9	5.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011738		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011738		629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-4
Customer Sample ID: 18-02351-1-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														
S18T011739		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	3.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011739		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011739		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011739		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011739		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011739		84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011739		112-40-3	Dodecane	NGS	100	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011739		544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011739		629-59-4	Tetradecane	NGS	96	<1.4	9.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011739		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011739		629-50-5	Tridecane	NGS	100	<1.9	10	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011739		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011739		629-62-9	Pentadecane	NGS	95	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-5
Customer Sample ID: 18-02351-1-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														
S18T011740		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	4.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011740		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011740		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011740		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011740		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011740		84-66-2	Diethylphthalate	NGS	90	<2.0	4.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011740		112-40-3	Dodecane	NGS	100	<1.5	16	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011740		544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011740		629-59-4	Tetradecane	NGS	96	<1.4	6.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011740		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011740		629-50-5	Tridecane	NGS	100	<1.9	8.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011740		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011740		629-62-9	Pentadecane	NGS	95	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-6
Customer Sample ID: 18-02351-1-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														
S18T011741		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011741		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011741		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011741		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011741		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011741		84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011741		112-40-3	Dodecane	NGS	100	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011741		544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011741		629-59-4	Tetradecane	NGS	96	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011741		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011741		629-50-5	Tridecane	NGS	100	<1.9	3.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011741		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011741		629-62-9	Pentadecane	NGS	95	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180938
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-7
Customer Sample ID: 18-02351-1-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															
S18T011742			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	3.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011742			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011742			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011742			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011742			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011742			84-66-2	Diethylphthalate	NGS	90	<2.0	3.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011742			112-40-3	Dodecane	NGS	100	<1.5	13	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011742			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011742			629-59-4	Tetradecane	NGS	96	<1.4	3.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011742			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011742			629-50-5	Tridecane	NGS	100	<1.9	6.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011742			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011742			629-62-9	Pentadecane	NGS	95	<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

Daniel Hansen
6-25-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-1
Customer Sample ID: 18-02348-1-SD1-EF-1

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T011743		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011743		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011743		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011743		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011743		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011743		84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011743		112-40-3	Dodecane	NGS	100	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011743		544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011743		629-59-4	Tetradecane	NGS	96	<1.4	3.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011743		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011743		629-50-5	Tridecane	NGS	100	<1.9	3.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011743		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011743		629-62-9	Pentadecane	NGS	95	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-2
Customer Sample ID: 18-02348-1-SD1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011744			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	2.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011744			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011744			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011744			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011744			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011744			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011744			112-40-3	Dodecane	NGS	100	<1.5	14	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011744			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011744			629-59-4	Tetradecane	NGS	96	<1.4	8.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011744			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011744			629-50-5	Tridecane	NGS	100	<1.9	6.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011744			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011744			629-62-9	Pentadecane	NGS	95	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-3
Customer Sample ID: 18-02348-1-SD1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011745			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011745			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011745			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011745			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011745			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011745			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011745			112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011745			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011745			629-59-4	Tetradecane	NGS	96	<1.4	7.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011745			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011745			629-50-5	Tridecane	NGS	100	<1.9	6.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011745			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011745			629-62-9	Pentadecane	NGS	95	<1.1	2.4	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-4
Customer Sample ID: 18-02348-1-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 SVOA #2														
S18T011746		3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	3.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011746		95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011746		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011746		92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011746		78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011746		84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011746		112-40-3	Dodecane	NGS	100	<1.5	14	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011746		544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011746		629-59-4	Tetradecane	NGS	96	<1.4	8.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011746		126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011746		629-50-5	Tridecane	NGS	100	<1.9	9.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011746		629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011746		629-62-9	Pentadecane	NGS	95	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J

Q - Qualitative
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T - Tentatively Identified Compound
NA = Not Analyzed, ND = Not Detected
N - Named TIC

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-5
Customer Sample ID: 18-02348-1-SD1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011747			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	1.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011747			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011747			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011747			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011747			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011747			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011747			112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011747			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011747			629-59-4	Tetradecane	NGS	96	<1.4	4.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011747			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	QU
S18T011747			629-50-5	Tridecane	NGS	100	<1.9	5.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011747			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	QU
S18T011747			629-62-9	Pentadecane	NGS	95	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J

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N - Named TIC
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-6
Customer Sample ID: 18-02348-1-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															
S18T011748			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	5.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011748			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011748			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011748			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011748			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011748			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011748			112-40-3	Dodecane	NGS	100	<1.5	8.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011748			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011748			629-59-4	Tetradecane	NGS	96	<1.4	16	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011748			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011748			629-50-5	Tridecane	NGS	100	<1.9	17	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011748			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011748			629-62-9	Pentadecane	NGS	95	<1.1	3.2	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

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N - Named TIC
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-7
Customer Sample ID: 18-02348-1-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															
S18T011749			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	2.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011749			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011749			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011749			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011749			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011749			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011749			112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011749			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011749			629-59-4	Tetradecane	NGS	96	<1.4	8.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011749			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011749			629-50-5	Tridecane	NGS	100	<1.9	9.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011749			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011749			629-62-9	Pentadecane	NGS	95	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-8
Customer Sample ID: 18-02348-1-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															
S18T011750			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	2.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011750			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011750			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011750			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011750			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011750			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011750			112-40-3	Dodecane	NGS	100	<1.5	9.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011750			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011750			629-59-4	Tetradecane	NGS	96	<1.4	5.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011750			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011750			629-50-5	Tridecane	NGS	100	<1.9	6.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011750			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011750			629-62-9	Pentadecane	NGS	95	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-1
Customer Sample ID: 18-02348-1-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															
S18T011751			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011751			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011751			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011751			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011751			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	U
S18T011751			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011751			112-40-3	Dodecane	NGS	100	<1.5	8.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011751			544-76-3	Hexadecane	NGS	94	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011751			629-59-4	Tetradecane	NGS	96	<1.4	5.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011751			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011751			629-50-5	Tridecane	NGS	100	<1.9	7.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011751			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011751			629-62-9	Pentadecane	NGS	95	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-8
Customer Sample ID: 18-02348-1-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011752			3891-98-3	2,6,10-Trimethyldodecane	NGS	93	<1.2	3.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011752			95-48-7	2-Methylphenol	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011752			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011752			92-52-4	Biphenyl	NGS	94	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011752			78-46-6	Dibutyl butylphosphonate	NGS	94	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011752			84-66-2	Diethylphthalate	NGS	90	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011752			112-40-3	Dodecane	NGS	100	<1.5	7.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011752			544-76-3	Hexadecane	NGS	94	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011752			629-59-4	Tetradecane	NGS	96	<1.4	9.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011752			126-73-8	Tributyl phosphate	NGS	98	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011752			629-50-5	Tridecane	NGS	100	<1.9	13	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011752			629-78-7	Heptadecane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011752			629-62-9	Pentadecane	NGS	95	<1.1	1.8	n/a	n/a	n/a	n/a	1.1	n/a	J

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Daniel Hansen
6-25-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-1
Customer Sample ID: 18-02348-1-SD1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011743				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	42	JNT
S18T011743				2,6-Dimethyldecane	13150-81-7	5.36	NGS	110	JNT
S18T011743				Unknown		5.40	NGS	43	JT
S18T011743				Undecane	1120-21-4	5.75	NGS	66	JNT
S18T011743				Decane, 2,4,6-trimethyl-	62108-27-4	5.80	NGS	25	JNT
S18T011743				Undecane, 2,6-dimethyl-	17301-23-4	5.87	NGS	12	JNT
S18T011743				Undecane, 3-methyl-	1002-43-3	6.34	NGS	6.4	JNT
S18T011743				Undecane, 2-methyl-	7045-71-8	7.18	NGS	10	JNT
S18T011743			BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011743			BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-2
Customer Sample ID: 18-02348-1-SD1-EF-2

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2								
S18T011744			Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	61	JNT
S18T011744			2,6-Dimethyldecane	13150-81-7	5.36	NGS	150	JNT
S18T011744			Unknown		5.41	NGS	58	JT
S18T011744			Undecane	1120-21-4	5.75	NGS	86	JNT
S18T011744			Decane, 2,4,6-trimethyl-	62108-27-4	5.80	NGS	26	JNT
S18T011744			Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	32	JNT
S18T011744			Methenamine	100-97-0	6.95	NGS	16	JNT
S18T011744			Dodecane, 2,6,11-trimethyl-	31295-56-4	7.18	NGS	10	JNT
S18T011744			Undecane, 2,6-dimethyl-	17301-23-4	8.13	NGS	7.4	JNT
S18T011744		BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011744		BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-3
Customer Sample ID: 18-02348-1-SD1-EF-3

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2								
S18T011745			Styrene	100-42-5	3.85	NGS	6.6	JNT
S18T011745			Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	50	JNT
S18T011745			2,6-Dimethyldecane	13150-81-7	5.36	NGS	110	JNT
S18T011745			Unknown		5.41	NGS	44	JT
S18T011745			Undecane	1120-21-4	5.75	NGS	63	JNT
S18T011745			Decane, 2,4,6-trimethyl-	62108-27-4	5.80	NGS	23	JNT
S18T011745			Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	9.0	JNT
S18T011745		BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011745		BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-4
Customer Sample ID: 18-02348-1-SD1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011746				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	24	JNT
S18T011746				Ethylbenzene	100-41-4	3.63	NGS	7.4	JNT
S18T011746				Styrene	100-42-5	3.85	NGS	7.5	JNT
S18T011746				Cyclotetrasiloxane, octamethyl-	556-67-2	4.63	NGS	56	JNT
S18T011746				Hexane, 3,3-dimethyl-	563-16-6	5.35	NGS	38	JNT
S18T011746				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	15	JNT
S18T011746				Undecane	1120-21-4	5.74	NGS	22	JNT
S18T011746				Undecane, 2,6-dimethyl-	17301-23-4	6.59	NGS	9.1	JNT
S18T011746				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.18	NGS	14	JNT
S18T011746			BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011746			BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-5
Customer Sample ID: 18-02348-1-SD1-EF-5

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2								
S18T011747			Styrene	100-42-5	3.85	NGS	6.0	JNT
S18T011747			Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	55	JNT
S18T011747			2,2,7,7-Tetramethyloctane	1071-31-4	4.77	NGS	25	JNT
S18T011747			Decane, 2,4,6-trimethyl-	62108-27-4	5.36	NGS	110	JNT
S18T011747			Undecane	1120-21-4	5.75	NGS	60	JNT
S18T011747			Undecane, 2,6-dimethyl-	17301-23-4	5.80	NGS	18	JNT
S18T011747			Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	33	JNT
S18T011747			Undecane, 3,7-dimethyl-	17301-29-0	7.55	NGS	8.8	JNT
S18T011747		BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011747		BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-6
Customer Sample ID: 18-02348-1-SD1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011748				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	47	JNT
S18T011748				Ethylbenzene	100-41-4	3.64	NGS	9.5	JNT
S18T011748				Styrene	100-42-5	3.85	NGS	6.7	JNT
S18T011748				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	48	JNT
S18T011748				Undecane	1120-21-4	5.35	NGS	64	JNT
S18T011748				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	24	JNT
S18T011748				Undecane, 4,7-dimethyl-	17301-32-5	5.74	NGS	31	JNT
S18T011748				Undecane, 2,6-dimethyl-	17301-23-4	5.79	NGS	13	JNT
S18T011748				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	37	JNT
S18T011748			BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011748			BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-7
Customer Sample ID: 18-02348-1-SD1-EF-7

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2								
S18T011749			Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	30	JNT
S18T011749			Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	53	JNT
S18T011749			Undecane	1120-21-4	5.35	NGS	100	JNT
S18T011749			Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	36	JNT
S18T011749			Undecane, 2,6-dimethyl-	17301-23-4	5.43	NGS	9.4	JNT
S18T011749			Undecane, 4,7-dimethyl-	17301-32-5	5.75	NGS	59	JNT
S18T011749			Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	36	JNT
S18T011749			Dodecane, 2,6,11-trimethyl-	31295-56-4	7.18	NGS	11	JNT
S18T011749		BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011749		BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-EF-8
Customer Sample ID: 18-02348-1-SD1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011750				Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	26	JNT
S18T011750				Styrene	100-42-5	3.85	NGS	5.4	JNT
S18T011750				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	48	JNT
S18T011750				Decane, 2,4,6-trimethyl-	62108-27-4	5.35	NGS	88	JNT
S18T011750				Octane, 6-ethyl-2-methyl-	62016-19-7	5.40	NGS	31	JNT
S18T011750				Undecane	1120-21-4	5.75	NGS	49	JNT
S18T011750				Undecane, 2,6-dimethyl-	17301-23-4	5.79	NGS	17	JNT
S18T011750				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	29	JNT
S18T011750				Undecane, 2-methyl-	7045-71-8	7.19	NGS	9.4	JNT
S18T011750				Undecane, 3,7-dimethyl-	17301-29-0	7.55	NGS	7.2	JNT
S18T011750			BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011750			BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-1
Customer Sample ID: 18-02348-1-SD1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011751				Cyclotrisiloxane, hexamethyl-	541-05-9	3.08	NGS	35	JNT
S18T011751				Ethylbenzene	100-41-4	3.63	NGS	5.1	JNT
S18T011751				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	87	JNT
S18T011751				Undecane	1120-21-4	5.35	NGS	24	JNT
S18T011751				Decane, 2,4,6-trimethyl-	62108-27-4	5.74	NGS	20	JNT
S18T011751				Undecane, 2,6-dimethyl-	17301-23-4	5.79	NGS	8.4	JNT
S18T011751				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	64	JNT
S18T011751			BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011751			BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180939
Customer Group or SDG Number:
Customer Sample ID: 18-02348-1-SD1-IN-8
Customer Sample ID: 18-02348-1-SD1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011752				Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	42	JNT
S18T011752				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	67	JNT
S18T011752				Decane, 2,4,6-trimethyl-	62108-27-4	5.35	NGS	11	JNT
S18T011752				Undecane	1120-21-4	5.74	NGS	13	JNT
S18T011752				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	46	JNT
S18T011752				Undecane, 2-methyl-	7045-71-8	7.19	NGS	7.8	JNT
S18T011752				Undecane, 2,6-dimethyl-	17301-23-4	7.38	NGS	13	JNT
S18T011752			BLNK	Chrysene-D12	1719-03-5	14.33	NGS	27	JNT
S18T011752			BLNK	Perylene-D12	1520-96-3	16.10	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

Daniel Hansen
Daniel Hansen
8-2-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-1
Customer Sample ID: 18-02349-1-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															
S18T011753			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011753			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011753			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011753			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011753			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011753			84-66-2	Diethylphthalate	NGS	90	2.2	4.7	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011753			112-40-3	Dodecane	NGS	100	<1.5	15	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011753			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011753			629-59-4	Tetradecane	NGS	98	<1.4	4.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011753			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011753			629-50-5	Tridecane	NGS	100	<1.9	3.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011753			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011753			629-62-9	Pentadecane	NGS	98	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-2
Customer Sample ID: 18-02349-1-SC1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011754			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011754			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011754			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011754			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011754			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011754			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011754			112-40-3	Dodecane	NGS	100	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011754			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011754			629-59-4	Tetradecane	NGS	98	<1.4	6.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011754			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011754			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011754			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011754			629-62-9	Pentadecane	NGS	98	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-3
Customer Sample ID: 18-02349-1-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															
S18T011755			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011755			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011755			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011755			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011755			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011755			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011755			112-40-3	Dodecane	NGS	100	<1.5	8.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011755			544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011755			629-59-4	Tetradecane	NGS	98	<1.4	5.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011755			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011755			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011755			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011755			629-62-9	Pentadecane	NGS	98	<1.1	1.6	n/a	n/a	n/a	n/a	1.1	n/a	J

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-4
Customer Sample ID: 18-02349-1-SC1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011756			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011756			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011756			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011756			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011756			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011756			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011756			112-40-3	Dodecane	NGS	100	<1.5	9.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011756			544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011756			629-59-4	Tetradecane	NGS	98	<1.4	5.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011756			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011756			629-50-5	Tridecane	NGS	100	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011756			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011756			629-62-9	Pentadecane	NGS	98	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J

J - Estimated

N - Named TIC

U - Less Than Detection Limit

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-5
Customer Sample ID: 18-02349-1-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															
S18T011757			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011757			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011757			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011757			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011757			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011757			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011757			112-40-3	Dodecane	NGS	100	<1.5	8.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011757			544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011757			629-59-4	Tetradecane	NGS	98	<1.4	3.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011757			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011757			629-50-5	Tridecane	NGS	100	<1.9	3.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011757			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011757			629-62-9	Pentadecane	NGS	98	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

J - Estimated
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T - Tentatively Identified Compound

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-6
Customer Sample ID: 18-02349-1-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														
S18T011758		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	5.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011758		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011758		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011758		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011758		78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011758		84-66-2	Diethylphthalate	NGS	90	2.2	2.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011758		112-40-3	Dodecane	NGS	100	<1.5	7.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011758		544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011758		629-59-4	Tetradecane	NGS	98	<1.4	15	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011758		126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011758		629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011758		629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011758		629-62-9	Pentadecane	NGS	98	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-7
Customer Sample ID: 18-02349-1-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														
S18T011759		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011759		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011759		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011759		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011759		78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011759		84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011759		112-40-3	Dodecane	NGS	100	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011759		544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011759		629-59-4	Tetradecane	NGS	98	<1.4	8.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011759		126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011759		629-50-5	Tridecane	NGS	100	<1.9	3.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011759		629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011759		629-62-9	Pentadecane	NGS	98	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-8
Customer Sample ID: 18-02349-1-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														
S18T011760		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011760		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011760		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011760		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011760		78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011760		84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011760		112-40-3	Dodecane	NGS	100	<1.5	7.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011760		544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011760		629-59-4	Tetradecane	NGS	98	<1.4	3.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011760		126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011760		629-50-5	Tridecane	NGS	100	<1.9	2.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011760		629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011760		629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-1
Customer Sample ID: 18-02349-1-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														
S18T011761		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011761		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011761		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011761		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011761		78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011761		84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011761		112-40-3	Dodecane	NGS	100	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011761		544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011761		629-59-4	Tetradecane	NGS	98	<1.4	6.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011761		126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011761		629-50-5	Tridecane	NGS	100	<1.9	2.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011761		629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011761		629-62-9	Pentadecane	NGS	98	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-8
Customer Sample ID: 18-02349-1-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															
S18T011762			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011762			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011762			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011762			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011762			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011762			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011762			112-40-3	Dodecane	NGS	100	<1.5	2.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011762			544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011762			629-59-4	Tetradecane	NGS	98	<1.4	3.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011762			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011762			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011762			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011762			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-1
Customer Sample ID: 18-02349-1-SC1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011753				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	120	JNT
S18T011753				Decane, 2,4,6-trimethyl-	62108-27-4	5.36	NGS	170	JNT
S18T011753				2,6-Dimethyldecane	13150-81-7	5.41	NGS	62	JNT
S18T011753				Acetic acid, trifluoro-, 3,7-dimethyloctyl ester	28745-07-5	5.54	NGS	31	JNT
S18T011753				Undecane	1120-21-4	5.76	NGS	92	JNT
S18T011753				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	40	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-2
Customer Sample ID: 18-02349-1-SC1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011754				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	74	JNT
S18T011754				Octane, 6-ethyl-2-methyl-	62016-19-7	5.41	NGS	38	JNT
S18T011754				Undecane	1120-21-4	5.75	NGS	52	JNT
S18T011754				Decane, 2,4,6-trimethyl-	62108-27-4	5.80	NGS	19	JNT
S18T011754				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	27	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-3
Customer Sample ID: 18-02349-1-SC1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011755				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	64	JNT
S18T011755				Undecane	1120-21-4	5.41	NGS	34	JNT
S18T011755				Decane, 3,7-dimethyl-	17312-54-8	5.75	NGS	46	JNT
S18T011755				Decane, 2,4,6-trimethyl-	62108-27-4	5.80	NGS	18	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-4
Customer Sample ID: 18-02349-1-SC1-EF-4

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2								
S18T011756			Styrene	100-42-5	3.86	NGS	11	JNT
S18T011756			Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	50	JNT
S18T011756			Undecane	1120-21-4	5.75	NGS	13	JNT
S18T011756			Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	30	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-5
Customer Sample ID: 18-02349-1-SC1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011757				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	66	JNT
S18T011757				Undecane	1120-21-4	5.41	NGS	31	JNT
S18T011757				Undecane, 4,7-dimethyl-	17301-32-5	5.75	NGS	42	JNT
S18T011757				Decane, 2,4,6-trimethyl-	62108-27-4	5.80	NGS	13	JNT
S18T011757				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	27	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-6
Customer Sample ID: 18-02349-1-SC1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011758				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	55	JNT
S18T011758				Undecane	1120-21-4	5.40	NGS	21	JNT
S18T011758				Undecane, 4,6-dimethyl-	17312-82-2	5.75	NGS	25	JNT
S18T011758				Undecane, 2,6-dimethyl-	17301-23-4	5.79	NGS	10	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-7
Customer Sample ID: 18-02349-1-SC1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011759				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	75	JNT
S18T011759				Undecane	1120-21-4	5.41	NGS	45	JNT
S18T011759				Undecane, 4,6-dimethyl-	17312-82-2	5.76	NGS	65	JNT
S18T011759				Decane, 2,4,6-trimethyl-	62108-27-4	5.80	NGS	18	JNT
S18T011759				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	32	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-EF-8
Customer Sample ID: 18-02349-1-SC1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011760				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	25	JNT
S18T011760				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	43	JNT
S18T011760				2,2,7,7-Tetramethyloctane	1071-31-4	4.78	NGS	33	JNT
S18T011760				Decane, 3,7-dimethyl-	17312-54-8	5.18	NGS	38	JNT
S18T011760				Decane, 2,4,6-trimethyl-	62108-27-4	5.41	NGS	24	JNT
S18T011760				Undecane	1120-21-4	5.75	NGS	42	JNT
S18T011760				Undecane, 2,6-dimethyl-	17301-23-4	5.88	NGS	18	JNT
S18T011760				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	32	JNT
S18T011760				Undecane, 2-methyl-	7045-71-8	7.19	NGS	7.3	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180940
Customer Group or SDG Number:
Customer Sample ID: 18-02349-1-SC1-IN-1
Customer Sample ID: 18-02349-1-SC1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011761				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	26	JNT
S18T011761				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	150	JNT
S18T011761				Heptane, 2,2,4,6,6-pentamethyl-	13475-82-6	4.78	NGS	34	JNT
S18T011761				Nonane, 3,7-dimethyl-	17302-32-8	5.18	NGS	34	JNT
S18T011761				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	11	JNT
S18T011761				Undecane	1120-21-4	5.75	NGS	33	JNT
S18T011761				Undecane, 2,6-dimethyl-	17301-23-4	5.80	NGS	12	JNT
S18T011761				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	77	JNT

NA = Not Analyzed, ND = Not Detected

Dan Hansen
Dan Hansen
8-2-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-1
Customer Sample ID: 18-02350-1-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															
S18T011763			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011763			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011763			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011763			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011763			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011763			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011763			112-40-3	Dodecane	NGS	100	<1.5	13	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011763			544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011763			629-59-4	Tetradecane	NGS	98	<1.4	5.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011763			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011763			629-50-5	Tridecane	NGS	100	<1.9	4.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011763			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011763			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

Q - Qualitative
T - Tentatively Identified Compound

J - Estimated

N - Named TIC

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-2
Customer Sample ID: 18-02350-1-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														
S18T011764		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011764		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011764		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011764		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011764		78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011764		84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011764		112-40-3	Dodecane	NGS	100	<1.5	9.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011764		544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011764		629-59-4	Tetradecane	NGS	98	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011764		126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011764		629-50-5	Tridecane	NGS	100	<1.9	2.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011764		629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011764		629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

Q - Qualitative
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N - Named TIC

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U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-3
Customer Sample ID: 18-02350-1-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															
S18T011765			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011765			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011765			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011765			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011765			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011765			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011765			112-40-3	Dodecane	NGS	100	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011765			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011765			629-59-4	Tetradecane	NGS	98	<1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011765			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011765			629-50-5	Tridecane	NGS	100	<1.9	2.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011765			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011765			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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N - Named TIC

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U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-4
Customer Sample ID: 18-02350-1-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															
S18T011766			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011766			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011766			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011766			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011766			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011766			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011766			112-40-3	Dodecane	NGS	100	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011766			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011766			629-59-4	Tetradecane	NGS	98	<1.4	1.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011766			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011766			629-50-5	Tridecane	NGS	100	<1.9	2.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011766			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011766			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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N - Named TIC

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-5
Customer Sample ID: 18-02350-1-TL1-EF-5

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T011767		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011767		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011767		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011767		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011767		78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011767		84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011767		112-40-3	Dodecane	NGS	100	<1.5	9.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011767		544-76-3	Hexadecane	NGS	99	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011767		629-59-4	Tetradecane	NGS	98	<1.4	5.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011767		126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011767		629-50-5	Tridecane	NGS	100	<1.9	2.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011767		629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011767		629-62-9	Pentadecane	NGS	98	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J

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N - Named TIC

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U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-6
Customer Sample ID: 18-02350-1-TL1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2															
S18T011768			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011768			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011768			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011768			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011768			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011768			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011768			112-40-3	Dodecane	NGS	100	<1.5	14	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011768			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011768			629-59-4	Tetradecane	NGS	98	<1.4	3.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011768			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	QU
S18T011768			629-50-5	Tridecane	NGS	100	<1.9	3.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011768			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	QU
S18T011768			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-7
Customer Sample ID: 18-02350-1-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															
S18T011769			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	3.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011769			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011769			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011769			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011769			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011769			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011769			112-40-3	Dodecane	NGS	100	<1.5	6.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011769			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011769			629-59-4	Tetradecane	NGS	98	<1.4	6.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011769			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011769			629-50-5	Tridecane	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011769			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011769			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-8
Customer Sample ID: 18-02350-1-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															
S18T011770			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011770			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011770			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011770			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011770			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011770			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011770			112-40-3	Dodecane	NGS	100	<1.5	9.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011770			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011770			629-59-4	Tetradecane	NGS	98	<1.4	3.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011770			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011770			629-50-5	Tridecane	NGS	100	<1.9	2.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011770			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011770			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-1
Customer Sample ID: 18-02350-1-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															
S18T011771			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011771			95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011771			108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011771			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011771			78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011771			84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011771			112-40-3	Dodecane	NGS	100	<1.5	20	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011771			544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011771			629-59-4	Tetradecane	NGS	98	<1.4	3.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011771			126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011771			629-50-5	Tridecane	NGS	100	<1.9	4.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011771			629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011771			629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-8
Customer Sample ID: 18-02350-1-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														
S18T011772		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011772		95-48-7	2-Methylphenol	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011772		108-39-4M	Cresol (m & p)	NGS	100	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011772		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011772		78-46-6	Dibutyl butylphosphonate	NGS	90	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011772		84-66-2	Diethylphthalate	NGS	90	2.2	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011772		112-40-3	Dodecane	NGS	100	<1.5	15	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011772		544-76-3	Hexadecane	NGS	99	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011772		629-59-4	Tetradecane	NGS	98	<1.4	3.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011772		126-73-8	Tributyl phosphate	NGS	79	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011772		629-50-5	Tridecane	NGS	100	<1.9	4.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011772		629-78-7	Heptadecane	NGS	92	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011772		629-62-9	Pentadecane	NGS	98	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-1
Customer Sample ID: 18-02350-1-TL1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011763				Styrene	100-42-5	3.86	NGS	11	JNT
S18T011763				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	94	JNT
S18T011763				Undecane	1120-21-4	5.40	NGS	6.3	JNT
S18T011763				Decane, 2,4,6-trimethyl-	62108-27-4	5.75	NGS	14	JNT
S18T011763				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	40	JNT
S18T011763				Undecane, 2-methyl-	7045-71-8	7.19	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-2
Customer Sample ID: 18-02350-1-TL1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011764				Heptane, 3,4,5-trimethyl-	20278-89-1	3.16	NGS	32	JNT
S18T011764				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	53	JNT
S18T011764				Undecane	1120-21-4	5.75	NGS	13	JNT
S18T011764				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	27	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-3
Customer Sample ID: 18-02350-1-TL1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011765				Heptane, 3,4,5-trimethyl-	20278-89-1	3.16	NGS	33	JNT
S18T011765				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	52	JNT
S18T011765				Undecane	1120-21-4	5.74	NGS	9.3	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-4
Customer Sample ID: 18-02350-1-TL1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011766				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	69	JNT
S18T011766				Decane, 2,4,6-trimethyl-	62108-27-4	5.41	NGS	26	JNT
S18T011766				Undecane	1120-21-4	5.75	NGS	39	JNT
S18T011766				Undecane, 2,6-dimethyl-	17301-23-4	5.80	NGS	14	JNT
S18T011766				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	36	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-5
Customer Sample ID: 18-02350-1-TL1-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011767				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	47	JNT
S18T011767				Heptane, 2,2,4,6,6-pentamethyl-	13475-82-6	4.78	NGS	47	JNT
S18T011767				Octane, 2,2,6-trimethyl-	62016-28-8	5.06	NGS	26	JNT
S18T011767				2,2,4,4-Tetramethyloctane	62183-79-3	5.13	NGS	36	JNT
S18T011767				Nonane, 3,7-dimethyl-	17302-32-8	5.18	NGS	66	JNT
S18T011767				Decane, 2,4,6-trimethyl-	62108-27-4	5.29	NGS	6.4	JNT
S18T011767				Heptane, 4-ethyl-2,2,6,6-tetramethyl-	62108-31-0	5.44	NGS	36	JNT
S18T011767				2,2,7,7-Tetramethyloctane	1071-31-4	5.57	NGS	37	JNT
S18T011767				2,6-Dimethyldecane	13150-81-7	5.63	NGS	44	JNT
S18T011767				Undecane, 2,6-dimethyl-	17301-23-4	5.71	NGS	25	JNT
S18T011767				Decane, 3,7-dimethyl-	17312-54-8	5.75	NGS	39	JNT
S18T011767				Undecane	1120-21-4	5.86	NGS	13	JNT
S18T011767				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	40	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-6
Customer Sample ID: 18-02350-1-TL1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011768				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	63	JNT
S18T011768				Undecane	1120-21-4	5.75	NGS	25	JNT
S18T011768				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	34	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-7
Customer Sample ID: 18-02350-1-TL1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011769				Ethylbenzene	100-41-4	3.64	NGS	11	JNT
S18T011769				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	54	JNT
S18T011769				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	16	JNT
S18T011769				Undecane	1120-21-4	5.74	NGS	17	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-EF-8
Customer Sample ID: 18-02350-1-TL1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011770				Cyclotrisiloxane, hexamethyl-	541-05-9	3.10	NGS	290	JNT
S18T011770				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	71	JNT
S18T011770				2,2,7,7-Tetramethyloctane	1071-31-4	4.78	NGS	28	JNT
S18T011770				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	26	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-1
Customer Sample ID: 18-02350-1-TL1-IN-1

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2								
S18T011771			Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	170	JNT
S18T011771			2,2,7,7-Tetramethyloctane	1071-31-4	4.78	NGS	35	JNT
S18T011771			Heptane, 5-ethyl-2,2,3-trimethyl-	62199-06-8	5.12	NGS	32	JNT
S18T011771			Hexane, 3,3-dimethyl-	563-16-6	5.18	NGS	66	JNT
S18T011771			Heptane, 4-ethyl-2,2,6,6-tetramethyl-	62108-31-0	5.44	NGS	51	JNT
S18T011771			Heptane, 2,4,6-trimethyl-	2613-61-8	5.57	NGS	40	JNT
S18T011771			2,6-Dimethyldecane	13150-81-7	5.64	NGS	46	JNT
S18T011771			Undecane	1120-21-4	5.76	NGS	67	JNT
S18T011771			Cyclopentasiloxane, decamethyl-	541-02-6	6.01	NGS	82	JNT
S18T011771			Undecane, 2,6-dimethyl-	17301-23-4	6.05	NGS	7.9	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180941
Customer Group or SDG Number:
Customer Sample ID: 18-02350-1-TL1-IN-8
Customer Sample ID: 18-02350-1-TL1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011772				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	66	JNT
S18T011772				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	130	JNT
S18T011772				Undecane	1120-21-4	5.75	NGS	20	JNT
S18T011772				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	64	JNT
S18T011772				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	13	JNT

NA = Not Analyzed, ND = Not Detected

Daniel Hansen
Daniel Hansen
8-7-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-1
Customer Sample ID: 18-02351-1-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															
S18T011773			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011773			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011773			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011773			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011773			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011773			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011773			112-40-3	Dodecane	NGS	97	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011773			544-76-3	Hexadecane	NGS	93	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011773			629-59-4	Tetradecane	NGS	96	<1.4	4.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011773			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011773			629-50-5	Tridecane	NGS	97	<1.9	3.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011773			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011773			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

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-2
Customer Sample ID: 18-02351-1-TL2-EF-2

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU SVOA #2														
S18T011774		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011774		95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011774		108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011774		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011774		78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011774		84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011774		112-40-3	Dodecane	NGS	97	<1.5	16	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011774		544-76-3	Hexadecane	NGS	93	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011774		629-59-4	Tetradecane	NGS	96	<1.4	3.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011774		126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011774		629-50-5	Tridecane	NGS	97	<1.9	4.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011774		629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011774		629-62-9	Pentadecane	NGS	94	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-3
Customer Sample ID: 18-02351-1-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															
S18T011775			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011775			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011775			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011775			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011775			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011775			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011775			112-40-3	Dodecane	NGS	97	<1.5	14	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011775			544-76-3	Hexadecane	NGS	93	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011775			629-59-4	Tetradecane	NGS	96	<1.4	2.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011775			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011775			629-50-5	Tridecane	NGS	97	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011775			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011775			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

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-4
Customer Sample ID: 18-02351-1-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														
S18T011776		3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011776		95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011776		108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011776		92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011776		78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011776		84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011776		112-40-3	Dodecane	NGS	97	<1.5	13	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011776		544-76-3	Hexadecane	NGS	93	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011776		629-59-4	Tetradecane	NGS	96	<1.4	2.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011776		126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011776		629-50-5	Tridecane	NGS	97	<1.9	2.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011776		629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011776		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

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-5
Customer Sample ID: 18-02351-1-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															
S18T011777			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011777			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011777			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011777			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011777			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011777			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011777			112-40-3	Dodecane	NGS	97	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011777			544-76-3	Hexadecane	NGS	93	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011777			629-59-4	Tetradecane	NGS	96	<1.4	6.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011777			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011777			629-50-5	Tridecane	NGS	97	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011777			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011777			629-62-9	Pentadecane	NGS	94	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-6
Customer Sample ID: 18-02351-1-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															
S18T011778			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011778			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011778			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011778			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011778			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011778			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011778			112-40-3	Dodecane	NGS	97	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011778			544-76-3	Hexadecane	NGS	93	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011778			629-59-4	Tetradecane	NGS	96	<1.4	4.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011778			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011778			629-50-5	Tridecane	NGS	97	<1.9	5.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011778			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011778			629-62-9	Pentadecane	NGS	94	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J

NA = Not Analyzed, ND = Not Detected

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-7
Customer Sample ID: 18-02351-1-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															
S18T011779			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011779			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011779			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011779			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011779			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011779			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011779			112-40-3	Dodecane	NGS	97	<1.5	5.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011779			544-76-3	Hexadecane	NGS	93	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011779			629-59-4	Tetradecane	NGS	96	<1.4	5.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011779			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011779			629-50-5	Tridecane	NGS	97	<1.9	3.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011779			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011779			629-62-9	Pentadecane	NGS	94	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-8
Customer Sample ID: 18-02351-1-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															
S18T011780			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	2.9	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011780			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011780			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011780			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011780			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011780			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011780			112-40-3	Dodecane	NGS	97	<1.5	12	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011780			544-76-3	Hexadecane	NGS	93	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011780			629-59-4	Tetradecane	NGS	96	<1.4	4.3	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011780			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011780			629-50-5	Tridecane	NGS	97	<1.9	4.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011780			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011780			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

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-1
Customer Sample ID: 18-02351-1-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															
S18T011781			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011781			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011781			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011781			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011781			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011781			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011781			112-40-3	Dodecane	NGS	97	<1.5	18	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011781			544-76-3	Hexadecane	NGS	93	<1.3	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011781			629-59-4	Tetradecane	NGS	96	<1.4	3.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011781			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011781			629-50-5	Tridecane	NGS	97	<1.9	3.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011781			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011781			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

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-8
Customer Sample ID: 18-02351-1-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															
S18T011782			3891-98-3	2,6,10-Trimethyldodecane	NGS	95	<1.2	1.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011782			95-48-7	2-Methylphenol	NGS	87	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011782			108-39-4M	Cresol (m & p)	NGS	90	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011782			92-52-4	Biphenyl	NGS	93	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	U
S18T011782			78-46-6	Dibutyl butylphosphonate	NGS	91	<1.0	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011782			84-66-2	Diethylphthalate	NGS	92	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011782			112-40-3	Dodecane	NGS	97	<1.5	16	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011782			544-76-3	Hexadecane	NGS	93	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011782			629-59-4	Tetradecane	NGS	96	<1.4	3.6	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011782			126-73-8	Tributyl phosphate	NGS	83	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011782			629-50-5	Tridecane	NGS	97	<1.9	3.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011782			629-78-7	Heptadecane	NGS	88	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011782			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

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

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-1
Customer Sample ID: 18-02351-1-TL2-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011773				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	33	JNT
S18T011773				Pentane, 2,2,4,4-tetramethyl-	1070-87-7	4.77	NGS	37	JNT
S18T011773				Decane, 2,5,6-trimethyl-	62108-23-0	5.11	NGS	29	JNT
S18T011773				Hexane, 3,3-dimethyl-	563-16-6	5.17	NGS	47	JNT
S18T011773				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.44	NGS	35	JNT
S18T011773				2,3-Dimethyldecane	17312-44-6	5.63	NGS	38	JNT
S18T011773				Undecane	1120-21-4	5.75	NGS	36	JNT
S18T011773				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	52	JNT
S18T011773				Undecane, 2,6-dimethyl-	17301-23-4	6.04	NGS	9.5	JNT

NA = Not Analyzed, ND = Not Detected

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-2
Customer Sample ID: 18-02351-1-TL2-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011774				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	57	JNT
S18T011774				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	8.8	JNT
S18T011774				Undecane	1120-21-4	5.74	NGS	21	JNT
S18T011774				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	35	JNT
S18T011774				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	15	JNT

NA = Not Analyzed, ND = Not Detected

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-3
Customer Sample ID: 18-02351-1-TL2-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011775				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	41	JNT
S18T011775				Undecane	1120-21-4	5.74	NGS	12	JNT
S18T011775				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	26	JNT
S18T011775				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	13	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-4
Customer Sample ID: 18-02351-1-TL2-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011776				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	49	JNT
S18T011776				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	25	JNT
S18T011776				Undecane	1120-21-4	5.75	NGS	40	JNT
S18T011776				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	31	JNT
S18T011776				Dodecane, 2,7,10-trimethyl-	74645-98-0	7.19	NGS	11	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-5
Customer Sample ID: 18-02351-1-TL2-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011777				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	42	JNT
S18T011777				Undecane	1120-21-4	5.74	NGS	14	JNT
S18T011777				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	29	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-6
Customer Sample ID: 18-02351-1-TL2-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011778				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	54	JNT
S18T011778				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	14	JNT
S18T011778				Undecane	1120-21-4	5.75	NGS	30	JNT
S18T011778				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	42	JNT
S18T011778				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	16	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-7
Customer Sample ID: 18-02351-1-TL2-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011779				Cyclotrisiloxane, hexamethyl-	541-05-9	3.09	NGS	25	JNT
S18T011779				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	33	JNT
S18T011779				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	13	JNT
S18T011779				Undecane	1120-21-4	5.74	NGS	16	JNT
S18T011779				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	34	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-EF-8
Customer Sample ID: 18-02351-1-TL2-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011780				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	36	JNT
S18T011780				Decane, 2,4,6-trimethyl-	62108-27-4	5.40	NGS	7.6	JNT
S18T011780				Undecane	1120-21-4	5.74	NGS	11	JNT
S18T011780				Cyclopentasiloxane, decamethyl-	541-02-6	5.99	NGS	18	JNT
S18T011780				Dodecane, 2,6,11-trimethyl-	31295-56-4	7.19	NGS	14	JNT
S18T011780				Undecane, 3,7-dimethyl-	17301-29-0	7.55	NGS	11	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-1
Customer Sample ID: 18-02351-1-TL2-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011781				Cyclotetrasiloxane, octamethyl-	556-67-2	4.64	NGS	100	JNT
S18T011781				Undecane	1120-21-4	5.75	NGS	38	JNT
S18T011781				Undecane, 2,6-dimethyl-	17301-23-4	5.86	NGS	8.1	JNT
S18T011781				Dodecane, 2,7,10-trimethyl-	74645-98-0	5.88	NGS	10	JNT
S18T011781				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	62	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180942
Customer Group or SDG Number:
Customer Sample ID: 18-02351-1-TL2-IN-8
Customer Sample ID: 18-02351-1-TL2-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU SVOA #2									
S18T011782				Cyclotetrasiloxane, octamethyl-	556-67-2	4.65	NGS	100	JNT
S18T011782				Undecane	1120-21-4	5.75	NGS	27	JNT
S18T011782				Cyclopentasiloxane, decamethyl-	541-02-6	6.00	NGS	62	JNT

NA = Not Analyzed, ND = Not Detected

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Daniel Hansen
Daniel Hansen
7-17-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BA-EF
Customer Sample ID: 18-02349-2-SC1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T011783			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011783			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011783			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011783			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011783			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	0.40	n/a	n/a	n/a	n/a	0.32	n/a	J
S18T011783			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011783			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011783			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011783			71-36-3	1-Butanol	NGS	100	<3.2	5.5	n/a	n/a	n/a	n/a	3.2	n/a	JL
S18T011783			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011783			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011783			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011783			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011783			78-93-3	2-Butanone	NGS	97	<0.82	2.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011783			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011783			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011783			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011783			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011783			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011783			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011783			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011783			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	5.4	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011783			67-64-1	Acetone	NGS	110	2.1	37	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011783			75-05-8	Acetonitrile	NGS	110	<1.1	48	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011783			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011783			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011783			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011783			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011783			71-43-2	Benzene	NGS	96	<0.49	6.1	n/a	n/a	n/a	n/a	0.49	n/a	J

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Q - Qualitative
L - LLS Outside Range
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E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BA-EF
Customer Sample ID: 18-02349-2-SC1-BA-EF

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T011783		100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011783		123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011783		109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011783		56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.2	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011783		108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011783		75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011783		67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011783		110-82-7	Cyclohexane	NGS	90	<0.73	39	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011783		124-18-5	Decane	NGS	100	<0.95	11	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011783		64-17-5	Ethanol	NGS	100	<1.9	39	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011783		141-78-6	Ethyl acetate	NGS	97	<0.47	1.0	n/a	n/a	n/a	n/a	0.47	n/a	J
S18T011783		100-41-4	Ethylbenzene	NGS	92	<0.72	6.1	n/a	n/a	n/a	n/a	0.72	n/a	J
S18T011783		110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011783		110-54-3	Hexane	NGS	110	<1.1	5.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011783		628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011783		126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011783		75-09-2	Methylene Chloride	NGS	100	1.8	6.8	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011783		91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011783		98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011783		110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011783		107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011783		110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011783		100-42-5	Styrene	NGS	99	<0.65	19	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011783		127-18-4	Tetrachloroethene	NGS	110	<0.88	16	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011783		108-88-3	Toluene	NGS	93	<0.59	6.9	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011783		79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011783		75-69-4	Trichlorofluoromethane	NGS	110	<1.5	3.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011783		10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011783		123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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Q - Qualitative
L - LLS Outside Range
Y - Comment
J - Estimated
E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BA-EF
Customer Sample ID: 18-02349-2-SC1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T011783			142-82-5	n-Heptane	NGS	97	<0.63	2.8	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011783			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
L - LLS Outside Range
Y - Comment
J - Estimated
E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BA-IN
Customer Sample ID: 18-02349-2-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															
S18T011784			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011784			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011784			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011784			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011784			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011784			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011784			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011784			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011784			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011784			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011784			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011784			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011784			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011784			78-93-3	2-Butanone	NGS	97	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011784			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011784			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011784			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011784			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011784			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011784			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011784			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011784			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	0.96	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011784			67-64-1	Acetone	NGS	110	2.1	12	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011784			75-05-8	Acetonitrile	NGS	110	<1.1	54	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011784			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011784			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011784			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011784			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011784			71-43-2	Benzene	NGS	96	<0.49	0.86	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BA-IN
Customer Sample ID: 18-02349-2-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															
S18T011784			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011784			123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011784			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011784			56-23-5	Carbon tetrachloride	NGS	100	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	
S18T011784			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011784			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011784			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011784			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011784			124-18-5	Decane	NGS	100	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011784			64-17-5	Ethanol	NGS	100	<1.9	9.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011784			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011784			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011784			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011784			110-54-3	Hexane	NGS	110	<1.1	2.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011784			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011784			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011784			75-09-2	Methylene Chloride	NGS	100	1.8	7.1	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011784			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011784			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011784			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011784			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011784			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011784			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011784			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011784			108-88-3	Toluene	NGS	93	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011784			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011784			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011784			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011784			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BA-IN
Customer Sample ID: 18-02349-2-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														
S18T011784		142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011784		10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BL-EF
Customer Sample ID: 18-02349-2-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															
S18T011785			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011785			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011785			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011785			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011785			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011785			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011785			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011785			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011785			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011785			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011785			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011785			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011785			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011785			78-93-3	2-Butanone	NGS	97	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011785			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011785			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011785			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011785			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011785			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011785			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011785			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011785			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011785			67-64-1	Acetone	NGS	110	2.1	3.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011785			75-05-8	Acetonitrile	NGS	110	<1.1	6.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011785			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011785			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011785			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011785			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011785			71-43-2	Benzene	NGS	96	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BL-EF
Customer Sample ID: 18-02349-2-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															
S18T011785			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011785			123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011785			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011785			56-23-5	Carbon tetrachloride	NGS	100	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	
S18T011785			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011785			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011785			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011785			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011785			124-18-5	Decane	NGS	100	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011785			64-17-5	Ethanol	NGS	100	<1.9	5.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011785			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011785			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011785			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011785			110-54-3	Hexane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011785			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011785			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011785			75-09-2	Methylene Chloride	NGS	100	1.8	3.4	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011785			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011785			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011785			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011785			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011785			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011785			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011785			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011785			108-88-3	Toluene	NGS	93	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011785			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011785			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011785			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011785			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BL-EF
Customer Sample ID: 18-02349-2-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															
S18T011785			142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011785			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BL-IN
Customer Sample ID: 18-02349-2-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															
S18T011786			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011786			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011786			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011786			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011786			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011786			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011786			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011786			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011786			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011786			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011786			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011786			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011786			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011786			78-93-3	2-Butanone	NGS	97	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011786			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011786			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011786			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011786			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011786			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011786			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011786			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011786			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011786			67-64-1	Acetone	NGS	110	2.1	5.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011786			75-05-8	Acetonitrile	NGS	110	<1.1	9.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011786			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011786			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011786			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011786			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011786			71-43-2	Benzene	NGS	96	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BL-IN
Customer Sample ID: 18-02349-2-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															
S18T011786			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011786			123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011786			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011786			56-23-5	Carbon tetrachloride	NGS	100	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	
S18T011786			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011786			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011786			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011786			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011786			124-18-5	Decane	NGS	100	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011786			64-17-5	Ethanol	NGS	100	<1.9	6.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011786			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011786			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011786			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011786			110-54-3	Hexane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011786			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011786			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011786			75-09-2	Methylene Chloride	NGS	100	1.8	5.6	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011786			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011786			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011786			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011786			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011786			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011786			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011786			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011786			108-88-3	Toluene	NGS	93	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011786			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011786			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011786			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011786			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-BL-IN
Customer Sample ID: 18-02349-2-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															
S18T011786			142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011786			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-2
Customer Sample ID: 18-02349-2-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															
S18T011787			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011787			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011787			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011787			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011787			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011787			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011787			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011787			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011787			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011787			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011787			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011787			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011787			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011787			78-93-3	2-Butanone	NGS	97	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011787			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011787			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011787			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011787			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011787			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011787			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011787			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011787			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011787			67-64-1	Acetone	NGS	110	2.1	48	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011787			75-05-8	Acetonitrile	NGS	110	<1.1	10	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011787			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011787			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011787			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011787			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011787			71-43-2	Benzene	NGS	96	<0.49	1.1	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-2
Customer Sample ID: 18-02349-2-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														
S18T011787		100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011787		123-72-8	Butanal	NGS	96	<1.6	1.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011787		109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011787		56-23-5	Carbon tetrachloride	NGS	100	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	
S18T011787		108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011787		75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011787		67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011787		110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011787		124-18-5	Decane	NGS	100	<0.95	1.1	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011787		64-17-5	Ethanol	NGS	100	<1.9	30	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011787		141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011787		100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011787		110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011787		110-54-3	Hexane	NGS	110	<1.1	2.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011787		628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011787		126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011787		75-09-2	Methylene Chloride	NGS	100	1.8	7.1	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011787		91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011787		98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011787		110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011787		107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011787		110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011787		100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011787		127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011787		108-88-3	Toluene	NGS	93	<0.59	1.4	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011787		79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011787		75-69-4	Trichlorofluoromethane	NGS	110	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011787		10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011787		123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-2
Customer Sample ID: 18-02349-2-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															
S18T011787			142-82-5	n-Heptane	NGS	97	<0.63	0.65	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011787			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-3
Customer Sample ID: 18-02349-2-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															
S18T011788			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011788			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011788			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011788			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011788			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011788			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011788			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011788			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011788			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011788			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011788			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011788			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011788			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011788			78-93-3	2-Butanone	NGS	97	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011788			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011788			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011788			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011788			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011788			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011788			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011788			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011788			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011788			67-64-1	Acetone	NGS	110	2.1	12	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011788			75-05-8	Acetonitrile	NGS	110	<1.1	1.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011788			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011788			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011788			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011788			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011788			71-43-2	Benzene	NGS	96	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-3
Customer Sample ID: 18-02349-2-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															
S18T011788			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011788			123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011788			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011788			56-23-5	Carbon tetrachloride	NGS	100	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	
S18T011788			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011788			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011788			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011788			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011788			124-18-5	Decane	NGS	100	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011788			64-17-5	Ethanol	NGS	100	<1.9	5.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011788			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011788			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011788			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011788			110-54-3	Hexane	NGS	110	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011788			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011788			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011788			75-09-2	Methylene Chloride	NGS	100	1.8	2.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011788			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011788			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011788			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011788			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011788			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011788			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011788			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011788			108-88-3	Toluene	NGS	93	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011788			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011788			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011788			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011788			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-3
Customer Sample ID: 18-02349-2-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															
S18T011788			142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011788			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-4
Customer Sample ID: 18-02349-2-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														
S18T011789		79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011789		79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011789		75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011789		75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011789		107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011789		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011789		106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011789		123-91-1	1,4-Dioxane	NGS	95	<0.49	1.9	n/a	n/a	n/a	n/a	0.49	n/a	J
S18T011789		71-36-3	1-Butanol	NGS	100	<3.2	85	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011789		111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011789		71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011789		108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011789		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011789		78-93-3	2-Butanone	NGS	97	<0.82	11	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011789		110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011789		591-78-6	2-Hexanone	NGS	94	<0.96	1.0	n/a	n/a	n/a	n/a	0.96	n/a	J
S18T011789		534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011789		78-94-4	3-Buten-2-one	NGS	110	<1.1	4.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011789		106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011789		106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011789		105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011789		108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	2.3	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011789		67-64-1	Acetone	NGS	110	2.1	150	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011789		75-05-8	Acetonitrile	NGS	110	<1.1	13	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011789		98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011789		107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011789		107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011789		107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011789		71-43-2	Benzene	NGS	96	<0.49	2.9	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-4
Customer Sample ID: 18-02349-2-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															
S18T011789			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011789			123-72-8	Butanal	NGS	96	<1.6	8.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011789			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011789			56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.1	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011789			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011789			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011789			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011789			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011789			124-18-5	Decane	NGS	100	<0.95	2.1	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011789			64-17-5	Ethanol	NGS	100	<1.9	81	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011789			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011789			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011789			110-00-9	Furan	NGS	110	<1.0	12	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011789			110-54-3	Hexane	NGS	110	<1.1	4.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011789			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011789			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011789			75-09-2	Methylene Chloride	NGS	100	1.8	4.2	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011789			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011789			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011789			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011789			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011789			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011789			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011789			127-18-4	Tetrachloroethene	NGS	110	<0.88	1.4	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011789			108-88-3	Toluene	NGS	93	<0.59	2.4	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011789			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011789			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	8.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011789			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011789			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-4
Customer Sample ID: 18-02349-2-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															
S18T011789			142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011789			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

Q - Qualitative
L - LLS Outside Range
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J - Estimated
NA = Not Analyzed, ND = Not Detected
E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-5
Customer Sample ID: 18-02349-2-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 VOA #2														
S18T011790		79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011790		79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011790		75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011790		75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011790		107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011790		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011790		106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011790		123-91-1	1,4-Dioxane	NGS	95	<0.49	1.8	n/a	n/a	n/a	n/a	0.49	n/a	J
S18T011790		71-36-3	1-Butanol	NGS	100	<3.2	70	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011790		111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011790		71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011790		108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011790		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011790		78-93-3	2-Butanone	NGS	97	<0.82	9.2	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011790		110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011790		591-78-6	2-Hexanone	NGS	94	<0.96	1.1	n/a	n/a	n/a	n/a	0.96	n/a	J
S18T011790		534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011790		78-94-4	3-Buten-2-one	NGS	110	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011790		106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011790		106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011790		105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011790		108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	2.1	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011790		67-64-1	Acetone	NGS	110	2.1	270	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011790		75-05-8	Acetonitrile	NGS	110	<1.1	22	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011790		98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011790		107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011790		107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011790		107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011790		71-43-2	Benzene	NGS	96	<0.49	3.1	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-5
Customer Sample ID: 18-02349-2-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 VOA #2															
S18T011790			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011790			123-72-8	Butanal	NGS	96	<1.6	5.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011790			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011790			56-23-5	Carbon tetrachloride	NGS	100	<0.60	0.97	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011790			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011790			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011790			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011790			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011790			124-18-5	Decane	NGS	100	<0.95	2.3	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011790			64-17-5	Ethanol	NGS	100	<1.9	75	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011790			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011790			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011790			110-00-9	Furan	NGS	110	<1.0	4.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011790			110-54-3	Hexane	NGS	110	<1.1	4.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011790			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011790			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011790			75-09-2	Methylene Chloride	NGS	100	1.8	3.6	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011790			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011790			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011790			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011790			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011790			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011790			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011790			127-18-4	Tetrachloroethene	NGS	110	<0.88	2.2	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011790			108-88-3	Toluene	NGS	93	<0.59	2.7	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011790			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011790			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	7.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011790			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011790			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-5
Customer Sample ID: 18-02349-2-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 VOA #2															
S18T011790			142-82-5	n-Heptane	NGS	97	<0.63	1.4	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011790			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-6
Customer Sample ID: 18-02349-2-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															
S18T011791			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011791			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011791			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011791			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011791			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011791			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011791			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011791			123-91-1	1,4-Dioxane	NGS	95	<0.49	1.1	n/a	n/a	n/a	n/a	0.49	n/a	J
S18T011791			71-36-3	1-Butanol	NGS	100	<3.2	38	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011791			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011791			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011791			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011791			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011791			78-93-3	2-Butanone	NGS	97	<0.82	6.0	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011791			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011791			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011791			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011791			78-94-4	3-Buten-2-one	NGS	110	<1.1	2.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011791			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011791			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011791			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011791			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	1.5	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011791			67-64-1	Acetone	NGS	110	2.1	120	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011791			75-05-8	Acetonitrile	NGS	110	<1.1	12	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011791			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011791			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011791			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011791			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011791			71-43-2	Benzene	NGS	96	<0.49	1.8	n/a	n/a	n/a	n/a	0.49	n/a	J

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Y - Comment

J - Estimated

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-6
Customer Sample ID: 18-02349-2-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															
S18T011791			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011791			123-72-8	Butanal	NGS	96	<1.6	4.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011791			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011791			56-23-5	Carbon tetrachloride	NGS	100	<0.60	0.76	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011791			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011791			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011791			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011791			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011791			124-18-5	Decane	NGS	100	<0.95	2.0	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011791			64-17-5	Ethanol	NGS	100	<1.9	44	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011791			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011791			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011791			110-00-9	Furan	NGS	110	<1.0	3.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011791			110-54-3	Hexane	NGS	110	<1.1	3.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011791			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011791			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011791			75-09-2	Methylene Chloride	NGS	100	1.8	4.8	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011791			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011791			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011791			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011791			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011791			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011791			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011791			127-18-4	Tetrachloroethene	NGS	110	<0.88	1.5	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011791			108-88-3	Toluene	NGS	93	<0.59	1.8	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011791			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011791			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	4.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011791			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011791			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
L - LLS Outside Range
Y - Comment
J - Estimated
E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-6
Customer Sample ID: 18-02349-2-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															
S18T011791			142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011791			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-7
Customer Sample ID: 18-02349-2-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															
S18T011792			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011792			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011792			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011792			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011792			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011792			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011792			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011792			123-91-1	1,4-Dioxane	NGS	95	<0.49	2.1	n/a	n/a	n/a	n/a	0.49	n/a	J
S18T011792			71-36-3	1-Butanol	NGS	100	<3.2	110	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011792			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011792			71-23-8	1-Propanol	NGS	110	<2.4	20	n/a	n/a	n/a	n/a	2.4	n/a	J
S18T011792			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011792			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011792			78-93-3	2-Butanone	NGS	97	<0.82	12	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011792			110-43-0	2-Heptanone	NGS	96	<1.1	1.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011792			591-78-6	2-Hexanone	NGS	94	<0.96	1.6	n/a	n/a	n/a	n/a	0.96	n/a	J
S18T011792			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011792			78-94-4	3-Buten-2-one	NGS	110	<1.1	4.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011792			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011792			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011792			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011792			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	2.8	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011792			67-64-1	Acetone	NGS	110	2.1	500	n/a	n/a	n/a	n/a	1.6	n/a	E
S18T011792			75-05-8	Acetonitrile	NGS	110	<1.1	24	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011792			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011792			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011792			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011792			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011792			71-43-2	Benzene	NGS	96	<0.49	3.4	n/a	n/a	n/a	n/a	0.49	n/a	J

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Y - Comment
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E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-7
Customer Sample ID: 18-02349-2-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														
S18T011792		100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011792		123-72-8	Butanal	NGS	96	<1.6	6.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011792		109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011792		56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.2	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011792		108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011792		75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011792		67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011792		110-82-7	Cyclohexane	NGS	90	<0.73	0.76	n/a	n/a	n/a	n/a	0.73	n/a	J
S18T011792		124-18-5	Decane	NGS	100	<0.95	3.2	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011792		64-17-5	Ethanol	NGS	100	<1.9	92	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011792		141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011792		100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011792		110-00-9	Furan	NGS	110	<1.0	4.0	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011792		110-54-3	Hexane	NGS	110	<1.1	5.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011792		628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011792		126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011792		75-09-2	Methylene Chloride	NGS	100	1.8	6.7	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011792		91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011792		98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011792		110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011792		107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011792		110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011792		100-42-5	Styrene	NGS	99	<0.65	0.86	n/a	n/a	n/a	n/a	0.65	n/a	J
S18T011792		127-18-4	Tetrachloroethene	NGS	110	<0.88	3.0	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011792		108-88-3	Toluene	NGS	93	<0.59	4.4	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011792		79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011792		75-69-4	Trichlorofluoromethane	NGS	110	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011792		10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011792		123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-7
Customer Sample ID: 18-02349-2-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															
S18T011792			142-82-5	n-Heptane	NGS	97	<0.63	1.8	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011792			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BA-EF
Customer Sample ID: 18-02350-2-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															
S18T011793			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011793			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011793			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011793			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011793			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011793			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011793			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011793			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011793			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011793			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011793			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011793			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011793			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011793			78-93-3	2-Butanone	NGS	97	<0.82	1.2	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011793			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011793			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011793			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011793			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011793			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011793			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011793			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011793			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011793			67-64-1	Acetone	NGS	110	2.1	34	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011793			75-05-8	Acetonitrile	NGS	110	<1.1	12	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011793			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011793			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011793			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011793			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011793			71-43-2	Benzene	NGS	96	<0.49	4.5	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BA-EF
Customer Sample ID: 18-02350-2-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															
S18T011793			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011793			123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011793			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011793			56-23-5	Carbon tetrachloride	NGS	100	<0.60	0.82	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011793			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011793			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011793			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011793			110-82-7	Cyclohexane	NGS	90	<0.73	11	n/a	n/a	n/a	n/a	0.73	n/a	J
S18T011793			124-18-5	Decane	NGS	100	<0.95	3.4	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011793			64-17-5	Ethanol	NGS	100	<1.9	34	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011793			141-78-6	Ethyl acetate	NGS	97	<0.47	0.57	n/a	n/a	n/a	n/a	0.47	n/a	J
S18T011793			100-41-4	Ethylbenzene	NGS	92	<0.72	2.5	n/a	n/a	n/a	n/a	0.72	n/a	J
S18T011793			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011793			110-54-3	Hexane	NGS	110	<1.1	4.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011793			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011793			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011793			75-09-2	Methylene Chloride	NGS	100	1.8	4.3	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011793			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011793			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011793			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011793			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011793			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011793			100-42-5	Styrene	NGS	99	<0.65	6.4	n/a	n/a	n/a	n/a	0.65	n/a	J
S18T011793			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011793			108-88-3	Toluene	NGS	93	<0.59	4.6	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011793			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011793			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	2.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011793			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011793			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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Q - Qualitative
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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BA-EF
Customer Sample ID: 18-02350-2-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															
S18T011793			142-82-5	n-Heptane	NGS	97	<0.63	1.7	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011793			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BA-IN
Customer Sample ID: 18-02350-2-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															
S18T011794			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011794			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011794			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011794			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011794			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011794			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	0.85	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011794			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011794			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011794			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011794			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011794			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011794			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011794			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011794			78-93-3	2-Butanone	NGS	97	<0.82	1.5	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011794			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011794			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011794			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011794			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011794			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011794			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011794			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011794			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011794			67-64-1	Acetone	NGS	110	2.1	50	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011794			75-05-8	Acetonitrile	NGS	110	<1.1	29	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011794			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011794			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011794			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011794			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011794			71-43-2	Benzene	NGS	96	<0.49	6.7	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BA-IN
Customer Sample ID: 18-02350-2-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															
S18T011794			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011794			123-72-8	Butanal	NGS	96	<1.6	4.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011794			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011794			56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.3	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011794			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011794			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011794			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011794			110-82-7	Cyclohexane	NGS	90	<0.73	1.2	n/a	n/a	n/a	n/a	0.73	n/a	J
S18T011794			124-18-5	Decane	NGS	100	<0.95	4.6	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011794			64-17-5	Ethanol	NGS	100	<1.9	35	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011794			141-78-6	Ethyl acetate	NGS	97	<0.47	0.82	n/a	n/a	n/a	n/a	0.47	n/a	J
S18T011794			100-41-4	Ethylbenzene	NGS	92	<0.72	0.73	n/a	n/a	n/a	n/a	0.72	n/a	J
S18T011794			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011794			110-54-3	Hexane	NGS	110	<1.1	6.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011794			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011794			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011794			75-09-2	Methylene Chloride	NGS	100	1.8	6.2	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011794			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011794			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011794			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011794			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011794			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011794			100-42-5	Styrene	NGS	99	<0.65	2.2	n/a	n/a	n/a	n/a	0.65	n/a	J
S18T011794			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011794			108-88-3	Toluene	NGS	93	<0.59	6.4	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011794			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011794			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	3.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011794			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	0.85	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011794			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BA-IN
Customer Sample ID: 18-02350-2-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															
S18T011794			142-82-5	n-Heptane	NGS	97	<0.63	2.3	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011794			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BL-EF
Customer Sample ID: 18-02350-2-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														
S18T011795		79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011795		79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011795		75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011795		75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011795		107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011795		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011795		106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011795		123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011795		71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011795		111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011795		71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011795		108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011795		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011795		78-93-3	2-Butanone	NGS	97	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011795		110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011795		591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011795		534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011795		78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011795		106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011795		106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011795		105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011795		108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011795		67-64-1	Acetone	NGS	110	2.1	12	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011795		75-05-8	Acetonitrile	NGS	110	<1.1	180	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011795		98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011795		107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011795		107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011795		107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011795		71-43-2	Benzene	NGS	96	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BL-EF
Customer Sample ID: 18-02350-2-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															
S18T011795			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011795			123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011795			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011795			56-23-5	Carbon tetrachloride	NGS	100	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	
S18T011795			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011795			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011795			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011795			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011795			124-18-5	Decane	NGS	100	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011795			64-17-5	Ethanol	NGS	100	<1.9	17	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011795			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011795			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011795			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011795			110-54-3	Hexane	NGS	110	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011795			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011795			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011795			75-09-2	Methylene Chloride	NGS	100	1.8	4.8	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011795			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011795			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011795			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011795			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011795			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011795			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011795			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011795			108-88-3	Toluene	NGS	93	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011795			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011795			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011795			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011795			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
L - LLS Outside Range
Y - Comment
J - Estimated
E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BL-EF
Customer Sample ID: 18-02350-2-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															
S18T011795			142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011795			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BL-IN
Customer Sample ID: 18-02350-2-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															
S18T011796			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011796			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011796			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011796			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011796			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011796			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011796			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011796			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011796			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011796			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011796			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011796			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011796			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011796			78-93-3	2-Butanone	NGS	97	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011796			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011796			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011796			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011796			78-94-4	3-Buten-2-one	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011796			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011796			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011796			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011796			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011796			67-64-1	Acetone	NGS	110	2.1	11	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011796			75-05-8	Acetonitrile	NGS	110	<1.1	8.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011796			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011796			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011796			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011796			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011796			71-43-2	Benzene	NGS	96	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BL-IN
Customer Sample ID: 18-02350-2-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														
S18T011796		100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011796		123-72-8	Butanal	NGS	96	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011796		109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011796		56-23-5	Carbon tetrachloride	NGS	100	<0.60	<0.60	n/a	n/a	n/a	n/a	0.60	n/a	
S18T011796		108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011796		75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011796		67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011796		110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011796		124-18-5	Decane	NGS	100	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011796		64-17-5	Ethanol	NGS	100	<1.9	11	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011796		141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011796		100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011796		110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011796		110-54-3	Hexane	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011796		628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011796		126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011796		75-09-2	Methylene Chloride	NGS	100	1.8	4.7	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011796		91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011796		98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011796		110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011796		107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011796		110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011796		100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011796		127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011796		108-88-3	Toluene	NGS	93	<0.59	0.59	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011796		79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011796		75-69-4	Trichlorofluoromethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011796		10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011796		123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-BL-IN
Customer Sample ID: 18-02350-2-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															
S18T011796			142-82-5	n-Heptane	NGS	97	<0.63	<0.63	n/a	n/a	n/a	n/a	0.63	n/a	
S18T011796			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-2
Customer Sample ID: 18-02350-2-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															
S18T011797			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011797			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011797			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011797			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011797			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011797			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011797			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011797			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011797			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011797			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011797			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011797			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011797			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011797			78-93-3	2-Butanone	NGS	97	<0.82	2.2	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011797			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011797			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011797			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011797			78-94-4	3-Buten-2-one	NGS	110	<1.1	1.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011797			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011797			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011797			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011797			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011797			67-64-1	Acetone	NGS	110	2.1	48	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011797			75-05-8	Acetonitrile	NGS	110	<1.1	31	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011797			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011797			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011797			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011797			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011797			71-43-2	Benzene	NGS	96	<0.49	1.7	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-2
Customer Sample ID: 18-02350-2-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															
S18T011797			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011797			123-72-8	Butanal	NGS	96	<1.6	2.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011797			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011797			56-23-5	Carbon tetrachloride	NGS	100	<0.60	0.96	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011797			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011797			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011797			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011797			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011797			124-18-5	Decane	NGS	100	<0.95	2.7	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011797			64-17-5	Ethanol	NGS	100	<1.9	38	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011797			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011797			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011797			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011797			110-54-3	Hexane	NGS	110	<1.1	4.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011797			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011797			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011797			75-09-2	Methylene Chloride	NGS	100	1.8	9.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011797			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011797			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011797			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011797			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011797			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011797			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011797			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011797			108-88-3	Toluene	NGS	93	<0.59	2.8	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011797			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011797			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	3.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011797			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011797			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
L - LLS Outside Range
Y - Comment
J - Estimated
E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-2
Customer Sample ID: 18-02350-2-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															
S18T011797			142-82-5	n-Heptane	NGS	97	<0.63	1.2	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011797			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-3
Customer Sample ID: 18-02350-2-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															
S18T011798			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011798			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011798			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011798			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011798			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011798			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011798			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011798			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011798			71-36-3	1-Butanol	NGS	100	<3.2	4.2	n/a	n/a	n/a	n/a	3.2	n/a	JL
S18T011798			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011798			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011798			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011798			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011798			78-93-3	2-Butanone	NGS	97	<0.82	2.4	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011798			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011798			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011798			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011798			78-94-4	3-Buten-2-one	NGS	110	<1.1	2.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011798			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011798			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011798			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011798			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011798			67-64-1	Acetone	NGS	110	2.1	65	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011798			75-05-8	Acetonitrile	NGS	110	<1.1	10	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011798			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011798			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011798			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011798			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011798			71-43-2	Benzene	NGS	96	<0.49	2.6	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-3
Customer Sample ID: 18-02350-2-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															
S18T011798			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011798			123-72-8	Butanal	NGS	96	<1.6	6.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011798			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011798			56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.2	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011798			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011798			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011798			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011798			110-82-7	Cyclohexane	NGS	90	<0.73	<0.73	n/a	n/a	n/a	n/a	0.73	n/a	
S18T011798			124-18-5	Decane	NGS	100	<0.95	3.6	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011798			64-17-5	Ethanol	NGS	100	<1.9	35	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011798			141-78-6	Ethyl acetate	NGS	97	<0.47	0.72	n/a	n/a	n/a	n/a	0.47	n/a	J
S18T011798			100-41-4	Ethylbenzene	NGS	92	<0.72	<0.72	n/a	n/a	n/a	n/a	0.72	n/a	
S18T011798			110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011798			110-54-3	Hexane	NGS	110	<1.1	4.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011798			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011798			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011798			75-09-2	Methylene Chloride	NGS	100	1.8	7.7	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011798			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011798			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011798			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011798			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011798			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011798			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011798			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011798			108-88-3	Toluene	NGS	93	<0.59	3.3	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011798			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011798			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	3.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011798			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011798			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-3
Customer Sample ID: 18-02350-2-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															
S18T011798			142-82-5	n-Heptane	NGS	97	<0.63	1.3	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011798			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-4
Customer Sample ID: 18-02350-2-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															
S18T011799			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011799			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011799			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011799			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011799			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011799			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011799			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011799			123-91-1	1,4-Dioxane	NGS	95	<0.49	1.1	n/a	n/a	n/a	n/a	0.49	n/a	J
S18T011799			71-36-3	1-Butanol	NGS	100	<3.2	36	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011799			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011799			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011799			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011799			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011799			78-93-3	2-Butanone	NGS	97	<0.82	6.7	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011799			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011799			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011799			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011799			78-94-4	3-Buten-2-one	NGS	110	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011799			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011799			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011799			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011799			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011799			67-64-1	Acetone	NGS	110	2.1	80	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011799			75-05-8	Acetonitrile	NGS	110	<1.1	11	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011799			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011799			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011799			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011799			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011799			71-43-2	Benzene	NGS	96	<0.49	4.7	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-4
Customer Sample ID: 18-02350-2-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															
S18T011799			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011799			123-72-8	Butanal	NGS	96	<1.6	4.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011799			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011799			56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.4	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011799			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011799			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011799			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011799			110-82-7	Cyclohexane	NGS	90	<0.73	1.0	n/a	n/a	n/a	n/a	0.73	n/a	J
S18T011799			124-18-5	Decane	NGS	100	<0.95	3.2	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011799			64-17-5	Ethanol	NGS	100	<1.9	44	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011799			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011799			100-41-4	Ethylbenzene	NGS	92	<0.72	0.75	n/a	n/a	n/a	n/a	0.72	n/a	J
S18T011799			110-00-9	Furan	NGS	110	<1.0	7.0	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011799			110-54-3	Hexane	NGS	110	<1.1	6.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011799			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011799			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011799			75-09-2	Methylene Chloride	NGS	100	1.8	5.5	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011799			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011799			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011799			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011799			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011799			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011799			100-42-5	Styrene	NGS	99	<0.65	0.67	n/a	n/a	n/a	n/a	0.65	n/a	J
S18T011799			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011799			108-88-3	Toluene	NGS	93	<0.59	5.2	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011799			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011799			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	6.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011799			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011799			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-4
Customer Sample ID: 18-02350-2-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															
S18T011799			142-82-5	n-Heptane	NGS	97	<0.63	2.3	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011799			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-5
Customer Sample ID: 18-02350-2-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														
S18T011800		79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011800		79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011800		75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011800		75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011800		107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011800		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011800		106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011800		123-91-1	1,4-Dioxane	NGS	95	<0.49	0.53	n/a	n/a	n/a	n/a	0.49	n/a	J
S18T011800		71-36-3	1-Butanol	NGS	100	<3.2	13	n/a	n/a	n/a	n/a	3.2	n/a	JL
S18T011800		111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011800		71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011800		108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011800		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011800		78-93-3	2-Butanone	NGS	97	<0.82	4.2	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011800		110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011800		591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011800		534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011800		78-94-4	3-Buten-2-one	NGS	110	<1.1	2.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011800		106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011800		106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011800		105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011800		108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011800		67-64-1	Acetone	NGS	110	2.1	43	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011800		75-05-8	Acetonitrile	NGS	110	<1.1	12	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011800		98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011800		107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011800		107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011800		107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011800		71-43-2	Benzene	NGS	96	<0.49	7.1	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-5
Customer Sample ID: 18-02350-2-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															
S18T011800			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011800			123-72-8	Butanal	NGS	96	<1.6	2.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011800			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011800			56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.4	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011800			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011800			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011800			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011800			110-82-7	Cyclohexane	NGS	90	<0.73	1.4	n/a	n/a	n/a	n/a	0.73	n/a	J
S18T011800			124-18-5	Decane	NGS	100	<0.95	3.6	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011800			64-17-5	Ethanol	NGS	100	<1.9	44	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011800			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011800			100-41-4	Ethylbenzene	NGS	92	<0.72	0.85	n/a	n/a	n/a	n/a	0.72	n/a	J
S18T011800			110-00-9	Furan	NGS	110	<1.0	3.1	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011800			110-54-3	Hexane	NGS	110	<1.1	8.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011800			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011800			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011800			75-09-2	Methylene Chloride	NGS	100	1.8	12	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011800			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011800			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011800			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011800			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011800			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011800			100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011800			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011800			108-88-3	Toluene	NGS	93	<0.59	6.9	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011800			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011800			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	5.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011800			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011800			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-5
Customer Sample ID: 18-02350-2-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															
S18T011800			142-82-5	n-Heptane	NGS	97	<0.63	3.1	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011800			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-6
Customer Sample ID: 18-02350-2-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															
S18T011801			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011801			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011801			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011801			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011801			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011801			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011801			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011801			123-91-1	1,4-Dioxane	NGS	95	<0.49	<0.49	n/a	n/a	n/a	n/a	0.49	n/a	
S18T011801			71-36-3	1-Butanol	NGS	100	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	L
S18T011801			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011801			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011801			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011801			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011801			78-93-3	2-Butanone	NGS	97	<0.82	2.5	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011801			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011801			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011801			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011801			78-94-4	3-Buten-2-one	NGS	110	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011801			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011801			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011801			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011801			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011801			67-64-1	Acetone	NGS	110	2.1	50	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011801			75-05-8	Acetonitrile	NGS	110	<1.1	7.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011801			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011801			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011801			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011801			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011801			71-43-2	Benzene	NGS	96	<0.49	4.5	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-6
Customer Sample ID: 18-02350-2-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														
S18T011801		100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011801		123-72-8	Butanal	NGS	96	<1.6	1.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011801		109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011801		56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.1	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011801		108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011801		75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011801		67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011801		110-82-7	Cyclohexane	NGS	90	<0.73	1.5	n/a	n/a	n/a	n/a	0.73	n/a	J
S18T011801		124-18-5	Decane	NGS	100	<0.95	2.5	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011801		64-17-5	Ethanol	NGS	100	<1.9	59	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011801		141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011801		100-41-4	Ethylbenzene	NGS	92	<0.72	0.81	n/a	n/a	n/a	n/a	0.72	n/a	J
S18T011801		110-00-9	Furan	NGS	110	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011801		110-54-3	Hexane	NGS	110	<1.1	8.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011801		628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011801		126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011801		75-09-2	Methylene Chloride	NGS	100	1.8	4.8	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011801		91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011801		98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011801		110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011801		107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011801		110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011801		100-42-5	Styrene	NGS	99	<0.65	<0.65	n/a	n/a	n/a	n/a	0.65	n/a	
S18T011801		127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011801		108-88-3	Toluene	NGS	93	<0.59	6.4	n/a	n/a	n/a	n/a	0.59	n/a	J
S18T011801		79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011801		75-69-4	Trichlorofluoromethane	NGS	110	<1.5	4.7	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011801		10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011801		123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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Q - Qualitative
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Y - Comment
J - Estimated
E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-6
Customer Sample ID: 18-02350-2-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															
S18T011801			142-82-5	n-Heptane	NGS	97	<0.63	2.4	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011801			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

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

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-7
Customer Sample ID: 18-02350-2-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															
S18T011802			79-34-5	1,1,2,2-Tetrachloroethane	NGS	85	<0.76	<0.76	n/a	n/a	n/a	n/a	0.76	n/a	
S18T011802			79-00-5	1,1,2-Trichloroethane	NGS	97	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011802			75-34-3	1,1-Dichloroethane	NGS	110	<0.66	<0.66	n/a	n/a	n/a	n/a	0.66	n/a	
S18T011802			75-35-4	1,1-Dichloroethene	NGS	110	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011802			107-06-2	1,2-Dichloroethane	NGS	100	<0.32	<0.32	n/a	n/a	n/a	n/a	0.32	n/a	
S18T011802			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	1.2	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011802			106-46-7	1,4-Dichlorobenzene	NGS	98	1.1	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011802			123-91-1	1,4-Dioxane	NGS	95	<0.49	0.76	n/a	n/a	n/a	n/a	0.49	n/a	J
S18T011802			71-36-3	1-Butanol	NGS	100	<3.2	20	n/a	n/a	n/a	n/a	3.2	n/a	JL
S18T011802			111-70-6	1-Heptanol	NGS	76	<9.5	<9.5	n/a	n/a	n/a	n/a	9.5	n/a	LQY
S18T011802			71-23-8	1-Propanol	NGS	110	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011802			108-47-4	2,4-Dimethylpyridine	NGS	99	<4.4	<4.4	n/a	n/a	n/a	n/a	4.4	n/a	
S18T011802			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011802			78-93-3	2-Butanone	NGS	97	<0.82	4.5	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011802			110-43-0	2-Heptanone	NGS	96	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011802			591-78-6	2-Hexanone	NGS	94	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	
S18T011802			534-22-5	2-Methylfuran	NGS	85	<0.79	<0.79	n/a	n/a	n/a	n/a	0.79	n/a	
S18T011802			78-94-4	3-Buten-2-one	NGS	110	<1.1	2.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011802			106-35-4	3-Heptanone	NGS	99	<0.95	<0.95	n/a	n/a	n/a	n/a	0.95	n/a	
S18T011802			106-68-3	3-Octanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011802			105-42-0	4-Methyl-2-hexanone	NGS	100	<0.84	<0.84	n/a	n/a	n/a	n/a	0.84	n/a	
S18T011802			108-10-1	4-Methyl-2-Pentanone	NGS	98	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	
S18T011802			67-64-1	Acetone	NGS	110	2.1	71	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011802			75-05-8	Acetonitrile	NGS	110	<1.1	14	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011802			98-86-2	Acetophenone	NGS	100	<3.4	<3.4	n/a	n/a	n/a	n/a	3.4	n/a	
S18T011802			107-13-1	Acrylonitrile	NGS	110	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011802			107-18-6	Allyl Alcohol	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011802			107-05-1	Allyl Chloride	NGS	83	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011802			71-43-2	Benzene	NGS	96	<0.49	7.6	n/a	n/a	n/a	n/a	0.49	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-7
Customer Sample ID: 18-02350-2-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															
S18T011802			100-47-0	Benzonitrile	NGS	95	1.5	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011802			123-72-8	Butanal	NGS	96	<1.6	2.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011802			109-74-0	Butanenitrile	NGS	100	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011802			56-23-5	Carbon tetrachloride	NGS	100	<0.60	1.4	n/a	n/a	n/a	n/a	0.60	n/a	J
S18T011802			108-90-7	Chlorobenzene	NGS	110	<0.75	<0.75	n/a	n/a	n/a	n/a	0.75	n/a	
S18T011802			75-00-3	Chloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011802			67-66-3	Chloroform	NGS	93	<0.64	<0.64	n/a	n/a	n/a	n/a	0.64	n/a	
S18T011802			110-82-7	Cyclohexane	NGS	90	<0.73	2.2	n/a	n/a	n/a	n/a	0.73	n/a	J
S18T011802			124-18-5	Decane	NGS	100	<0.95	5.7	n/a	n/a	n/a	n/a	0.95	n/a	J
S18T011802			64-17-5	Ethanol	NGS	100	<1.9	74	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011802			141-78-6	Ethyl acetate	NGS	97	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011802			100-41-4	Ethylbenzene	NGS	92	<0.72	1.4	n/a	n/a	n/a	n/a	0.72	n/a	J
S18T011802			110-00-9	Furan	NGS	110	<1.0	4.0	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011802			110-54-3	Hexane	NGS	110	<1.1	13	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011802			628-73-9	Hexanenitrile	NGS	95	<0.54	<0.54	n/a	n/a	n/a	n/a	0.54	n/a	
S18T011802			126-98-7	Methacrylonitrile	NGS	110	<0.56	<0.56	n/a	n/a	n/a	n/a	0.56	n/a	
S18T011802			75-09-2	Methylene Chloride	NGS	100	1.8	6.9	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011802			91-20-3	Naphthalene	NGS	99	<3.5	<3.5	n/a	n/a	n/a	n/a	3.5	n/a	
S18T011802			98-95-3	Nitrobenzene	NGS	84	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011802			110-59-8	Pentanenitrile	NGS	90	<0.59	<0.59	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011802			107-12-0	Propanenitrile	NGS	110	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	
S18T011802			110-86-1	Pyridine	NGS	97	<5.6	<5.6	n/a	n/a	n/a	n/a	5.6	n/a	
S18T011802			100-42-5	Styrene	NGS	99	<0.65	0.86	n/a	n/a	n/a	n/a	0.65	n/a	J
S18T011802			127-18-4	Tetrachloroethene	NGS	110	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011802			108-88-3	Toluene	NGS	93	<0.59	12	n/a	n/a	n/a	n/a	0.59	n/a	
S18T011802			79-01-6	Trichloroethene	NGS	94	<0.47	<0.47	n/a	n/a	n/a	n/a	0.47	n/a	
S18T011802			75-69-4	Trichlorofluoromethane	NGS	110	<1.5	5.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011802			10061-01-5	cis-1,3-Dichloropropene	NGS	96	<0.69	1.2	n/a	n/a	n/a	n/a	0.69	n/a	J
S18T011802			123-86-4	n-Butyl acetate	NGS	97	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180943
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-7
Customer Sample ID: 18-02350-2-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															
S18T011802			142-82-5	n-Heptane	NGS	97	<0.63	3.8	n/a	n/a	n/a	n/a	0.63	n/a	J
S18T011802			10061-02-6	trans-1,3-Dichloropropene	NGS	92	<0.92	<0.92	n/a	n/a	n/a	n/a	0.92	n/a	

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Daniel Hansen
Daniel Hansen
7-26-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BA-EF
Customer Sample ID: 18-02348-2-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T011803			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011803			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011803			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011803			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011803			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011803			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011803			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011803			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011803			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011803			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011803			71-23-8	1-Propanol	NGS	110	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011803			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011803			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011803			78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011803			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011803			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011803			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011803			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011803			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011803			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011803			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011803			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011803			67-64-1	Acetone	NGS	83	<5.0	12	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011803			75-05-8	Acetonitrile	NGS	110	<2.0	76	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011803			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011803			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011803			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011803			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011803			71-43-2	Benzene	NGS	110	<2.2	2.3	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BA-EF
Customer Sample ID: 18-02348-2-SD1-BA-EF

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2														
S18T011803		100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011803		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011803		109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011803		56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011803		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011803		75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011803		67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011803		110-82-7	Cyclohexane	NGS	110	<1.9	9.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011803		124-18-5	Decane	NGS	110	<1.6	3.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011803		64-17-5	Ethanol	NGS	82	<5.0	12	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011803		141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011803		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011803		110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011803		110-54-3	Hexane	NGS	110	2.2	3.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011803		628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011803		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011803		75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011803		91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011803		98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011803		110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011803		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011803		110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011803		100-42-5	Styrene	NGS	100	<2.3	4.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011803		127-18-4	Tetrachloroethene	NGS	110	<1.6	7.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011803		108-88-3	Toluene	NGS	110	<0.97	4.1	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011803		79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011803		75-69-4	Trichlorofluoromethane	NGS	110	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	U
S18T011803		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011803		123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BA-EF
Customer Sample ID: 18-02348-2-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
VAPOR-TDU VOA #2															
S18T011803			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011803			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BA-IN
Customer Sample ID: 18-02348-2-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															
S18T011804			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011804			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011804			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011804			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011804			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011804			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011804			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011804			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011804			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011804			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011804			71-23-8	1-Propanol	NGS	110	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011804			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011804			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011804			78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011804			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011804			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011804			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011804			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011804			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011804			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011804			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011804			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011804			67-64-1	Acetone	NGS	83	<5.0	12	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011804			75-05-8	Acetonitrile	NGS	110	<2.0	37	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011804			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011804			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011804			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011804			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011804			71-43-2	Benzene	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BA-IN
Customer Sample ID: 18-02348-2-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															
S18T011804			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011804			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011804			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011804			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011804			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011804			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011804			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011804			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011804			124-18-5	Decane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011804			64-17-5	Ethanol	NGS	82	<5.0	15	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011804			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011804			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011804			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011804			110-54-3	Hexane	NGS	110	2.2	3.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011804			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011804			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011804			75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011804			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011804			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011804			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011804			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011804			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011804			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011804			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011804			108-88-3	Toluene	NGS	110	<0.97	1.7	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011804			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011804			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	U
S18T011804			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011804			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BA-IN
Customer Sample ID: 18-02348-2-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															
S18T011804			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011804			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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C.200

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BL-EF
Customer Sample ID: 18-02348-2-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															
S18T011805			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011805			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011805			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011805			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011805			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011805			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011805			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011805			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011805			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011805			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011805			71-23-8	1-Propanol	NGS	110	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011805			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011805			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011805			78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011805			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011805			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011805			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011805			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011805			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011805			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011805			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011805			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011805			67-64-1	Acetone	NGS	83	<5.0	5.8	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011805			75-05-8	Acetonitrile	NGS	110	<2.0	32	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011805			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011805			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011805			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011805			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011805			71-43-2	Benzene	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

U - Less Than Detection Limit

C.201

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BL-EF
Customer Sample ID: 18-02348-2-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														
S18T011805		100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011805		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011805		109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011805		56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011805		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011805		75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011805		67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011805		110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011805		124-18-5	Decane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011805		64-17-5	Ethanol	NGS	82	<5.0	5.8	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011805		141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011805		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011805		110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011805		110-54-3	Hexane	NGS	110	2.2	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011805		628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011805		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011805		75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011805		91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011805		98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011805		110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011805		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011805		110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011805		100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011805		127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011805		108-88-3	Toluene	NGS	110	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011805		79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011805		75-69-4	Trichlorofluoromethane	NGS	110	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	U
S18T011805		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011805		123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

U - Less Than Detection Limit

C.202

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BL-EF
Customer Sample ID: 18-02348-2-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															
S18T011805			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011805			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

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

C.203

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BL-IN
Customer Sample ID: 18-02348-2-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															
S18T011806			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011806			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011806			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011806			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011806			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011806			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011806			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011806			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011806			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011806			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011806			71-23-8	1-Propanol	NGS	110	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011806			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011806			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011806			78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011806			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011806			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011806			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011806			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011806			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011806			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011806			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011806			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011806			67-64-1	Acetone	NGS	83	<5.0	5.9	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011806			75-05-8	Acetonitrile	NGS	110	<2.0	52	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011806			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011806			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011806			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011806			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011806			71-43-2	Benzene	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U

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Q - Qualitative
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L - LLS Outside Range
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E - Outside Calibration Range

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BL-IN
Customer Sample ID: 18-02348-2-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															
S18T011806			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011806			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011806			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011806			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011806			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011806			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011806			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011806			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011806			124-18-5	Decane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011806			64-17-5	Ethanol	NGS	82	<5.0	12	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011806			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011806			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011806			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011806			110-54-3	Hexane	NGS	110	2.2	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011806			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011806			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011806			75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011806			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011806			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011806			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011806			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011806			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011806			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011806			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011806			108-88-3	Toluene	NGS	110	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011806			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011806			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	U
S18T011806			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011806			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-BL-IN
Customer Sample ID: 18-02348-2-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															
S18T011806			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011806			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

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

C.206

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-2
Customer Sample ID: 18-02348-2-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															
S18T011807			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011807			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011807			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011807			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011807			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011807			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011807			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011807			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011807			71-36-3	1-Butanol	NGS	97	<49	94	n/a	n/a	n/a	n/a	49	n/a	J
S18T011807			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011807			71-23-8	1-Propanol	NGS	110	<3.8	19	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011807			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011807			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011807			78-93-3	2-Butanone	NGS	100	<1.6	9.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011807			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011807			591-78-6	2-Hexanone	NGS	100	<1.4	1.4	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011807			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011807			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011807			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011807			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011807			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011807			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011807			67-64-1	Acetone	NGS	83	<5.0	250	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011807			75-05-8	Acetonitrile	NGS	110	<2.0	22	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011807			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011807			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011807			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011807			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011807			71-43-2	Benzene	NGS	110	<2.2	2.6	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-2
Customer Sample ID: 18-02348-2-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															
S18T011807			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011807			123-72-8	Butanal	NGS	120	<3.8	7.8	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011807			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011807			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011807			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011807			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011807			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011807			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011807			124-18-5	Decane	NGS	110	<1.6	3.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011807			64-17-5	Ethanol	NGS	82	<5.0	64	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011807			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011807			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011807			110-00-9	Furan	NGS	93	<2.4	12	n/a	n/a	n/a	n/a	2.4	n/a	J
S18T011807			110-54-3	Hexane	NGS	110	2.2	4.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011807			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011807			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011807			75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011807			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011807			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011807			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011807			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011807			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011807			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011807			127-18-4	Tetrachloroethene	NGS	110	<1.6	3.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011807			108-88-3	Toluene	NGS	110	<0.97	4.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011807			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011807			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	11	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011807			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011807			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-2
Customer Sample ID: 18-02348-2-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															
S18T011807			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011807			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-3
Customer Sample ID: 18-02348-2-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														
S18T011808		79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	UY
S18T011808		79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S18T011808		75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S18T011808		75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S18T011808		107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S18T011808		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	UY
S18T011808		106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S18T011808		123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S18T011808		71-36-3	1-Butanol	NGS	97	<49	74	n/a	n/a	n/a	n/a	49	n/a	JY
S18T011808		111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011808		71-23-8	1-Propanol	NGS	110	<3.8	14	n/a	n/a	n/a	n/a	3.8	n/a	JY
S18T011808		108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S18T011808		1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S18T011808		78-93-3	2-Butanone	NGS	100	<1.6	8.3	n/a	n/a	n/a	n/a	1.6	n/a	JY
S18T011808		110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S18T011808		591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	UY
S18T011808		534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	UY
S18T011808		78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S18T011808		106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY
S18T011808		106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	UY
S18T011808		105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S18T011808		108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	4.9	n/a	n/a	n/a	n/a	2.1	n/a	JY
S18T011808		67-64-1	Acetone	NGS	83	<5.0	200	n/a	n/a	n/a	n/a	5.0	n/a	Y
S18T011808		75-05-8	Acetonitrile	NGS	110	<2.0	15	n/a	n/a	n/a	n/a	2.0	n/a	Y
S18T011808		98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	UY
S18T011808		107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	UY
S18T011808		107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011808		107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY
S18T011808		71-43-2	Benzene	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-3
Customer Sample ID: 18-02348-2-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															
S18T011808			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	UY
S18T011808			123-72-8	Butanal	NGS	120	<3.8	7.1	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011808			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S18T011808			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	UY
S18T011808			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S18T011808			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S18T011808			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	UY
S18T011808			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S18T011808			124-18-5	Decane	NGS	110	<1.6	2.8	n/a	n/a	n/a	n/a	1.6	n/a	JY
S18T011808			64-17-5	Ethanol	NGS	82	<5.0	46	n/a	n/a	n/a	n/a	5.0	n/a	Y
S18T011808			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	UY
S18T011808			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	UY
S18T011808			110-00-9	Furan	NGS	93	<2.4	6.1	n/a	n/a	n/a	n/a	2.4	n/a	JY
S18T011808			110-54-3	Hexane	NGS	110	2.2	4.0	n/a	n/a	n/a	n/a	1.9	n/a	JY
S18T011808			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	UY
S18T011808			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	UY
S18T011808			75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	UY
S18T011808			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY
S18T011808			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	UY
S18T011808			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S18T011808			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	UY
S18T011808			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	UY
S18T011808			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	UY
S18T011808			127-18-4	Tetrachloroethene	NGS	110	<1.6	2.2	n/a	n/a	n/a	n/a	1.6	n/a	JY
S18T011808			108-88-3	Toluene	NGS	110	<0.97	3.3	n/a	n/a	n/a	n/a	0.97	n/a	JY
S18T011808			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	UY
S18T011808			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	8.8	n/a	n/a	n/a	n/a	3.7	n/a	JY
S18T011808			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	UY
S18T011808			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	UY

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-3
Customer Sample ID: 18-02348-2-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															
S18T011808			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	UY
S18T011808			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	UY

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-4
Customer Sample ID: 18-02348-2-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															
S18T011809			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011809			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011809			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011809			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011809			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011809			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011809			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011809			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011809			71-36-3	1-Butanol	NGS	97	<49	76	n/a	n/a	n/a	n/a	49	n/a	J
S18T011809			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011809			71-23-8	1-Propanol	NGS	110	<3.8	11	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011809			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011809			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011809			78-93-3	2-Butanone	NGS	100	<1.6	6.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011809			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011809			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011809			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011809			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011809			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011809			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011809			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011809			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	5.2	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011809			67-64-1	Acetone	NGS	83	<5.0	150	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011809			75-05-8	Acetonitrile	NGS	110	<2.0	69	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011809			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011809			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011809			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011809			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011809			71-43-2	Benzene	NGS	110	<2.2	2.6	n/a	n/a	n/a	n/a	2.2	n/a	J

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L - LLS Outside Range
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E - Outside Calibration Range

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-4
Customer Sample ID: 18-02348-2-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															
S18T011809			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011809			123-72-8	Butanal	NGS	120	<3.8	5.1	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011809			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011809			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011809			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011809			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011809			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011809			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011809			124-18-5	Decane	NGS	110	<1.6	2.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011809			64-17-5	Ethanol	NGS	82	<5.0	86	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011809			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011809			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011809			110-00-9	Furan	NGS	93	<2.4	6.4	n/a	n/a	n/a	n/a	2.4	n/a	J
S18T011809			110-54-3	Hexane	NGS	110	2.2	4.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011809			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011809			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011809			75-09-2	Methylene Chloride	NGS	92	<4.2	78	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011809			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011809			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011809			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011809			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011809			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011809			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011809			127-18-4	Tetrachloroethene	NGS	110	<1.6	2.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011809			108-88-3	Toluene	NGS	110	<0.97	4.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011809			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011809			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	6.8	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011809			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011809			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-4
Customer Sample ID: 18-02348-2-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															
S18T011809			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011809			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-5
Customer Sample ID: 18-02348-2-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															
S18T011810			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011810			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011810			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011810			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011810			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011810			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011810			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011810			123-91-1	1,4-Dioxane	NGS	110	<2.3	2.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011810			71-36-3	1-Butanol	NGS	97	<49	120	n/a	n/a	n/a	n/a	49	n/a	
S18T011810			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011810			71-23-8	1-Propanol	NGS	110	<3.8	25	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011810			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011810			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011810			78-93-3	2-Butanone	NGS	100	<1.6	11	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011810			110-43-0	2-Heptanone	NGS	98	<2.2	2.4	n/a	n/a	n/a	n/a	2.2	n/a	J
S18T011810			591-78-6	2-Hexanone	NGS	100	<1.4	1.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011810			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011810			78-94-4	3-Buten-2-one	NGS	110	<3.6	4.0	n/a	n/a	n/a	n/a	3.6	n/a	J
S18T011810			106-35-4	3-Heptanone	NGS	110	<2.9	3.4	n/a	n/a	n/a	n/a	2.9	n/a	J
S18T011810			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011810			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011810			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	3.4	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011810			67-64-1	Acetone	NGS	83	<5.0	280	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011810			75-05-8	Acetonitrile	NGS	110	<2.0	24	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011810			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011810			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011810			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011810			107-05-1	Allyl Chloride	NGS	91	<2.6	6.3	n/a	n/a	n/a	n/a	2.6	n/a	J
S18T011810			71-43-2	Benzene	NGS	110	<2.2	3.5	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-5
Customer Sample ID: 18-02348-2-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															
S18T011810			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011810			123-72-8	Butanal	NGS	120	<3.8	8.8	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011810			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011810			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011810			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011810			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011810			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011810			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011810			124-18-5	Decane	NGS	110	<1.6	3.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011810			64-17-5	Ethanol	NGS	82	<5.0	87	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011810			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011810			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011810			110-00-9	Furan	NGS	93	<2.4	10	n/a	n/a	n/a	n/a	2.4	n/a	J
S18T011810			110-54-3	Hexane	NGS	110	2.2	6.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011810			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011810			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011810			75-09-2	Methylene Chloride	NGS	92	<4.2	5.8	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011810			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011810			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011810			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011810			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011810			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011810			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011810			127-18-4	Tetrachloroethene	NGS	110	<1.6	2.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011810			108-88-3	Toluene	NGS	110	<0.97	6.3	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011810			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011810			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	11	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011810			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011810			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-5
Customer Sample ID: 18-02348-2-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															
S18T011810			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011810			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-6
Customer Sample ID: 18-02348-2-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															
S18T011811			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011811			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011811			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011811			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011811			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011811			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011811			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011811			123-91-1	1,4-Dioxane	NGS	110	<2.3	2.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011811			71-36-3	1-Butanol	NGS	97	<49	140	n/a	n/a	n/a	n/a	49	n/a	
S18T011811			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011811			71-23-8	1-Propanol	NGS	110	<3.8	22	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011811			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011811			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011811			78-93-3	2-Butanone	NGS	100	<1.6	11	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011811			110-43-0	2-Heptanone	NGS	98	<2.2	2.6	n/a	n/a	n/a	n/a	2.2	n/a	J
S18T011811			591-78-6	2-Hexanone	NGS	100	<1.4	1.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011811			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011811			78-94-4	3-Buten-2-one	NGS	110	<3.6	4.3	n/a	n/a	n/a	n/a	3.6	n/a	J
S18T011811			106-35-4	3-Heptanone	NGS	110	<2.9	3.3	n/a	n/a	n/a	n/a	2.9	n/a	J
S18T011811			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011811			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011811			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011811			67-64-1	Acetone	NGS	83	<5.0	380	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011811			75-05-8	Acetonitrile	NGS	110	<2.0	28	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011811			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011811			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011811			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011811			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011811			71-43-2	Benzene	NGS	110	<2.2	4.0	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-6
Customer Sample ID: 18-02348-2-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															
S18T011811			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011811			123-72-8	Butanal	NGS	120	<3.8	7.0	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011811			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011811			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011811			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011811			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011811			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011811			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011811			124-18-5	Decane	NGS	110	<1.6	3.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011811			64-17-5	Ethanol	NGS	82	<5.0	90	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011811			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011811			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011811			110-00-9	Furan	NGS	93	<2.4	8.6	n/a	n/a	n/a	n/a	2.4	n/a	J
S18T011811			110-54-3	Hexane	NGS	110	2.2	6.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011811			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011811			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011811			75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011811			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011811			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011811			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011811			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011811			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011811			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011811			127-18-4	Tetrachloroethene	NGS	110	<1.6	2.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011811			108-88-3	Toluene	NGS	110	<0.97	6.4	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011811			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011811			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	11	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011811			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011811			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-6
Customer Sample ID: 18-02348-2-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															
S18T011811			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011811			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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J - Estimated

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U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-7
Customer Sample ID: 18-02348-2-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															
S18T011812			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011812			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011812			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011812			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011812			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011812			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011812			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011812			123-91-1	1,4-Dioxane	NGS	110	<2.3	3.1	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011812			71-36-3	1-Butanol	NGS	97	<49	140	n/a	n/a	n/a	n/a	49	n/a	
S18T011812			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011812			71-23-8	1-Propanol	NGS	110	<3.8	30	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011812			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011812			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011812			78-93-3	2-Butanone	NGS	100	<1.6	12	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011812			110-43-0	2-Heptanone	NGS	98	<2.2	2.7	n/a	n/a	n/a	n/a	2.2	n/a	J
S18T011812			591-78-6	2-Hexanone	NGS	100	<1.4	4.1	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011812			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011812			78-94-4	3-Buten-2-one	NGS	110	<3.6	4.2	n/a	n/a	n/a	n/a	3.6	n/a	J
S18T011812			106-35-4	3-Heptanone	NGS	110	<2.9	3.4	n/a	n/a	n/a	n/a	2.9	n/a	J
S18T011812			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011812			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011812			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011812			67-64-1	Acetone	NGS	83	<5.0	420	n/a	n/a	n/a	n/a	5.0	n/a	E
S18T011812			75-05-8	Acetonitrile	NGS	110	<2.0	31	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011812			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011812			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011812			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011812			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011812			71-43-2	Benzene	NGS	110	<2.2	3.2	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-7
Customer Sample ID: 18-02348-2-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															
S18T011812			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011812			123-72-8	Butanal	NGS	120	<3.8	6.7	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011812			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011812			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011812			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011812			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011812			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011812			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011812			124-18-5	Decane	NGS	110	<1.6	3.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011812			64-17-5	Ethanol	NGS	82	<5.0	99	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011812			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011812			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011812			110-00-9	Furan	NGS	93	<2.4	5.4	n/a	n/a	n/a	n/a	2.4	n/a	J
S18T011812			110-54-3	Hexane	NGS	110	2.2	5.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011812			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011812			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011812			75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011812			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011812			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011812			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011812			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011812			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011812			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011812			127-18-4	Tetrachloroethene	NGS	110	<1.6	2.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011812			108-88-3	Toluene	NGS	110	<0.97	4.7	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011812			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011812			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	12	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011812			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011812			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
Y - Comment
L - LLS Outside Range
J - Estimated
E - Outside Calibration Range
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-7
Customer Sample ID: 18-02348-2-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															
S18T011812			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011812			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

Q - Qualitative
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L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BA-EF
Customer Sample ID: 18-02351-2-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															
S18T011813			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011813			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011813			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011813			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011813			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011813			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011813			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011813			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011813			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011813			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011813			71-23-8	1-Propanol	NGS	110	<3.8	4.8	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011813			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011813			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011813			78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011813			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011813			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011813			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011813			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011813			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011813			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011813			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	9.6	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011813			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011813			67-64-1	Acetone	NGS	83	<5.0	24	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011813			75-05-8	Acetonitrile	NGS	110	<2.0	110	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011813			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011813			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011813			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011813			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011813			71-43-2	Benzene	NGS	110	<2.2	3.1	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BA-EF
Customer Sample ID: 18-02351-2-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															
S18T011813			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011813			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011813			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011813			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011813			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011813			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011813			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011813			110-82-7	Cyclohexane	NGS	110	<1.9	4.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011813			124-18-5	Decane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011813			64-17-5	Ethanol	NGS	82	<5.0	36	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011813			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011813			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011813			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011813			110-54-3	Hexane	NGS	110	2.2	5.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011813			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011813			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011813			75-09-2	Methylene Chloride	NGS	92	<4.2	4.3	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011813			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011813			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011813			110-59-8	Pentanenitrile	NGS	110	<2.0	4.6	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011813			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011813			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011813			100-42-5	Styrene	NGS	100	<2.3	3.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011813			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011813			108-88-3	Toluene	NGS	110	<0.97	7.0	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011813			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011813			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	4.2	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011813			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011813			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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Q - Qualitative
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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BA-EF
Customer Sample ID: 18-02351-2-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															
S18T011813			142-82-5	n-Heptane	NGS	100	<2.0	3.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011813			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BA-IN
Customer Sample ID: 18-02351-2-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														
S18T011814		79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011814		79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011814		75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011814		75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011814		107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011814		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011814		106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011814		123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011814		71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011814		111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011814		71-23-8	1-Propanol	NGS	110	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011814		108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011814		1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011814		78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011814		110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011814		591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011814		534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011814		78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011814		106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011814		106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011814		105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011814		108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011814		67-64-1	Acetone	NGS	83	<5.0	20	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011814		75-05-8	Acetonitrile	NGS	110	<2.0	120	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011814		98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011814		107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011814		107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011814		107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011814		71-43-2	Benzene	NGS	110	<2.2	4.3	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BA-IN
Customer Sample ID: 18-02351-2-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															
S18T011814			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011814			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011814			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011814			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011814			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011814			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011814			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011814			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011814			124-18-5	Decane	NGS	110	<1.6	4.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011814			64-17-5	Ethanol	NGS	82	<5.0	22	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011814			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011814			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011814			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011814			110-54-3	Hexane	NGS	110	2.2	7.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011814			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011814			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011814			75-09-2	Methylene Chloride	NGS	92	<4.2	4.5	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011814			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011814			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011814			110-59-8	Pentanenitrile	NGS	110	<2.0	3.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011814			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011814			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011814			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011814			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011814			108-88-3	Toluene	NGS	110	<0.97	5.5	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011814			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011814			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	5.3	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011814			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011814			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

NA = Not Analyzed, ND = Not Detected

Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BA-IN
Customer Sample ID: 18-02351-2-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														
S18T011814		142-82-5	n-Heptane	NGS	100	<2.0	5.7	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011814		10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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Q - Qualitative
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L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BL-EF
Customer Sample ID: 18-02351-2-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															
S18T011815			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011815			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011815			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011815			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011815			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011815			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011815			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011815			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011815			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011815			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011815			71-23-8	1-Propanol	NGS	110	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011815			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011815			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011815			78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011815			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011815			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011815			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011815			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011815			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011815			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011815			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011815			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011815			67-64-1	Acetone	NGS	83	<5.0	12	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011815			75-05-8	Acetonitrile	NGS	110	<2.0	2.3E+03	n/a	n/a	n/a	n/a	2.0	n/a	EY
S18T011815			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011815			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011815			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011815			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011815			71-43-2	Benzene	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BL-EF
Customer Sample ID: 18-02351-2-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															
S18T011815			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011815			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011815			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011815			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011815			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011815			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011815			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011815			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011815			124-18-5	Decane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011815			64-17-5	Ethanol	NGS	82	<5.0	18	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011815			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011815			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011815			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011815			110-54-3	Hexane	NGS	110	2.2	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011815			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011815			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011815			75-09-2	Methylene Chloride	NGS	92	<4.2	4.5	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011815			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011815			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011815			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011815			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011815			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011815			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011815			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011815			108-88-3	Toluene	NGS	110	<0.97	1.9	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011815			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011815			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	U
S18T011815			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011815			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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Q - Qualitative
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L - LLS Outside Range
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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BL-EF
Customer Sample ID: 18-02351-2-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															
S18T011815			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011815			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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Y - Comment
L - LLS Outside Range
J - Estimated
E - Outside Calibration Range
U - Less Than Detection Limit

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BL-IN
Customer Sample ID: 18-02351-2-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															
S18T011816			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011816			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011816			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011816			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011816			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011816			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011816			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011816			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011816			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011816			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011816			71-23-8	1-Propanol	NGS	110	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011816			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011816			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011816			78-93-3	2-Butanone	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011816			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011816			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011816			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011816			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011816			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011816			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011816			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011816			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011816			67-64-1	Acetone	NGS	83	<5.0	15	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011816			75-05-8	Acetonitrile	NGS	110	<2.0	82	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011816			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011816			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011816			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011816			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011816			71-43-2	Benzene	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BL-IN
Customer Sample ID: 18-02351-2-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															
S18T011816			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011816			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011816			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011816			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011816			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011816			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011816			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011816			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011816			124-18-5	Decane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011816			64-17-5	Ethanol	NGS	82	<5.0	36	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011816			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011816			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011816			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011816			110-54-3	Hexane	NGS	110	2.2	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011816			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011816			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011816			75-09-2	Methylene Chloride	NGS	92	<4.2	4.8	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011816			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011816			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011816			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011816			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011816			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011816			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011816			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011816			108-88-3	Toluene	NGS	110	<0.97	3.0	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011816			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011816			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	U
S18T011816			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011816			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-BL-IN
Customer Sample ID: 18-02351-2-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															
S18T011816			142-82-5	n-Heptane	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011816			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-2
Customer Sample ID: 18-02351-2-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															
S18T011817			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011817			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011817			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011817			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011817			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011817			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011817			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011817			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011817			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011817			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011817			71-23-8	1-Propanol	NGS	110	<3.8	4.6	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011817			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011817			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011817			78-93-3	2-Butanone	NGS	100	<1.6	3.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011817			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011817			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011817			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011817			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011817			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011817			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011817			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011817			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011817			67-64-1	Acetone	NGS	83	<5.0	78	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011817			75-05-8	Acetonitrile	NGS	110	<2.0	32	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011817			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011817			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011817			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011817			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011817			71-43-2	Benzene	NGS	110	<2.2	4.8	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-2
Customer Sample ID: 18-02351-2-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														
S18T011817		100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011817		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011817		109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011817		56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011817		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011817		75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011817		67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011817		110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011817		124-18-5	Decane	NGS	110	<1.6	5.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011817		64-17-5	Ethanol	NGS	82	<5.0	57	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011817		141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011817		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011817		110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011817		110-54-3	Hexane	NGS	110	2.2	7.6	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011817		628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011817		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011817		75-09-2	Methylene Chloride	NGS	92	<4.2	4.8	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011817		91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011817		98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011817		110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011817		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011817		110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011817		100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011817		127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011817		108-88-3	Toluene	NGS	110	<0.97	7.0	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011817		79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011817		75-69-4	Trichlorofluoromethane	NGS	110	<3.7	5.1	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011817		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011817		123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-2
Customer Sample ID: 18-02351-2-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														
S18T011817		142-82-5	n-Heptane	NGS	100	<2.0	2.6	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011817		10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-3
Customer Sample ID: 18-02351-2-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															
S18T011818			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011818			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011818			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011818			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011818			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011818			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011818			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011818			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011818			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011818			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011818			71-23-8	1-Propanol	NGS	110	<3.8	5.8	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011818			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011818			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011818			78-93-3	2-Butanone	NGS	100	<1.6	4.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011818			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011818			591-78-6	2-Hexanone	NGS	100	<1.4	2.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011818			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011818			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011818			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011818			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011818			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011818			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011818			67-64-1	Acetone	NGS	83	<5.0	95	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011818			75-05-8	Acetonitrile	NGS	110	<2.0	16	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011818			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011818			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011818			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011818			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011818			71-43-2	Benzene	NGS	110	<2.2	4.8	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-3
Customer Sample ID: 18-02351-2-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														
S18T011818		100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011818		123-72-8	Butanal	NGS	120	<3.8	4.4	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011818		109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011818		56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011818		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011818		75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011818		67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011818		110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011818		124-18-5	Decane	NGS	110	<1.6	5.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011818		64-17-5	Ethanol	NGS	82	<5.0	57	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011818		141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011818		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011818		110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011818		110-54-3	Hexane	NGS	110	2.2	7.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011818		628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011818		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011818		75-09-2	Methylene Chloride	NGS	92	<4.2	5.8	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011818		91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011818		98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011818		110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011818		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011818		110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011818		100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011818		127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011818		108-88-3	Toluene	NGS	110	<0.97	7.5	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011818		79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011818		75-69-4	Trichlorofluoromethane	NGS	110	<3.7	6.3	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011818		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011818		123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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Q - Qualitative
Y - Comment

L - LLS Outside Range
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E - Outside Calibration Range

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-3
Customer Sample ID: 18-02351-2-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															
S18T011818			142-82-5	n-Heptane	NGS	100	<2.0	2.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011818			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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E - Outside Calibration Range
U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-4
Customer Sample ID: 18-02351-2-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															
S18T011819			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011819			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011819			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011819			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011819			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011819			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011819			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011819			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011819			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011819			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011819			71-23-8	1-Propanol	NGS	110	<3.8	7.5	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011819			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011819			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011819			78-93-3	2-Butanone	NGS	100	<1.6	4.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011819			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011819			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011819			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011819			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011819			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011819			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011819			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011819			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011819			67-64-1	Acetone	NGS	83	<5.0	150	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011819			75-05-8	Acetonitrile	NGS	110	<2.0	42	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011819			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011819			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011819			107-18-6	Allyl Alcohol	NGS	86	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	LUY
S18T011819			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011819			71-43-2	Benzene	NGS	110	<2.2	5.4	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-4
Customer Sample ID: 18-02351-2-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															
S18T011819			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011819			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011819			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011819			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011819			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011819			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011819			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011819			110-82-7	Cyclohexane	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011819			124-18-5	Decane	NGS	110	<1.6	4.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011819			64-17-5	Ethanol	NGS	82	<5.0	81	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011819			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011819			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011819			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011819			110-54-3	Hexane	NGS	110	2.2	9.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011819			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011819			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011819			75-09-2	Methylene Chloride	NGS	92	<4.2	4.3	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011819			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011819			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011819			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011819			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011819			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011819			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011819			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011819			108-88-3	Toluene	NGS	110	<0.97	8.1	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011819			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011819			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	7.0	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011819			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011819			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-4
Customer Sample ID: 18-02351-2-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															
S18T011819			142-82-5	n-Heptane	NGS	100	<2.0	3.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011819			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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Y - Comment

L - LLS Outside Range
J - Estimated

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-5
Customer Sample ID: 18-02351-2-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															
S18T011820			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011820			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011820			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011820			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011820			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011820			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011820			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011820			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011820			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011820			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011820			71-23-8	1-Propanol	NGS	110	<3.8	5.6	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011820			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011820			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011820			78-93-3	2-Butanone	NGS	100	<1.6	5.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011820			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011820			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011820			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011820			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011820			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011820			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011820			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011820			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011820			67-64-1	Acetone	NGS	83	<5.0	170	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011820			75-05-8	Acetonitrile	NGS	110	<2.0	24	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011820			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011820			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011820			107-18-6	Allyl Alcohol	NGS	86	<0.86	0.87	n/a	n/a	n/a	n/a	0.86	n/a	JLY
S18T011820			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011820			71-43-2	Benzene	NGS	110	<2.2	8.8	n/a	n/a	n/a	n/a	2.2	n/a	J

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Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-5
Customer Sample ID: 18-02351-2-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														
S18T011820		100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011820		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	QUY
S18T011820		109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011820		56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011820		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011820		75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011820		67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011820		110-82-7	Cyclohexane	NGS	110	<1.9	2.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011820		124-18-5	Decane	NGS	110	<1.6	5.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011820		64-17-5	Ethanol	NGS	82	<5.0	89	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011820		141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011820		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011820		110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011820		110-54-3	Hexane	NGS	110	2.2	13	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011820		628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011820		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011820		75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011820		91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011820		98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011820		110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011820		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011820		110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011820		100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011820		127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011820		108-88-3	Toluene	NGS	110	<0.97	12	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011820		79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011820		75-69-4	Trichlorofluoromethane	NGS	110	<3.7	8.6	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011820		10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011820		123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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Q - Qualitative
Y - Comment

L - LLS Outside Range
J - Estimated

E - Outside Calibration Range

U - Less Than Detection Limit

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-5
Customer Sample ID: 18-02351-2-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															
S18T011820			142-82-5	n-Heptane	NGS	100	<2.0	4.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011820			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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Y - Comment

L - LLS Outside Range
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E - Outside Calibration Range

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-6
Customer Sample ID: 18-02351-2-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															
S18T011821			79-34-5	1,1,2,2-Tetrachloroethane	NGS	110	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	U
S18T011821			79-00-5	1,1,2-Trichloroethane	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011821			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011821			75-35-4	1,1-Dichloroethene	NGS	99	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011821			107-06-2	1,2-Dichloroethane	NGS	110	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011821			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011821			106-46-7	1,4-Dichlorobenzene	NGS	110	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011821			123-91-1	1,4-Dioxane	NGS	110	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011821			71-36-3	1-Butanol	NGS	97	<49	<49	n/a	n/a	n/a	n/a	49	n/a	U
S18T011821			111-70-6	1-Heptanol	NGS	81	<37	<37	n/a	n/a	n/a	n/a	37	n/a	LUY
S18T011821			71-23-8	1-Propanol	NGS	110	<3.8	11	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011821			108-47-4	2,4-Dimethylpyridine	NGS	100	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011821			1708-29-8	2,5-Dihydrofuran	NGS	110	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011821			78-93-3	2-Butanone	NGS	100	<1.6	5.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011821			110-43-0	2-Heptanone	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011821			591-78-6	2-Hexanone	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011821			534-22-5	2-Methylfuran	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	U
S18T011821			78-94-4	3-Buten-2-one	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011821			106-35-4	3-Heptanone	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011821			106-68-3	3-Octanone	NGS	110	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	U
S18T011821			105-42-0	4-Methyl-2-hexanone	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011821			108-10-1	4-Methyl-2-Pentanone	NGS	120	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011821			67-64-1	Acetone	NGS	83	<5.0	190	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011821			75-05-8	Acetonitrile	NGS	110	<2.0	64	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011821			98-86-2	Acetophenone	NGS	120	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	U
S18T011821			107-13-1	Acrylonitrile	NGS	93	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011821			107-18-6	Allyl Alcohol	NGS	86	<0.86	2.1	n/a	n/a	n/a	n/a	0.86	n/a	JLY
S18T011821			107-05-1	Allyl Chloride	NGS	91	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U
S18T011821			71-43-2	Benzene	NGS	110	<2.2	7.7	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-6
Customer Sample ID: 18-02351-2-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															
S18T011821			100-47-0	Benzonitrile	NGS	110	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	U
S18T011821			123-72-8	Butanal	NGS	120	<3.8	3.9	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011821			109-74-0	Butanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011821			56-23-5	Carbon tetrachloride	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	U
S18T011821			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011821			75-00-3	Chloroethane	NGS	94	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011821			67-66-3	Chloroform	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011821			110-82-7	Cyclohexane	NGS	110	<1.9	2.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011821			124-18-5	Decane	NGS	110	<1.6	3.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011821			64-17-5	Ethanol	NGS	82	<5.0	91	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011821			141-78-6	Ethyl acetate	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	U
S18T011821			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	U
S18T011821			110-00-9	Furan	NGS	93	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	U
S18T011821			110-54-3	Hexane	NGS	110	2.2	13	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011821			628-73-9	Hexanenitrile	NGS	110	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	U
S18T011821			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	U
S18T011821			75-09-2	Methylene Chloride	NGS	92	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	U
S18T011821			91-20-3	Naphthalene	NGS	120	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U
S18T011821			98-95-3	Nitrobenzene	NGS	110	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	U
S18T011821			110-59-8	Pentanenitrile	NGS	110	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	U
S18T011821			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	U
S18T011821			110-86-1	Pyridine	NGS	130	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	U
S18T011821			100-42-5	Styrene	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	U
S18T011821			127-18-4	Tetrachloroethene	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	U
S18T011821			108-88-3	Toluene	NGS	110	<0.97	14	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011821			79-01-6	Trichloroethene	NGS	99	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	U
S18T011821			75-69-4	Trichlorofluoromethane	NGS	110	<3.7	7.2	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011821			10061-01-5	cis-1,3-Dichloropropene	NGS	120	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	U
S18T011821			123-86-4	n-Butyl acetate	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	U

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L - LLS Outside Range
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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180944
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-6
Customer Sample ID: 18-02351-2-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															
S18T011821			142-82-5	n-Heptane	NGS	100	<2.0	4.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011821			10061-02-6	trans-1,3-Dichloropropene	NGS	120	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	U

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E - Outside Calibration Range

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

C.251

Daniel Hansen
Daniel Hansen
9-13-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-1
Customer Sample ID: 18-02349-2-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 VOA #2															
S18T011823			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011823			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011823			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011823			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011823			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011823			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011823			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011823			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011823			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011823			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011823			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011823			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011823			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011823			78-93-3	2-Butanone	NGS	90	<1.6	2.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011823			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011823			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011823			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011823			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011823			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011823			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011823			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011823			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	3.8	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011823			67-64-1	Acetone	NGS	90	<5.0	31	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011823			75-05-8	Acetonitrile	NGS	100	<2.0	32	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011823			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011823			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011823			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011823			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011823			71-43-2	Benzene	NGS	110	<2.2	3.0	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-1
Customer Sample ID: 18-02349-2-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 VOA #2															
S18T011823			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011823			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011823			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011823			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011823			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011823			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011823			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011823			110-82-7	Cyclohexane	NGS	98	<1.9	24	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011823			124-18-5	Decane	NGS	100	<1.6	13	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011823			64-17-5	Ethanol	NGS	94	<5.0	27	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011823			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011823			100-41-4	Ethylbenzene	NGS	110	<2.1	5.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011823			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011823			110-54-3	Hexane	NGS	98	<1.9	6.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011823			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011823			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011823			75-09-2	Methylene Chloride	NGS	97	<4.2	16	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011823			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011823			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011823			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011823			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011823			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011823			100-42-5	Styrene	NGS	99	<2.3	16	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011823			127-18-4	Tetrachloroethene	NGS	100	<1.6	10	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011823			108-88-3	Toluene	NGS	110	<0.97	7.9	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011823			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011823			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.4	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011823			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011823			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-1
Customer Sample ID: 18-02349-2-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 VOA #2															
S18T011823			142-82-5	n-Heptane	NGS	94	<2.0	2.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011823			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-2
Customer Sample ID: 18-02349-2-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															
S18T011824			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011824			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011824			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011824			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011824			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011824			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011824			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011824			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011824			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011824			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011824			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011824			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011824			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011824			78-93-3	2-Butanone	NGS	90	<1.6	1.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011824			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011824			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011824			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011824			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011824			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011824			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011824			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011824			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	3.5	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011824			67-64-1	Acetone	NGS	90	<5.0	20	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011824			75-05-8	Acetonitrile	NGS	100	<2.0	22	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011824			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011824			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011824			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011824			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011824			71-43-2	Benzene	NGS	110	<2.2	2.8	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-2
Customer Sample ID: 18-02349-2-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														
S18T011824		100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011824		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011824		109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011824		56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011824		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011824		75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011824		67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011824		110-82-7	Cyclohexane	NGS	98	<1.9	16	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011824		124-18-5	Decane	NGS	100	<1.6	8.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011824		64-17-5	Ethanol	NGS	94	<5.0	22	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011824		141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011824		100-41-4	Ethylbenzene	NGS	110	<2.1	3.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011824		110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011824		110-54-3	Hexane	NGS	98	<1.9	5.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011824		628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011824		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011824		75-09-2	Methylene Chloride	NGS	97	<4.2	7.2	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011824		91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011824		98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011824		110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011824		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011824		110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011824		100-42-5	Styrene	NGS	99	<2.3	11	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011824		127-18-4	Tetrachloroethene	NGS	100	<1.6	10	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011824		108-88-3	Toluene	NGS	110	<0.97	5.1	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011824		79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011824		75-69-4	Trichlorofluoromethane	NGS	100	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	
S18T011824		10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011824		123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-2
Customer Sample ID: 18-02349-2-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														
S18T011824		142-82-5	n-Heptane	NGS	94	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011824		10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-3
Customer Sample ID: 18-02349-2-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														
S18T011825		79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011825		79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011825		75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011825		75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011825		107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011825		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011825		106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011825		123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011825		71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011825		111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011825		71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011825		108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011825		1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011825		78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011825		110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011825		591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011825		534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011825		78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011825		106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011825		106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011825		105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011825		108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	2.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011825		67-64-1	Acetone	NGS	90	<5.0	15	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011825		75-05-8	Acetonitrile	NGS	100	<2.0	8.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011825		98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011825		107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011825		107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011825		107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011825		71-43-2	Benzene	NGS	110	<2.2	3.8	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-3
Customer Sample ID: 18-02349-2-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															
S18T011825			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011825			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011825			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011825			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011825			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011825			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011825			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011825			110-82-7	Cyclohexane	NGS	98	<1.9	14	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011825			124-18-5	Decane	NGS	100	<1.6	7.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011825			64-17-5	Ethanol	NGS	94	<5.0	25	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011825			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011825			100-41-4	Ethylbenzene	NGS	110	<2.1	3.4	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011825			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011825			110-54-3	Hexane	NGS	98	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011825			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011825			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011825			75-09-2	Methylene Chloride	NGS	97	<4.2	4.7	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011825			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011825			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011825			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011825			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011825			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011825			100-42-5	Styrene	NGS	99	<2.3	9.3	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011825			127-18-4	Tetrachloroethene	NGS	100	<1.6	12	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011825			108-88-3	Toluene	NGS	110	<0.97	4.6	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011825			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011825			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	3.9	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011825			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011825			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-3
Customer Sample ID: 18-02349-2-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															
S18T011825			142-82-5	n-Heptane	NGS	94	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011825			10061-02-6	trans-1,3-Dichloropropene.	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-4
Customer Sample ID: 18-02349-2-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														
S18T011826		79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011826		79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011826		75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011826		75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011826		107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011826		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011826		106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011826		123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011826		71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011826		111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011826		71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011826		108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011826		1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011826		78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011826		110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011826		591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011826		534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011826		78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011826		106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011826		106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011826		105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011826		108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011826		67-64-1	Acetone	NGS	90	<5.0	10	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011826		75-05-8	Acetonitrile	NGS	100	<2.0	4.9	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011826		98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011826		107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011826		107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011826		107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011826		71-43-2	Benzene	NGS	110	<2.2	5.6	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-4
Customer Sample ID: 18-02349-2-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														
S18T011826		100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011826		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011826		109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011826		56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011826		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011826		75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011826		67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011826		110-82-7	Cyclohexane	NGS	98	<1.9	11	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011826		124-18-5	Decane	NGS	100	<1.6	2.4	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011826		64-17-5	Ethanol	NGS	94	<5.0	18	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011826		141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011826		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011826		110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011826		110-54-3	Hexane	NGS	98	<1.9	5.7	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011826		628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011826		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011826		75-09-2	Methylene Chloride	NGS	97	<4.2	4.3	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011826		91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011826		98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011826		110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011826		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011826		110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011826		100-42-5	Styrene	NGS	99	<2.3	4.3	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011826		127-18-4	Tetrachloroethene	NGS	100	<1.6	6.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011826		108-88-3	Toluene	NGS	110	<0.97	4.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011826		79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011826		75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.5	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011826		10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011826		123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-4
Customer Sample ID: 18-02349-2-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															
S18T011826			142-82-5	n-Heptane	NGS	94	<2.0	2.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011826			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-5
Customer Sample ID: 18-02349-2-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															
S18T011827			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011827			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011827			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011827			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011827			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011827			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011827			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011827			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011827			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011827			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011827			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011827			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011827			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011827			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011827			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011827			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011827			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011827			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011827			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011827			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011827			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011827			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	2.3	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011827			67-64-1	Acetone	NGS	90	<5.0	6.3	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011827			75-05-8	Acetonitrile	NGS	100	<2.0	6.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011827			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011827			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011827			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011827			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011827			71-43-2	Benzene	NGS	110	<2.2	6.4	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-5
Customer Sample ID: 18-02349-2-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														
S18T011827		100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011827		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011827		109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011827		56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011827		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011827		75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011827		67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011827		110-82-7	Cyclohexane	NGS	98	<1.9	12	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011827		124-18-5	Decane	NGS	100	<1.6	5.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011827		64-17-5	Ethanol	NGS	94	<5.0	31	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011827		141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011827		100-41-4	Ethylbenzene	NGS	110	<2.1	3.0	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011827		110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011827		110-54-3	Hexane	NGS	98	<1.9	7.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011827		628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011827		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011827		75-09-2	Methylene Chloride	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011827		91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011827		98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011827		110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011827		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011827		110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011827		100-42-5	Styrene	NGS	99	<2.3	7.3	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011827		127-18-4	Tetrachloroethene	NGS	100	<1.6	13	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011827		108-88-3	Toluene	NGS	110	<0.97	6.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011827		79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011827		75-69-4	Trichlorofluoromethane	NGS	100	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	
S18T011827		10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011827		123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-5
Customer Sample ID: 18-02349-2-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															
S18T011827			142-82-5	n-Heptane	NGS	94	<2.0	3.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011827			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-6
Customer Sample ID: 18-02349-2-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															
S18T011828			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011828			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011828			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011828			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011828			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011828			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011828			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011828			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011828			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011828			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011828			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011828			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011828			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011828			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011828			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011828			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011828			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011828			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011828			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011828			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011828			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011828			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011828			67-64-1	Acetone	NGS	90	<5.0	7.6	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011828			75-05-8	Acetonitrile	NGS	100	<2.0	6.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011828			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011828			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011828			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011828			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011828			71-43-2	Benzene	NGS	110	<2.2	4.5	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-6
Customer Sample ID: 18-02349-2-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															
S18T011828			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011828			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011828			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011828			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011828			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011828			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011828			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011828			110-82-7	Cyclohexane	NGS	98	<1.9	12	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011828			124-18-5	Decane	NGS	100	<1.6	4.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011828			64-17-5	Ethanol	NGS	94	<5.0	32	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011828			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011828			100-41-4	Ethylbenzene	NGS	110	<2.1	2.7	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011828			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011828			110-54-3	Hexane	NGS	98	<1.9	7.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011828			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011828			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011828			75-09-2	Methylene Chloride	NGS	97	<4.2	5.5	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011828			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011828			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011828			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011828			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011828			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011828			100-42-5	Styrene	NGS	99	<2.3	6.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011828			127-18-4	Tetrachloroethene	NGS	100	<1.6	12	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011828			108-88-3	Toluene	NGS	110	<0.97	5.3	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011828			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011828			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	
S18T011828			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011828			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-6
Customer Sample ID: 18-02349-2-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														
S18T011828		142-82-5	n-Heptane	NGS	94	<2.0	2.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011828		10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

C.269

NA = Not Analyzed, ND = Not Detected

Y - Comment
a - LCS Outside Range
J - Estimated
N - Named TIC
L - LLS Outside Range
Q - Qualitative
T - Tentatively Identified Compound

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-7
Customer Sample ID: 18-02349-2-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														
S18T011829		79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011829		79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011829		75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011829		75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011829		107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011829		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011829		106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011829		123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011829		71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011829		111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011829		71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011829		108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011829		1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011829		78-93-3	2-Butanone	NGS	90	<1.6	1.7	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011829		110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011829		591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011829		534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011829		78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011829		106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011829		106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011829		105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011829		108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011829		67-64-1	Acetone	NGS	90	<5.0	10	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011829		75-05-8	Acetonitrile	NGS	100	<2.0	20	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011829		98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011829		107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011829		107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011829		107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011829		71-43-2	Benzene	NGS	110	<2.2	7.0	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-7
Customer Sample ID: 18-02349-2-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														
S18T011829		100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011829		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011829		109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011829		56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011829		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011829		75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011829		67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011829		110-82-7	Cyclohexane	NGS	98	<1.9	14	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011829		124-18-5	Decane	NGS	100	<1.6	9.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011829		64-17-5	Ethanol	NGS	94	<5.0	57	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011829		141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011829		100-41-4	Ethylbenzene	NGS	110	<2.1	4.0	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011829		110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011829		110-54-3	Hexane	NGS	98	<1.9	10	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011829		628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011829		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011829		75-09-2	Methylene Chloride	NGS	97	<4.2	8.4	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011829		91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011829		98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011829		110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011829		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011829		110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011829		100-42-5	Styrene	NGS	99	<2.3	10	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011829		127-18-4	Tetrachloroethene	NGS	100	<1.6	15	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011829		108-88-3	Toluene	NGS	110	<0.97	9.5	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011829		79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011829		75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.2	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011829		10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011829		123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-7
Customer Sample ID: 18-02349-2-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															
S18T011829			142-82-5	n-Heptane	NGS	94	<2.0	3.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011829			95-47-6	o-Xylene	NGS	n/a	n/a	28	n/a	n/a	n/a	n/a	n/a	n/a	JNT
S18T011829			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-8
Customer Sample ID: 18-02349-2-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															
S18T011830			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011830			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011830			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011830			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011830			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011830			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011830			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011830			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011830			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011830			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011830			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011830			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011830			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011830			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011830			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011830			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011830			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011830			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011830			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011830			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011830			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011830			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011830			67-64-1	Acetone	NGS	90	<5.0	7.4	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011830			75-05-8	Acetonitrile	NGS	100	<2.0	7.3	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011830			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011830			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011830			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011830			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011830			71-43-2	Benzene	NGS	110	<2.2	4.3	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-8
Customer Sample ID: 18-02349-2-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														
S18T011830		100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011830		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011830		109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011830		56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011830		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011830		75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011830		67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011830		110-82-7	Cyclohexane	NGS	98	<1.9	9.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011830		124-18-5	Decane	NGS	100	<1.6	4.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011830		64-17-5	Ethanol	NGS	94	<5.0	37	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011830		141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011830		100-41-4	Ethylbenzene	NGS	110	<2.1	2.6	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011830		110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011830		110-54-3	Hexane	NGS	98	<1.9	8.9	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011830		628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011830		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011830		75-09-2	Methylene Chloride	NGS	97	<4.2	4.8	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011830		91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011830		98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011830		110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011830		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011830		110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011830		100-42-5	Styrene	NGS	99	<2.3	5.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011830		127-18-4	Tetrachloroethene	NGS	100	<1.6	8.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011830		108-88-3	Toluene	NGS	110	<0.97	6.7	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011830		79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011830		75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.4	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011830		10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011830		123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

NA = Not Analyzed, ND = Not Detected

Y - Comment
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N - Named TIC
L - LLS Outside Range
Q - Qualitative
T - Tentatively Identified Compound

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-8
Customer Sample ID: 18-02349-2-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															
S18T011830			142-82-5	n-Heptane	NGS	94	<2.0	3.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011830			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-1
Customer Sample ID: 18-02349-2-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															
S18T011831			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011831			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011831			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011831			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011831			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011831			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011831			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011831			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011831			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011831			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011831			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011831			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011831			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011831			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011831			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011831			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011831			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011831			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011831			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011831			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011831			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011831			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011831			67-64-1	Acetone	NGS	90	<5.0	25	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011831			75-05-8	Acetonitrile	NGS	100	<2.0	11	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011831			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011831			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011831			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011831			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011831			71-43-2	Benzene	NGS	110	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-1
Customer Sample ID: 18-02349-2-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															
S18T011831			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011831			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011831			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011831			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011831			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011831			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011831			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011831			110-82-7	Cyclohexane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011831			124-18-5	Decane	NGS	100	<1.6	2.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011831			64-17-5	Ethanol	NGS	94	<5.0	21	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011831			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011831			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011831			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011831			110-54-3	Hexane	NGS	98	<1.9	4.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011831			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011831			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011831			75-09-2	Methylene Chloride	NGS	97	<4.2	17	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011831			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011831			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011831			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011831			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011831			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011831			100-42-5	Styrene	NGS	99	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011831			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011831			108-88-3	Toluene	NGS	110	<0.97	1.7	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011831			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011831			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	
S18T011831			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011831			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-1
Customer Sample ID: 18-02349-2-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														
S18T011831		142-82-5	n-Heptane	NGS	94	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011831		10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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T - Tentatively Identified Compound

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-8
Customer Sample ID: 18-02349-2-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															
S18T011832			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011832			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011832			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011832			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011832			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011832			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011832			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011832			123-91-1	1,4-Dioxane	NGS	100	<2.3	2.6	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011832			71-36-3	1-Butanol	NGS	88	<49	120	n/a	n/a	n/a	n/a	49	n/a	
S18T011832			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011832			71-23-8	1-Propanol	NGS	98	<3.8	20	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011832			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011832			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011832			78-93-3	2-Butanone	NGS	90	<1.6	11	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011832			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011832			591-78-6	2-Hexanone	NGS	89	<1.4	1.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011832			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011832			78-94-4	3-Buten-2-one	NGS	100	<3.6	4.6	n/a	n/a	n/a	n/a	3.6	n/a	J
S18T011832			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011832			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011832			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011832			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	2.8	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011832			67-64-1	Acetone	NGS	90	<5.0	290	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011832			75-05-8	Acetonitrile	NGS	100	<2.0	16	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011832			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011832			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011832			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011832			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011832			71-43-2	Benzene	NGS	110	<2.2	3.6	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-8
Customer Sample ID: 18-02349-2-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															
S18T011832			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011832			123-72-8	Butanal	NGS	120	<3.8	9.1	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011832			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011832			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011832			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011832			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011832			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011832			110-82-7	Cyclohexane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011832			124-18-5	Decane	NGS	100	<1.6	3.5	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011832			64-17-5	Ethanol	NGS	94	<5.0	100	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011832			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011832			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011832			110-00-9	Furan	NGS	100	<2.4	9.3	n/a	n/a	n/a	n/a	2.4	n/a	J
S18T011832			110-54-3	Hexane	NGS	98	<1.9	6.1	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011832			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011832			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011832			75-09-2	Methylene Chloride	NGS	97	<4.2	5.0	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011832			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011832			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011832			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011832			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011832			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011832			100-42-5	Styrene	NGS	99	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011832			127-18-4	Tetrachloroethene	NGS	100	<1.6	2.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011832			108-88-3	Toluene	NGS	110	<0.97	4.1	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011832			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011832			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	13	n/a	n/a	n/a	n/a	3.7	n/a	
S18T011832			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011832			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-8
Customer Sample ID: 18-02349-2-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															
S18T011832			142-82-5	n-Heptane	NGS	94	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011832			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-1
Customer Sample ID: 18-02350-2-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															
S18T011833			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011833			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011833			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011833			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011833			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011833			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011833			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011833			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011833			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011833			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011833			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011833			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011833			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011833			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011833			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011833			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011833			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011833			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011833			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011833			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011833			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011833			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011833			67-64-1	Acetone	NGS	90	<5.0	21	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011833			75-05-8	Acetonitrile	NGS	100	<2.0	10	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011833			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011833			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011833			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011833			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011833			71-43-2	Benzene	NGS	110	<2.2	3.9	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-1
Customer Sample ID: 18-02350-2-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															
S18T011833			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011833			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011833			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011833			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011833			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011833			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011833			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011833			110-82-7	Cyclohexane	NGS	98	<1.9	13	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011833			124-18-5	Decane	NGS	100	<1.6	6.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011833			64-17-5	Ethanol	NGS	94	<5.0	29	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011833			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011833			100-41-4	Ethylbenzene	NGS	110	<2.1	3.7	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011833			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011833			110-54-3	Hexane	NGS	98	<1.9	6.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011833			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011833			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011833			75-09-2	Methylene Chloride	NGS	97	<4.2	8.3	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011833			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011833			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011833			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011833			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011833			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011833			100-42-5	Styrene	NGS	99	<2.3	9.1	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011833			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011833			108-88-3	Toluene	NGS	110	<0.97	7.6	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011833			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011833			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.5	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011833			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011833			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-1
Customer Sample ID: 18-02350-2-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															
S18T011833			142-82-5	n-Heptane	NGS	94	<2.0	2.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011833			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-2
Customer Sample ID: 18-02350-2-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															
S18T011834			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011834			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011834			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011834			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011834			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011834			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011834			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011834			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011834			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011834			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011834			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011834			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011834			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011834			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011834			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011834			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011834			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011834			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011834			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011834			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011834			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011834			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011834			67-64-1	Acetone	NGS	90	<5.0	31	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011834			75-05-8	Acetonitrile	NGS	100	<2.0	24	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011834			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011834			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011834			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011834			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011834			71-43-2	Benzene	NGS	110	<2.2	2.4	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-2
Customer Sample ID: 18-02350-2-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														
S18T011834		100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011834		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011834		109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011834		56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011834		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011834		75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011834		67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011834		110-82-7	Cyclohexane	NGS	98	<1.9	7.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011834		124-18-5	Decane	NGS	100	<1.6	5.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011834		64-17-5	Ethanol	NGS	94	<5.0	43	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011834		141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011834		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011834		110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011834		110-54-3	Hexane	NGS	98	<1.9	7.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011834		628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011834		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011834		75-09-2	Methylene Chloride	NGS	97	<4.2	17	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011834		91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011834		98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011834		110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011834		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011834		110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011834		100-42-5	Styrene	NGS	99	<2.3	3.8	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011834		127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011834		108-88-3	Toluene	NGS	110	<0.97	5.0	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011834		79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011834		75-69-4	Trichlorofluoromethane	NGS	100	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	
S18T011834		10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011834		123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-2
Customer Sample ID: 18-02350-2-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															
S18T011834			142-82-5	n-Heptane	NGS	94	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011834			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-3
Customer Sample ID: 18-02350-2-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															
S18T011835			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011835			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011835			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011835			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011835			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011835			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011835			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011835			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011835			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011835			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011835			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011835			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011835			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011835			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011835			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011835			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011835			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011835			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011835			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011835			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011835			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011835			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011835			67-64-1	Acetone	NGS	90	<5.0	26	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011835			75-05-8	Acetonitrile	NGS	100	<2.0	7.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011835			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011835			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011835			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011835			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011835			71-43-2	Benzene	NGS	110	<2.2	3.5	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-3
Customer Sample ID: 18-02350-2-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															
S18T011835			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011835			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011835			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011835			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011835			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011835			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011835			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011835			110-82-7	Cyclohexane	NGS	98	<1.9	8.4	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011835			124-18-5	Decane	NGS	100	<1.6	3.1	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011835			64-17-5	Ethanol	NGS	94	<5.0	20	n/a	n/a	n/a	n/a	5.0	n/a	J
S18T011835			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011835			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011835			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011835			110-54-3	Hexane	NGS	98	<1.9	4.3	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011835			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011835			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011835			75-09-2	Methylene Chloride	NGS	97	<4.2	6.9	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011835			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011835			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011835			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011835			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011835			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011835			100-42-5	Styrene	NGS	99	<2.3	3.9	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011835			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011835			108-88-3	Toluene	NGS	110	<0.97	4.0	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011835			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011835			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.6	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011835			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011835			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-3
Customer Sample ID: 18-02350-2-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															
S18T011835			142-82-5	n-Heptane	NGS	94	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011835			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-4
Customer Sample ID: 18-02350-2-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															
S18T011836			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011836			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011836			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011836			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011836			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	1.3	n/a	n/a	n/a	n/a	1.3	n/a	J
S18T011836			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011836			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011836			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011836			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011836			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011836			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011836			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011836			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011836			78-93-3	2-Butanone	NGS	90	<1.6	1.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011836			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011836			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011836			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011836			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011836			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011836			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011836			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011836			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011836			67-64-1	Acetone	NGS	90	<5.0	22	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011836			75-05-8	Acetonitrile	NGS	100	<2.0	150	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011836			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011836			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011836			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011836			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011836			71-43-2	Benzene	NGS	110	<2.2	6.2	n/a	n/a	n/a	n/a	2.2	n/a	J

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Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-4
Customer Sample ID: 18-02350-2-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															
S18T011836			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011836			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011836			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011836			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011836			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011836			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011836			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011836			110-82-7	Cyclohexane	NGS	98	<1.9	3.8	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011836			124-18-5	Decane	NGS	100	<1.6	4.6	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011836			64-17-5	Ethanol	NGS	94	<5.0	39	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011836			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011836			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011836			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011836			110-54-3	Hexane	NGS	98	<1.9	8.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011836			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011836			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011836			75-09-2	Methylene Chloride	NGS	97	<4.2	5.1	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011836			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011836			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011836			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011836			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011836			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011836			100-42-5	Styrene	NGS	99	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011836			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011836			108-88-3	Toluene	NGS	110	<0.97	5.9	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011836			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011836			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	5.2	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011836			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011836			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-4
Customer Sample ID: 18-02350-2-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														
S18T011836		142-82-5	n-Heptane	NGS	94	<2.0	3.1	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011836		10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-5
Customer Sample ID: 18-02350-2-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															
S18T011837			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011837			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011837			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011837			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011837			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011837			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011837			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011837			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011837			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011837			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011837			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011837			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011837			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011837			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011837			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011837			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011837			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011837			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011837			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011837			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011837			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011837			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011837			67-64-1	Acetone	NGS	90	<5.0	21	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011837			75-05-8	Acetonitrile	NGS	100	<2.0	5.0	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011837			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011837			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011837			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011837			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011837			71-43-2	Benzene	NGS	110	<2.2	9.8	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-5
Customer Sample ID: 18-02350-2-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															
S18T011837			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011837			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011837			109-74-0	Butanenitrile	NGS	100	<1.8	2.0	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011837			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011837			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011837			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011837			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011837			110-82-7	Cyclohexane	NGS	98	<1.9	12	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011837			124-18-5	Decane	NGS	100	<1.6	5.0	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011837			64-17-5	Ethanol	NGS	94	<5.0	36	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011837			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011837			100-41-4	Ethylbenzene	NGS	110	<2.1	2.7	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011837			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011837			110-54-3	Hexane	NGS	98	<1.9	13	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011837			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011837			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011837			75-09-2	Methylene Chloride	NGS	97	<4.2	5.8	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011837			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011837			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011837			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011837			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011837			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011837			100-42-5	Styrene	NGS	99	<2.3	5.7	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011837			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011837			108-88-3	Toluene	NGS	110	<0.97	9.5	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011837			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011837			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	5.6	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011837			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011837			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-5
Customer Sample ID: 18-02350-2-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															
S18T011837			142-82-5	n-Heptane	NGS	94	<2.0	4.1	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011837			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-6
Customer Sample ID: 18-02350-2-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															
S18T011838			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011838			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011838			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011838			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011838			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011838			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011838			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011838			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011838			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011838			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011838			71-23-8	1-Propanol	NGS	98	<3.8	4.0	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011838			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011838			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011838			78-93-3	2-Butanone	NGS	90	<1.6	1.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011838			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011838			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011838			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011838			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011838			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011838			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011838			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011838			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011838			67-64-1	Acetone	NGS	90	<5.0	26	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011838			75-05-8	Acetonitrile	NGS	100	<2.0	120	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011838			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011838			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011838			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011838			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011838			71-43-2	Benzene	NGS	110	<2.2	6.6	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-6
Customer Sample ID: 18-02350-2-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															
S18T011838			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011838			123-72-8	Butanal	NGS	120	<3.8	3.9	n/a	n/a	n/a	n/a	3.8	n/a	JQY
S18T011838			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011838			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011838			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011838			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011838			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011838			110-82-7	Cyclohexane	NGS	98	<1.9	11	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011838			124-18-5	Decane	NGS	100	<1.6	7.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011838			64-17-5	Ethanol	NGS	94	<5.0	64	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011838			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011838			100-41-4	Ethylbenzene	NGS	110	<2.1	2.8	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011838			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011838			110-54-3	Hexane	NGS	98	<1.9	14	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011838			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011838			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011838			75-09-2	Methylene Chloride	NGS	97	<4.2	36	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011838			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011838			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011838			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011838			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011838			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011838			100-42-5	Styrene	NGS	99	<2.3	6.2	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011838			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011838			108-88-3	Toluene	NGS	110	<0.97	11	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011838			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011838			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	<3.7	n/a	n/a	n/a	n/a	3.7	n/a	
S18T011838			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011838			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-6
Customer Sample ID: 18-02350-2-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															
S18T011838			142-82-5	n-Heptane	NGS	94	<2.0	3.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011838			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-7
Customer Sample ID: 18-02350-2-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														
S18T011839		79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011839		79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011839		75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011839		75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011839		107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011839		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011839		106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011839		123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011839		71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011839		111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011839		71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011839		108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011839		1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011839		78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011839		110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011839		591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011839		534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011839		78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011839		106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011839		106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011839		105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011839		108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011839		67-64-1	Acetone	NGS	90	<5.0	16	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011839		75-05-8	Acetonitrile	NGS	100	<2.0	6.5	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011839		98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011839		107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011839		107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011839		107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011839		71-43-2	Benzene	NGS	110	<2.2	8.0	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-7
Customer Sample ID: 18-02350-2-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															
S18T011839			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011839			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011839			109-74-0	Butanenitrile	NGS	100	<1.8	2.1	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011839			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011839			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011839			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011839			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011839			110-82-7	Cyclohexane	NGS	98	<1.9	9.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011839			124-18-5	Decane	NGS	100	<1.6	5.8	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011839			64-17-5	Ethanol	NGS	94	<5.0	46	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011839			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011839			100-41-4	Ethylbenzene	NGS	110	<2.1	2.8	n/a	n/a	n/a	n/a	2.1	n/a	J
S18T011839			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011839			110-54-3	Hexane	NGS	98	<1.9	14	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011839			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011839			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011839			75-09-2	Methylene Chloride	NGS	97	<4.2	5.2	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011839			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011839			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011839			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011839			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011839			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011839			100-42-5	Styrene	NGS	99	<2.3	5.5	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011839			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011839			108-88-3	Toluene	NGS	110	<0.97	13	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011839			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011839			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.2	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011839			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011839			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-7
Customer Sample ID: 18-02350-2-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															
S18T011839			142-82-5	n-Heptane	NGS	94	<2.0	4.2	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011839			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-8
Customer Sample ID: 18-02350-2-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															
S18T011840			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011840			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011840			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011840			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011840			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011840			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011840			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011840			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011840			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011840			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011840			71-23-8	1-Propanol	NGS	98	<3.8	5.2	n/a	n/a	n/a	n/a	3.8	n/a	J
S18T011840			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011840			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011840			78-93-3	2-Butanone	NGS	90	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011840			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011840			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011840			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011840			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011840			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011840			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011840			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011840			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011840			67-64-1	Acetone	NGS	90	<5.0	19	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011840			75-05-8	Acetonitrile	NGS	100	<2.0	64	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011840			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011840			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011840			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011840			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011840			71-43-2	Benzene	NGS	110	<2.2	5.0	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-8
Customer Sample ID: 18-02350-2-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															
S18T011840			100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011840			123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011840			109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011840			56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011840			108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011840			75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011840			67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011840			110-82-7	Cyclohexane	NGS	98	<1.9	6.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011840			124-18-5	Decane	NGS	100	<1.6	5.3	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011840			64-17-5	Ethanol	NGS	94	<5.0	42	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011840			141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011840			100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011840			110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011840			110-54-3	Hexane	NGS	98	<1.9	12	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011840			628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011840			126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011840			75-09-2	Methylene Chloride	NGS	97	<4.2	13	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011840			91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011840			98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011840			110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011840			107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011840			110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011840			100-42-5	Styrene	NGS	99	<2.3	3.4	n/a	n/a	n/a	n/a	2.3	n/a	J
S18T011840			127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011840			108-88-3	Toluene	NGS	110	<0.97	8.4	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011840			79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011840			75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.5	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011840			10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011840			123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-8
Customer Sample ID: 18-02350-2-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															
S18T011840			142-82-5	n-Heptane	NGS	94	<2.0	2.6	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011840			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-1
Customer Sample ID: 18-02350-2-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															
S18T011841			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011841			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011841			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011841			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011841			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011841			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011841			71-36-3	1-Butanol	NGS	84	<4.9	8.0	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T011841			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011841			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011841			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011841			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011841			78-93-3	2-Butanone	NGS	96	<1.9	2.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011841			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011841			78-94-4	3-Buten-2-one	NGS	100	<1.5	2.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011841			106-35-4	3-Heptanone	NGS	97	<1.4	1.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011841			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011841			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011841			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011841			67-64-1	Acetone	NGS	94	<4.3	44	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011841			75-05-8	Acetonitrile	NGS	100	<1.4	7.2	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011841			98-86-2	Acetophenone	NGS	95	<2.0	2.1	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011841			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011841			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011841			71-43-2	Benzene	NGS	99	<1.1	4.0	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-1
Customer Sample ID: 18-02350-2-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															
S18T011841			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011841			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011841			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011841			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011841			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011841			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011841			110-82-7	Cyclohexane	NGS	100	<1.1	1.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011841			124-18-5	Decane	NGS	97	<1.5	8.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011841			64-17-5	Ethanol	NGS	100	<12	61	n/a	n/a	n/a	n/a	12	n/a	
S18T011841			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011841			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011841			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011841			110-54-3	Hexane	NGS	100	1.3	9.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011841			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011841			75-09-2	Methylene Chloride	NGS	100	1.9	18	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011841			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011841			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011841			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011841			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011841			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011841			100-42-5	Styrene	NGS	100	<1.1	1.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011841			127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011841			108-88-3	Toluene	NGS	97	<1.2	7.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011841			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011841			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.4	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011841			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011841			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-1
Customer Sample ID: 18-02350-2-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															
S18T011841			142-82-5	n-Heptane	NGS	99	<0.97	2.6	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011841			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-8
Customer Sample ID: 18-02350-2-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															
S18T011842			79-34-5	1,1,2,2-Tetrachloroethane	NGS	100	<2.7	<2.7	n/a	n/a	n/a	n/a	2.7	n/a	
S18T011842			79-00-5	1,1,2-Trichloroethane	NGS	100	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011842			75-34-3	1,1-Dichloroethane	NGS	110	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011842			75-35-4	1,1-Dichloroethene	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011842			107-06-2	1,2-Dichloroethane	NGS	100	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011842			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011842			106-46-7	1,4-Dichlorobenzene	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011842			123-91-1	1,4-Dioxane	NGS	100	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011842			71-36-3	1-Butanol	NGS	88	<49	<49	n/a	n/a	n/a	n/a	49	n/a	
S18T011842			111-70-6	1-Heptanol	NGS	86	<37	<37	n/a	n/a	n/a	n/a	37	n/a	L
S18T011842			71-23-8	1-Propanol	NGS	98	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011842			108-47-4	2,4-Dimethylpyridine	NGS	98	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011842			1708-29-8	2,5-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011842			78-93-3	2-Butanone	NGS	90	<1.6	2.2	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011842			110-43-0	2-Heptanone	NGS	93	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011842			591-78-6	2-Hexanone	NGS	89	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011842			534-22-5	2-Methylfuran	NGS	95	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011842			78-94-4	3-Buten-2-one	NGS	100	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011842			106-35-4	3-Heptanone	NGS	100	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011842			106-68-3	3-Octanone	NGS	98	<3.6	<3.6	n/a	n/a	n/a	n/a	3.6	n/a	
S18T011842			105-42-0	4-Methyl-2-hexanone	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011842			108-10-1	4-Methyl-2-Pentanone	NGS	100	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011842			67-64-1	Acetone	NGS	90	<5.0	20	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011842			75-05-8	Acetonitrile	NGS	100	<2.0	8.4	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011842			98-86-2	Acetophenone	NGS	100	<3.0	<3.0	n/a	n/a	n/a	n/a	3.0	n/a	
S18T011842			107-13-1	Acrylonitrile	NGS	100	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011842			107-18-6	Allyl Alcohol	NGS	84	<0.86	<0.86	n/a	n/a	n/a	n/a	0.86	n/a	Y
S18T011842			107-05-1	Allyl Chloride	NGS	92	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	
S18T011842			71-43-2	Benzene	NGS	110	<2.2	5.6	n/a	n/a	n/a	n/a	2.2	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-8
Customer Sample ID: 18-02350-2-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														
S18T011842		100-47-0	Benzonitrile	NGS	100	<3.3	<3.3	n/a	n/a	n/a	n/a	3.3	n/a	
S18T011842		123-72-8	Butanal	NGS	120	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011842		109-74-0	Butanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011842		56-23-5	Carbon tetrachloride	NGS	98	<2.2	<2.2	n/a	n/a	n/a	n/a	2.2	n/a	
S18T011842		108-90-7	Chlorobenzene	NGS	100	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011842		75-00-3	Chloroethane	NGS	95	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011842		67-66-3	Chloroform	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011842		110-82-7	Cyclohexane	NGS	98	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011842		124-18-5	Decane	NGS	100	<1.6	5.9	n/a	n/a	n/a	n/a	1.6	n/a	J
S18T011842		64-17-5	Ethanol	NGS	94	<5.0	43	n/a	n/a	n/a	n/a	5.0	n/a	
S18T011842		141-78-6	Ethyl acetate	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011842		100-41-4	Ethylbenzene	NGS	110	<2.1	<2.1	n/a	n/a	n/a	n/a	2.1	n/a	
S18T011842		110-00-9	Furan	NGS	100	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011842		110-54-3	Hexane	NGS	98	<1.9	11	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011842		628-73-9	Hexanenitrile	NGS	100	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011842		126-98-7	Methacrylonitrile	NGS	110	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011842		75-09-2	Methylene Chloride	NGS	97	<4.2	4.5	n/a	n/a	n/a	n/a	4.2	n/a	J
S18T011842		91-20-3	Naphthalene	NGS	110	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	
S18T011842		98-95-3	Nitrobenzene	NGS	94	<3.2	<3.2	n/a	n/a	n/a	n/a	3.2	n/a	
S18T011842		110-59-8	Pentanenitrile	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011842		107-12-0	Propanenitrile	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011842		110-86-1	Pyridine	NGS	110	<4.6	<4.6	n/a	n/a	n/a	n/a	4.6	n/a	
S18T011842		100-42-5	Styrene	NGS	99	<2.3	<2.3	n/a	n/a	n/a	n/a	2.3	n/a	
S18T011842		127-18-4	Tetrachloroethene	NGS	100	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011842		108-88-3	Toluene	NGS	110	<0.97	8.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011842		79-01-6	Trichloroethene	NGS	94	<3.8	<3.8	n/a	n/a	n/a	n/a	3.8	n/a	
S18T011842		75-69-4	Trichlorofluoromethane	NGS	100	<3.7	4.4	n/a	n/a	n/a	n/a	3.7	n/a	J
S18T011842		10061-01-5	cis-1,3-Dichloropropene	NGS	110	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011842		123-86-4	n-Butyl acetate	NGS	97	<2.9	<2.9	n/a	n/a	n/a	n/a	2.9	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-8
Customer Sample ID: 18-02350-2-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															
S18T011842			142-82-5	n-Heptane	NGS	94	<2.0	2.9	n/a	n/a	n/a	n/a	2.0	n/a	J
S18T011842			10061-02-6	trans-1,3-Dichloropropene	NGS	110	<2.6	<2.6	n/a	n/a	n/a	n/a	2.6	n/a	

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Daniel Hansen
Daniel Hansen
9-13-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-1
Customer Sample ID: 18-02349-2-SC1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011823				Pentane, 2-methyl-	107-83-5	9.01	NGS	5.2	JNT
S18T011823				Acetic acid	64-19-7	9.54	NGS	8.6	JNT
S18T011823				1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	97	JNT
S18T011823				Octane	111-65-9	16.80	NGS	26	JNT
S18T011823				Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	170	JNT
S18T011823				Cyclohexane, 1,4-dimethyl-	589-90-2	17.10	NGS	30	JNT
S18T011823				Heptane, 3,4,5-trimethyl-	20278-89-1	17.22	NGS	54	JNT
S18T011823				Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	380	JNT
S18T011823				Cyclohexane, 1,1,2-trimethyl-	7094-26-0	17.73	NGS	120	JNT
S18T011823				Heptane, 2,3-dimethyl-	3074-71-3	18.04	NGS	45	JNT
S18T011823				Octane, 4-methyl-	2216-34-4	18.15	NGS	140	JNT
S18T011823				Cyclohexane, 1,2,4-trimethyl-	2234-75-5	18.20	NGS	32	JNT
S18T011823				p-Xylene	106-42-3	18.67	NGS	38	JNT
S18T011823				Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	140	JNT
S18T011823				2,2,7,7-Tetramethyloctane	1071-31-4	21.57	NGS	27	JNT
S18T011823				Dodecane, 2,7,10-trimethyl-	74645-98-0	22.75	NGS	26	JNT
S18T011823				Undecane, 5,7-dimethyl-	17312-83-3	23.03	NGS	240	JNT
S18T011823				Undecane	1120-21-4	23.16	NGS	81	JNT
S18T011823				Dodecane, 2,6,11-trimethyl-	31295-56-4	23.34	NGS	19	JNT
S18T011823				2-Hexyl-1-octanol	19780-79-1	23.50	NGS	26	JNT
S18T011823				Octane, 4-ethyl-	15869-86-0	23.70	NGS	39	JNT
S18T011823				Decane, 2,6,7-trimethyl-	62108-25-2	23.75	NGS	29	JNT
S18T011823				1-Undecene, 4-methyl-	74630-39-0	23.80	NGS	31	JNT
S18T011823				Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	110	JNT
S18T011823				2,6-Dimethyldecane	13150-81-7	23.96	NGS	25	JNT
S18T011823				Decane, 2,5,6-trimethyl-	62108-23-0	23.98	NGS	31	JNT
S18T011823				Undecane, 4,6-dimethyl-	17312-82-2	24.08	NGS	36	JNT
S18T011823				Decane, 3-methyl-	13151-34-3	24.15	NGS	30	JNT
S18T011823				Unknown		24.24	NGS	59	JT

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-1
Customer Sample ID: 18-02349-2-SC1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011823				Heptadecane, 2,6-dimethyl-	54105-67-8	24.39	NGS	30	JNT

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-2
Customer Sample ID: 18-02349-2-SC1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011824				Acetic acid	64-19-7	9.53	NGS	5.7	JNT
S18T011824				1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	48	JNT
S18T011824				Cyclotrisiloxane, hexamethyl-	541-05-9	17.07	NGS	83	JNT
S18T011824				Hexane, 2,3,5-trimethyl-	1069-53-0	17.23	NGS	35	JNT
S18T011824				Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	250	JNT
S18T011824				Cyclopropane, 1-methyl-2-(3-methylpentyl)-	62238-07-7	17.73	NGS	76	JNT
S18T011824				Heptane, 2,3-dimethyl-	3074-71-3	18.05	NGS	27	JNT
S18T011824				Octane, 4-methyl-	2216-34-4	18.15	NGS	90	JNT
S18T011824				p-Xylene	106-42-3	18.68	NGS	27	JNT
S18T011824				Cyclotetrasiloxane, octamethyl-	556-67-2	20.50	NGS	100	JNT
S18T011824				Tridecane, 6-methyl-	13287-21-3	22.76	NGS	16	JNT
S18T011824				Undecane, 4,7-dimethyl-	17301-32-5	23.04	NGS	170	JNT
S18T011824				Undecane	1120-21-4	23.17	NGS	58	JNT
S18T011824				Heptadecane, 2,6-dimethyl-	54105-67-8	23.70	NGS	27	JNT
S18T011824				Decane, 2,4,6-trimethyl-	62108-27-4	23.86	NGS	68	JNT
S18T011824				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.24	NGS	41	JNT
S18T011824				Dodecane	112-40-3	25.27	NGS	12	JNT
S18T011824				Methenamine	100-97-0	26.31	NGS	9.4	JNT

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-3
Customer Sample ID: 18-02349-2-SC1-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011825				1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	37	JNT
S18T011825				Cyclotrisiloxane, hexamethyl-	541-05-9	17.07	NGS	81	JNT
S18T011825				Hexane, 2,3,5-trimethyl-	1069-53-0	17.22	NGS	29	JNT
S18T011825				Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	200	JNT
S18T011825				Cyclooctane, methyl-	1502-38-1	17.73	NGS	63	JNT
S18T011825				Heptane, 2,3-dimethyl-	3074-71-3	18.05	NGS	29	JNT
S18T011825				Octane, 4-methyl-	2216-34-4	18.15	NGS	73	JNT
S18T011825				Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	86	JNT
S18T011825				Decane, 3,7-dimethyl-	17312-54-8	23.04	NGS	170	JNT
S18T011825				Undecane	1120-21-4	23.17	NGS	56	JNT
S18T011825				Decane, 2,4,6-trimethyl-	62108-27-4	23.86	NGS	62	JNT
S18T011825				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.24	NGS	36	JNT
S18T011825				Dodecane	112-40-3	25.27	NGS	14	JNT

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-4
Customer Sample ID: 18-02349-2-SC1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011826				Pentane	109-66-0	6.37	NGS	16	JNT
S18T011826				Pentane, 2-methyl-	107-83-5	9.01	NGS	7.0	JNT
S18T011826				1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	26	JNT
S18T011826				Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	55	JNT
S18T011826				Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	120	JNT
S18T011826				1-Hexene, 3,5-dimethyl-	7423-69-0	17.73	NGS	36	JNT
S18T011826				Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	44	JNT
S18T011826				Undecane, 3,7-dimethyl-	17301-29-0	23.03	NGS	15	JNT
S18T011826				Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	8.6	JNT
S18T011826				Unknown		24.24	NGS	47	JT
S18T011826				Dodecane	112-40-3	25.27	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-5
Customer Sample ID: 18-02349-2-SC1-EF-5

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011827			Pentane	109-66-0	6.37	NGS	17	JNT
S18T011827			Pentane, 2-methyl-	107-83-5	9.02	NGS	9.9	JNT
S18T011827			1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	33	JNT
S18T011827			Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	70	JNT
S18T011827			Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	170	JNT
S18T011827			1-Hexene, 3,5-dimethyl-	7423-69-0	17.73	NGS	54	JNT
S18T011827			Octane, 4-methyl-	2216-34-4	18.15	NGS	54	JNT
S18T011827			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	75	JNT
S18T011827			Undecane, 4,7-dimethyl-	17301-32-5	23.03	NGS	82	JNT
S18T011827			Undecane	1120-21-4	23.16	NGS	26	JNT
S18T011827			Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	23	JNT
S18T011827			Unknown		24.24	NGS	46	JT
S18T011827			Dodecane	112-40-3	25.26	NGS	12	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-6
Customer Sample ID: 18-02349-2-SC1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011828				Pentane	109-66-0	6.36	NGS	21	JNT
S18T011828				Pentane, 2-methyl-	107-83-5	9.01	NGS	9.6	JNT
S18T011828				Acetic acid	64-19-7	9.51	NGS	5.5	JNT
S18T011828				1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	31	JNT
S18T011828				Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	61	JNT
S18T011828				Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	170	JNT
S18T011828				1-Hexene, 3,5-dimethyl-	7423-69-0	17.73	NGS	53	JNT
S18T011828				Octane, 4-methyl-	2216-34-4	18.15	NGS	60	JNT
S18T011828				Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	73	JNT
S18T011828				Tridecane, 6-methyl-	13287-21-3	22.75	NGS	7.0	JNT
S18T011828				Undecane, 4,7-dimethyl-	17301-32-5	23.03	NGS	80	JNT
S18T011828				Undecane	1120-21-4	23.16	NGS	27	JNT
S18T011828				Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	25	JNT
S18T011828				Unknown		24.24	NGS	38	JT
S18T011828				Dodecane	112-40-3	25.27	NGS	12	JNT
S18T011828				Tridecane	629-50-5	26.61	NGS	15	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-7
Customer Sample ID: 18-02349-2-SC1-EF-7

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011829			Butane, 2-methyl-	78-78-4	5.69	NGS	36	JNT
S18T011829			Pentane	109-66-0	6.37	NGS	34	JNT
S18T011829			Pentane, 2-methyl-	107-83-5	9.01	NGS	15	JNT
S18T011829			1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	37	JNT
S18T011829			Cyclotrisiloxane, hexamethyl-	541-05-9	17.07	NGS	74	JNT
S18T011829			Hexane, 2,3,5-trimethyl-	1069-53-0	17.22	NGS	29	JNT
S18T011829			Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	210	JNT
S18T011829			Cyclopropane, 1-methyl-2-(3-methylpentyl)-	62238-07-7	17.73	NGS	67	JNT
S18T011829			Heptane, 2,3-dimethyl-	3074-71-3	18.05	NGS	26	JNT
S18T011829			Octane, 4-methyl-	2216-34-4	18.15	NGS	85	JNT
S18T011829			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	99	JNT
S18T011829			Octane, 2,3,6,7-tetramethyl-	52670-34-5	22.96	NGS	27	JNT
S18T011829			Undecane, 4,7-dimethyl-	17301-32-5	23.04	NGS	240	JNT
S18T011829			Undecane	1120-21-4	23.16	NGS	80	JNT
S18T011829			1-Octanol, 3,7-dimethyl-	106-21-8	23.51	NGS	33	JNT
S18T011829			Undecane, 2,6-dimethyl-	17301-23-4	23.75	NGS	25	JNT
S18T011829			Decane, 2,4,6-trimethyl-	62108-27-4	23.86	NGS	100	JNT
S18T011829			2,6-Dimethyldecane	13150-81-7	23.95	NGS	34	JNT
S18T011829			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.24	NGS	67	JNT
S18T011829			Dodecane	112-40-3	25.27	NGS	22	JNT
S18T011829			Methenamine	100-97-0	26.26	NGS	120	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-EF-8
Customer Sample ID: 18-02349-2-SC1-EF-8

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011830			Butane, 2-methyl-	78-78-4	5.68	NGS	31	JNT
S18T011830			Pentane	109-66-0	6.36	NGS	28	JNT
S18T011830			Pentane, 2-methyl-	107-83-5	9.01	NGS	12	JNT
S18T011830			Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	50	JNT
S18T011830			Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	120	JNT
S18T011830			Cyclohexane, 1,1,2-trimethyl-	7094-26-0	17.73	NGS	39	JNT
S18T011830			Octane, 4-methyl-	2216-34-4	18.14	NGS	31	JNT
S18T011830			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	56	JNT
S18T011830			Decane, 3,7-dimethyl-	17312-54-8	23.03	NGS	84	JNT
S18T011830			Undecane	1120-21-4	23.16	NGS	29	JNT
S18T011830			Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	27	JNT
S18T011830			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.24	NGS	29	JNT
S18T011830			Methenamine	100-97-0	26.28	NGS	5.9	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-1
Customer Sample ID: 18-02349-2-SC1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011831				Cyclotrisiloxane, hexamethyl-	541-05-9	17.07	NGS	27	JNT
S18T011831				Cyclotetrasiloxane, octamethyl-	556-67-2	20.50	NGS	85	JNT
S18T011831				Dodecane, 2,6,10-trimethyl-	3891-98-3	23.12	NGS	9.1	JNT
S18T011831				Unknown		24.24	NGS	29	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02349-2-SC1-IN-8
Customer Sample ID: 18-02349-2-SC1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011832				Silane, methoxytrimethyl-	1825-61-2	8.83	NGS	64	JNT
S18T011832				Pentane, 2-methyl-	107-83-5	9.01	NGS	6.2	JNT
S18T011832				Acetic Acid	64-15-7	9.53	NGS	9.8	JNT
S18T011832				Furan, tetrahydro-	109-99-9	12.09	NGS	85	JNT
S18T011832				Cyclotetrasiloxane, octamethyl-	556-67-2	20.50	NGS	79	JNT
S18T011832				Decane, 2,4,6-trimethyl-	62108-27-4	23.86	NGS	5.6	JNT
S18T011832				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.24	NGS	72	JNT
S18T011832				Methenamine	100-97-0	26.26	NGS	62	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-1
Customer Sample ID: 18-02350-2-TL1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011833				Pentane, 2-methyl-	107-83-5	9.01	NGS	7.5	JNT
S18T011833				Acetic acid	64-19-7	9.50	NGS	6.2	JNT
S18T011833				1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	37	JNT
S18T011833				Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	50	JNT
S18T011833				Hexane, 2,3,5-trimethyl-	1069-53-0	17.22	NGS	29	JNT
S18T011833				Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	200	JNT
S18T011833				Cyclopentane, (2-methylbutyl)-	53366-38-4	17.73	NGS	62	JNT
S18T011833				Heptane, 2,3-dimethyl-	3074-71-3	18.04	NGS	28	JNT
S18T011833				Octane, 4-methyl-	2216-34-4	18.15	NGS	63	JNT
S18T011833				Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	110	JNT
S18T011833				Tridecane, 6-methyl-	13287-21-3	22.75	NGS	9.7	JNT
S18T011833				Undecane, 4,7-dimethyl-	17301-32-5	23.03	NGS	71	JNT
S18T011833				Undecane	1120-21-4	23.16	NGS	24	JNT
S18T011833				Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	31	JNT
S18T011833				Unknown		24.24	NGS	99	JT
S18T011833				Propanoic acid, 2-methyl-, 1-(1,1-dimethylethyl)-2-methyl-1,3-propanediyl ester	74381-40-1	24.60	NGS	29	JNT
S18T011833				Dodecane	112-40-3	25.26	NGS	26	JNT
S18T011833				Heptadecane, 2,6,10,15-tetramethyl-	54833-48-6	26.46	NGS	32	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-2
Customer Sample ID: 18-02350-2-TL1-EF-2

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011834			Acetic acid	64-19-7	9.51	NGS	6.5	JNT
S18T011834			Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	41	JNT
S18T011834			Heptane, 2,4-dimethyl-	2213-23-2	17.32	NGS	92	JNT
S18T011834			Cyclopentane, (2-methylbutyl)-	53366-38-4	17.73	NGS	27	JNT
S18T011834			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	36	JNT
S18T011834			2,2,7,7-Tetramethyloctane	1071-31-4	21.57	NGS	64	JNT
S18T011834			Decane, 2,2-dimethyl-	17302-37-3	22.21	NGS	33	JNT
S18T011834			Octane, 2,4,6-trimethyl-	62016-37-9	22.51	NGS	39	JNT
S18T011834			Dodecane, 2,6,11-trimethyl-	31295-56-4	22.75	NGS	71	JNT
S18T011834			Undecane, 2,7-dimethyl-	17301-24-5	22.91	NGS	29	JNT
S18T011834			Dodecane, 2,7,10-trimethyl-	74645-98-0	23.04	NGS	56	JNT
S18T011834			Decane, 2,6,8-trimethyl-	62108-26-3	23.10	NGS	46	JNT
S18T011834			Octane, 2,2,6-trimethyl-	62016-28-8	23.19	NGS	45	JNT
S18T011834			Dodecane, 2,6,10-trimethyl-	3891-98-3	23.24	NGS	52	JNT
S18T011834			Octane, 5-ethyl-2-methyl-	62016-18-6	23.34	NGS	90	JNT
S18T011834			Decane, 2,5,6-trimethyl-	62108-23-0	23.37	NGS	29	JNT
S18T011834			Undecane, 3,6-dimethyl-	17301-28-9	23.46	NGS	86	JNT
S18T011834			Decane, 3,7-dimethyl-	17312-54-8	23.55	NGS	67	JNT
S18T011834			2,6-Dimethyldecane	13150-81-7	23.66	NGS	69	JNT
S18T011834			Decane, 3,6-dimethyl-	17312-53-7	23.70	NGS	170	JNT
S18T011834			Undecane, 4,6-dimethyl-	17312-82-2	23.79	NGS	61	JNT
S18T011834			Undecane, 4,7-dimethyl-	17301-32-5	23.84	NGS	150	JNT
S18T011834			Undecane, 4-methyl-	2980-69-0	23.92	NGS	26	JNT
S18T011834			Octane, 2,3,6,7-tetramethyl-	52670-34-5	24.00	NGS	98	JNT
S18T011834			Undecane, 3,5-dimethyl-	17312-81-1	24.07	NGS	100	JNT
S18T011834			Decane, 2,6,7-trimethyl-	62108-25-2	24.14	NGS	120	JNT
S18T011834			Heptadecane, 2,6-dimethyl-	54105-67-8	24.16	NGS	43	JNT
S18T011834			Decane, 2,3,5,8-tetramethyl-	192823-15-7	24.24	NGS	110	JNT
S18T011834			Octane, 2,3,3-trimethyl-	62016-30-2	24.38	NGS	110	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-2
Customer Sample ID: 18-02350-2-TL1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011834				Decane, 5-propyl-	17312-62-8	24.67	NGS	34	JNT
S18T011834				Undecane, 3-methyl-	1002-43-3	24.90	NGS	11	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-3
Customer Sample ID: 18-02350-2-TL1-EF-3

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011835			Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	43	JNT
S18T011835			Heptane, 2,4-dimethyl-	2213-23-2	17.32	NGS	110	JNT
S18T011835			1-Octene, 3,7-dimethyl-	4984-01-4	17.72	NGS	32	JNT
S18T011835			Octane, 4-methyl-	2216-34-4	18.13	NGS	25	JNT
S18T011835			Cyclotetrasiloxane, octamethyl-	556-67-2	20.48	NGS	49	JNT
S18T011835			Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	13	JNT
S18T011835			Nonanal	124-19-6	23.97	NGS	32	JNT
S18T011835			Unknown		24.23	NGS	44	JT
S18T011835			Dodecane	112-40-3	25.26	NGS	15	JNT
S18T011835			Methenamine	100-97-0	26.27	NGS	6.7	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-4
Customer Sample ID: 18-02350-2-TL1-EF-4

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011836			Butane, 2-methyl-	78-78-4	5.70	NGS	26	JNT
S18T011836			Pentane	109-66-0	6.37	NGS	29	JNT
S18T011836			Pentane, 2-methyl-	107-83-5	9.00	NGS	12	JNT
S18T011836			Acetic acid	64-19-7	9.68	NGS	48	JNT
S18T011836			Octane	111-65-9	16.80	NGS	29	JNT
S18T011836			Heptane, 2,4-dimethyl-	2213-23-2	17.32	NGS	25	JNT
S18T011836			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	25	JNT
S18T011836			Undecane, 4,7-dimethyl-	17301-32-5	23.02	NGS	42	JNT
S18T011836			Undecane, 4,6-dimethyl-	17312-82-2	23.85	NGS	25	JNT
S18T011836			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.24	NGS	85	JNT
S18T011836			Dodecane	112-40-3	25.26	NGS	21	JNT
S18T011836			Methenamine	100-97-0	26.25	NGS	68	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-5
Customer Sample ID: 18-02350-2-TL1-EF-5

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011837			Butane, 2-methyl-	78-78-4	5.70	NGS	35	JNT
S18T011837			Pentane	109-66-0	6.37	NGS	38	JNT
S18T011837			Pentane, 2-methyl-	107-83-5	9.00	NGS	17	JNT
S18T011837			Acetic acid	64-19-7	9.56	NGS	9.4	JNT
S18T011837			1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	29	JNT
S18T011837			Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	41	JNT
S18T011837			Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	140	JNT
S18T011837			2,4-Dimethyl-1-heptene	19549-87-2	17.73	NGS	45	JNT
S18T011837			Octane, 4-methyl-	2216-34-4	18.14	NGS	32	JNT
S18T011837			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	80	JNT
S18T011837			Decane, 3,7-dimethyl-	17312-54-8	23.03	NGS	37	JNT
S18T011837			Tridecane	629-50-5	23.74	NGS	6.5	JNT
S18T011837			Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	12	JNT
S18T011837			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.24	NGS	56	JNT
S18T011837			Dodecane	112-40-3	25.26	NGS	20	JNT
S18T011837			Methenamine	100-97-0	26.25	NGS	120	JNT
S18T011837			Decane, 2,3,5,8-tetramethyl-	192823-15-7	26.46	NGS	25	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-6
Customer Sample ID: 18-02350-2-TL1-EF-6

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011838			Butane, 2-methyl-	78-78-4	5.69	NGS	32	JNT
S18T011838			Pentane	109-66-0	6.35	NGS	44	JNT
S18T011838			Pentane, 2-methyl-	107-83-5	9.01	NGS	17	JNT
S18T011838			1,3-Dimethylcyclohexane,c&t	591-21-9	16.55	NGS	27	JNT
S18T011838			Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	39	JNT
S18T011838			Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	130	JNT
S18T011838			Cyclopropane, 1-methyl-2-(3-methylpentyl)-	62238-07-7	17.73	NGS	42	JNT
S18T011838			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	83	JNT
S18T011838			2,2,7,7-Tetramethyloctane	1071-31-4	21.57	NGS	71	JNT
S18T011838			Decane, 2,6,8-trimethyl-	62108-26-3	22.22	NGS	27	JNT
S18T011838			Nonane, 2,2,3-trimethyl-	55499-04-2	22.52	NGS	35	JNT
S18T011838			Decane, 2,6,6-trimethyl-	62108-24-1	22.76	NGS	64	JNT
S18T011838			Undecane, 3,7-dimethyl-	17301-29-0	23.03	NGS	78	JNT
S18T011838			Decane, 2,5,9-trimethyl-	62108-22-9	23.19	NGS	44	JNT
S18T011838			Dodecane, 2,7,10-trimethyl-	74645-98-0	23.24	NGS	32	JNT
S18T011838			Dodecane, 2,6,10-trimethyl-	3891-98-3	23.34	NGS	34	JNT
S18T011838			Dodecane, 4-methyl-	6117-97-1	23.55	NGS	38	JNT
S18T011838			Octane, 3,4,5,6-tetramethyl-	62185-21-1	23.66	NGS	40	JNT
S18T011838			Heptadecane, 2,6,10,14-tetramethyl-	18344-37-1	23.70	NGS	91	JNT
S18T011838			Octane, 2,3,6-trimethyl-	62016-33-5	23.73	NGS	43	JNT
S18T011838			Dodecane, 2,6,11-trimethyl-	31295-56-4	23.80	NGS	33	JNT
S18T011838			Decane, 3,7-dimethyl-	17312-54-8	23.85	NGS	120	JNT
S18T011838			Hexane, 3,3-dimethyl-	563-16-6	24.00	NGS	60	JNT
S18T011838			Undecane, 4,6-dimethyl-	17312-82-2	24.07	NGS	66	JNT
S18T011838			Octane, 5-ethyl-2-methyl-	62016-18-6	24.14	NGS	69	JNT
S18T011838			Unknown		24.24	NGS	110	JT
S18T011838			2,6-Dimethyldecane	13150-81-7	24.38	NGS	64	JNT
S18T011838			Dodecane	112-40-3	25.26	NGS	22	JNT
S18T011838			Methenamine	100-97-0	26.25	NGS	120	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-6

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-7
Customer Sample ID: 18-02350-2-TL1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011839				Butane, 2-methyl-	78-78-4	5.69	NGS	44	JNT
S18T011839				Pentane	109-66-0	6.37	NGS	45	JNT
S18T011839				Pentane, 2-methyl-	107-83-5	9.00	NGS	18	JNT
S18T011839				Acetic acid	64-19-7	9.56	NGS	7.1	JNT
S18T011839				Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	30	JNT
S18T011839				Heptane, 2,4-dimethyl-	2213-23-2	17.32	NGS	100	JNT
S18T011839				1-Heptene, 5-methyl-	13151-04-7	17.73	NGS	34	JNT
S18T011839				Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	63	JNT
S18T011839				Undecane, 4,7-dimethyl-	17301-32-5	23.02	NGS	75	JNT
S18T011839				Undecane	1120-21-4	23.16	NGS	24	JNT
S18T011839				Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	20	JNT
S18T011839				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	24.23	NGS	46	JNT
S18T011839				Dodecane	112-40-3	25.26	NGS	9.2	JNT
S18T011839				Methenamine	100-97-0	26.27	NGS	6.8	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-EF-8
Customer Sample ID: 18-02350-2-TL1-EF-8

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011840			Butane, 2-methyl-	78-78-4	5.68	NGS	33	JNT
S18T011840			Pentane	109-66-0	6.36	NGS	37	JNT
S18T011840			Pentane, 2-methyl-	107-83-5	9.00	NGS	11	JNT
S18T011840			Acetic acid	64-19-7	9.54	NGS	8.1	JNT
S18T011840			Heptane, 2,4-dimethyl-	2213-23-2	17.33	NGS	68	JNT
S18T011840			Cyclotetrasiloxane, octamethyl-	556-67-2	20.49	NGS	38	JNT
S18T011840			Heptane, 4-ethyl-2,2,6,6-tetramethyl-	62108-31-0	21.58	NGS	39	JNT
S18T011840			Hexane, 3,3-dimethyl-	563-16-6	22.75	NGS	37	JNT
S18T011840			Dodecane, 2,7,10-trimethyl-	74645-98-0	23.04	NGS	27	JNT
S18T011840			Dodecane, 2,6,11-trimethyl-	31295-56-4	23.33	NGS	10	JNT
S18T011840			Dodecane, 2,6,10-trimethyl-	3891-98-3	23.46	NGS	10	JNT
S18T011840			2,6-Dimethyldecane	13150-81-7	23.70	NGS	28	JNT
S18T011840			Undecane, 4,6-dimethyl-	17312-82-2	23.85	NGS	33	JNT
S18T011840			Tridecane, 6-methyl-	13287-21-3	24.14	NGS	21	JNT
S18T011840			Unknown		24.24	NGS	46	JT
S18T011840			Dodecane	112-40-3	25.26	NGS	14	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-1
Customer Sample ID: 18-02350-2-TL1-IN-1

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011841			1-Butene	106-98-9	7.41	NGS	7.0	JNT
S18T011841			Pentane	109-66-0	7.71	NGS	15	JNT
S18T011841			Pentane, 2-methyl-	107-83-5	10.80	NGS	6.9	JNT
S18T011841			Cyclotetrasiloxane, octamethyl-	556-67-2	23.56	NGS	120	JNT
S18T011841			2,2,7,7-Tetramethyloctane	1071-31-4	24.53	NGS	29	JNT
S18T011841			Decane, 2,2-dimethyl-	17302-37-3	24.94	NGS	26	JNT
S18T011841			Dodecane, 2,7,10-trimethyl-	74645-98-0	25.60	NGS	38	JNT
S18T011841			Dodecane, 2,6,11-trimethyl-	31295-56-4	25.71	NGS	30	JNT
S18T011841			Heptane, 4-ethyl-2,2,6,6-tetramethyl-	62108-31-0	25.81	NGS	30	JNT
S18T011841			Decane, 2,6,8-trimethyl-	62108-26-3	25.94	NGS	30	JNT
S18T011841			Undecane, 3,5-dimethyl-	17312-81-1	26.01	NGS	34	JNT
S18T011841			Unknown		26.15	NGS	32	JT
S18T011841			Decane, 3,6-dimethyl-	17312-53-7	26.26	NGS	26	JNT
S18T011841			Undecane	1120-21-4	26.30	NGS	63	JNT
S18T011841			Dodecane	112-40-3	26.44	NGS	81	JNT
S18T011841			Undecane, 4-methyl-	2980-69-0	26.65	NGS	39	JNT
S18T011841			Decane, 2,6,7-trimethyl-	62108-25-2	26.68	NGS	29	JNT
S18T011841			Unknown		26.79	NGS	170	JT
S18T011841			2,6-Dimethyldecane	13150-81-7	27.08	NGS	64	JNT

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180945
Customer Group or SDG Number:
Customer Sample ID: 18-02350-2-TL1-IN-8
Customer Sample ID: 18-02350-2-TL1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011842				Butane, 2-methyl-	78-78-4	5.71	NGS	27	JNT
S18T011842				Pentane	109-66-0	6.37	NGS	38	JNT
S18T011842				Pentane, 2-methyl-	107-83-5	9.01	NGS	14	JNT
S18T011842				Cyclotrisiloxane, hexamethyl-	541-05-9	17.06	NGS	25	JNT
S18T011842				Cyclotetrasiloxane, octamethyl-	556-67-2	20.48	NGS	89	JNT
S18T011842				Decane, 2,4,6-trimethyl-	62108-27-4	23.85	NGS	17	JNT
S18T011842				Unknown		24.23	NGS	100	JT
S18T011842				Dodecane	112-40-3	25.26	NGS	25	JNT
S18T011842				Methenamine	100-97-0	26.25	NGS	210	JNT

NA = Not Analyzed, ND = Not Detected

Daniel Hansen
Daniel Hansen
9-13-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-1
Customer Sample ID: 18-02348-2-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														
S18T011843		79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011843		79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011843		107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011843		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011843		106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011843		123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011843		71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011843		111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011843		71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011843		108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011843		1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011843		78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011843		110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011843		78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011843		106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011843		105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011843		108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	1.3	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011843		67-64-1	Acetone	NGS	94	<4.3	19	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011843		75-05-8	Acetonitrile	NGS	100	<1.4	48	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011843		98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011843		107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011843		107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011843		71-43-2	Benzene	NGS	99	<1.1	3.3	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-1
Customer Sample ID: 18-02348-2-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														
S18T011843		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011843		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011843		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.7	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011843		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011843		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011843		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011843		110-82-7	Cyclohexane	NGS	100	<1.1	12	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011843		124-18-5	Decane	NGS	97	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011843		64-17-5	Ethanol	NGS	100	<12	28	n/a	n/a	n/a	n/a	12	n/a	
S18T011843		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011843		100-41-4	Ethylbenzene	NGS	98	<1.0	3.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011843		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011843		110-54-3	Hexane	NGS	100	1.3	6.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011843		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011843		75-09-2	Methylene Chloride	NGS	100	1.9	6.9	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011843		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011843		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011843		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011843		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011843		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011843		100-42-5	Styrene	NGS	100	<1.1	9.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011843		127-18-4	Tetrachloroethene	NGS	100	<0.87	11	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011843		108-88-3	Toluene	NGS	97	<1.2	6.1	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011843		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011843		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.1	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011843		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011843		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-1
Customer Sample ID: 18-02348-2-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														
S18T011843		142-82-5	n-Heptane	NGS	99	<0.97	2.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011843		10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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NA = Not Analyzed, ND = Not Detected
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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-2
Customer Sample ID: 18-02348-2-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														
S18T011844		79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011844		79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011844		107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011844		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011844		106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011844		123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011844		71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011844		111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011844		71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011844		108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011844		1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011844		78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011844		110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011844		78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011844		106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011844		105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011844		108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011844		67-64-1	Acetone	NGS	94	<4.3	19	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011844		75-05-8	Acetonitrile	NGS	100	<1.4	26	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011844		98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011844		107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011844		107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011844		71-43-2	Benzene	NGS	99	<1.1	3.0	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-2
Customer Sample ID: 18-02348-2-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														
S18T011844		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011844		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011844		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.5	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011844		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011844		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011844		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011844		110-82-7	Cyclohexane	NGS	100	<1.1	11	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011844		124-18-5	Decane	NGS	97	<1.5	11	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011844		64-17-5	Ethanol	NGS	100	<12	26	n/a	n/a	n/a	n/a	12	n/a	
S18T011844		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011844		100-41-4	Ethylbenzene	NGS	98	<1.0	3.0	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011844		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011844		110-54-3	Hexane	NGS	100	1.3	5.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011844		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011844		75-09-2	Methylene Chloride	NGS	100	1.9	3.4	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011844		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011844		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011844		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011844		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011844		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011844		100-42-5	Styrene	NGS	100	<1.1	9.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011844		127-18-4	Tetrachloroethene	NGS	100	<0.87	8.7	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011844		108-88-3	Toluene	NGS	97	<1.2	5.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011844		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011844		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.0	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011844		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011844		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-2
Customer Sample ID: 18-02348-2-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														
S18T011844		142-82-5	n-Heptane	NGS	99	<0.97	1.9	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011844		10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-3
Customer Sample ID: 18-02348-2-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															
S18T011845			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011845			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011845			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011845			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011845			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011845			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011845			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011845			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011845			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011845			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011845			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011845			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011845			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011845			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011845			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011845			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011845			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	0.97	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011845			67-64-1	Acetone	NGS	94	<4.3	13	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011845			75-05-8	Acetonitrile	NGS	100	<1.4	18	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011845			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011845			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011845			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011845			71-43-2	Benzene	NGS	99	<1.1	3.6	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-3
Customer Sample ID: 18-02348-2-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														
S18T011845		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011845		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011845		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.6	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011845		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011845		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011845		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011845		110-82-7	Cyclohexane	NGS	100	<1.1	11	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011845		124-18-5	Decane	NGS	97	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011845		64-17-5	Ethanol	NGS	100	<12	32	n/a	n/a	n/a	n/a	12	n/a	
S18T011845		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011845		100-41-4	Ethylbenzene	NGS	98	<1.0	2.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011845		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011845		110-54-3	Hexane	NGS	100	1.3	5.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011845		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011845		75-09-2	Methylene Chloride	NGS	100	1.9	2.7	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011845		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011845		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011845		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011845		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011845		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011845		100-42-5	Styrene	NGS	100	<1.1	8.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011845		127-18-4	Tetrachloroethene	NGS	100	<0.87	8.0	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011845		108-88-3	Toluene	NGS	97	<1.2	5.4	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011845		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011845		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	5.2	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011845		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011845		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-3
Customer Sample ID: 18-02348-2-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															
S18T011845			142-82-5	n-Heptane	NGS	99	<0.97	2.1	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011845			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-4
Customer Sample ID: 18-02348-2-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														
S18T011846		79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011846		79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011846		107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011846		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011846		106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011846		123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011846		71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011846		111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011846		71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011846		108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011846		1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011846		78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011846		110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011846		78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011846		106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011846		105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011846		108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011846		67-64-1	Acetone	NGS	94	<4.3	21	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011846		75-05-8	Acetonitrile	NGS	100	<1.4	290	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011846		98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011846		107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011846		107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011846		71-43-2	Benzene	NGS	99	<1.1	3.2	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-4
Customer Sample ID: 18-02348-2-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														
S18T011846		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011846		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011846		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.3	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011846		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011846		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011846		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011846		110-82-7	Cyclohexane	NGS	100	<1.1	9.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011846		124-18-5	Decane	NGS	97	<1.5	4.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011846		64-17-5	Ethanol	NGS	100	<12	47	n/a	n/a	n/a	n/a	12	n/a	
S18T011846		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011846		100-41-4	Ethylbenzene	NGS	98	<1.0	1.9	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011846		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011846		110-54-3	Hexane	NGS	100	1.3	6.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011846		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011846		75-09-2	Methylene Chloride	NGS	100	1.9	2.8	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011846		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011846		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011846		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011846		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011846		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011846		100-42-5	Styrene	NGS	100	<1.1	5.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011846		127-18-4	Tetrachloroethene	NGS	100	<0.87	4.7	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011846		108-88-3	Toluene	NGS	97	<1.2	5.0	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011846		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011846		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	5.2	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011846		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011846		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-4
Customer Sample ID: 18-02348-2-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															
S18T011846			142-82-5	n-Heptane	NGS	99	<0.97	2.0	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011846			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-5
Customer Sample ID: 18-02348-2-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														
S18T011847		79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011847		79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011847		107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011847		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011847		106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011847		123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011847		71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011847		111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011847		71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011847		108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011847		1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011847		78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011847		110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011847		78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011847		106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011847		105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011847		108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011847		67-64-1	Acetone	NGS	94	<4.3	38	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011847		75-05-8	Acetonitrile	NGS	100	<1.4	17	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011847		98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011847		107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011847		107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011847		71-43-2	Benzene	NGS	99	<1.1	5.2	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-5
Customer Sample ID: 18-02348-2-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														
S18T011847		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011847		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011847		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.5	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011847		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011847		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011847		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011847		110-82-7	Cyclohexane	NGS	100	<1.1	9.8	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011847		124-18-5	Decane	NGS	97	<1.5	7.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011847		64-17-5	Ethanol	NGS	100	<12	73	n/a	n/a	n/a	n/a	12	n/a	
S18T011847		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011847		100-41-4	Ethylbenzene	NGS	98	<1.0	2.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011847		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011847		110-54-3	Hexane	NGS	100	1.3	9.5	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011847		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011847		75-09-2	Methylene Chloride	NGS	100	1.9	5.6	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011847		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011847		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011847		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011847		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011847		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011847		100-42-5	Styrene	NGS	100	<1.1	6.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011847		127-18-4	Tetrachloroethene	NGS	100	<0.87	5.0	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011847		108-88-3	Toluene	NGS	97	<1.2	7.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011847		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011847		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.7	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011847		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011847		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-5
Customer Sample ID: 18-02348-2-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														
S18T011847		142-82-5	n-Heptane	NGS	99	<0.97	2.7	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011847		10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-6
Customer Sample ID: 18-02348-2-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															
S18T011848			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011848			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011848			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011848			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011848			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011848			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011848			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011848			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011848			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011848			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011848			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011848			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011848			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011848			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011848			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011848			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011848			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011848			67-64-1	Acetone	NGS	94	<4.3	40	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011848			75-05-8	Acetonitrile	NGS	100	<1.4	45	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011848			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011848			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011848			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011848			71-43-2	Benzene	NGS	99	<1.1	6.0	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-6
Customer Sample ID: 18-02348-2-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															
S18T011848			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011848			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011848			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.4	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011848			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011848			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011848			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011848			110-82-7	Cyclohexane	NGS	100	<1.1	9.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011848			124-18-5	Decane	NGS	97	<1.5	6.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011848			64-17-5	Ethanol	NGS	100	<12	100	n/a	n/a	n/a	n/a	12	n/a	
S18T011848			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011848			100-41-4	Ethylbenzene	NGS	98	<1.0	2.3	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011848			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011848			110-54-3	Hexane	NGS	100	1.3	13	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011848			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011848			75-09-2	Methylene Chloride	NGS	100	1.9	9.2	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011848			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011848			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011848			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011848			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011848			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011848			100-42-5	Styrene	NGS	100	<1.1	4.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011848			127-18-4	Tetrachloroethene	NGS	100	<0.87	3.6	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011848			108-88-3	Toluene	NGS	97	<1.2	12	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011848			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011848			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.3	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011848			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011848			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-6
Customer Sample ID: 18-02348-2-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														
S18T011848		142-82-5	n-Heptane	NGS	99	<0.97	3.7	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011848		10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-7
Customer Sample ID: 18-02348-2-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															
S18T011849			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011849			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011849			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011849			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011849			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011849			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011849			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011849			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011849			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011849			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011849			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011849			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011849			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011849			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011849			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011849			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011849			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011849			67-64-1	Acetone	NGS	94	<4.3	29	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011849			75-05-8	Acetonitrile	NGS	100	<1.4	23	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011849			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011849			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011849			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011849			71-43-2	Benzene	NGS	99	<1.1	5.0	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-7
Customer Sample ID: 18-02348-2-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															
S18T011849			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011849			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011849			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011849			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011849			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011849			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011849			110-82-7	Cyclohexane	NGS	100	<1.1	10	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011849			124-18-5	Decane	NGS	97	<1.5	8.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011849			64-17-5	Ethanol	NGS	100	<12	60	n/a	n/a	n/a	n/a	12	n/a	
S18T011849			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011849			100-41-4	Ethylbenzene	NGS	98	<1.0	2.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011849			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011849			110-54-3	Hexane	NGS	100	1.3	9.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011849			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011849			75-09-2	Methylene Chloride	NGS	100	1.9	4.1	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011849			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011849			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011849			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011849			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011849			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011849			100-42-5	Styrene	NGS	100	<1.1	6.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011849			127-18-4	Tetrachloroethene	NGS	100	<0.87	3.8	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011849			108-88-3	Toluene	NGS	97	<1.2	7.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011849			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011849			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.4	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011849			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011849			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-7
Customer Sample ID: 18-02348-2-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														
S18T011849		142-82-5	n-Heptane	NGS	99	<0.97	2.8	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011849		10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-8
Customer Sample ID: 18-02348-2-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															
S18T011850			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011850			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011850			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011850			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011850			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011850			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011850			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011850			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011850			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011850			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011850			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011850			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011850			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011850			78-94-4	3-Buten-2-one	NGS	100	<1.5	1.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011850			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011850			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011850			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011850			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011850			67-64-1	Acetone	NGS	94	<4.3	45	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011850			75-05-8	Acetonitrile	NGS	100	<1.4	96	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011850			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011850			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011850			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011850			71-43-2	Benzene	NGS	99	<1.1	5.0	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-8
Customer Sample ID: 18-02348-2-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														
S18T011850		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011850		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011850		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.7	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011850		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011850		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011850		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011850		110-82-7	Cyclohexane	NGS	100	<1.1	8.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011850		124-18-5	Decane	NGS	97	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011850		64-17-5	Ethanol	NGS	100	<12	80	n/a	n/a	n/a	n/a	12	n/a	
S18T011850		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011850		100-41-4	Ethylbenzene	NGS	98	<1.0	2.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011850		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011850		110-54-3	Hexane	NGS	100	1.3	12	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011850		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011850		75-09-2	Methylene Chloride	NGS	100	1.9	16	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011850		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011850		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011850		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011850		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011850		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011850		100-42-5	Styrene	NGS	100	<1.1	5.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011850		127-18-4	Tetrachloroethene	NGS	100	<0.87	4.1	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011850		108-88-3	Toluene	NGS	97	<1.2	13	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011850		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011850		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	3.8	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011850		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011850		123-86-4	n-Butyl acetate	NGS	97	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-8
Customer Sample ID: 18-02348-2-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														
S18T011850		142-82-5	n-Heptane	NGS	99	<0.97	3.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011850		10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-1
Customer Sample ID: 18-02348-2-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															
S18T011851			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011851			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011851			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011851			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011851			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011851			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011851			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011851			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011851			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011851			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011851			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011851			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011851			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011851			78-94-4	3-Buten-2-one	NGS	100	<1.5	2.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011851			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011851			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011851			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011851			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011851			67-64-1	Acetone	NGS	94	<4.3	42	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011851			75-05-8	Acetonitrile	NGS	100	<1.4	23	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011851			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011851			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011851			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011851			71-43-2	Benzene	NGS	99	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-1
Customer Sample ID: 18-02348-2-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															
S18T011851			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011851			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011851			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			56-23-5	Carbon tetrachloride	NGS	100	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	
S18T011851			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011851			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011851			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011851			110-82-7	Cyclohexane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011851			124-18-5	Decane	NGS	97	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			64-17-5	Ethanol	NGS	100	<12	26	n/a	n/a	n/a	n/a	12	n/a	
S18T011851			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011851			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011851			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011851			110-54-3	Hexane	NGS	100	1.3	2.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011851			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011851			75-09-2	Methylene Chloride	NGS	100	1.9	15	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011851			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011851			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011851			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011851			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011851			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011851			100-42-5	Styrene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011851			127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011851			108-88-3	Toluene	NGS	97	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011851			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011851			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	2.0	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011851			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011851			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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T - Tentatively Identified Compound

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-1
Customer Sample ID: 18-02348-2-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															
S18T011851			142-82-5	n-Heptane	NGS	99	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011851			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-8
Customer Sample ID: 18-02348-2-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															
S18T011852			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011852			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011852			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011852			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011852			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011852			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011852			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011852			123-91-1	1,4-Dioxane	NGS	96	<1.4	2.0	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011852			71-36-3	1-Butanol	NGS	84	<4.9	62	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011852			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011852			71-23-8	1-Propanol	NGS	96	<4.5	16	n/a	n/a	n/a	n/a	4.5	n/a	J
S18T011852			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011852			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011852			78-93-3	2-Butanone	NGS	96	<1.9	8.0	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011852			110-43-0	2-Heptanone	NGS	91	<1.5	2.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011852			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011852			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011852			78-94-4	3-Buten-2-one	NGS	100	<1.5	9.1	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011852			106-35-4	3-Heptanone	NGS	97	<1.4	2.8	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011852			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011852			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011852			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	1.4	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011852			67-64-1	Acetone	NGS	94	<4.3	240	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011852			75-05-8	Acetonitrile	NGS	100	<1.4	23	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011852			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011852			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011852			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011852			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011852			71-43-2	Benzene	NGS	99	<1.1	2.8	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-8
Customer Sample ID: 18-02348-2-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															
S18T011852			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011852			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011852			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011852			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.3	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011852			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011852			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011852			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011852			110-82-7	Cyclohexane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011852			124-18-5	Decane	NGS	97	<1.5	3.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011852			64-17-5	Ethanol	NGS	100	<12	82	n/a	n/a	n/a	n/a	12	n/a	
S18T011852			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011852			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011852			110-00-9	Furan	NGS	97	<1.0	9.1	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011852			110-54-3	Hexane	NGS	100	1.3	6.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011852			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011852			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011852			75-09-2	Methylene Chloride	NGS	100	1.9	4.3	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011852			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011852			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011852			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011852			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011852			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011852			100-42-5	Styrene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011852			127-18-4	Tetrachloroethene	NGS	100	<0.87	1.8	n/a	n/a	n/a	n/a	0.87	n/a	J
S18T011852			108-88-3	Toluene	NGS	97	<1.2	4.2	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011852			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011852			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	7.4	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011852			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011852			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-8
Customer Sample ID: 18-02348-2-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															
S18T011852			142-82-5	n-Heptane	NGS	99	<0.97	1.3	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011852			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-1
Customer Sample ID: 18-02351-2-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															
S18T011853			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011853			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011853			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011853			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011853			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011853			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011853			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011853			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011853			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011853			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011853			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011853			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011853			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011853			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011853			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011853			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011853			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011853			67-64-1	Acetone	NGS	94	<4.3	18	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011853			75-05-8	Acetonitrile	NGS	100	<1.4	17	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011853			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011853			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011853			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011853			71-43-2	Benzene	NGS	99	<1.1	3.8	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-1
Customer Sample ID: 18-02351-2-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														
S18T011853		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011853		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011853		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.6	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011853		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011853		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011853		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011853		110-82-7	Cyclohexane	NGS	100	<1.1	8.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011853		124-18-5	Decane	NGS	97	<1.5	5.8	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011853		64-17-5	Ethanol	NGS	100	<12	24	n/a	n/a	n/a	n/a	12	n/a	
S18T011853		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011853		100-41-4	Ethylbenzene	NGS	98	<1.0	1.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011853		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011853		110-54-3	Hexane	NGS	100	1.3	6.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011853		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011853		75-09-2	Methylene Chloride	NGS	100	1.9	3.0	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011853		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011853		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011853		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011853		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011853		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011853		100-42-5	Styrene	NGS	100	<1.1	4.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011853		127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011853		108-88-3	Toluene	NGS	97	<1.2	5.6	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011853		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011853		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.2	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011853		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011853		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-1
Customer Sample ID: 18-02351-2-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															
S18T011853			142-82-5	n-Heptane	NGS	99	<0.97	2.0	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011853			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-2
Customer Sample ID: 18-02351-2-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														
S18T011854		79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011854		79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011854		107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011854		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011854		106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011854		123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011854		71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011854		111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011854		71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011854		108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011854		1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011854		78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011854		110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011854		78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011854		106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011854		105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011854		108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011854		67-64-1	Acetone	NGS	94	<4.3	22	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011854		75-05-8	Acetonitrile	NGS	100	<1.4	19	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011854		98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011854		107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011854		107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011854		71-43-2	Benzene	NGS	99	<1.1	4.2	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-2
Customer Sample ID: 18-02351-2-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														
S18T011854		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011854		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011854		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011854		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011854		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011854		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011854		110-82-7	Cyclohexane	NGS	100	<1.1	10	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011854		124-18-5	Decane	NGS	97	<1.5	7.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011854		64-17-5	Ethanol	NGS	100	<12	36	n/a	n/a	n/a	n/a	12	n/a	
S18T011854		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011854		100-41-4	Ethylbenzene	NGS	98	<1.0	2.1	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011854		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011854		110-54-3	Hexane	NGS	100	1.3	7.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011854		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011854		75-09-2	Methylene Chloride	NGS	100	1.9	5.3	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011854		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011854		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011854		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011854		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011854		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011854		100-42-5	Styrene	NGS	100	<1.1	5.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011854		127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011854		108-88-3	Toluene	NGS	97	<1.2	6.8	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011854		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011854		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	3.7	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011854		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011854		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-2
Customer Sample ID: 18-02351-2-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															
S18T011854			142-82-5	n-Heptane	NGS	99	<0.97	2.3	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011854			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-3
Customer Sample ID: 18-02351-2-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														
S18T011855		79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011855		79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855		75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855		75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011855		107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011855		542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011855		106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011855		123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011855		71-36-3	1-Butanol	NGS	84	<4.9	9.2	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T011855		111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011855		71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011855		108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011855		1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011855		78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011855		110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855		591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855		534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011855		78-94-4	3-Buten-2-one	NGS	100	<1.5	2.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011855		106-35-4	3-Heptanone	NGS	97	<1.4	1.5	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011855		106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011855		105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011855		108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011855		67-64-1	Acetone	NGS	94	<4.3	33	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011855		75-05-8	Acetonitrile	NGS	100	<1.4	110	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011855		98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011855		107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855		107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011855		107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011855		71-43-2	Benzene	NGS	99	<1.1	4.2	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-3
Customer Sample ID: 18-02351-2-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															
S18T011855			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011855			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011855			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011855			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011855			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011855			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011855			110-82-7	Cyclohexane	NGS	100	<1.1	9.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011855			124-18-5	Decane	NGS	97	<1.5	10	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011855			64-17-5	Ethanol	NGS	100	<12	46	n/a	n/a	n/a	n/a	12	n/a	
S18T011855			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011855			100-41-4	Ethylbenzene	NGS	98	<1.0	2.0	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011855			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011855			110-54-3	Hexane	NGS	100	1.3	11	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011855			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011855			75-09-2	Methylene Chloride	NGS	100	1.9	18	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011855			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011855			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011855			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011855			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011855			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011855			100-42-5	Styrene	NGS	100	<1.1	4.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011855			127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011855			108-88-3	Toluene	NGS	97	<1.2	10	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011855			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011855			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	5.0	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011855			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011855			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-3
Customer Sample ID: 18-02351-2-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														
S18T011855		142-82-5	n-Heptane	NGS	99	<0.97	2.6	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011855		10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-4
Customer Sample ID: 18-02351-2-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															
S18T011856			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011856			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011856			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011856			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011856			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011856			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011856			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011856			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011856			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011856			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011856			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011856			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011856			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011856			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011856			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011856			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011856			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011856			67-64-1	Acetone	NGS	94	<4.3	19	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011856			75-05-8	Acetonitrile	NGS	100	<1.4	750	n/a	n/a	n/a	n/a	1.4	n/a	E
S18T011856			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011856			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011856			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011856			71-43-2	Benzene	NGS	99	<1.1	4.4	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-4
Customer Sample ID: 18-02351-2-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															
S18T011856			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011856			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011856			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.6	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011856			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011856			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011856			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011856			110-82-7	Cyclohexane	NGS	100	<1.1	6.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011856			124-18-5	Decane	NGS	97	<1.5	5.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011856			64-17-5	Ethanol	NGS	100	<12	51	n/a	n/a	n/a	n/a	12	n/a	
S18T011856			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011856			100-41-4	Ethylbenzene	NGS	98	<1.0	1.6	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011856			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011856			110-54-3	Hexane	NGS	100	1.3	9.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011856			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011856			75-09-2	Methylene Chloride	NGS	100	1.9	14	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011856			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011856			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011856			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011856			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011856			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011856			100-42-5	Styrene	NGS	100	<1.1	3.6	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011856			127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011856			108-88-3	Toluene	NGS	97	<1.2	6.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011856			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011856			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	3.1	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011856			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011856			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-4
Customer Sample ID: 18-02351-2-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															
S18T011856			142-82-5	n-Heptane	NGS	99	<0.97	2.8	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011856			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-5
Customer Sample ID: 18-02351-2-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															
S18T011857			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011857			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011857			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011857			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011857			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011857			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011857			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011857			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011857			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011857			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011857			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011857			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011857			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011857			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011857			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011857			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011857			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011857			67-64-1	Acetone	NGS	94	<4.3	26	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011857			75-05-8	Acetonitrile	NGS	100	<1.4	19	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011857			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011857			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011857			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011857			71-43-2	Benzene	NGS	99	<1.1	6.6	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-5
Customer Sample ID: 18-02351-2-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														
S18T011857		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011857		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011857		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011857		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011857		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011857		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011857		110-82-7	Cyclohexane	NGS	100	<1.1	9.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011857		124-18-5	Decane	NGS	97	<1.5	6.3	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011857		64-17-5	Ethanol	NGS	100	<12	65	n/a	n/a	n/a	n/a	12	n/a	
S18T011857		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011857		100-41-4	Ethylbenzene	NGS	98	<1.0	1.9	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011857		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011857		110-54-3	Hexane	NGS	100	1.3	13	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011857		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011857		75-09-2	Methylene Chloride	NGS	100	1.9	5.2	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011857		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011857		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011857		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011857		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011857		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011857		100-42-5	Styrene	NGS	100	<1.1	4.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011857		127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011857		108-88-3	Toluene	NGS	97	<1.2	9.7	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011857		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011857		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	3.3	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011857		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011857		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-5
Customer Sample ID: 18-02351-2-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															
S18T011857			142-82-5	n-Heptane	NGS	99	<0.97	3.4	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011857			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-6
Customer Sample ID: 18-02351-2-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															
S18T011858			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011858			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011858			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011858			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011858			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011858			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011858			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011858			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011858			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011858			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011858			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011858			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011858			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011858			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011858			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011858			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011858			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	1.7	n/a	n/a	n/a	n/a	0.88	n/a	J
S18T011858			67-64-1	Acetone	NGS	94	<4.3	31	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011858			75-05-8	Acetonitrile	NGS	100	<1.4	6.3E+03	n/a	n/a	n/a	n/a	1.4	n/a	EY
S18T011858			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011858			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011858			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011858			71-43-2	Benzene	NGS	99	<1.1	7.0	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-6
Customer Sample ID: 18-02351-2-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															
S18T011858			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011858			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011858			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.6	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011858			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011858			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011858			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011858			110-82-7	Cyclohexane	NGS	100	<1.1	11	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011858			124-18-5	Decane	NGS	97	<1.5	7.4	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011858			64-17-5	Ethanol	NGS	100	<12	60	n/a	n/a	n/a	n/a	12	n/a	
S18T011858			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011858			100-41-4	Ethylbenzene	NGS	98	<1.0	2.5	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011858			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011858			110-54-3	Hexane	NGS	100	1.3	15	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011858			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011858			75-09-2	Methylene Chloride	NGS	100	1.9	53	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011858			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011858			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011858			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011858			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011858			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011858			100-42-5	Styrene	NGS	100	<1.1	4.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011858			127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011858			108-88-3	Toluene	NGS	97	<1.2	14	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011858			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011858			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	3.4	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011858			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011858			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-6
Customer Sample ID: 18-02351-2-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															
S18T011858			142-82-5	n-Heptane	NGS	99	<0.97	4.6	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011858			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-7
Customer Sample ID: 18-02351-2-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															
S18T011859			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011859			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011859			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011859			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011859			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011859			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011859			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011859			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011859			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011859			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011859			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011859			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011859			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011859			78-94-4	3-Buten-2-one	NGS	100	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011859			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011859			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011859			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011859			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011859			67-64-1	Acetone	NGS	94	<4.3	29	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011859			75-05-8	Acetonitrile	NGS	100	<1.4	59	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011859			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011859			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011859			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011859			71-43-2	Benzene	NGS	99	<1.1	5.5	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-7
Customer Sample ID: 18-02351-2-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															
S18T011859			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011859			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011859			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011859			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011859			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011859			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011859			110-82-7	Cyclohexane	NGS	100	<1.1	6.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011859			124-18-5	Decane	NGS	97	<1.5	7.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011859			64-17-5	Ethanol	NGS	100	<12	54	n/a	n/a	n/a	n/a	12	n/a	
S18T011859			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011859			100-41-4	Ethylbenzene	NGS	98	<1.0	2.0	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011859			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011859			110-54-3	Hexane	NGS	100	1.3	11	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011859			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011859			75-09-2	Methylene Chloride	NGS	100	1.9	4.2	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011859			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011859			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011859			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011859			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011859			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011859			100-42-5	Styrene	NGS	100	<1.1	3.9	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011859			127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011859			108-88-3	Toluene	NGS	97	<1.2	8.5	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011859			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011859			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	3.8	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011859			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011859			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-7
Customer Sample ID: 18-02351-2-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															
S18T011859			142-82-5	n-Heptane	NGS	99	<0.97	3.1	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011859			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-8
Customer Sample ID: 18-02351-2-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															
S18T011860			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011860			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011860			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011860			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011860			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011860			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011860			71-36-3	1-Butanol	NGS	84	<4.9	<4.9	n/a	n/a	n/a	n/a	4.9	n/a	
S18T011860			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011860			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011860			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011860			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011860			78-93-3	2-Butanone	NGS	96	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011860			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011860			78-94-4	3-Buten-2-one	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011860			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011860			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011860			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011860			67-64-1	Acetone	NGS	94	<4.3	21	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011860			75-05-8	Acetonitrile	NGS	100	<1.4	71	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011860			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011860			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011860			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011860			71-43-2	Benzene	NGS	99	<1.1	5.7	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-8
Customer Sample ID: 18-02351-2-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														
S18T011860		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011860		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011860		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860		56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.6	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011860		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011860		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011860		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011860		110-82-7	Cyclohexane	NGS	100	<1.1	8.0	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011860		124-18-5	Decane	NGS	97	<1.5	6.0	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011860		64-17-5	Ethanol	NGS	100	<12	36	n/a	n/a	n/a	n/a	12	n/a	
S18T011860		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011860		100-41-4	Ethylbenzene	NGS	98	<1.0	1.8	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011860		110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011860		110-54-3	Hexane	NGS	100	1.3	12	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011860		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011860		75-09-2	Methylene Chloride	NGS	100	1.9	3.6	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011860		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011860		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011860		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011860		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011860		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011860		100-42-5	Styrene	NGS	100	<1.1	3.3	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011860		127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011860		108-88-3	Toluene	NGS	97	<1.2	9.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011860		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011860		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	2.6	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011860		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011860		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-8
Customer Sample ID: 18-02351-2-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															
S18T011860			142-82-5	n-Heptane	NGS	99	<0.97	3.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011860			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-1
Customer Sample ID: 18-02351-2-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															
S18T011861			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011861			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011861			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011861			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011861			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011861			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011861			71-36-3	1-Butanol	NGS	84	<4.9	15	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T011861			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	
S18T011861			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011861			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011861			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011861			78-93-3	2-Butanone	NGS	96	<1.9	3.2	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011861			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861			534-22-5	2-Methylfuran	NGS	97	<1.1	1.2	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011861			78-94-4	3-Buten-2-one	NGS	100	<1.5	3.5	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011861			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011861			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011861			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011861			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011861			67-64-1	Acetone	NGS	94	<4.3	50	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011861			75-05-8	Acetonitrile	NGS	100	<1.4	65	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011861			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011861			107-13-1	Acrylonitrile	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011861			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011861			71-43-2	Benzene	NGS	99	<1.1	4.2	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-1
Customer Sample ID: 18-02351-2-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														
S18T011861		100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011861		123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011861		109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861		56-23-5	Carbon tetrachloride	NGS	100	<0.82	2.1	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011861		108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011861		75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011861		67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011861		110-82-7	Cyclohexane	NGS	100	<1.1	1.4	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011861		124-18-5	Decane	NGS	97	<1.5	5.9	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011861		64-17-5	Ethanol	NGS	100	<12	55	n/a	n/a	n/a	n/a	12	n/a	
S18T011861		141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011861		100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011861		110-00-9	Furan	NGS	97	<1.0	2.7	n/a	n/a	n/a	n/a	1.0	n/a	J
S18T011861		110-54-3	Hexane	NGS	100	1.3	7.7	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011861		628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861		126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011861		75-09-2	Methylene Chloride	NGS	100	1.9	3.2	n/a	n/a	n/a	n/a	1.8	n/a	J
S18T011861		91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011861		98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011861		110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011861		107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011861		110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011861		100-42-5	Styrene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011861		127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011861		108-88-3	Toluene	NGS	97	<1.2	5.3	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011861		79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011861		75-69-4	Trichlorofluoromethane	NGS	110	<1.7	4.2	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011861		10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011861		123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-1
Customer Sample ID: 18-02351-2-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															
S18T011861			142-82-5	n-Heptane	NGS	99	<0.97	2.2	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011861			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-8
Customer Sample ID: 18-02351-2-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															
S18T011862			79-34-5	1,1,2,2-Tetrachloroethane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011862			79-00-5	1,1,2-Trichloroethane	NGS	100	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011862			75-34-3	1,1-Dichloroethane	NGS	110	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011862			75-35-4	1,1-Dichloroethene	NGS	100	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011862			107-06-2	1,2-Dichloroethane	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011862			542-75-6	1,3-Dichloropropene (Total)	NGS	n/a	n/a	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011862			106-46-7	1,4-Dichlorobenzene	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011862			123-91-1	1,4-Dioxane	NGS	96	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011862			71-36-3	1-Butanol	NGS	84	<4.9	12	n/a	n/a	n/a	n/a	4.9	n/a	J
S18T011862			111-70-6	1-Heptanol	NGS	58	<22	<22	n/a	n/a	n/a	n/a	22	n/a	QYa
S18T011862			71-23-8	1-Propanol	NGS	96	<4.5	<4.5	n/a	n/a	n/a	n/a	4.5	n/a	
S18T011862			108-47-4	2,4-Dimethylpyridine	NGS	95	<1.9	<1.9	n/a	n/a	n/a	n/a	1.9	n/a	
S18T011862			1708-29-8	2,5-Dihydrofuran	NGS	100	<2.8	<2.8	n/a	n/a	n/a	n/a	2.8	n/a	
S18T011862			78-93-3	2-Butanone	NGS	96	<1.9	2.5	n/a	n/a	n/a	n/a	1.9	n/a	J
S18T011862			110-43-0	2-Heptanone	NGS	91	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011862			591-78-6	2-Hexanone	NGS	92	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011862			534-22-5	2-Methylfuran	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011862			78-94-4	3-Buten-2-one	NGS	100	<1.5	2.2	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011862			106-35-4	3-Heptanone	NGS	97	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011862			106-68-3	3-Octanone	NGS	90	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011862			105-42-0	4-Methyl-2-hexanone	NGS	96	<1.3	<1.3	n/a	n/a	n/a	n/a	1.3	n/a	
S18T011862			108-10-1	4-Methyl-2-Pentanone	NGS	97	<0.88	<0.88	n/a	n/a	n/a	n/a	0.88	n/a	
S18T011862			67-64-1	Acetone	NGS	94	<4.3	55	n/a	n/a	n/a	n/a	4.3	n/a	
S18T011862			75-05-8	Acetonitrile	NGS	100	<1.4	86	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011862			98-86-2	Acetophenone	NGS	95	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011862			107-13-1	Acrylonitrile	NGS	100	<1.5	1.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011862			107-18-6	Allyl Alcohol	NGS	97	<4.2	<4.2	n/a	n/a	n/a	n/a	4.2	n/a	
S18T011862			107-05-1	Allyl Chloride	NGS	98	<1.8	<1.8	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011862			71-43-2	Benzene	NGS	99	<1.1	5.8	n/a	n/a	n/a	n/a	1.1	n/a	J

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-8
Customer Sample ID: 18-02351-2-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															
S18T011862			100-47-0	Benzonitrile	NGS	94	<1.6	<1.6	n/a	n/a	n/a	n/a	1.6	n/a	
S18T011862			123-72-8	Butanal	NGS	130	<5.1	<5.1	n/a	n/a	n/a	n/a	5.1	n/a	
S18T011862			109-74-0	Butanenitrile	NGS	99	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011862			56-23-5	Carbon tetrachloride	NGS	100	<0.82	1.8	n/a	n/a	n/a	n/a	0.82	n/a	J
S18T011862			108-90-7	Chlorobenzene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011862			75-00-3	Chloroethane	NGS	100	<2.5	<2.5	n/a	n/a	n/a	n/a	2.5	n/a	
S18T011862			67-66-3	Chloroform	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011862			110-82-7	Cyclohexane	NGS	100	<1.1	2.1	n/a	n/a	n/a	n/a	1.1	n/a	J
S18T011862			124-18-5	Decane	NGS	97	<1.5	7.6	n/a	n/a	n/a	n/a	1.5	n/a	J
S18T011862			64-17-5	Ethanol	NGS	100	<12	86	n/a	n/a	n/a	n/a	12	n/a	
S18T011862			141-78-6	Ethyl acetate	NGS	100	<2.0	<2.0	n/a	n/a	n/a	n/a	2.0	n/a	
S18T011862			100-41-4	Ethylbenzene	NGS	98	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011862			110-00-9	Furan	NGS	97	<1.0	<1.0	n/a	n/a	n/a	n/a	1.0	n/a	
S18T011862			110-54-3	Hexane	NGS	100	1.3	13	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011862			628-73-9	Hexanenitrile	NGS	95	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011862			126-98-7	Methacrylonitrile	NGS	110	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	
S18T011862			75-09-2	Methylene Chloride	NGS	100	1.9	22	n/a	n/a	n/a	n/a	1.8	n/a	
S18T011862			91-20-3	Naphthalene	NGS	93	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011862			98-95-3	Nitrobenzene	NGS	95	<1.7	<1.7	n/a	n/a	n/a	n/a	1.7	n/a	
S18T011862			110-59-8	Pentanenitrile	NGS	98	<1.5	<1.5	n/a	n/a	n/a	n/a	1.5	n/a	
S18T011862			107-12-0	Propanenitrile	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	
S18T011862			110-86-1	Pyridine	NGS	97	<2.4	<2.4	n/a	n/a	n/a	n/a	2.4	n/a	
S18T011862			100-42-5	Styrene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011862			127-18-4	Tetrachloroethene	NGS	100	<0.87	<0.87	n/a	n/a	n/a	n/a	0.87	n/a	
S18T011862			108-88-3	Toluene	NGS	97	<1.2	11	n/a	n/a	n/a	n/a	1.2	n/a	J
S18T011862			79-01-6	Trichloroethene	NGS	92	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	
S18T011862			75-69-4	Trichlorofluoromethane	NGS	110	<1.7	3.3	n/a	n/a	n/a	n/a	1.7	n/a	J
S18T011862			10061-01-5	cis-1,3-Dichloropropene	NGS	100	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011862			123-86-4	n-Butyl acetate	NGS	97	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-8
Customer Sample ID: 18-02351-2-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															
S18T011862			142-82-5	n-Heptane	NGS	99	<0.97	2.9	n/a	n/a	n/a	n/a	0.97	n/a	J
S18T011862			10061-02-6	trans-1,3-Dichloropropene	NGS	100	<1.2	<1.2	n/a	n/a	n/a	n/a	1.2	n/a	

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Daniel Hansen
Daniel Hansen
9-13-18

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-1
Customer Sample ID: 18-02348-2-SD1-EF-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011843				Pentane	109-66-0	7.73	NGS	9.6	JNT
S18T011843				Pentane, 2-methyl-	107-83-5	10.83	NGS	5.3	JNT
S18T011843				Cyclotrisiloxane, hexamethyl-	541-05-9	19.31	NGS	44	JNT
S18T011843				Heptane, 2,4-dimethyl-	2213-23-2	19.73	NGS	110	JNT
S18T011843				2,4-Dimethyl-1-heptene	19549-87-2	20.28	NGS	25	JNT
S18T011843				Cyclotetrasiloxane, octamethyl-	556-67-2	23.57	NGS	71	JNT
S18T011843				2,2,7,7-Tetramethyloctane	1071-31-4	24.53	NGS	30	JNT
S18T011843				Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.57	NGS	210	JNT
S18T011843				2,6-Dimethyldecane	13150-81-7	25.70	NGS	70	JNT
S18T011843				2,6-Dimethyl-6-trifluoroacetoxyoctane	61986-67-2	26.05	NGS	25	JNT
S18T011843				Heptadecane, 2,6-dimethyl-	54105-67-8	26.29	NGS	28	JNT
S18T011843				Dodecane	112-40-3	26.42	NGS	98	JNT
S18T011843				Undecane	1120-21-4	26.53	NGS	28	JNT
S18T011843				Octane, 5-ethyl-2-methyl-	62016-18-6	26.67	NGS	28	JNT
S18T011843				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.79	NGS	58	JNT
S18T011843				1-Undecene, 4-methyl-	74630-39-0	27.08	NGS	28	JNT

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Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-2
Customer Sample ID: 18-02348-2-SD1-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011844				1-Butene	106-98-9	7.37	NGS	15	JNT
S18T011844				Pentane	109-66-0	7.70	NGS	13	JNT
S18T011844				Pentane, 2-methyl-	107-83-5	10.80	NGS	5.9	JNT
S18T011844				Cyclotrisiloxane, hexamethyl-	541-05-9	19.31	NGS	44	JNT
S18T011844				Heptane, 2,4-dimethyl-	2213-23-2	19.73	NGS	110	JNT
S18T011844				2,4-Dimethyl-1-heptene	19549-87-2	20.29	NGS	26	JNT
S18T011844				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	74	JNT
S18T011844				Octane, 6-ethyl-2-methyl-	62016-19-7	25.59	NGS	210	JNT
S18T011844				2,6-Dimethyldecane	13150-81-7	25.72	NGS	67	JNT
S18T011844				2,6-Dimethyl-6-trifluoroacetoxyoctane	61986-67-2	26.07	NGS	28	JNT
S18T011844				Tetracontane, 3,5,24-trimethyl-	55162-61-3	26.31	NGS	31	JNT
S18T011844				Dodecane	112-40-3	26.44	NGS	90	JNT
S18T011844				Octane, 2,3,6,7-tetramethyl-	52670-34-5	26.55	NGS	29	JNT
S18T011844				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.60	NGS	48	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-3
Customer Sample ID: 18-02348-2-SD1-EF-3

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011845			Pentane	109-66-0	7.76	NGS	13	JNT
S18T011845			Pentane, 2-methyl-	107-83-5	10.85	NGS	6.2	JNT
S18T011845			Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	42	JNT
S18T011845			Pentane, 3-ethyl-2,4-dimethyl-	1068-87-7	19.75	NGS	100	JNT
S18T011845			Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	73	JNT
S18T011845			Octane, 2,3,6,7-tetramethyl-	52670-34-5	25.59	NGS	210	JNT
S18T011845			Decane, 2,4,6-trimethyl-	62108-27-4	25.72	NGS	67	JNT
S18T011845			Cyclohexane, 2-propyl-1,1,3-trimethyl-	81983-70-2	26.07	NGS	28	JNT
S18T011845			Dodecane	112-40-3	26.44	NGS	83	JNT
S18T011845			Unknown		26.55	NGS	28	JT
S18T011845			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.80	NGS	50	JNT
S18T011845			Unknown		29.90	NGS	47	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-4
Customer Sample ID: 18-02348-2-SD1-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011846				Pentane	109-66-0	7.75	NGS	17	JNT
S18T011846				Pentane, 2-methyl-	107-83-5	10.86	NGS	7.2	JNT
S18T011846				Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	32	JNT
S18T011846				Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	80	JNT
S18T011846				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	54	JNT
S18T011846				Decane, 2,4,6-trimethyl-	62108-27-4	25.59	NGS	30	JNT
S18T011846				Benzeneacetic acid, ?,4-bis[(trimethylsilyl)oxy]-, methyl ester	55334-40-2	26.81	NGS	61	JNT
S18T011846				Unknown		29.89	NGS	27	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-5
Customer Sample ID: 18-02348-2-SD1-EF-5

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011847			Butane, 2-methyl-	78-78-4	6.93	NGS	28	JNT
S18T011847			Pentane	109-66-0	7.75	NGS	25	JNT
S18T011847			Pentane, 2-methyl-	107-83-5	10.86	NGS	12	JNT
S18T011847			Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	37	JNT
S18T011847			Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	42	JNT
S18T011847			Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	54	JNT
S18T011847			Decane, 2,4,6-trimethyl-	62108-27-4	25.60	NGS	91	JNT
S18T011847			Heptadecane, 2,6-dimethyl-	54105-67-8	25.72	NGS	27	JNT
S18T011847			Dodecane	112-40-3	26.44	NGS	39	JNT
S18T011847			Unknown		26.81	NGS	60	JT
S18T011847			Unknown		30.05	NGS	29	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-6
Customer Sample ID: 18-02348-2-SD1-EF-6

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011848				Butane, 2-methyl-	78-78-4	6.88	NGS	44	JNT
S18T011848				1-Butene	106-98-9	7.38	NGS	26	JNT
S18T011848				Pentane	109-66-0	7.70	NGS	28	JNT
S18T011848				Pentane, 2-methyl-	107-83-5	10.81	NGS	15	JNT
S18T011848				Acetic acid	64-19-7	11.22	NGS	6.2	JNT
S18T011848				Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	33	JNT
S18T011848				Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	70	JNT
S18T011848				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	43	JNT
S18T011848				2,2,7,7-Tetramethyloctane	1071-31-4	24.55	NGS	26	JNT
S18T011848				Decane, 3,7-dimethyl-	17312-54-8	25.60	NGS	70	JNT
S18T011848				Decane, 2,3,5,8-tetramethyl-	192823-15-7	25.72	NGS	26	JNT
S18T011848				Dodecane, 2,7,10-trimethyl-	74645-98-0	26.32	NGS	33	JNT
S18T011848				Dodecane	112-40-3	26.44	NGS	40	JNT
S18T011848				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.80	NGS	50	JNT
S18T011848				1-Undecene, 4-methyl-	74630-39-0	27.10	NGS	29	JNT
S18T011848				Tridecane	629-50-5	30.07	NGS	20	JNT

NA = Not Analyzed, ND = Not Detected

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2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-7
Customer Sample ID: 18-02348-2-SD1-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011849				Butane, 2-methyl-	78-78-4	6.89	NGS	34	JNT
S18T011849				1-Butene	106-98-9	7.39	NGS	16	JNT
S18T011849				Pentane	109-66-0	7.70	NGS	28	JNT
S18T011849				Pentane, 2-methyl-	107-83-5	10.82	NGS	13	JNT
S18T011849				Acetic acid	64-19-7	11.21	NGS	5.0	JNT
S18T011849				Cyclotrisiloxane, hexamethyl-	541-05-9	19.32	NGS	37	JNT
S18T011849				Heptane, 2,4-dimethyl-	2213-23-2	19.74	NGS	86	JNT
S18T011849				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	59	JNT
S18T011849				Decane, 2,4,6-trimethyl-	62108-27-4	25.59	NGS	170	JNT
S18T011849				2,6-Dimethyldecane	13150-81-7	25.72	NGS	54	JNT
S18T011849				Dodecane	112-40-3	26.44	NGS	70	JNT
S18T011849				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.80	NGS	67	JNT
S18T011849				Unknown		29.90	NGS	31	JT
S18T011849				Unknown		30.05	NGS	30	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-EF-8
Customer Sample ID: 18-02348-2-SD1-EF-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011850				Butane, 2-methyl-	78-78-4	6.89	NGS	32	JNT
S18T011850				Pentane	109-66-0	7.70	NGS	22	JNT
S18T011850				Pentane, 2-methyl-	107-83-5	10.81	NGS	11	JNT
S18T011850				Acetic acid	64-19-7	11.22	NGS	6.0	JNT
S18T011850				Cyclotrisiloxane, hexamethyl-	541-05-9	19.32	NGS	27	JNT
S18T011850				Heptane, 2,4-dimethyl-	2213-23-2	19.74	NGS	75	JNT
S18T011850				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	35	JNT
S18T011850				2,2,7,7-Tetramethyloctane	1071-31-4	24.55	NGS	63	JNT
S18T011850				Decane, 2,6,8-trimethyl-	62108-26-3	24.94	NGS	44	JNT
S18T011850				Nonane, 3,7-dimethyl-	17302-32-8	25.39	NGS	48	JNT
S18T011850				Decane, 3,7-dimethyl-	17312-54-8	25.60	NGS	110	JNT
S18T011850				Undecane	1120-21-4	25.71	NGS	47	JNT
S18T011850				Heptane, 5-ethyl-2,2,3-trimethyl-	62199-06-8	25.80	NGS	52	JNT
S18T011850				Dodecane, 2,7,10-trimethyl-	74645-98-0	25.87	NGS	30	JNT
S18T011850				Dodecane, 2,6,11-trimethyl-	31295-56-4	25.94	NGS	32	JNT
S18T011850				Undecane, 4,7-dimethyl-	17301-32-5	26.00	NGS	40	JNT
S18T011850				Heptadecane, 2,6,10,14-tetramethyl-	18344-37-1	26.16	NGS	35	JNT
S18T011850				Octane, 2,3,3-trimethyl-	62016-30-2	26.26	NGS	46	JNT
S18T011850				Octane, 2,3,7-trimethyl-	62016-34-6	26.31	NGS	78	JNT
S18T011850				Dodecane	112-40-3	26.40	NGS	38	JNT
S18T011850				Undecane, 4,6-dimethyl-	17312-82-2	26.45	NGS	110	JNT
S18T011850				1-Undecene, 4-methyl-	74630-39-0	26.55	NGS	35	JNT
S18T011850				Decane, 2,3,5,8-tetramethyl-	192823-15-7	26.68	NGS	85	JNT
S18T011850				Octane, 5-ethyl-2-methyl-	62016-18-6	26.81	NGS	120	JNT
S18T011850				2,6-Dimethyldecane	13150-81-7	27.10	NGS	92	JNT
S18T011850				Tridecane, 6-methyl-	13287-21-3	27.17	NGS	18	JNT
S18T011850				2,3-Dimethyldecane	17312-44-6	27.49	NGS	27	JNT
S18T011850				Undecane, 3-methyl-	1002-43-3	27.74	NGS	7.5	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-1
Customer Sample ID: 18-02348-2-SD1-IN-1

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011851				Furan, tetrahydro-	109-99-9	13.72	NGS	8.0	JNT
S18T011851				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	40	JNT
S18T011851				Propanoic acid, 2-methyl-, 1-(1,1-dimethylethyl)-2-methyl-1,3-propanediyl ester	74381-40-1	29.92	NGS	28	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02348-2-SD1-IN-8
Customer Sample ID: 18-02348-2-SD1-IN-8

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011852				Silane, methoxytrimethyl-	1825-61-2	10.62	NGS	46	JNT
S18T011852				Furan, tetrahydro-	109-99-9	13.71	NGS	56	JNT
S18T011852				Butane, 1-chloro-	109-69-3	14.70	NGS	39	JNT
S18T011852				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	45	JNT
S18T011852				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.81	NGS	55	JNT
S18T011852				Tetradecane	629-59-4	30.05	NGS	34	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946

Customer Group or SDG Number:

Customer Sample ID: 18-02351-2-TL2-EF-1

Customer Sample ID: 18-02351-2-TL2-EF-1

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011853			1-Butene	106-98-9	7.43	NGS	13	JNT
S18T011853			Pentane	109-66-0	7.76	NGS	13	JNT
S18T011853			Pentane, 2-methyl-	107-83-5	10.86	NGS	7.1	JNT
S18T011853			Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	68	JNT
S18T011853			Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	51	JNT
S18T011853			Decane, 2,4,6-trimethyl-	62108-27-4	25.59	NGS	47	JNT
S18T011853			Undecane, 3,7-dimethyl-	17301-29-0	25.72	NGS	14	JNT
S18T011853			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.81	NGS	71	JNT
S18T011853			Unknown		29.90	NGS	27	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-2
Customer Sample ID: 18-02351-2-TL2-EF-2

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011854				1-Butene	106-98-9	7.44	NGS	12	JNT
S18T011854				Pentane	109-66-0	7.76	NGS	18	JNT
S18T011854				Pentane, 2-methyl-	107-83-5	10.86	NGS	8.9	JNT
S18T011854				Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	43	JNT
S18T011854				Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	75	JNT
S18T011854				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	48	JNT
S18T011854				Undecane, 5,7-dimethyl-	17312-83-3	25.59	NGS	57	JNT
S18T011854				Dodecane	112-40-3	26.44	NGS	38	JNT
S18T011854				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.80	NGS	78	JNT
S18T011854				Undecane	1120-21-4	28.22	NGS	25	JNT
S18T011854				Unknown		29.89	NGS	31	JT
S18T011854				Didodecyl phthalate	2432-90-8	30.02	NGS	25	JNT
S18T011854				Heptadecane, 2,6-dimethyl-	54105-67-8	30.05	NGS	26	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-3
Customer Sample ID: 18-02351-2-TL2-EF-3

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011855				Pentane	109-66-0	7.75	NGS	17	JNT
S18T011855				Pentane, 2-methyl-	107-83-5	10.85	NGS	7.9	JNT
S18T011855				Cyclotrisiloxane, hexamethyl-	541-05-9	19.32	NGS	37	JNT
S18T011855				Heptane, 2,4-dimethyl-	2213-23-2	19.74	NGS	73	JNT
S18T011855				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	30	JNT
S18T011855				2,2,7,7-Tetramethyloctane	1071-31-4	24.54	NGS	55	JNT
S18T011855				Octane, 2,2-dimethyl-	15869-87-1	24.93	NGS	40	JNT
S18T011855				Decane, 2,4,6-trimethyl-	62108-27-4	25.38	NGS	46	JNT
S18T011855				Dodecane, 2,7,10-trimethyl-	74645-98-0	25.60	NGS	63	JNT
S18T011855				Dodecane, 2,6,11-trimethyl-	31295-56-4	25.69	NGS	48	JNT
S18T011855				Octane, 2,6-dimethyl-	2051-30-1	25.80	NGS	59	JNT
S18T011855				Decane, 2,6,7-trimethyl-	62108-25-2	25.87	NGS	33	JNT
S18T011855				Undecane	1120-21-4	25.93	NGS	41	JNT
S18T011855				Tridecane	629-50-5	26.00	NGS	49	JNT
S18T011855				Decane, 2,3,4-trimethyl-	62238-15-7	26.15	NGS	31	JNT
S18T011855				Octane, 3,4,5,6-tetramethyl-	62185-21-1	26.26	NGS	55	JNT
S18T011855				Dodecane, 2,6,10-trimethyl-	3891-98-3	26.30	NGS	72	JNT
S18T011855				Undecane, 4,6-dimethyl-	17312-82-2	26.46	NGS	88	JNT
S18T011855				Decane, 3,7-dimethyl-	17312-54-8	26.53	NGS	35	JNT
S18T011855				Undecane, 4-methyl-	2980-69-0	26.65	NGS	43	JNT
S18T011855				Decane, 2,6,8-trimethyl-	62108-26-3	26.68	NGS	46	JNT
S18T011855				Decane, 2,3,5,8-tetramethyl-	192823-15-7	26.80	NGS	140	JNT
S18T011855				Octane, 2,3,3-trimethyl-	62016-30-2	27.10	NGS	110	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-4
Customer Sample ID: 18-02351-2-TL2-EF-4

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011856				Butane, 2-methyl-	78-78-4	6.93	NGS	31	JNT
S18T011856				Pentane	109-66-0	7.76	NGS	25	JNT
S18T011856				Pentane, 2-methyl-	107-83-5	10.86	NGS	12	JNT
S18T011856				Acetic acid	64-19-7	11.27	NGS	7.9	JNT
S18T011856				Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	25	JNT
S18T011856				Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	53	JNT
S18T011856				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	40	JNT
S18T011856				Decane, 2,4,6-trimethyl-	62108-27-4	25.59	NGS	72	JNT
S18T011856				Dodecane	112-40-3	26.44	NGS	31	JNT
S18T011856				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.80	NGS	76	JNT
S18T011856				Undecane, 3-methyl-	1002-43-3	27.73	NGS	5.4	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-5
Customer Sample ID: 18-02351-2-TL2-EF-5

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011857				Butane, 2-methyl-	78-78-4	6.89	NGS	37	JNT
S18T011857				1-Butene	106-98-9	7.40	NGS	13	JNT
S18T011857				Pentane	109-66-0	7.71	NGS	29	JNT
S18T011857				Pentane, 2-methyl-	107-83-5	10.82	NGS	16	JNT
S18T011857				Acetic acid	64-19-7	11.22	NGS	5.1	JNT
S18T011857				Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	62	JNT
S18T011857				Cyclotetrasiloxane, octamethyl-	556-67-2	23.60	NGS	52	JNT
S18T011857				Decane, 3,7-dimethyl-	17312-54-8	25.60	NGS	47	JNT
S18T011857				Undecane	1120-21-4	25.72	NGS	15	JNT
S18T011857				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.81	NGS	57	JNT
S18T011857				Unknown		29.90	NGS	41	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-6
Customer Sample ID: 18-02351-2-TL2-EF-6

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011858			Butane, 2-methyl-	78-78-4	6.89	NGS	48	JNT
S18T011858			Unknown		7.65	NGS	31	JT
S18T011858			Pentane	109-66-0	7.70	NGS	33	JNT
S18T011858			Pentane, 2-methyl-	107-83-5	10.83	NGS	21	JNT
S18T011858			Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	39	JNT
S18T011858			Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	72	JNT
S18T011858			Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	61	JNT
S18T011858			Decane, 3,7-dimethyl-	17312-54-8	25.60	NGS	82	JNT
S18T011858			Decane, 2,4,6-trimethyl-	62108-27-4	25.72	NGS	28	JNT
S18T011858			Hexane, 3,3-dimethyl-	563-16-6	26.44	NGS	37	JNT
S18T011858			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.80	NGS	89	JNT
S18T011858			Dodecane	112-40-3	28.23	NGS	26	JNT
S18T011858			Unknown		29.90	NGS	32	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-7
Customer Sample ID: 18-02351-2-TL2-EF-7

Sample#	R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2									
S18T011859				Butane, 2-methyl-	78-78-4	6.89	NGS	39	JNT
S18T011859				1-Butene	106-98-9	7.39	NGS	32	JNT
S18T011859				Pentane	109-66-0	7.71	NGS	33	JNT
S18T011859				Pentane, 2-methyl-	107-83-5	10.83	NGS	14	JNT
S18T011859				Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	58	JNT
S18T011859				Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	41	JNT
S18T011859				Dodecane	112-40-3	25.60	NGS	85	JNT
S18T011859				Undecane, 5,7-dimethyl-	17312-83-3	25.72	NGS	26	JNT
S18T011859				Decane, 2,4,6-trimethyl-	62108-27-4	26.45	NGS	24	JNT
S18T011859				Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.81	NGS	54	JNT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-EF-8
Customer Sample ID: 18-02351-2-TL2-EF-8

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011860			Butane, 2-methyl-	78-78-4	6.94	NGS	38	JNT
S18T011860			Pentane	109-66-0	7.76	NGS	27	JNT
S18T011860			Pentane, 2-methyl-	107-83-5	10.86	NGS	15	JNT
S18T011860			Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	27	JNT
S18T011860			Heptane, 2,4-dimethyl-	2213-23-2	19.75	NGS	50	JNT
S18T011860			Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	34	JNT
S18T011860			Decane, 3,7-dimethyl-	17312-54-8	25.60	NGS	47	JNT
S18T011860			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.81	NGS	49	JNT
S18T011860			Unknown		29.90	NGS	25	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-1
Customer Sample ID: 18-02351-2-TL2-IN-1

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011861			Pentane	109-66-0	7.76	NGS	13	JNT
S18T011861			Pentane, 2-methyl-	107-83-5	10.87	NGS	7.8	JNT
S18T011861			Furan, tetrahydro-	109-99-9	13.73	NGS	9.1	JNT
S18T011861			Cyclotrisiloxane, hexamethyl-	541-05-9	19.33	NGS	26	JNT
S18T011861			Cyclotetrasiloxane, octamethyl-	556-67-2	23.59	NGS	87	JNT
S18T011861			Tridecane	629-50-5	24.31	NGS	8.2	JNT
S18T011861			Decane, 2,4,6-trimethyl-	62108-27-4	25.60	NGS	27	JNT
S18T011861			Undecane	1120-21-4	25.72	NGS	12	JNT
S18T011861			Dodecane	112-40-3	26.44	NGS	26	JNT
S18T011861			Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	3789-85-3	26.81	NGS	120	JNT
S18T011861			Heptadecane, 2,6-dimethyl-	54105-67-8	28.23	NGS	25	JNT
S18T011861			Unknown		29.90	NGS	27	JT

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180946
Customer Group or SDG Number:
Customer Sample ID: 18-02351-2-TL2-IN-8
Customer Sample ID: 18-02351-2-TL2-IN-8

Sample# R	A#	QC Type	Analyte	CAS No.	Retention Time (Minutes)	Unit	Result	Qual Flags
VAPOR-TDU VOA #2								
S18T011862			Butane, 2-methyl-	78-78-4	6.89	NGS	40	JNT
S18T011862			Pentane	109-66-0	7.71	NGS	31	JNT
S18T011862			Pentane, 2-methyl-	107-83-5	10.83	NGS	13	JNT
S18T011862			Acetic acid	64-19-7	11.24	NGS	5.6	JNT
S18T011862			Furan, tetrahydro-	109-99-9	13.71	NGS	6.8	JNT
S18T011862			Cyclotetrasiloxane, octamethyl-	556-67-2	23.61	NGS	66	JNT
S18T011862			Dodecane, 2,7,10-trimethyl-	74645-98-0	25.66	NGS	28	JNT
S18T011862			Decane, 2,5,9-trimethyl-	62108-22-9	25.75	NGS	28	JNT
S18T011862			Heptane, 5-ethyl-2,2,3-trimethyl-	62199-06-8	25.84	NGS	29	JNT
S18T011862			Dodecane, 2,6,11-trimethyl-	31295-56-4	25.93	NGS	25	JNT
S18T011862			Decane, 2,6,8-trimethyl-	62108-26-3	25.99	NGS	29	JNT
S18T011862			Undecane, 2,6-dimethyl-	17301-23-4	26.05	NGS	27	JNT
S18T011862			Decane, 2,3,5,8-tetramethyl-	192823-15-7	26.20	NGS	36	JNT
S18T011862			Octane, 3,4,5,6-tetramethyl-	62185-21-1	26.30	NGS	25	JNT
S18T011862			Decane, 2,6,7-trimethyl-	62108-25-2	26.35	NGS	54	JNT
S18T011862			Dodecane	112-40-3	26.48	NGS	63	JNT
S18T011862			Decane, 2,4,6-trimethyl-	62108-27-4	26.58	NGS	22	JNT
S18T011862			Octane, 2,3,6,7-tetramethyl-	52670-34-5	26.68	NGS	42	JNT
S18T011862			Undecane, 3,5-dimethyl-	17312-81-1	26.72	NGS	33	JNT
S18T011862			Unknown		26.83	NGS	130	JT
S18T011862			Decane, 2,4-dimethyl-	2801-84-5	27.13	NGS	68	JNT
S18T011862			Undecane, 3-methyl-	1002-43-3	27.74	NGS	6.9	JNT
S18T011862			Diethyl Phthalate	84-66-2	30.02	NGS	77	JNT

NA = Not Analyzed, ND = Not Detected

C.4.3 Methanol

ANALYTICAL REPORT

Report Date: April 06, 2018

Robert (Buddy) Sosa
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Phone: (509) 373-1262

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Workorder: 34-1808946
Client Project ID: 20180921 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011179**			Collected: 03/23/2018
Lab ID: 1808946001	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg		**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011180**			Collected: 03/23/2018
Lab ID: 1808946002	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg		**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011181**			Collected: 03/23/2018
Lab ID: 1808946003	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg		**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808946**
Client Project ID: 20180921 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011182**				Collected: 03/23/2018
Lab ID: 1808946004	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011183**				Collected: 03/23/2018
Lab ID: 1808946005	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011184**				Collected: 03/23/2018
Lab ID: 1808946006	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011185**				Collected: 03/23/2018
Lab ID: 1808946007	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011186**				Collected: 03/23/2018
Lab ID: 1808946008	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808946**
Client Project ID: 20180921 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011187**				Collected: 03/23/2018
Lab ID: 1808946009	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011188**				Collected: 03/23/2018
Lab ID: 1808946010	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011189**				Collected: 03/23/2018
Lab ID: 1808946011	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011190**				Collected: 03/23/2018
Lab ID: 1808946012	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011191**				Collected: 03/23/2018
Lab ID: 1808946013	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808946**
Client Project ID: 20180921 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011192**				Collected: 03/23/2018
Lab ID: 1808946014	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	**0.0060**	NA	NA	0.0020

Sample ID: **S18T011193**				Collected: 03/23/2018
Lab ID: 1808946015	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011194**				Collected: 03/23/2018
Lab ID: 1808946016	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011195**				Collected: 03/23/2018
Lab ID: 1808946017	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011196**				Collected: 03/23/2018
Lab ID: 1808946018	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808946**
Client Project ID: 20180921 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011197**		Collected: 03/23/2018
Lab ID: 1808946019	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg	**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided	**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011198**		Collected: 03/23/2018
Lab ID: 1808946020	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg	**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided	**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Comments

Workorder: 1808946

QC/QD pair 594706/594707 relate to samples 1808946001-020

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

Method	Analyst	Peer Review
NIOSH 2000	/S/ Fred Rejali 04/06/2018 15:04	/S/ Thomas J. Masoian 04/06/2018 15:47

Laboratory Contact Information

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ANALYTICAL REPORT

Workorder: **34-1808946**
Client Project ID: 20180921 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808946

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9442 (HBN: 211945)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 594133
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

MB: 594705
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 594134
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594135
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.162	0.158	103	84.1	109.1	0.162	103	0.0617	0.0	20.0

LCS: 594706
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594707
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.108	0.119	91.0	84.1	109.1	0.122	103	12.5	0.0	20.0

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

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
04/06/2018 15:04	04/06/2018 15:46

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

1808946

1808946

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180921

Page 1 of 2

Collector: WAY	Contact/Requestor: ROBERT COMPTON	Telephone No: 373-6932 MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No: 8 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011179	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-BA-EF	N/A
2	S18T011180	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-BA-IN	N/A
3	S18T011181	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-BL-EF	N/A
4	S18T011182	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-BL-IN	N/A
5	S18T011183	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-1	N/A
6	S18T011184	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-2	N/A
7	S18T011185	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-3	N/A
8	S18T011186	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-4	N/A
9	S18T011187	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-5	N/A
10	S18T011188	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
DON BRAMSON	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
FedEx		Darnell Hill	3/29/18 955

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 Reinli Date/Time: 04/06/18 0300

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180921
		Page 2 of 2

Collector: WAY	Contact/Requestor: ROBERT COMPTON	Telephone No.: 373-6932 MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011189	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-7 •	N/A
12	S18T011190	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-EF-8 •	N/A
13	S18T011191	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-1 •	N/A
14	S18T011192	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-2 •	N/A
15	S18T011193	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-3 •	N/A
16	S18T011194	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-4 •	N/A
17	S18T011195	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-5 •	N/A
18	S18T011196	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-6 •	N/A
19	S18T011197	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-7 •	N/A
20	S18T011198	VA	3/23/18		CHARCOAL TUBE	Methanol 18-02350-3-TL1-IN-8 •	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and Keisha_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
D Swanson	3-28-18 0900	JA Gradishar	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fedex		P Bennett Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Rejali Date/Time: 04/06/18 0300

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: April 06, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1808945
Client Project ID: 20180922 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011199**			Collected: 03/24/2018
Lab ID: 1808945001	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg		**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011200**			Collected: 03/24/2018
Lab ID: 1808945002	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg		**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011201**			Collected: 03/24/2018
Lab ID: 1808945003	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg		**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808945**
Client Project ID: 20180922 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011202**				Collected: 03/24/2018
Lab ID: 1808945004	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011203**				Collected: 03/24/2018
Lab ID: 1808945005	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011204**				Collected: 03/24/2018
Lab ID: 1808945006	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011205**				Collected: 03/24/2018
Lab ID: 1808945007	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011206**				Collected: 03/24/2018
Lab ID: 1808945008	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808945**
Client Project ID: 20180922 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011207**				Collected: 03/24/2018
Lab ID: 1808945009	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011208**				Collected: 03/24/2018
Lab ID: 1808945010	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011209**				Collected: 03/24/2018
Lab ID: 1808945011	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011210**				Collected: 03/24/2018
Lab ID: 1808945012	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011211**				Collected: 03/24/2018
Lab ID: 1808945013	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808945**
Client Project ID: 20180922 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011212**				Collected: 03/24/2018
Lab ID: 1808945014	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011213**				Collected: 03/24/2018
Lab ID: 1808945015	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011214**				Collected: 03/24/2018
Lab ID: 1808945016	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011215**				Collected: 03/24/2018
Lab ID: 1808945017	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011216**				Collected: 03/24/2018
Lab ID: 1808945018	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg			**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211945)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Methanol	<0.0020	NA	NA	0.0020

ANALYTICAL REPORT

Workorder: **34-1808945**
Client Project ID: 20180922 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011217**		Collected: 03/24/2018
Lab ID: 1808945019	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg	**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided	**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Sample ID: **S18T011218**		Collected: 03/24/2018
Lab ID: 1808945020	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 2000	**Media:** SKC 226-51, Silica Gel Tube 50/100mg	**Instrument:** GCI38
	Sampling Info: Air Volume Not Provided	**Analyzed:** 04/06/2018 (211945)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Methanol	<0.0020	NA	NA	0.0020

Comments

Workorder: 1808945

QC/QD pair 594134/594135 relate to samples 1808945001-020

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

Method	Analyst	Peer Review
NIOSH 2000	/S/ Fred Rejali 04/06/2018 15:04	/S/ Thomas J. Masoian 04/06/2018 15:47

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808945**
Client Project ID: 20180922 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808945

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9442 (HBN: 211945)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 594133
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

MB: 594705
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Methanol	ND	NA	0.00200

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 594134
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594135
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.162	0.158	103	84.1	109.1	0.162	103	0.0617	0.0	20.0

LCS: 594706
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594707
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Methanol	0.108	0.119	91.0	84.1	109.1	0.122	103	12.5	0.0	20.0

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

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
04/06/2018 15:04	04/06/2018 15:46

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

1808945

Assembler: N/A W 1808945

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180922

Page 1 of 2

Collector: WAY	Contact/Requestor: ROBERT COMPTON	Telephone No.: 373-6932	MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033	Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011199	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-BA-EF	N/A
2	S18T011200	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-BA-IN	N/A
3	S18T011201	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-BL-EF	N/A
4	S18T011202	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-BL-IN	N/A
5	S18T011203	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-1	N/A
6	S18T011204	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-2	N/A
7	S18T011205	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-3	N/A
8	S18T011206	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-4	N/A
9	S18T011207	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-5	N/A
10	S18T011208	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
DON SWANSON	3-28-18 0900	K. Rogers	3/28/18 0900
K. Rogers	3-28-18 1400	FEDEX	
Fedex		Desiree Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rajic — Date/Time: 04/06/18 0300

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180922
N/A		Page 2 of 2

Collector: WAY	Contact/Requestor: ROBERT COMPTON	Telephone No.: 373-6932 MSIN: TG-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WJS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011209	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-7	N/A
12	S18T011210	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-EF-8	N/A
13	S18T011211	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-1	N/A
14	S18T011212	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-2	N/A
15	S18T011213	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-3	N/A
16	S18T011214	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-4	N/A
17	S18T011215	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-5	N/A
18	S18T011216	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-6	N/A
19	S18T011217	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-7	N/A
20	S18T011218	VA	3/24/18		CHARCOAL TUBE	Methanol 18-02351-3-TL2-IN-8	N/A

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

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia Carl_W_Howald@rl.gov and 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 Stenson	3-28-18 0900	K. Rogers	3/28/18 0700
K. Rogers	3-28-18 1400	FEDEX	
Fedex		Rosmarie Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Reinke 04/06/18 0300

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)

Daniel Hansen
Daniel Hansen
6-26-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-BA-EF
Customer Sample ID: 18-02348-3-SD1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011890			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011890			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011890			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011890			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011890			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011890			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011890			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011890			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011890			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-BA-IN
Customer Sample ID: 18-02348-3-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															
S18T011891			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011891			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011891		-	625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011891			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011891			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011891			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011891			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011891			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011891			109-99-9	Tetrahydrofuran	NGS	100	<0.37	10	n/a	n/a	n/a	n/a	0.37	n/a	

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-BL-EF
Customer Sample ID: 18-02348-3-SD1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011892			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011892			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011892			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011892			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011892			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011892			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011892			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011892			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011892			109-99-9	Tetrahydrofuran	NGS	100	<0.37	0.94	n/a	n/a	n/a	n/a	0.37	n/a	J

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-BL-IN
Customer Sample ID: 18-02348-3-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															
S18T011893			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011893			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011893			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011893			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011893			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011893			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011893			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011893			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011893			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

C.436

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-1
Customer Sample ID: 18-02348-3-SD1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011894			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011894			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011894			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011894			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011894			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011894			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011894			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011894			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011894			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-2
Customer Sample ID: 18-02348-3-SD1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011895			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011895			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011895			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011895			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011895			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011895			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011895			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011895			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011895			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-3
Customer Sample ID: 18-02348-3-SD1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011897			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011897			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011897			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011897			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011897			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011897			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011897			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011897			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011897			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-4
Customer Sample ID: 18-02348-3-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														
S18T011898		1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011898		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011898		625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011898		3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011898		534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011898		3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011898		4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011898		110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011898		109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-5
Customer Sample ID: 18-02348-3-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															
S18T011899			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011899			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011899			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011899			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011899			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011899			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011899			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011899			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011899			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-6
Customer Sample ID: 18-02348-3-SD1-EF-6

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011900		1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011900		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011900		625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011900		3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011900		534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011900		3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011900		4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011900		110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011900		109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

C.442

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-7
Customer Sample ID: 18-02348-3-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															
S18T011903			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011903			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011903			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011903			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011903			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011903			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011903			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011903			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011903			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-EF-8
Customer Sample ID: 18-02348-3-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															
S18T011904			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011904			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011904			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011904			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011904			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011904			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011904			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011904			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011904			109-99-9	Tetrahydrofuran	NGS	100	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-1
Customer Sample ID: 18-02348-3-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															
S18T011905			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011905			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011905			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011905			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011905			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011905			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011905			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011905			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011905			109-99-9	Tetrahydrofuran	NGS	100	<0.37	180	n/a	n/a	n/a	n/a	0.37	n/a	E

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-2
Customer Sample ID: 18-02348-3-SD1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011906			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011906			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011906			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011906			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011906			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011906			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011906			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011906			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011906			109-99-9	Tetrahydrofuran	NGS	100	<0.37	210	n/a	n/a	n/a	n/a	0.37	n/a	E

C.446

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-3
Customer Sample ID: 18-02348-3-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															
S18T011907			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011907			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011907			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011907			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011907			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011907			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011907			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011907			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011907			109-99-9	Tetrahydrofuran	NGS	100	<0.37	210	n/a	n/a	n/a	n/a	0.37	n/a	E

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-4
Customer Sample ID: 18-02348-3-SD1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011908			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011908			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011908			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011908			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011908			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011908			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011908			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011908			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011908			109-99-9	Tetrahydrofuran	NGS	100	<0.37	150	n/a	n/a	n/a	n/a	0.37	n/a	E

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-5
Customer Sample ID: 18-02348-3-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															
S18T011909			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011909			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011909			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011909			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011909			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011909			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011909			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011909			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011909			109-99-9	Tetrahydrofuran	NGS	100	<0.37	220	n/a	n/a	n/a	n/a	0.37	n/a	E

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-6
Customer Sample ID: 18-02348-3-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															
S18T011910			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011910			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011910			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011910			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011910			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011910			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011910			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011910			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011910			109-99-9	Tetrahydrofuran	NGS	100	<0.37	200	n/a	n/a	n/a	n/a	0.37	n/a	E

C.450

NA = Not Analyzed, ND = Not Detected

J - Estimated

E - Outside Calibration Range

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-7
Customer Sample ID: 18-02348-3-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															
S18T011911			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011911			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011911			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011911			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011911			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011911			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011911			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011911			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011911			109-99-9	Tetrahydrofuran	NGS	100	<0.37	230	n/a	n/a	n/a	n/a	0.37	n/a	E

C.451

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180951
Customer Group or SDG Number:
Customer Sample ID: 18-02348-3-SD1-IN-8
Customer Sample ID: 18-02348-3-SD1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011912			1191-99-7	2,3-Dihydrofuran	NGS	100	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	
S18T011912			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	
S18T011912			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	
S18T011912			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	
S18T011912			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	
S18T011912			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	
S18T011912			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	
S18T011912			110-00-9	Furan	NGS	110	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	
S18T011912			109-99-9	Tetrahydrofuran	NGS	100	<0.37	210	n/a	n/a	n/a	n/a	0.37	n/a	E

J - Estimated

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Daniel Hansen
Dan D Hansen
7-26-2018

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-BA-EF
Customer Sample ID: 18-02349-3-SC1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011913			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011913			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011913			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011913			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011913			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011913			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011913			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011913			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011913			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-BA-IN
Customer Sample ID: 18-02349-3-SC1-BA-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011914			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011914			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011914			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011914			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011914			534-22-5	2-Methylfuran	NGS	110	<0.42	0.57	n/a	n/a	n/a	n/a	0.42	n/a	Y
S18T011914			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011914			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011914			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011914			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-BL-EF
Customer Sample ID: 18-02349-3-SC1-BL-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011915			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011915			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011915			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011915			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011915			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011915			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011915			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011915			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011915			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-BL-IN
Customer Sample ID: 18-02349-3-SC1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011916			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011916			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011916			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011916			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011916			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011916			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011916			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011916			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011916			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-1
Customer Sample ID: 18-02349-3-SC1-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011917			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011917			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011917			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011917			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011917			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011917			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011917			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011917			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011917			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

C.457

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-2
Customer Sample ID: 18-02349-3-SC1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011918			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011918			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011918			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011918			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011918			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011918			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011918			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011918			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011918			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-3
Customer Sample ID: 18-02349-3-SC1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011919			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011919			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011919			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011919			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011919			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011919			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011919			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011919			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011919			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-4
Customer Sample ID: 18-02349-3-SC1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011920			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011920			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011920			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011920			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011920			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011920			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011920			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011920			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011920			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-5
Customer Sample ID: 18-02349-3-SC1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011921			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011921			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011921			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011921			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011921			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011921			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011921			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011921			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011921			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

C.461

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-6
Customer Sample ID: 18-02349-3-SC1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011922			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011922			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011922			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011922			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011922			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011922			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011922			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011922			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011922			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-7
Customer Sample ID: 18-02349-3-SC1-EF-7

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011923		1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011923		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011923		625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011923		3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011923		534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011923		3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011923		4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011923		110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011923		109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-EF-8
Customer Sample ID: 18-02349-3-SC1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011924			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011924			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011924			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011924			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011924			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011924			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011924			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011924			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011924			109-99-9	Tetrahydrofuran	NGS	95	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-1
Customer Sample ID: 18-02349-3-SC1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011925			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011925			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011925			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011925			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011925			534-22-5	2-Methylfuran	NGS	110	<0.42	0.57	n/a	n/a	n/a	n/a	0.42	n/a	Y
S18T011925			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011925			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011925			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011925			109-99-9	Tetrahydrofuran	NGS	95	<0.37	190	n/a	n/a	n/a	n/a	0.37	n/a	E

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-2
Customer Sample ID: 18-02349-3-SC1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011926			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011926			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011926			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011926			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011926			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011926			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011926			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011926			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011926			109-99-9	Tetrahydrofuran	NGS	95	<0.37	200	n/a	n/a	n/a	n/a	0.37	n/a	E

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-3
Customer Sample ID: 18-02349-3-SC1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011927			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011927			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011927			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011927			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011927			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011927			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011927			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011927			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011927			109-99-9	Tetrahydrofuran	NGS	95	<0.37	180	n/a	n/a	n/a	n/a	0.37	n/a	E

U - Less Than Detection Limit

Y - Comment

E - Outside Calibration Range

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-4
Customer Sample ID: 18-02349-3-SC1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011928			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011928			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011928			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011928			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011928			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011928			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011928			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011928			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011928			109-99-9	Tetrahydrofuran	NGS	95	<0.37	220	n/a	n/a	n/a	n/a	0.37	n/a	E

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-5
Customer Sample ID: 18-02349-3-SC1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011929			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011929			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011929			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011929			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011929			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011929			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011929			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011929			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011929			109-99-9	Tetrahydrofuran	NGS	95	<0.37	220	n/a	n/a	n/a	n/a	0.37	n/a	E

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-6
Customer Sample ID: 18-02349-3-SC1-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011930			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011930			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011930			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011930			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011930			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011930			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011930			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011930			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011930			109-99-9	Tetrahydrofuran	NGS	95	<0.37	200	n/a	n/a	n/a	n/a	0.37	n/a	E

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-7
Customer Sample ID: 18-02349-3-SC1-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011931			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011931			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011931			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011931			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011931			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011931			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011931			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011931			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011931			109-99-9	Tetrahydrofuran	NGS	95	<0.37	210	n/a	n/a	n/a	n/a	0.37	n/a	E

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180952
Customer Group or SDG Number:
Customer Sample ID: 18-02349-3-SC1-IN-8
Customer Sample ID: 18-02349-3-SC1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011932			1191-99-7	2,3-Dihydrofuran	NGS	94	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011932			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011932			625-86-5	2,5-Dimethylfuran	NGS	120	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011932			3777-71-7	2-Heptylfuran	NGS	120	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011932			534-22-5	2-Methylfuran	NGS	110	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011932			3777-69-3	2-Pentylfuran	NGS	120	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011932			4229-91-8	2-Propylfuran	NGS	120	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011932			110-00-9	Furan	NGS	100	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011932			109-99-9	Tetrahydrofuran	NGS	95	<0.37	200	n/a	n/a	n/a	n/a	0.37	n/a	E

Daniel Hansen
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8-1-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-BA-EF
Customer Sample ID: 18-02350-4-TL1-BA-EF

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011933			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011933			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	0.49	n/a	n/a	n/a	n/a	0.33	n/a	JY
S18T011933			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011933			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011933			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011933			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011933			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011933			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011933			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-BA-IN
Customer Sample ID: 18-02350-4-TL1-BA-IN

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011934		1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011934		1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011934		625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011934		3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011934		534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011934		3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011934		4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011934		110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011934		109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-BL-EF
Customer Sample ID: 18-02350-4-TL1-BL-EF

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011935		1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011935		1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011935		625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011935		3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011935		534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011935		3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011935		4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011935		110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011935		109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-BL-IN
Customer Sample ID: 18-02350-4-TL1-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011936			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011936			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011936			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011936			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011936			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011936			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011936			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011936			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011936			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-1
Customer Sample ID: 18-02350-4-TL1-EF-1

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011937		1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011937		1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011937		625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011937		3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011937		534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011937		3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011937		4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011937		110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011937		109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-2
Customer Sample ID: 18-02350-4-TL1-EF-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011938			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011938			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011938			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011938			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011938			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011938			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011938			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011938			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011938			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-3
Customer Sample ID: 18-02350-4-TL1-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011939			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011939			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011939			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011939			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011939			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011939			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011939			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011939			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011939			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-4
Customer Sample ID: 18-02350-4-TL1-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011940			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011940			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011940			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011940			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011940			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011940			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011940			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011940			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011940			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

C.480

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-5
Customer Sample ID: 18-02350-4-TL1-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011941			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011941			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011941			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011941			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011941			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011941			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011941			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011941			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011941			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-6
Customer Sample ID: 18-02350-4-TL1-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011942			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011942			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011942			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011942			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011942			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011942			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011942			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011942			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011942			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

C.482

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-7
Customer Sample ID: 18-02350-4-TL1-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011943			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011943			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011943			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011943			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011943			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011943			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011943			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011943			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011943			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

C.483

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-EF-8
Customer Sample ID: 18-02350-4-TL1-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011944			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011944			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011944			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011944			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011944			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011944			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011944			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011944			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011944			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-1
Customer Sample ID: 18-02350-4-TL1-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011945			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011945			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011945			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011945			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011945			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011945			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011945			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011945			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011945			109-99-9	Tetrahydrofuran	NGS	89	<0.37	1.4	n/a	n/a	n/a	n/a	0.37	n/a	JY

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-2
Customer Sample ID: 18-02350-4-TL1-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011946			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011946			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011946			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011946			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011946			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011946			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011946			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011946			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011946			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

C.486

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-3
Customer Sample ID: 18-02350-4-TL1-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011947			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011947			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011947			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011947			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011947			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011947			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011947			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011947			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011947			109-99-9	Tetrahydrofuran	NGS	89	<0.37	0.84	n/a	n/a	n/a	n/a	0.37	n/a	JY

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-4
Customer Sample ID: 18-02350-4-TL1-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011948			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011948			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011948			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011948			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011948			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011948			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011948			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011948			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011948			109-99-9	Tetrahydrofuran	NGS	89	<0.37	13	n/a	n/a	n/a	n/a	0.37	n/a	

C.488

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-5
Customer Sample ID: 18-02350-4-TL1-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011949			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011949			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011949			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011949			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011949			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011949			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011949			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011949			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011949			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-6
Customer Sample ID: 18-02350-4-TL1-IN-6

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011950		1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011950		1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011950		625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011950		3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011950		534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011950		3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011950		4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011950		110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011950		109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

C.490

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-7
Customer Sample ID: 18-02350-4-TL1-IN-7

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011951		1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011951		1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011951		625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011951		3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011951		534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011951		3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011951		4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011951		110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011951		109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

C.491

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180953
Customer Group or SDG Number:
Customer Sample ID: 18-02350-4-TL1-IN-8
Customer Sample ID: 18-02350-4-TL1-IN-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011952			1191-99-7	2,3-Dihydrofuran	NGS	92	<0.52	<0.52	n/a	n/a	n/a	n/a	0.52	n/a	U
S18T011952			1708-29-8	2,5-Dihydrofuran	NGS	90	<0.33	<0.33	n/a	n/a	n/a	n/a	0.33	n/a	U
S18T011952			625-86-5	2,5-Dimethylfuran	NGS	84	<0.67	<0.67	n/a	n/a	n/a	n/a	0.67	n/a	U
S18T011952			3777-71-7	2-Heptylfuran	NGS	87	<1.1	<1.1	n/a	n/a	n/a	n/a	1.1	n/a	U
S18T011952			534-22-5	2-Methylfuran	NGS	85	<0.42	<0.42	n/a	n/a	n/a	n/a	0.42	n/a	U
S18T011952			3777-69-3	2-Pentylfuran	NGS	86	<0.97	<0.97	n/a	n/a	n/a	n/a	0.97	n/a	U
S18T011952			4229-91-8	2-Propylfuran	NGS	86	<0.46	<0.46	n/a	n/a	n/a	n/a	0.46	n/a	U
S18T011952			110-00-9	Furan	NGS	98	<0.39	<0.39	n/a	n/a	n/a	n/a	0.39	n/a	U
S18T011952			109-99-9	Tetrahydrofuran	NGS	89	<0.37	<0.37	n/a	n/a	n/a	n/a	0.37	n/a	U

C.492

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit J - Estimated Y - Comment

Dan Hansen
Dan Hansen
6-25-2018

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-BA-EF
Customer Sample ID: 18-02351-4-TL2-BA-EF

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011953		1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011953		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011953		625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011953		3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011953		534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011953		3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011953		4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011953		110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011953		109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-BA-IN
Customer Sample ID: 18-02351-4-TL2-BA-IN

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011954		1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011954		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011954		625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011954		3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011954		534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011954		3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011954		4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011954		110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011954		109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-BL-EF
Customer Sample ID: 18-02351-4-TL2-BL-EF

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011955		1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	1.9	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011955		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011955		625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011955		3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011955		534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011955		3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011955		4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011955		110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011955		109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-BL-IN
Customer Sample ID: 18-02351-4-TL2-BL-IN

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011956			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	1.7	n/a	n/a	n/a	n/a	1.4	n/a	J
S18T011956			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011956			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011956			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011956			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011956			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011956			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011956			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011956			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-1
Customer Sample ID: 18-02351-4-TL2-EF-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011957			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011957			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011957			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011957			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011957			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011957			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011957			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011957			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011957			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-2
Customer Sample ID: 18-02351-4-TL2-EF-2

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011958		1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011958		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011958		625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011958		3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011958		534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011958		3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011958		4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011958		110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011958		109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-3
Customer Sample ID: 18-02351-4-TL2-EF-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011959			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011959			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011959			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011959			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011959			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011959			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011959			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011959			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011959			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-4
Customer Sample ID: 18-02351-4-TL2-EF-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011960			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011960			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011960			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011960			3777-71-7	2-Heptylfuran	NGS	110	<0.98	1.4	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T011960			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011960			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011960			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011960			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011960			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

C.500

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-5
Customer Sample ID: 18-02351-4-TL2-EF-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011961			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011961			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011961			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011961			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011961			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011961			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011961			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011961			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011961			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-6
Customer Sample ID: 18-02351-4-TL2-EF-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011962			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011962			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011962			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011962			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011962			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011962			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011962			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011962			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011962			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

C.502

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-7
Customer Sample ID: 18-02351-4-TL2-EF-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011963			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011963			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011963			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011963			3777-71-7	2-Heptylfuran	NGS	110	<0.98	0.98	n/a	n/a	n/a	n/a	0.98	n/a	J
S18T011963			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011963			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011963			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011963			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011963			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-EF-8
Customer Sample ID: 18-02351-4-TL2-EF-8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011964			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011964			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011964			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011964			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011964			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011964			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011964			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011964			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011964			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

C.504

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-1
Customer Sample ID: 18-02351-4-TL2-IN-1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011965			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011965			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011965			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011965			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011965			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011965			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011965			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011965			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011965			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-2
Customer Sample ID: 18-02351-4-TL2-IN-2

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011966			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011966			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011966			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011966			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011966			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011966			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011966			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011966			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011966			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

C.506

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-3
Customer Sample ID: 18-02351-4-TL2-IN-3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011967			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011967			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011967			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011967			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011967			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011967			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011967			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011967			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011967			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-4
Customer Sample ID: 18-02351-4-TL2-IN-4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011968			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011968			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011968			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011968			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011968			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011968			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011968			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011968			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011968			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

C.508

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-5
Customer Sample ID: 18-02351-4-TL2-IN-5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011969			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011969			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011969			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011969			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011969			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011969			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011969			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011969			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011969			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

C.509

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-6
Customer Sample ID: 18-02351-4-TL2-IN-6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011970			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011970			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011970			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011970			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011970			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011970			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011970			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011970			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011970			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

J - Estimated

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-7
Customer Sample ID: 18-02351-4-TL2-IN-7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples															
S18T011971			1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011971			1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011971			625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011971			3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011971			534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011971			3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011971			4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011971			110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011971			109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

C.511

U - Less Than Detection Limit

J - Estimated

NA = Not Analyzed, ND = Not Detected

2018 Cartridge Evaluation
Data Summary of All Results

Sample Group: 20180954
Customer Group or SDG Number:
Customer Sample ID: 18-02351-4-TL2-IN-8
Customer Sample ID: 18-02351-4-TL2-IN-8

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Furans in Vapor Samples														
S18T011972		1191-99-7	2,3-Dihydrofuran	NGS	100	<1.4	<1.4	n/a	n/a	n/a	n/a	1.4	n/a	U
S18T011972		1708-29-8	2,5-Dihydrofuran	NGS	100	<0.69	<0.69	n/a	n/a	n/a	n/a	0.69	n/a	U
S18T011972		625-86-5	2,5-Dimethylfuran	NGS	110	<0.96	<0.96	n/a	n/a	n/a	n/a	0.96	n/a	U
S18T011972		3777-71-7	2-Heptylfuran	NGS	110	<0.98	<0.98	n/a	n/a	n/a	n/a	0.98	n/a	U
S18T011972		534-22-5	2-Methylfuran	NGS	100	<0.55	<0.55	n/a	n/a	n/a	n/a	0.55	n/a	U
S18T011972		3777-69-3	2-Pentylfuran	NGS	110	<0.77	<0.77	n/a	n/a	n/a	n/a	0.77	n/a	U
S18T011972		4229-91-8	2-Propylfuran	NGS	110	<0.80	<0.80	n/a	n/a	n/a	n/a	0.80	n/a	U
S18T011972		110-00-9	Furan	NGS	96	<0.82	<0.82	n/a	n/a	n/a	n/a	0.82	n/a	U
S18T011972		109-99-9	Tetrahydrofuran	NGS	100	<0.28	<0.28	n/a	n/a	n/a	n/a	0.28	n/a	U

U - Less Than Detection Limit J - Estimated

NA = Not Analyzed, ND = Not Detected

C.4.5 Amines

ANALYTICAL REPORT

Report Date: April 05, 2018

Robert (Buddy) Sosa
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Phone: (509) 373-1262

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Workorder: 34-1808951
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011460** Collected: 03/23/2018
Lab ID: 1808951001 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011461** Collected: 03/23/2018
Lab ID: 1808951002 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011462** Collected: 03/23/2018
Lab ID: 1808951003 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011463** — Collected: 03/23/2018
Lab ID: 1808951004 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011464** — Collected: 03/23/2018
Lab ID: 1808951005 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011465** — Collected: 03/23/2018
Lab ID: 1808951006 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011466** — Collected: 03/23/2018
Lab ID: 1808951007 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011467** — Collected: 03/23/2018
Lab ID: 1808951008 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011468** — Collected: 03/23/2018
Lab ID: 1808951009 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011469** — Collected: 03/23/2018
Lab ID: 1808951010 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011470** — Collected: 03/23/2018
Lab ID: 1808951011 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011471** — Collected: 03/23/2018
Lab ID: 1808951012 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011472** — Collected: 03/23/2018
Lab ID: 1808951013 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011473** — Collected: 03/23/2018
Lab ID: 1808951014 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011474** — Collected: 03/23/2018
Lab ID: 1808951015 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011475** Collected: 03/23/2018
Lab ID: 1808951016 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	**0.13**	NA	NA	0.10

Sample ID: **S18T011476** Collected: 03/23/2018
Lab ID: 1808951017 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011477** Collected: 03/23/2018
Lab ID: 1808951018 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	**0.29**	NA	NA	0.10

Sample ID: **S18T011478** Collected: 03/23/2018
Lab ID: 1808951019 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	**0.22**	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011479** — Collected: 03/23/2018
Lab ID: 1808951020 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 03/30/2018 (211587)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	**0.20**	NA	NA	0.10

Sample ID: **S18T011480** — Collected: 03/23/2018
Lab ID: 1808951021 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011481** — Collected: 03/23/2018
Lab ID: 1808951022 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011482** — Collected: 03/23/2018
Lab ID: 1808951023 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011483** — Collected: 03/23/2018
Lab ID: 1808951024 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011484** — Collected: 03/23/2018
Lab ID: 1808951025 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011485** — Collected: 03/23/2018
Lab ID: 1808951026 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011486** — Collected: 03/23/2018
Lab ID: 1808951027 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011487** Collected: 03/23/2018
Lab ID: 1808951028 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011488** Collected: 03/23/2018
Lab ID: 1808951029 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011489** Collected: 03/23/2018
Lab ID: 1808951030 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011490** Collected: 03/23/2018
Lab ID: 1808951031 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011491** — Collected: 03/23/2018
Lab ID: 1808951032 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011492** — Collected: 03/23/2018
Lab ID: 1808951033 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011493** — Collected: 03/23/2018
Lab ID: 1808951034 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011494** — Collected: 03/23/2018
Lab ID: 1808951035 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011495** Collected: 03/23/2018
Lab ID: 1808951036 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011496** Collected: 03/23/2018
Lab ID: 1808951037 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011497** Collected: 03/23/2018
Lab ID: 1808951038 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011498** Collected: 03/23/2018
Lab ID: 1808951039 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011499** Collected: 03/23/2018
Lab ID: 1808951040 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: **Amines-VOA Aliphatic VAA-1** Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** Analyzed: 04/01/2018 (211589)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Comments

Workorder: 1808951

Amines-VOA Aliphatic VAA-1 is a panel of amines analyzed by modified methods OSHA 34, OSHA 36, and OSHA 40. The modifications to both the prep and analytical procedures allow Dimethylamine, Ethylamine, and Methylamine to be analyzed together in a single analytical run.

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

Method	Analyst	Peer Review
Amines-VOA Aliphatic VAA-1	/S/ Stephen Brose 04/05/2018 10:40	/S/ Thomas Bosch 04/05/2018 11:57

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808951**
Client Project ID: 20180929 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808951

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH Aliphatic Amines
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18453 (HBN: 211587)
	Prepared By: NA	**Analyzed By:** Stephen Brose

Blank

LMB: 593357
Analyzed: 03/30/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 593358
Analyzed: 03/30/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 593359
Analyzed: 03/30/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Dimethylamine	3.80	5.00	76.0	60.4	134.6	3.79	75.7	0.295	0.0	20.0
Ethylamine	6.50	5.00	130	40.0	160.0	6.57	131	0.956	0.0	20.0
Methylamine	4.20	5.00	84.0	40.0	160.0	3.60	72.1	15.2	0.0	20.0

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

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
04/05/2018 10:31	04/05/2018 11:55

Symbols and Definitions

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

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808951

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH Aliphatic Amines
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18455 (HBN: 211589)
	Prepared By: NA	**Analyzed By:** Stephen Brose

Blank

LMB: 593366
Analyzed: 04/01/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

	LCS: 593367 Analyzed: 04/01/2018 00:00 Dilution: 1 Units: ug/sample					LCSD: 593368 Analyzed: 04/01/2018 00:00 Dilution: 1 Units: ug/sample				
Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Dimethylamine	4.10	5.00	82.0	60.4	134.6	3.74	74.9	9.11	0.0	20.0
Ethylamine	6.35	5.00	127	40.0	160.0	6.91	138	8.57	0.0	20.0
Methylamine	4.02	5.00	80.4	40.0	160.0	3.39	67.9	17.0	0.0	20.0

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

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
04/05/2018 10:40	04/05/2018 11:57

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

1808951

1808951

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180929

Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011460	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-BA-EF	N/A
2	S18T011461	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-BA-IN	N/A
3	S18T011462	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-BL-EF	N/A
4	S18T011463	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-BL-IN	N/A
5	S18T011464	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-EF-1	N/A
6	S18T011465	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-EF-2	N/A
7	S18T011466	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-EF-3	N/A
8	S18T011467	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-EF-4	N/A
9	S18T011468	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-EF-5	N/A
10	S18T011469	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-EF-6	N/A

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

SPECIAL INSTRUCTIONS: Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
FedEx		Rosinee Hill	3/29/18 9:5

Matrix*

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed — Disposed By: — Date/Time: 3/30/18

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180929
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD 1V	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS- 033	Temp.: ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771858225806	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 93195 7718 5822 95 3-28-18	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011470	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-BF-7	N/A
12	S18T011471	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-BF-8	N/A
13	S18T011472	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-1	N/A
14	S18T011473	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-2	N/A
15	S18T011474	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-3	N/A
16	S18T011475	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-4	N/A
17	S18T011476	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-5	N/A
18	S18T011477	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-6	N/A
19	S18T011478	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-7	N/A
20	S18T011479	VA	3/23/18		XAD-7-NBD	AMINES 18-02349-4-SC1-IN-8	N/A

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

SPECIAL INSTRUCTIONS / Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
	Don Sorgenson	3-28-18 0900	JA Gradian	JA Gradian	3/28/18 0900
Relinquished By	JA Gradian WRPS J Gradian	3/28/18 1400	Received By	FEDEX	Date/Time
Relinquished By	Fedex	Date/Time	Received By	Desiree Hill	03/29/18 9:55
Relinquished By		Date/Time	Received By		Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed		3/30/18

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180929
		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: UNTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011480	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-BA-EF	N/A
22	S18T011481	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-BA-IN	N/A
23	S18T011482	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-BL-EF	N/A
24	S18T011483	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-BL-IN	N/A
25	S18T011484	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-1	N/A
26	S18T011485	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-2	N/A
27	S18T011486	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-3	N/A
28	S18T011487	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-4	N/A
29	S18T011488	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-5	N/A
30	S18T011489	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brandon	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fedex		Desmee Hill	3/29/18 0935

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed		3/30/18

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180929
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033 Temp.: ON DOE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5864
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011490	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-7	N/A
32	S18T011491	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-EF-8	N/A
33	S18T011492	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-1	N/A
34	S18T011493	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-2	N/A
35	S18T011494	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-3	N/A
36	S18T011495	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-4	N/A
37	S18T011496	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-5	N/A
38	S18T011497	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-6	N/A
39	S18T011498	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-7	N/A
40	S18T011499	VA	3/23/18		XAD-7-NBD	AMINES 18-02350-5-TL1-IN-8	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
Don Sponsler		3-28-18 0900	JA Gradisher	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	JA Gradisher	3/28/18 1400	FEDEX		
FedEx			Desiree Hill	Desiree Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	consumed		3/30/18

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

A-6003-962 (03/05)

ANALYTICAL REPORT

Report Date: April 05, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011500** Collected: 03/24/2018
Lab ID: 1808953001 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]** **Instrument: HPLC11**
Sampling Info: Air Volume Not Provided **Analyzed: 04/03/2018 (211657)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011501** Collected: 03/24/2018
Lab ID: 1808953002 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]** **Instrument: HPLC11**
Sampling Info: Air Volume Not Provided **Analyzed: 04/03/2018 (211657)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011502** Collected: 03/24/2018
Lab ID: 1808953003 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride]** **Instrument: HPLC11**
Sampling Info: Air Volume Not Provided **Analyzed: 04/03/2018 (211657)**

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011503** Collected: 03/24/2018
Lab ID: 1808953004 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011504** Collected: 03/24/2018
Lab ID: 1808953005 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011505** Collected: 03/24/2018
Lab ID: 1808953006 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011506** Collected: 03/24/2018
Lab ID: 1808953007 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011507** Collected: 03/24/2018
Lab ID: 1808953008 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011508** Collected: 03/24/2018
Lab ID: 1808953009 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011509** Collected: 03/24/2018
Lab ID: 1808953010 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011510** Collected: 03/24/2018
Lab ID: 1808953011 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011511** — Collected: 03/24/2018
Lab ID: 1808953012 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011512** — Collected: 03/24/2018
Lab ID: 1808953013 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011513** — Collected: 03/24/2018
Lab ID: 1808953014 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011514** — Collected: 03/24/2018
Lab ID: 1808953015 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011515** Collected: 03/24/2018
Lab ID: 1808953016 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011516** Collected: 03/24/2018
Lab ID: 1808953017 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011517** Collected: 03/24/2018
Lab ID: 1808953018 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	**0.28**	NA	NA	0.10

Sample ID: **S18T011518** Collected: 03/24/2018
Lab ID: 1808953019 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	**0.33**	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011519** — Collected: 03/24/2018
Lab ID: 1808953020 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211657)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	**0.18**	NA	NA	0.10

Sample ID: **S18T011520** — Collected: 03/24/2018
Lab ID: 1808953021 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011521** — Collected: 03/24/2018
Lab ID: 1808953022 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011522** — Collected: 03/24/2018
Lab ID: 1808953023 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011523** — Collected: 03/24/2018
Lab ID: 1808953024 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011524** — Collected: 03/24/2018
Lab ID: 1808953025 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011525** — Collected: 03/24/2018
Lab ID: 1808953026 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011526** — Collected: 03/24/2018
Lab ID: 1808953027 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011527** — Collected: 03/24/2018
Lab ID: 1808953028 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011528** — Collected: 03/24/2018
Lab ID: 1808953029 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011529** — Collected: 03/24/2018
Lab ID: 1808953030 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011530** — Collected: 03/24/2018
Lab ID: 1808953031 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 — **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011531** — Collected: 03/24/2018
Lab ID: 1808953032 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011532** — Collected: 03/24/2018
Lab ID: 1808953033 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011533** — Collected: 03/24/2018
Lab ID: 1808953034 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011534** — Collected: 03/24/2018
Lab ID: 1808953035 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011535** — Collected: 03/24/2018
Lab ID: 1808953036 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011536** — Collected: 03/24/2018
Lab ID: 1808953037 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011537** — Collected: 03/24/2018
Lab ID: 1808953038 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Sample ID: **S18T011538** — Collected: 03/24/2018
Lab ID: 1808953039 — Sampling Location: Cartridge Testing By — Received: 03/29/2018
Method: **Amines-VOA Aliphatic VAA-1** — Media: SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] — Instrument: HPLC11
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011539** Collected: 03/24/2018
Lab ID: 1808953040 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: Amines-VOA Aliphatic VAA-1 **Media:** SKC 226-96, XAD-7 Tube 50/100mg [(NBD) Chloride] **Instrument:** HPLC11
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211660)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Dimethylamine	<0.10	NA	NA	0.10
Ethylamine	<0.10	NA	NA	0.10
Methylamine	<0.10	NA	NA	0.10

Comments

Workorder: 1808953

Amines-VOA Aliphatic VAA-1 is a panel of amines analyzed by modified methods OSHA 34, OSHA 36, and OSHA 40. The modifications to both the prep and analytical procedures allow Dimethylamine, Ethylamine, and Methylamine to be analyzed together in a single analytical run.

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

Method	Analyst	Peer Review
Amines-VOA Aliphatic VAA-1	/S/ Stephen Brose 04/05/2018 12:23	/S/ Thomas Bosch 04/05/2018 14:05

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808953**
Client Project ID: 20180930 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808953

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH Aliphatic Amines
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18461 (HBN: 211657)
	Prepared By: NA	**Analyzed By:** Stephen Brose

Blank

LMB: 593554
Analyzed: 04/03/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 593555
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 593556
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Dimethylamine	5.13	5.00	103	60.4	134.6	4.82	96.4	6.18	0.0	20.0
Ethylamine	4.27	5.00	85.3	40.0	160.0	3.75	75.1	12.8	0.0	20.0
Methylamine	4.00	5.00	80.0	40.0	160.0	3.43	68.7	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/ Stephen Brose	/S/ Thomas Bosch
04/05/2018 12:16	04/05/2018 14:05

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808953

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: IH Aliphatic Amines
Batch: ILC/18462 (HBN: 211660)
Analyzed By: Stephen Brose

Blank

LMB: 593571
Analyzed: 04/03/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Dimethylamine	ND	NA	0.100
Ethylamine	ND	NA	0.100
Methylamine	ND	NA	0.100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 593572
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 593573
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Dimethylamine	4.93	5.00	98.6	60.4	134.6	4.81	96.3	2.37	0.0	20.0
Ethylamine	4.70	5.00	94.0	40.0	160.0	4.22	84.4	10.8	0.0	20.0
Methylamine	3.66	5.00	73.1	40.0	160.0	3.28	65.6	10.8	0.0	20.0

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

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
04/05/2018 12:23	04/05/2018 14:02

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

1808953

Assembl N/A

1808953

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180930

Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN 76-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. W+S-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011500	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-BA-EF	N/A
2	S18T011501	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-BA-IN	N/A
3	S18T011502	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-BL-EF	N/A
4	S18T011503	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-BL-IN	N/A
5	S18T011504	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-EF-1	N/A
6	S18T011505	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-EF-2	N/A
7	S18T011506	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-EF-3	N/A
8	S18T011507	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-EF-4	N/A
9	S18T011508	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-EF-5	N/A
10	S18T011509	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-EF-6	N/A

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

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & 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
[illegible]	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	FEDEX	
Fedex		[illegible]	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, (used in process)) Consumed — Disposed By — Date/Time 4/2/18

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180930
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011510	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-BF-7	N/A
12	S18T011511	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-BF-8	N/A
13	S18T011512	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-1	N/A
14	S18T011513	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-2	N/A
15	S18T011514	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-3	N/A
16	S18T011515	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-4	N/A
17	S18T011516	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-5	N/A
18	S18T011517	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-6	N/A
19	S18T011518	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-7	N/A
20	S18T011519	VA	3/24/18		XAD-7-NBD	AMINES 18-02348-4-SD1-IN-8	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	FEDEX	
Fedex		[illegible]	03/29/18 935

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed	[illegible]	4/2/18

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180930
		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTF-037 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011520	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-BA-EF	N/A
22	S18T011521	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-BA-IN	N/A
23	S18T011522	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-BL-EF	N/A
24	S18T011523	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-BL-IN	N/A
25	S18T011524	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-1	N/A
26	S18T011525	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-2	N/A
27	S18T011526	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-3	N/A
28	S18T011527	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-4	N/A
29	S18T011528	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-5	N/A
30	S18T011529	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-6	N/A

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

SPECIAL INSTRUCTIONS Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	FEDEX	
FEDEX		[illegible]	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed — Disposed By: [illegible] — Date/Time: 4/2/18

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180930
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011530	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-7 *	N/A
32	S18T011531	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-EF-8 *	N/A
33	S18T011532	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-1 *	N/A
34	S18T011533	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-2 *	N/A
35	S18T011534	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-3 *	N/A
36	S18T011535	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-4 *	N/A
37	S18T011536	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-5 *	N/A
38	S18T011537	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-6 *	N/A
39	S18T011538	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-7 *	N/A
40	S18T011539	VA	3/24/18		XAD-7-NBD	AMINES 18-02351-5-TL2-IN-8 *	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl_W_Howald@rl.gov and
Keisha_R_Garcia@rl.gov see SOW for email
CONTRACT 55502

RELEASE 15

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3/28 0900	SE Rogers	3/28/18 0900
SE Rogers	3/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	consumed		4/2/18

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

A-6003-962 (03/05)

C.4.6 Acetonitrile

ANALYTICAL REPORT

Report Date: April 05, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1808938
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011379**				Collected: 03/23/2018
Lab ID: 1808938001	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011380**				Collected: 03/23/2018
Lab ID: 1808938002	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011381**				Collected: 03/23/2018
Lab ID: 1808938003	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011382**				Collected: 03/23/2018
Lab ID: 1808938004	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011383**				Collected: 03/23/2018
Lab ID: 1808938005	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011384**				Collected: 03/23/2018
Lab ID: 1808938006	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011385**				Collected: 03/23/2018
Lab ID: 1808938007	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011386**				Collected: 03/23/2018
Lab ID: 1808938008	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011387**				Collected: 03/23/2018
Lab ID: 1808938009	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011388**				Collected: 03/23/2018
Lab ID: 1808938010	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011389**				Collected: 03/23/2018
Lab ID: 1808938011	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011390**				Collected: 03/23/2018
Lab ID: 1808938012	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011391**				Collected: 03/23/2018
Lab ID: 1808938013	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011392**				Collected: 03/23/2018
Lab ID: 1808938014	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011393**				Collected: 03/23/2018
Lab ID: 1808938015	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011394**				Collected: 03/23/2018
Lab ID: 1808938016	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011395**				Collected: 03/23/2018
Lab ID: 1808938017	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011396**				Collected: 03/23/2018
Lab ID: 1808938018	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCE33
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211818)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: 34-1808938
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: S18T011397				Collected: 03/23/2018
Lab ID: 1808938019	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCE33**
	Sampling Info: Air Volume Not Provided			**Analyzed: 04/03/2018 (211818)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S18T011398				Collected: 03/23/2018
Lab ID: 1808938020	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCE33**
	Sampling Info: Air Volume Not Provided			**Analyzed: 04/03/2018 (211818)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S18T011399				Collected: 03/23/2018
Lab ID: 1808938021	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 04/04/2018 (211821)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S18T011400				Collected: 03/23/2018
Lab ID: 1808938022	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 04/04/2018 (211821)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: S18T011401				Collected: 03/23/2018
Lab ID: 1808938023	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media: SKC 226-09, Charcoal Tube 400/200mg**			**Instrument: GCI02**
	Sampling Info: Air Volume Not Provided			**Analyzed: 04/04/2018 (211821)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011402**				Collected: 03/23/2018
Lab ID: 1808938024	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011403**				Collected: 03/23/2018
Lab ID: 1808938025	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011404**				Collected: 03/23/2018
Lab ID: 1808938026	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011405**				Collected: 03/23/2018
Lab ID: 1808938027	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011406**				Collected: 03/23/2018
Lab ID: 1808938028	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011407**				Collected: 03/23/2018
Lab ID: 1808938029	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011408**				Collected: 03/23/2018
Lab ID: 1808938030	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011409**				Collected: 03/23/2018
Lab ID: 1808938031	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011410**				Collected: 03/23/2018
Lab ID: 1808938032	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011411**				Collected: 03/23/2018
Lab ID: 1808938033	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011412**				Collected: 03/23/2018
Lab ID: 1808938034	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011413**				Collected: 03/23/2018
Lab ID: 1808938035	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011414**				Collected: 03/23/2018
Lab ID: 1808938036	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011415**				Collected: 03/23/2018
Lab ID: 1808938037	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011416**				Collected: 03/23/2018
Lab ID: 1808938038	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211821)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011417**			Collected: 03/23/2018
Lab ID: 1808938039	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg		**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211821)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011418**			Collected: 03/23/2018
Lab ID: 1808938040	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg		**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211821)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Comments

Workorder: 1808938

Sample S18T011384 was partially broken upon receipt. Could only test A section of the tube.

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

Method	Analyst	Peer Review
NIOSH 1606	/S/ Young Hee Yoon 04/05/2018 14:36	/S/ Lyle Edwards 04/05/2018 15:20

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808938**
Client Project ID: 20180927 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808938

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9436 (HBN: 211818)
	Prepared By: NA	**Analyzed By:** Young Hee Yoon

Blank

MB: 593932
Analyzed: 04/03/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 593933
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 593934
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Acetonitrile	0.287	0.312	92.0	86.6	115.3	0.336	108	15.7	0.0	20.0

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

Analyst	Peer Review
/S/ Young Hee Yoon	/S/ Lyle Edwards
04/05/2018 14:36	04/05/2018 15:16

Symbols and Definitions

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

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808938

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9437 (HBN: 211821)
	Prepared By: NA	**Analyzed By:** Young Hee Yoon

Blank

MB: 593936
Analyzed: 04/04/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 593937
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 593938
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Acetonitrile	0.301	0.312	96.5	86.6	115.3	0.306	98.1	1.65	0.0	20.0

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

Analyst	Peer Review
/S/ Young Hee Yoon	/S/ Lyle Edwards
04/05/2018 14:23	04/05/2018 15:20

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

1808938

Assembl N/A W

1808938

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180927

Page 1 of 4

Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-02 FAX 372-1878
SAF No. N/A	Sample Origin 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. W4S-038	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011379	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-BA-EF	N/A
2	S18T011380	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-BA-IN	N/A
3	S18T011381	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-BL-EF	N/A
4	S18T011382	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-BL-IN	N/A
5	S18T011383	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EF-1	N/A
6	S18T011384	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EF-2 → Sample Broken upon receipt.	N/A
7	S18T011385	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EF-3	N/A
8	S18T011386	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EF-4	N/A
9	S18T011387	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EF-5	N/A
10	S18T011388	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EF-6	N/A

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

SPECIAL INSTRUCTIONS Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0900	Ke Rogers	3/28 0900
Ke Rogers	3/28/18 1400	FEDEX	
		Tamilyn Tassell	3-29-18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By Date/Time April 4, 2018 2:00pm

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180927
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011389	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EP-7	N/A
12	S18T011390	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-EP-8	N/A
13	S18T011391	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-1	N/A
14	S18T011392	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-2	N/A
15	S18T011393	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-3	N/A
16	S18T011394	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-4	N/A
17	S18T011395	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-5	N/A
18	S18T011396	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-6	N/A
19	S18T011397	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-7	N/A
20	S18T011398	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02349-5-SC1-IN-8	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	FEDEX	
[illegible]		[illegible]	03-29-18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		[illegible]	April 4, 2018 2200 hrs

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180927
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5816
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
91	S18T011399	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-BA-EF	N/A
92	S18T011400	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-BA-IN	N/A
93	S18T011401	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-BL-EF	N/A
94	S18T011402	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-BL-IN	N/A
95	S18T011403	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-1	N/A
96	S18T011404	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-2	N/A
97	S18T011405	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-3	N/A
98	S18T011406	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-4	N/A
99	S18T011407	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-5	N/A
100	S18T011408	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Drayton	3-28-18 0900	Joe Rogers	3/28/18 0900
Joe Rogers	3/28/18 1400	FEDEX	
Jody		Pam Van Fossen / Tami Vail Cassell	6379789159
Relinquished By	Date/Time	Received By	Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Young Hee Yom — April 4, 2018 2:00 pm

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

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Assembler N/A		C.O.C. No. 20180927	Page 4 of 4
Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No 373-6861	MSIN T6-02 FAX 372-1878
SAF No. N/A	Sample Origin 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. wts-033	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5846	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011409	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-7	N/A
32	S18T011410	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-EF-8	N/A
33	S18T011411	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-1	N/A
34	S18T011412	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-2	N/A
35	S18T011413	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-3	N/A
36	S18T011414	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-4	N/A
37	S18T011415	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-5	N/A
38	S18T011416	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-6	N/A
39	S18T011417	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-7	N/A
40	S18T011418	VA	03/23/18		CHARCOAL TUBE	Acetonitrile 18-02350-6-TL1-IN-8	N/A

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

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

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Stone [signature]	3-28-18 0900	F.E. Rogers [signature]	3/28/18 0900
F.E. Rogers [signature]	3/28/18 1700	FEDEX	
Fedex		Trinity Vantassell [signature]	03-29-18 0955

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: [signature] — Date/Time: April 4, 2018 2:00pm

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: April 06, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011419**			Collected: 03/24/2018
Lab ID: 1808959001	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg		**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/05/2018 (211963)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011420**			Collected: 03/24/2018
Lab ID: 1808959002	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg		**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/05/2018 (211963)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011421**			Collected: 03/24/2018
Lab ID: 1808959003	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg		**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/05/2018 (211963)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011422**				Collected: 03/24/2018
Lab ID: 1808959004	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011423**				Collected: 03/24/2018
Lab ID: 1808959005	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011424**				Collected: 03/24/2018
Lab ID: 1808959006	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011425**				Collected: 03/24/2018
Lab ID: 1808959007	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011426**				Collected: 03/24/2018
Lab ID: 1808959008	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011427**				Collected: 03/24/2018
Lab ID: 1808959009	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011428**				Collected: 03/24/2018
Lab ID: 1808959010	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	**0.017**	NA	NA	0.010

Sample ID: **S18T011429**				Collected: 03/24/2018
Lab ID: 1808959011	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011430**				Collected: 03/24/2018
Lab ID: 1808959012	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011431**				Collected: 03/24/2018
Lab ID: 1808959013	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011432**				Collected: 03/24/2018
Lab ID: 1808959014	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011433**				Collected: 03/24/2018
Lab ID: 1808959015	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011434**				Collected: 03/24/2018
Lab ID: 1808959016	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011435**				Collected: 03/24/2018
Lab ID: 1808959017	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011436**				Collected: 03/24/2018
Lab ID: 1808959018	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011437**				Collected: 03/24/2018
Lab ID: 1808959019	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011438**				Collected: 03/24/2018
Lab ID: 1808959020	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/05/2018 (211963)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011439**				Collected: 03/24/2018
Lab ID: 1808959021	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011440**				Collected: 03/24/2018
Lab ID: 1808959022	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011441**				Collected: 03/24/2018
Lab ID: 1808959023	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011442**				Collected: 03/24/2018
Lab ID: 1808959024	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011443**				Collected: 03/24/2018
Lab ID: 1808959025	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011444**				Collected: 03/24/2018
Lab ID: 1808959026	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011445**				Collected: 03/24/2018
Lab ID: 1808959027	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011446**				Collected: 03/24/2018
Lab ID: 1808959028	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011447**				Collected: 03/24/2018
Lab ID: 1808959029	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011448**				Collected: 03/24/2018
Lab ID: 1808959030	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011449**				Collected: 03/24/2018
Lab ID: 1808959031	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011450**				Collected: 03/24/2018
Lab ID: 1808959032	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011451**				Collected: 03/24/2018
Lab ID: 1808959033	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011452**				Collected: 03/24/2018
Lab ID: 1808959034	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011453**				Collected: 03/24/2018
Lab ID: 1808959035	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011454**				Collected: 03/24/2018
Lab ID: 1808959036	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011455**				Collected: 03/24/2018
Lab ID: 1808959037	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011456**				Collected: 03/24/2018
Lab ID: 1808959038	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg			**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (212000)
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
Acetonitrile	<0.010	NA	NA	0.010

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011457**		Collected: 03/24/2018
Lab ID: 1808959039	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg	**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided	**Analyzed:** 04/06/2018 (212000)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

Sample ID: **S18T011458**		Collected: 03/24/2018
Lab ID: 1808959040	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 1606	**Media:** SKC 226-09, Charcoal Tube 400/200mg	**Instrument:** GCI02
	Sampling Info: Air Volume Not Provided	**Analyzed:** 04/06/2018 (212000)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
Acetonitrile	<0.010	NA	NA	0.010

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

Method	Analyst	Peer Review
NIOSH 1606	/S/ Young Hee Yoon 04/06/2018 11:20	/S/ Lyle Edwards 04/06/2018 14:26

Laboratory Contact Information

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960 W Levoy Drive
Salt Lake City, Utah 84123

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

ANALYTICAL REPORT

Workorder: **34-1808959**
Client Project ID: 20180928 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808959

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9445 (HBN: 211963)
	Prepared By: NA	**Analyzed By:** Young Hee Yoon

Blank

MB: 594186
Analyzed: 04/05/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 594187
Analyzed: 04/05/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594188
Analyzed: 04/05/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Acetonitrile	0.306	0.312	98.1	86.6	115.3	0.317	102	3.53	0.0	20.0

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

Analyst	Peer Review
/S/ Young Hee Yoon	/S/ Lyle Edwards
04/06/2018 11:20	04/06/2018 14:26

Symbols and Definitions

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

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808959

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9447 (HBN: 212000)
	Prepared By: NA	**Analyzed By:** Young Hee Yoon

Blank

MB: 594371
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
Acetonitrile	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 594372
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594373
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Acetonitrile	0.331	0.312	106	86.6	115.3	0.324	104	2.14	0.0	20.0

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

Analyst	Peer Review
/S/ Young Hee Yoon	/S/ Lyle Edwards
04/06/2018 11:10	04/06/2018 12:39

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

1808959

1808959

As N/A W	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180928
		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-02 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011419	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-BA-EF	N/A
2	S18T011420	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-BA-IN	N/A
3	S18T011421	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-BL-EF	N/A
4	S18T011422	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-BL-IN	N/A
5	S18T011423	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-1	N/A
6	S18T011424	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-2	N/A
7	S18T011425	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-3	N/A
8	S18T011426	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-4	N/A
9	S18T011427	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-5	N/A
10	S18T011428	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Dan Sorenson	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	FEDEX	
FedEx		Penny A. Foote	29-Mar-2018 0955
		[illegible]	

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: [illegible] — Date/Time: April 6, 2018 8:00 AM

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180928
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-02 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: wts-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011429	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-7	N/A
12	S18T011430	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-EF-8	N/A
13	S18T011431	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-1	N/A
14	S18T011432	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-2	N/A
15	S18T011433	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-3	N/A
16	S18T011434	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-4	N/A
17	S18T011435	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-5	N/A
18	S18T011436	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-6	N/A
19	S18T011437	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-7	N/A
20	S18T011438	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02348-5-SD1-IN-8	N/A

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

SPECIAL INSTRUCTIONS

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

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0900	Steve Rogers	3/28/18 0900
Steve Rogers	3/28/18 1400		
Fed Ex		FEDEX	
		Penny A. Foote	29-Mar-2018 0955
		Penny A. Foote	

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Chase Chase April 6, 2018 Date/Time

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180928
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. W+S-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 45795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011439	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-BA-EF	N/A
22	S18T011440	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-BA-IN	N/A
23	S18T011441	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-BL-EF	N/A
24	S18T011442	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-BL-IN	N/A
25	S18T011443	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-1	N/A
26	S18T011444	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-2	N/A
27	S18T011445	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-3	N/A
28	S18T011446	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-4	N/A
29	S18T011447	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-5	N/A
30	S18T011448	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & Keisha Garcia
Carl W Howald@rl.gov and Keisha_R_Garcia@rl.gov ToF email

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	[illegible]	
Fed Ex		FEDEX	
		Penny A. Foote	29-Mar-2018 0955

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By [illegible] April 6, 2018 8:00 AM

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180928
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-02 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. 4-15-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011449	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-7	N/A
32	S18T011450	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-EF-8	N/A
33	S18T011451	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-1	N/A
34	S18T011452	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-2	N/A
35	S18T011453	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-3	N/A
36	S18T011454	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-4	N/A
37	S18T011455	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-5	N/A
38	S18T011456	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-6	N/A
39	S18T011457	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-7	N/A
40	S18T011458	VA	03/24/18		CHARCOAL TUBE	Acetonitrile 18-02351-6-TL2-IN-8	N/A

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

SPECIAL INSTRUCTIONS

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

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0910	K. Rogers	3/28/18 0900
K. Rogers	3/28/18 1400		
Fed Ex		FEDEX	
		Penny A. Foote	29-Mar-2018 09:55
		Penny A. Foote	

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: Young Wen Yom April 6, 2018 8200 Am

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

A-6003-962 (03/05)

C.4.7 Mercury

FINAL REPORT ON MERCURY VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23– 24, 2018

Document No.: 20180918 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

Prepared for:

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509-373-3240

April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

FINAL REPORT ON MERCURY VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018

This final report presents the results of eighty mercury vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The mercury vapor tubes were logged into sample delivery group 20180918.

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 332 LCS determinations indicate a mean recovery of 92.63% with a standard deviation of 5.4%. Statistical process control limits for the LCS are 80-108.7%. The overall estimate of uncertainty is 10.8%, with coverage factor (k) = 2.

Background levels of mercury or interfering compounds can be present in the sorbent tube media used for collecting vapor samples. OSHA ID-140 recommends that the laboratory determine the average background for each lot of media and subtract it from the sample results prior to reporting. However, per agreement with the client, this background is being determined by the client using blank media submitted as blind samples to the laboratory. Any blank subtraction from the sample results will be performed by the client. The laboratory is using the same media for QC samples. These QC samples may not match the lot numbers of the samples being

submitted and the background for this QC sample media has not been determined. Over the past several years the results from preparation blanks, field blanks, and the vast majority of samples have been below the laboratory's method detection limit, which is an order of magnitude below the reporting limit. In general, the laboratory believes there is no need for background subtraction using the current sample media (Hydrar, SKC 226-17-1A).

Sample 18-02349-6-scl-ef-8 was found to have greater than reporting limit results in the glass wool portion and less than reporting limit results in the resin portion

Thirty-two of the eighty mercury results for this sample group were above the reporting limit of 0.05 µg/sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180918

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-6-sd1-ba-ef	Total	S18T012352	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ba-ef	Resin	S18T012353	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ba-ef	Glass Wool	S18T012354	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ba-in	Total	S18T012355	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ba-in	Resin	S18T012356	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ba-in	Glass Wool	S18T012357	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-bl-ef	Total	S18T012359	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-bl-ef	Resin	S18T012360	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-bl-ef	Glass Wool	S18T012361	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-bl-in	Total	S18T012362	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-bl-in	Resin	S18T012363	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-bl-in	Glass Wool	S18T012364	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-1	Total	S18T012365	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-1	Resin	S18T012366	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-1	Glass Wool	S18T012367	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-2	Total	S18T012368	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-2	Resin	S18T012369	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-2	Glass Wool	S18T012370	Mercury	µg/sample	88.1	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-3	Total	S18T012371	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-3	Resin	S18T012372	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-3	Glass Wool	S18T012373	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-4	Total	S18T012374	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-4	Resin	S18T012375	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-4	Glass Wool	S18T012376	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-5	Total	S18T012377	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-5	Resin	S18T012378	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-5	Glass Wool	S18T012379	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-6	Total	S18T012380	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-6	Resin	S18T012381	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-6	Glass Wool	S18T012382	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-7	Total	S18T012383	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-7	Resin	S18T012384	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-7	Glass Wool	S18T012385	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-8	Total	S18T012386	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-8	Resin	S18T012387	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-ef-8	Glass Wool	S18T012388	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-in-1	Total	S18T012389	Mercury	µg/sample	n/a	<0.0500	0.123	0.0500
18-02348-6-sd1-in-1	Resin	S18T012390	Mercury	µg/sample	85.8	<0.0500	0.118	0.0500
18-02348-6-sd1-in-1	Glass Wool	S18T012391	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-in-2	Total	S18T012392	Mercury	µg/sample	n/a	<0.0500	0.102	0.0500
18-02348-6-sd1-in-2	Resin	S18T012393	Mercury	µg/sample	85.8	<0.0500	0.0966	0.0500
18-02348-6-sd1-in-2	Glass Wool	S18T012394	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-in-3	Total	S18T012395	Mercury	µg/sample	n/a	<0.0500	0.102	0.0500
18-02348-6-sd1-in-3	Resin	S18T012396	Mercury	µg/sample	85.8	<0.0500	0.0975	0.0500
18-02348-6-sd1-in-3	Glass Wool	S18T012397	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-in-4	Total	S18T012398	Mercury	µg/sample	n/a	<0.0500	0.0696	0.0500
18-02348-6-sd1-in-4	Resin	S18T012399	Mercury	µg/sample	85.8	<0.0500	0.0646	0.0500
18-02348-6-sd1-in-4	Glass Wool	S18T012400	Mercury	µg/sample	85.8	<0.0500	<0.0500	0.0500
18-02348-6-sd1-in-5	Total	S18T012401	Mercury	µg/sample	n/a	<0.0500	0.110	0.0500
18-02348-6-sd1-in-5	Resin	S18T012402	Mercury	µg/sample	90.6	<0.0500	0.105	0.0500
18-02348-6-sd1-in-5	Glass Wool	S18T012403	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-6-sd1-in-6	Total	S18T012404	Mercury	µg/sample	n/a	<0.0500	0.106	0.0500
18-02348-6-sd1-in-6	Resin	S18T012405	Mercury	µg/sample	90.6	<0.0500	0.101	0.0500
18-02348-6-sd1-in-6	Glass Wool	S18T012406	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02348-6-sd1-in-7	Total	S18T012407	Mercury	µg/sample	n/a	<0.0500	0.116	0.0500
18-02348-6-sd1-in-7	Resin	S18T012408	Mercury	µg/sample	90.6	<0.0500	0.111	0.0500
18-02348-6-sd1-in-7	Glass Wool	S18T012409	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02348-6-sd1-in-8	Total	S18T012410	Mercury	µg/sample	n/a	<0.0500	0.110	0.0500
18-02348-6-sd1-in-8	Resin	S18T012411	Mercury	µg/sample	90.6	<0.0500	0.105	0.0500
18-02348-6-sd1-in-8	Glass Wool	S18T012412	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ba-ef	Total	S18T012413	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ba-ef	Resin	S18T012414	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ba-ef	Glass Wool	S18T012415	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ba-in	Total	S18T012416	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ba-in	Resin	S18T012417	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ba-in	Glass Wool	S18T012418	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-bl-ef	Total	S18T012419	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-bl-ef	Resin	S18T012420	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-bl-ef	Glass Wool	S18T012421	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-bl-in	Total	S18T012422	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-bl-in	Resin	S18T012423	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-bl-in	Glass Wool	S18T012424	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-1	Total	S18T012425	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-1	Resin	S18T012426	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-1	Glass Wool	S18T012427	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-2	Total	S18T012428	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-2	Resin	S18T012429	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-2	Glass Wool	S18T012430	Mercury	µg/sample	90.6	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-3	Total	S18T012431	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-3	Resin	S18T012432	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-3	Glass Wool	S18T012433	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-4	Total	S18T012434	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-4	Resin	S18T012435	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-4	Glass Wool	S18T012436	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-5	Total	S18T012437	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-5	Resin	S18T012438	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-5	Glass Wool	S18T012439	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-6	Total	S18T012440	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-6	Resin	S18T012441	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-6	Glass Wool	S18T012442	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-7	Total	S18T012443	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-7	Resin	S18T012444	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-7	Glass Wool	S18T012445	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-8	Total	S18T012446	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-8	Resin	S18T012447	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-ef-8	Glass Wool	S18T012448	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-in-1	Total	S18T012449	Mercury	µg/sample	n/a	<0.0500	0.0873	0.0500
18-02351-7-tl2-in-1	Resin	S18T012450	Mercury	µg/sample	95.9	<0.0500	0.0823	0.0500
18-02351-7-tl2-in-1	Glass Wool	S18T012451	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-in-2	Total	S18T012452	Mercury	µg/sample	n/a	<0.0500	0.0938	0.0500
18-02351-7-tl2-in-2	Resin	S18T012453	Mercury	µg/sample	95.9	<0.0500	0.0888	0.0500
18-02351-7-tl2-in-2	Glass Wool	S18T012454	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-7-tl2-in-3	Total	S18T012455	Mercury	µg/sample	n/a	<0.0500	0.0881	0.0500
18-02351-7-tl2-in-3	Resin	S18T012456	Mercury	µg/sample	95.9	<0.0500	0.0831	0.0500
18-02351-7-tl2-in-3	Glass Wool	S18T012457	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-in-4	Total	S18T012458	Mercury	µg/sample	n/a	<0.0500	0.0910	0.0500
18-02351-7-tl2-in-4	Resin	S18T012459	Mercury	µg/sample	95.9	<0.0500	0.0860	0.0500
18-02351-7-tl2-in-4	Glass Wool	S18T012460	Mercury	µg/sample	95.9	<0.0500	<0.0500	0.0500
18-02351-7-tl2-in-5	Total	S18T012461	Mercury	µg/sample	n/a	<0.0500	0.0774	0.0500
18-02351-7-tl2-in-5	Resin	S18T012462	Mercury	µg/sample	85.1	<0.0500	0.0724	0.0500
18-02351-7-tl2-in-5	Glass Wool	S18T012463	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02351-7-tl2-in-6	Total	S18T012464	Mercury	µg/sample	n/a	<0.0500	0.0879	0.0500
18-02351-7-tl2-in-6	Resin	S18T012465	Mercury	µg/sample	85.1	<0.0500	0.0829	0.0500
18-02351-7-tl2-in-6	Glass Wool	S18T012466	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02351-7-tl2-in-7	Total	S18T012467	Mercury	µg/sample	n/a	<0.0500	0.0864	0.0500
18-02351-7-tl2-in-7	Resin	S18T012468	Mercury	µg/sample	85.1	<0.0500	0.0814	0.0500
18-02351-7-tl2-in-7	Glass Wool	S18T012469	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02351-7-tl2-in-8	Total	S18T012470	Mercury	µg/sample	n/a	<0.0500	0.0857	0.0500
18-02351-7-tl2-in-8	Resin	S18T012471	Mercury	µg/sample	85.1	<0.0500	0.0807	0.0500
18-02351-7-tl2-in-8	Glass Wool	S18T012472	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ba-ef	Total	S18T012473	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ba-ef	Resin	S18T012474	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ba-ef	Glass Wool	S18T012475	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ba-in	Total	S18T012476	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ba-in	Resin	S18T012477	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ba-in	Glass Wool	S18T012478	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-bl-ef	Total	S18T012479	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-bl-ef	Resin	S18T012480	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-bl-ef	Glass Wool	S18T012481	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-bl-in	Total	S18T012482	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-bl-in	Resin	S18T012483	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-bl-in	Glass Wool	S18T012484	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-1	Total	S18T012485	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-1	Resin	S18T012486	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-1	Glass Wool	S18T012487	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-2	Total	S18T012488	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-2	Resin	S18T012489	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-2	Glass Wool	S18T012490	Mercury	µg/sample	85.1	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-3	Total	S18T012491	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-3	Resin	S18T012492	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-3	Glass Wool	S18T012493	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-4	Total	S18T012494	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-4	Resin	S18T012495	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-4	Glass Wool	S18T012496	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-5	Total	S18T012497	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-5	Resin	S18T012498	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-5	Glass Wool	S18T012499	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-6	Total	S18T012500	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-6	Resin	S18T012501	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-6	Glass Wool	S18T012502	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-7	Total	S18T012503	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-7	Resin	S18T012504	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-7	Glass Wool	S18T012505	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-6-sc1-ef-8	Total	S18T012506	Mercury	µg/sample	n/a	<0.0500	0.0977	0.0500
18-02349-6-sc1-ef-8	Resin	S18T012507	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-ef-8	Glass Wool	S18T012508	Mercury	µg/sample	82.2	<0.0500	0.0927	0.0500
18-02349-6-sc1-in-1	Total	S18T012509	Mercury	µg/sample	n/a	<0.0500	0.0989	0.0500
18-02349-6-sc1-in-1	Resin	S18T012510	Mercury	µg/sample	82.2	<0.0500	0.0939	0.0500
18-02349-6-sc1-in-1	Glass Wool	S18T012511	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-2	Total	S18T012512	Mercury	µg/sample	n/a	<0.0500	0.102	0.0500
18-02349-6-sc1-in-2	Resin	S18T012513	Mercury	µg/sample	82.2	<0.0500	0.0974	0.0500
18-02349-6-sc1-in-2	Glass Wool	S18T012514	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-3	Total	S18T012515	Mercury	µg/sample	n/a	<0.0500	0.104	0.0500
18-02349-6-sc1-in-3	Resin	S18T012516	Mercury	µg/sample	82.2	<0.0500	0.0993	0.0500
18-02349-6-sc1-in-3	Glass Wool	S18T012517	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-4	Total	S18T012518	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-4	Resin	S18T012519	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-4	Glass Wool	S18T012520	Mercury	µg/sample	82.2	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-5	Total	S18T012521	Mercury	µg/sample	n/a	<0.0500	0.106	0.0500
18-02349-6-sc1-in-5	Resin	S18T012522	Mercury	µg/sample	84.0	<0.0500	0.101	0.0500
18-02349-6-sc1-in-5	Glass Wool	S18T012523	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-6	Total	S18T012524	Mercury	µg/sample	n/a	<0.0500	0.104	0.0500
18-02349-6-sc1-in-6	Resin	S18T012525	Mercury	µg/sample	84.0	<0.0500	0.0990	0.0500
18-02349-6-sc1-in-6	Glass Wool	S18T012526	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-7	Total	S18T012527	Mercury	µg/sample	n/a	<0.0500	0.0985	0.0500
18-02349-6-sc1-in-7	Resin	S18T012528	Mercury	µg/sample	84.0	<0.0500	0.0935	0.0500
18-02349-6-sc1-in-7	Glass Wool	S18T012529	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02349-6-sc1-in-8	Total	S18T012530	Mercury	µg/sample	n/a	<0.0500	0.0989	0.0500
18-02349-6-sc1-in-8	Resin	S18T012531	Mercury	µg/sample	84.0	<0.0500	0.0939	0.0500
18-02349-6-sc1-in-8	Glass Wool	S18T012532	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-TL1-BA-EF	Total	S18T012556	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-TL1-BA-EF	Resin	S18T012557	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-TL1-BA-EF	Glass Wool	S18T012558	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ba-in	Total	S18T012559	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ba-in	Resin	S18T012560	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ba-in	Glass Wool	S18T012561	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-bl-ef	Total	S18T012562	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tl1-bl-ef	Resin	S18T012563	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-bl-ef	Glass Wool	S18T012564	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-bl-in	Total	S18T012565	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tl1-bl-in	Resin	S18T012566	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-bl-in	Glass Wool	S18T012567	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-1	Total	S18T012568	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-1	Resin	S18T012569	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-1	Glass Wool	S18T012570	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-2	Total	S18T012571	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-2	Resin	S18T012572	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-2	Glass Wool	S18T012573	Mercury	µg/sample	84.0	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-3	Total	S18T012574	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-3	Resin	S18T012575	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-3	Glass Wool	S18T012576	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-4	Total	S18T012577	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-4	Resin	S18T012578	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tl1-ef-4	Glass Wool	S18T012579	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180918

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-7-tll-ef-5	Total	S18T012580	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-5	Resin	S18T012581	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-5	Glass Wool	S18T012582	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-6	Total	S18T012583	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-6	Resin	S18T012584	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-6	Glass Wool	S18T012585	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-7	Total	S18T012586	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-7	Resin	S18T012587	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-7	Glass Wool	S18T012588	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-8	Total	S18T012589	Mercury	µg/sample	n/a	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-8	Resin	S18T012590	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-ef-8	Glass Wool	S18T012591	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-1	Total	S18T012592	Mercury	µg/sample	n/a	<0.0500	0.0719	0.0500
18-02350-7-tll-in-1	Resin	S18T012593	Mercury	µg/sample	90.7	<0.0500	0.0669	0.0500
18-02350-7-tll-in-1	Glass Wool	S18T012594	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-2	Total	S18T012595	Mercury	µg/sample	n/a	<0.0500	0.0624	0.0500
18-02350-7-tll-in-2	Resin	S18T012596	Mercury	µg/sample	90.7	<0.0500	0.0574	0.0500
18-02350-7-tll-in-2	Glass Wool	S18T012597	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-3	Total	S18T012598	Mercury	µg/sample	n/a	<0.0500	0.0721	0.0500
18-02350-7-tll-in-3	Resin	S18T012599	Mercury	µg/sample	90.7	<0.0500	0.0671	0.0500
18-02350-7-tll-in-3	Glass Wool	S18T012600	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-4	Total	S18T012601	Mercury	µg/sample	n/a	<0.0500	0.0885	0.0500
18-02350-7-tll-in-4	Resin	S18T012602	Mercury	µg/sample	90.7	<0.0500	0.0835	0.0500
18-02350-7-tll-in-4	Glass Wool	S18T012603	Mercury	µg/sample	90.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-5	Total	S18T012604	Mercury	µg/sample	n/a	<0.0500	0.0820	0.0500
18-02350-7-tll-in-5	Resin	S18T012605	Mercury	µg/sample	83.7	<0.0500	0.0770	0.0500
18-02350-7-tll-in-5	Glass Wool	S18T012606	Mercury	µg/sample	83.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-6	Total	S18T012607	Mercury	µg/sample	n/a	<0.0500	0.0833	0.0500
18-02350-7-tll-in-6	Resin	S18T012608	Mercury	µg/sample	83.7	<0.0500	0.0783	0.0500
18-02350-7-tll-in-6	Glass Wool	S18T012609	Mercury	µg/sample	83.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-7	Total	S18T012610	Mercury	µg/sample	n/a	<0.0500	0.0871	0.0500
18-02350-7-tll-in-7	Resin	S18T012611	Mercury	µg/sample	83.7	<0.0500	0.0821	0.0500
18-02350-7-tll-in-7	Glass Wool	S18T012612	Mercury	µg/sample	83.7	<0.0500	<0.0500	0.0500
18-02350-7-tll-in-8	Total	S18T012613	Mercury	µg/sample	n/a	<0.0500	0.0870	0.0500
18-02350-7-tll-in-8	Resin	S18T012614	Mercury	µg/sample	83.7	<0.0500	0.0820	0.0500
18-02350-7-tll-in-8	Glass Wool	S18T012615	Mercury	µg/sample	83.7	<0.0500	<0.0500	0.0500

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180918

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012353	18-02348-6-sd1-ba-ef	Mercury	03/28/2018 18:00	03/30/2018 09:37
S18T012354	18-02348-6-sd1-ba-ef	Mercury	03/28/2018 18:00	03/30/2018 09:38
S18T012356	18-02348-6-sd1-ba-in	Mercury	03/28/2018 18:00	03/30/2018 09:40
S18T012357	18-02348-6-sd1-ba-in	Mercury	03/28/2018 18:00	03/30/2018 09:42
S18T012360	18-02348-6-sd1-bl-ef	Mercury	03/28/2018 18:00	03/30/2018 09:43
S18T012361	18-02348-6-sd1-bl-ef	Mercury	03/28/2018 18:00	03/30/2018 09:45
S18T012363	18-02348-6-sd1-bl-in	Mercury	03/28/2018 18:00	03/30/2018 09:46
S18T012364	18-02348-6-sd1-bl-in	Mercury	03/28/2018 18:00	03/30/2018 09:48
S18T012366	18-02348-6-sd1-ef-1	Mercury	03/28/2018 18:00	03/30/2018 09:49
S18T012367	18-02348-6-sd1-ef-1	Mercury	03/28/2018 18:00	03/30/2018 09:54
S18T012369	18-02348-6-sd1-ef-2	Mercury	03/28/2018 18:00	03/30/2018 09:56
S18T012370	18-02348-6-sd1-ef-2	Mercury	03/28/2018 18:00	03/30/2018 09:58
S18T012372	18-02348-6-sd1-ef-3	Mercury	03/28/2018 18:00	03/30/2018 10:05
S18T012373	18-02348-6-sd1-ef-3	Mercury	03/28/2018 18:00	03/30/2018 10:06
S18T012375	18-02348-6-sd1-ef-4	Mercury	03/28/2018 18:00	03/30/2018 10:08
S18T012376	18-02348-6-sd1-ef-4	Mercury	03/28/2018 18:00	03/30/2018 10:09
S18T012378	18-02348-6-sd1-ef-5	Mercury	03/28/2018 18:00	03/30/2018 10:14
S18T012379	18-02348-6-sd1-ef-5	Mercury	03/28/2018 18:00	03/30/2018 10:16
S18T012381	18-02348-6-sd1-ef-6	Mercury	03/28/2018 18:00	03/30/2018 10:17
S18T012382	18-02348-6-sd1-ef-6	Mercury	03/28/2018 18:00	03/30/2018 10:19
S18T012384	18-02348-6-sd1-ef-7	Mercury	03/28/2018 18:00	03/30/2018 10:21
S18T012385	18-02348-6-sd1-ef-7	Mercury	03/28/2018 18:00	03/30/2018 10:22
S18T012387	18-02348-6-sd1-ef-8	Mercury	03/28/2018 18:00	03/30/2018 10:24
S18T012388	18-02348-6-sd1-ef-8	Mercury	03/28/2018 18:00	03/30/2018 10:25
S18T012390	18-02348-6-sd1-in-1	Mercury	03/28/2018 18:00	03/30/2018 10:27
S18T012391	18-02348-6-sd1-in-1	Mercury	03/28/2018 18:00	03/30/2018 10:29
S18T012393	18-02348-6-sd1-in-2	Mercury	03/28/2018 18:00	03/30/2018 10:34
S18T012394	18-02348-6-sd1-in-2	Mercury	03/28/2018 18:00	03/30/2018 10:36
S18T012396	18-02348-6-sd1-in-3	Mercury	03/28/2018 18:00	03/30/2018 10:37
S18T012397	18-02348-6-sd1-in-3	Mercury	03/28/2018 18:00	03/30/2018 10:39
S18T012399	18-02348-6-sd1-in-4	Mercury	03/28/2018 18:00	03/30/2018 10:41
S18T012400	18-02348-6-sd1-in-4	Mercury	03/28/2018 18:00	03/30/2018 10:43
S18T012402	18-02348-6-sd1-in-5	Mercury	03/30/2018 10:00	03/30/2018 14:41
S18T012403	18-02348-6-sd1-in-5	Mercury	03/30/2018 10:00	03/30/2018 14:43
S18T012405	18-02348-6-sd1-in-6	Mercury	03/30/2018 10:00	03/30/2018 14:44
S18T012406	18-02348-6-sd1-in-6	Mercury	03/30/2018 10:00	03/30/2018 14:46
S18T012408	18-02348-6-sd1-in-7	Mercury	03/30/2018 10:00	03/30/2018 14:48
S18T012409	18-02348-6-sd1-in-7	Mercury	03/30/2018 10:00	03/30/2018 14:50
S18T012411	18-02348-6-sd1-in-8	Mercury	03/30/2018 10:00	03/30/2018 14:51
S18T012412	18-02348-6-sd1-in-8	Mercury	03/30/2018 10:00	03/30/2018 14:57
S18T012414	18-02351-7-tl2-ba-ef	Mercury	03/30/2018 10:00	03/30/2018 14:58
S18T012415	18-02351-7-tl2-ba-ef	Mercury	03/30/2018 10:00	03/30/2018 15:00
S18T012417	18-02351-7-tl2-ba-in	Mercury	03/30/2018 10:00	03/30/2018 15:01
S18T012418	18-02351-7-tl2-ba-in	Mercury	03/30/2018 10:00	03/30/2018 15:03
S18T012420	18-02351-7-tl2-bl-ef	Mercury	03/30/2018 10:00	03/30/2018 15:04
S18T012421	18-02351-7-tl2-bl-ef	Mercury	03/30/2018 10:00	03/30/2018 15:06

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180918

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012423	18-02351-7-tl2-bl-in	Mercury	03/30/2018 10:00	03/30/2018 15:08
S18T012424	18-02351-7-tl2-bl-in	Mercury	03/30/2018 10:00	03/30/2018 15:09
S18T012426	18-02351-7-tl2-ef-1	Mercury	03/30/2018 10:00	03/30/2018 15:11
S18T012427	18-02351-7-tl2-ef-1	Mercury	03/30/2018 10:00	03/30/2018 15:16
S18T012429	18-02351-7-tl2-ef-2	Mercury	03/30/2018 10:00	03/30/2018 15:17
S18T012430	18-02351-7-tl2-ef-2	Mercury	03/30/2018 10:00	03/30/2018 15:19
S18T012432	18-02351-7-tl2-ef-3	Mercury	03/30/2018 10:00	03/30/2018 15:26
S18T012433	18-02351-7-tl2-ef-3	Mercury	03/30/2018 10:00	03/30/2018 15:27
S18T012435	18-02351-7-tl2-ef-4	Mercury	03/30/2018 10:00	03/30/2018 15:29
S18T012436	18-02351-7-tl2-ef-4	Mercury	03/30/2018 10:00	03/30/2018 15:31
S18T012438	18-02351-7-tl2-ef-5	Mercury	03/30/2018 10:00	03/30/2018 15:36
S18T012439	18-02351-7-tl2-ef-5	Mercury	03/30/2018 10:00	03/30/2018 15:37
S18T012441	18-02351-7-tl2-ef-6	Mercury	03/30/2018 10:00	03/30/2018 15:39
S18T012442	18-02351-7-tl2-ef-6	Mercury	03/30/2018 10:00	03/30/2018 15:40
S18T012444	18-02351-7-tl2-ef-7	Mercury	03/30/2018 10:00	03/30/2018 15:42
S18T012445	18-02351-7-tl2-ef-7	Mercury	03/30/2018 10:00	03/30/2018 15:43
S18T012447	18-02351-7-tl2-ef-8	Mercury	03/30/2018 10:00	03/30/2018 15:45
S18T012448	18-02351-7-tl2-ef-8	Mercury	03/30/2018 10:00	03/30/2018 15:47
S18T012450	18-02351-7-tl2-in-1	Mercury	03/30/2018 10:00	03/30/2018 15:48
S18T012451	18-02351-7-tl2-in-1	Mercury	03/30/2018 10:00	03/30/2018 15:50
S18T012453	18-02351-7-tl2-in-2	Mercury	03/30/2018 10:00	03/30/2018 15:55
S18T012454	18-02351-7-tl2-in-2	Mercury	03/30/2018 10:00	03/30/2018 15:57
S18T012456	18-02351-7-tl2-in-3	Mercury	03/30/2018 10:00	03/30/2018 15:59
S18T012457	18-02351-7-tl2-in-3	Mercury	03/30/2018 10:00	03/30/2018 16:00
S18T012459	18-02351-7-tl2-in-4	Mercury	03/30/2018 10:00	03/30/2018 16:02
S18T012460	18-02351-7-tl2-in-4	Mercury	03/30/2018 10:00	03/30/2018 16:04
S18T012462	18-02351-7-tl2-in-5	Mercury	03/30/2018 17:00	04/11/2018 14:24
S18T012463	18-02351-7-tl2-in-5	Mercury	03/30/2018 17:00	04/11/2018 14:26
S18T012465	18-02351-7-tl2-in-6	Mercury	03/30/2018 17:00	04/11/2018 14:27
S18T012466	18-02351-7-tl2-in-6	Mercury	03/30/2018 17:00	04/11/2018 14:29
S18T012468	18-02351-7-tl2-in-7	Mercury	03/30/2018 17:00	04/11/2018 14:30
S18T012469	18-02351-7-tl2-in-7	Mercury	03/30/2018 17:00	04/11/2018 14:32
S18T012471	18-02351-7-tl2-in-8	Mercury	03/30/2018 17:00	04/11/2018 14:34
S18T012472	18-02351-7-tl2-in-8	Mercury	03/30/2018 17:00	04/11/2018 14:39
S18T012474	18-02349-6-sc1-ba-ef	Mercury	03/30/2018 17:00	04/11/2018 14:41
S18T012475	18-02349-6-sc1-ba-ef	Mercury	03/30/2018 17:00	04/11/2018 14:42
S18T012477	18-02349-6-sc1-ba-in	Mercury	03/30/2018 17:00	04/11/2018 14:44
S18T012478	18-02349-6-sc1-ba-in	Mercury	03/30/2018 17:00	04/11/2018 14:45
S18T012480	18-02349-6-sc1-bl-ef	Mercury	03/30/2018 17:00	04/11/2018 14:47
S18T012481	18-02349-6-sc1-bl-ef	Mercury	03/30/2018 17:00	04/11/2018 14:48
S18T012483	18-02349-6-sc1-bl-in	Mercury	03/30/2018 17:00	04/11/2018 14:50
S18T012484	18-02349-6-sc1-bl-in	Mercury	03/30/2018 17:00	04/11/2018 14:51
S18T012486	18-02349-6-sc1-ef-1	Mercury	03/30/2018 17:00	04/11/2018 14:53
S18T012487	18-02349-6-sc1-ef-1	Mercury	03/30/2018 17:00	04/11/2018 14:58
S18T012489	18-02349-6-sc1-ef-2	Mercury	03/30/2018 17:00	04/11/2018 14:59
S18T012490	18-02349-6-sc1-ef-2	Mercury	03/30/2018 17:00	04/11/2018 15:01

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180918

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012492	18-02349-6-sc1-ef-3	Mercury	03/30/2018 17:00	04/11/2018 15:07
S18T012493	18-02349-6-sc1-ef-3	Mercury	03/30/2018 17:00	04/11/2018 15:09
S18T012495	18-02349-6-sc1-ef-4	Mercury	03/30/2018 17:00	04/11/2018 15:11
S18T012496	18-02349-6-sc1-ef-4	Mercury	03/30/2018 17:00	04/11/2018 15:12
S18T012498	18-02349-6-sc1-ef-5	Mercury	03/30/2018 17:00	04/11/2018 15:17
S18T012499	18-02349-6-sc1-ef-5	Mercury	03/30/2018 17:00	04/11/2018 15:19
S18T012501	18-02349-6-sc1-ef-6	Mercury	03/30/2018 17:00	04/11/2018 15:20
S18T012502	18-02349-6-sc1-ef-6	Mercury	03/30/2018 17:00	04/11/2018 15:22
S18T012504	18-02349-6-sc1-ef-7	Mercury	03/30/2018 17:00	04/11/2018 15:23
S18T012505	18-02349-6-sc1-ef-7	Mercury	03/30/2018 17:00	04/11/2018 15:25
S18T012507	18-02349-6-sc1-ef-8	Mercury	03/30/2018 17:00	04/11/2018 15:26
S18T012508	18-02349-6-sc1-ef-8	Mercury	03/30/2018 17:00	04/11/2018 15:28
S18T012510	18-02349-6-sc1-in-1	Mercury	03/30/2018 17:00	04/11/2018 15:30
S18T012511	18-02349-6-sc1-in-1	Mercury	03/30/2018 17:00	04/11/2018 15:31
S18T012513	18-02349-6-sc1-in-2	Mercury	03/30/2018 17:00	04/11/2018 15:36
S18T012514	18-02349-6-sc1-in-2	Mercury	03/30/2018 17:00	04/11/2018 15:38
S18T012516	18-02349-6-sc1-in-3	Mercury	03/30/2018 17:00	04/11/2018 15:40
S18T012517	18-02349-6-sc1-in-3	Mercury	03/30/2018 17:00	04/11/2018 15:42
S18T012519	18-02349-6-sc1-in-4	Mercury	03/30/2018 17:00	04/11/2018 15:43
S18T012520	18-02349-6-sc1-in-4	Mercury	03/30/2018 17:00	04/11/2018 15:45
S18T012605	18-02350-7-tl1-in-5	Mercury	04/16/2018 10:00	04/18/2018 10:54
S18T012606	18-02350-7-tl1-in-5	Mercury	04/16/2018 10:00	04/18/2018 10:56
S18T012608	18-02350-7-tl1-in-6	Mercury	04/16/2018 10:00	04/18/2018 10:57
S18T012609	18-02350-7-tl1-in-6	Mercury	04/16/2018 10:00	04/18/2018 10:59
S18T012611	18-02350-7-tl1-in-7	Mercury	04/16/2018 10:00	04/18/2018 11:01
S18T012612	18-02350-7-tl1-in-7	Mercury	04/16/2018 10:00	04/18/2018 11:03
S18T012614	18-02350-7-tl1-in-8	Mercury	04/16/2018 10:00	04/18/2018 11:04
S18T012615	18-02350-7-tl1-in-8	Mercury	04/16/2018 10:00	04/18/2018 11:09
S18T012522	18-02349-6-sc1-in-5	Mercury	04/18/2018 08:00	04/19/2018 10:23
S18T012523	18-02349-6-sc1-in-5	Mercury	04/18/2018 08:00	04/19/2018 10:25
S18T012525	18-02349-6-sc1-in-6	Mercury	04/18/2018 08:00	04/19/2018 10:27
S18T012526	18-02349-6-sc1-in-6	Mercury	04/18/2018 08:00	04/19/2018 10:29
S18T012528	18-02349-6-sc1-in-7	Mercury	04/18/2018 08:00	04/19/2018 10:30
S18T012529	18-02349-6-sc1-in-7	Mercury	04/18/2018 08:00	04/19/2018 10:32
S18T012531	18-02349-6-sc1-in-8	Mercury	04/18/2018 08:00	04/19/2018 10:33
S18T012532	18-02349-6-sc1-in-8	Mercury	04/18/2018 08:00	04/19/2018 10:39
S18T012557	18-02350-7-TL1-BA-EF	Mercury	04/18/2018 08:00	04/19/2018 10:40
S18T012558	18-02350-7-TL1-BA-EF	Mercury	04/18/2018 08:00	04/19/2018 10:42
S18T012560	18-02350-7-tl1-ba-in	Mercury	04/18/2018 08:00	04/19/2018 10:43
S18T012561	18-02350-7-tl1-ba-in	Mercury	04/18/2018 08:00	04/19/2018 10:45
S18T012563	18-02350-7-tl1-bl-ef	Mercury	04/18/2018 08:00	04/19/2018 10:46
S18T012564	18-02350-7-tl1-bl-ef	Mercury	04/18/2018 08:00	04/19/2018 10:48
S18T012566	18-02350-7-tl1-bl-in	Mercury	04/18/2018 08:00	04/19/2018 10:49
S18T012567	18-02350-7-tl1-bl-in	Mercury	04/18/2018 08:00	04/19/2018 10:51
S18T012569	18-02350-7-tl1-ef-1	Mercury	04/18/2018 08:00	04/19/2018 10:52
S18T012570	18-02350-7-tl1-ef-1	Mercury	04/18/2018 08:00	04/19/2018 11:02

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180918

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012572	18-02350-7-tl1-ef-2	Mercury	04/18/2018 08:00	04/19/2018 11:04
S18T012573	18-02350-7-tl1-ef-2	Mercury	04/18/2018 08:00	04/19/2018 11:05
S18T012575	18-02350-7-tl1-ef-3	Mercury	04/18/2018 08:00	04/19/2018 11:12
S18T012576	18-02350-7-tl1-ef-3	Mercury	04/18/2018 08:00	04/19/2018 11:14
S18T012578	18-02350-7-tl1-ef-4	Mercury	04/18/2018 08:00	04/19/2018 11:15
S18T012579	18-02350-7-tl1-ef-4	Mercury	04/18/2018 08:00	04/19/2018 11:17
S18T012581	18-02350-7-tl1-ef-5	Mercury	04/18/2018 08:00	04/19/2018 11:23
S18T012582	18-02350-7-tl1-ef-5	Mercury	04/18/2018 08:00	04/19/2018 11:24
S18T012584	18-02350-7-tl1-ef-6	Mercury	04/18/2018 08:00	04/19/2018 11:26
S18T012585	18-02350-7-tl1-ef-6	Mercury	04/18/2018 08:00	04/19/2018 11:27
S18T012587	18-02350-7-tl1-ef-7	Mercury	04/18/2018 08:00	04/19/2018 11:29
S18T012588	18-02350-7-tl1-ef-7	Mercury	04/18/2018 08:00	04/19/2018 11:30
S18T012590	18-02350-7-tl1-ef-8	Mercury	04/18/2018 08:00	04/19/2018 11:32
S18T012591	18-02350-7-tl1-ef-8	Mercury	04/18/2018 08:00	04/19/2018 11:35
S18T012593	18-02350-7-tl1-in-1	Mercury	04/18/2018 08:00	04/19/2018 11:37
S18T012594	18-02350-7-tl1-in-1	Mercury	04/18/2018 08:00	04/19/2018 11:39
S18T012596	18-02350-7-tl1-in-2	Mercury	04/18/2018 08:00	04/19/2018 11:44
S18T012597	18-02350-7-tl1-in-2	Mercury	04/18/2018 08:00	04/19/2018 11:45
S18T012599	18-02350-7-tl1-in-3	Mercury	04/18/2018 08:00	04/19/2018 11:47
S18T012600	18-02350-7-tl1-in-3	Mercury	04/18/2018 08:00	04/19/2018 11:50
S18T012602	18-02350-7-tl1-in-4	Mercury	04/18/2018 08:00	04/19/2018 11:51
S18T012603	18-02350-7-tl1-in-4	Mercury	04/18/2018 08:00	04/19/2018 11:53

Attachment 3

RECEIPT PAPERWORK

222-S	**SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST**	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180918

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC/SC Initials: DLS Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

WHC NH3 80 Hg 80 Run 240

Number of IH Samples Received:

Aldehyde Screen: 80	Amines: 80	Acetonitrile 80 Ammonia: 80	Aromatic HC:		Asbestos:
Beryllium:	Be-Bulk:	Be-Filter:	Be-Wipe:		1, 3-Butadiene: 160
Formaldehyde:	Furans: 80	Mercury: ~~80~~ 80	Methanol: 40		Nitrosamines: 80
Nitrous Oxide:	Pyridines: 80	SVOA: 80	VOA: 80		Other-IH:

A-6005-302 (REV 5)

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
	18-02348-3-SD1-IN-8 / TDU (Tenax)		Furans Source
	[redacted]	3/26/18	
S18T012352	18-02348-6-SD1-BA-EF / Hydrar (SKC 226-17-1A)	S18T012353	Hg-Elemental Source
	[redacted]	S18T012354	
S18T012355	18-02348-6-SD1-BA-IN / Hydrar (SKC 226-17-1A)	S18T012356	Hg-Elemental Source
	[redacted]	S18T012357	
S18T012359	18-02348-6-SD1-BL-EF / Hydrar (SKC 226-17-1A)	S18T012360	Hg-Elemental Source
	[redacted]	S18T012361	
S18T012362	18-02348-6-SD1-BL-IN / Hydrar (SKC 226-17-1A)	S18T012363	Hg-Elemental Source
	[redacted]	S18T012364	
S18T012365	18-02348-6-SD1-EF-1 / Hydrar (SKC 226-17-1A)	S18T012366	Hg-Elemental Source
	[redacted]	S18T012367	
S18T012368	18-02348-6-SD1-EF-2 / Hydrar (SKC 226-17-1A)	S18T012369	Hg-Elemental Source
	[redacted]	S18T012370	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:	[signature]	Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	BRETT GARNER	3-26-18	1200
Received By:	[signature]	DON SWANSON	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012371	18-02348-6-SD1-EF-3 / Hydrar (SKC 226-17-1A) S18T012372 S18T012373	Hg-Elemental Source
S18T012374	18-02348-6-SD1-EF-4 / Hydrar (SKC 226-17-1A) S18T012375 S18T012376	Hg-Elemental Source
S18T012377	18-02348-6-SD1-EF-5 / Hydrar (SKC 226-17-1A) S18T012378 S18T012379	Hg-Elemental Source
S18T012380	18-02348-6-SD1-EF-6 / Hydrar (SKC 226-17-1A) S18T012381 S18T012382	Hg-Elemental Source
S18T012383	18-02348-6-SD1-EF-7 / Hydrar (SKC 226-17-1A) S18T012384 S18T012385	Hg-Elemental Source
S18T012386	18-02348-6-SD1-EF-8 / Hydrar (SKC 226-17-1A) S18T012387 S18T012388	Hg-Elemental Source
S18T012389	18-02348-6-SD1-IN-1 / Hydrar (SKC 226-17-1A) S18T012390 S18T012391	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DK Stanson	3-26-18	1207
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180918 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012392	18-02348-6-SD1-IN-2 / Hydrar (SKC 226-17-1A)	S18T012393	Hg-Elemental Source
		S18T01234	
S18T012395	18-02348-6-SD1-IN-3 / Hydrar (SKC 226-17-1A)	S18T012396	Hg-Elemental Source
		S18T012397	
S18T012398	18-02348-6-SD1-IN-4 / Hydrar (SKC 226-17-1A)	S18T012399	Hg-Elemental Source
		S18T012400	
S18T012401	18-02348-6-SD1-IN-5 / Hydrar (SKC 226-17-1A)	S18T012402	Hg-Elemental Source
		S18T012403	
S18T012404	18-02348-6-SD1-IN-6 / Hydrar (SKC 226-17-1A)	S18T012405	Hg-Elemental Source
		S18T012406	
S18T012407	18-02348-6-SD1-IN-7 / Hydrar (SKC 226-17-1A)	S18T012408	Hg-Elemental Source
		S18T012409	
S18T012410	18-02348-6-SD1-IN-8 / Hydrar (SKC 226-17-1A)	S18T012411	Hg-Elemental Source
		S18T012412	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
	18-02351-4-TL2-IN-8 / TDU (Tenax)		Furans Source
	[redacted]	3/24/18	
S18T012413	18-02351-7-TL2-BA-EF / Hydrar (SKC 226-17-1A)	S18T012414	Hg-Elemental Source
	[redacted]	S18T012415	
S18T012416	18-02351-7-TL2-BA-IN / Hydrar (SKC 226-17-1A)	S18T012417	Hg-Elemental Source
	[redacted]	S18T012418	
S18T012419	18-02351-7-TL2-BL-EF / Hydrar (SKC 226-17-1A)	S18T012420	Hg-Elemental Source
	[redacted]	S18T012421	
S18T012422	18-02351-7-TL2-BL-IN / Hydrar (SKC 226-17-1A)	S18T012423	Hg-Elemental Source
	[redacted]	S18T012424	
S18T012425	18-02351-7-TL2-EF-1 / Hydrar (SKC 226-17-1A)	S18T012426	Hg-Elemental Source
	[redacted]	S18T012427	
S18T012428	18-02351-7-TL2-EF-2 / Hydrar (SKC 226-17-1A)	S18T012429	Hg-Elemental Source
	[redacted]	S18T012430	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0435
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180918 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012431	18-02351-7-TL2-EF-3 / Hydrar (SKC 226-17-1A) S18T012432 S18T012433	Hg-Elemental Source
S18T012434	18-02351-7-TL2-EF-4 / Hydrar (SKC 226-17-1A) S18T012435 S18T012436	Hg-Elemental Source
S18T012437	18-02351-7-TL2-EF-5 / Hydrar (SKC 226-17-1A) S18T012438 S18T012439	Hg-Elemental Source
S18T012440	18-02351-7-TL2-EF-6 / Hydrar (SKC 226-17-1A) S18T012441 S18T012442	Hg-Elemental Source
S18T012443	18-02351-7-TL2-EF-7 / Hydrar (SKC 226-17-1A) S18T012444 S18T012445	Hg-Elemental Source
S18T012446	18-02351-7-TL2-EF-8 / Hydrar (SKC 226-17-1A) S18T012447 S18T012448	Hg-Elemental Source
S18T012449	18-02351-7-TL2-IN-1 / Hydrar (SKC 226-17-1A) S18T012450 S18T012451	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	HO 252	03-25-18	0435
Retrieved from Storage:		BRETT GARNER		3-26-18	0850

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180918 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012452	18-02351-7-TL2-IN-2 / Hydrar (SKC 226-17-1A) S18T012453 S18T012454	Hg-Elemental Source
S18T012455	18-02351-7-TL2-IN-3 / Hydrar (SKC 226-17-1A) S18T012456 S18T012457	Hg-Elemental Source
S18T012458	18-02351-7-TL2-IN-4 / Hydrar (SKC 226-17-1A) S18T012459 S18T012460	Hg-Elemental Source
S18T012461	18-02351-7-TL2-IN-5 / Hydrar (SKC 226-17-1A) S18T012462 S18T012463	Hg-Elemental Source
S18T012464	18-02351-7-TL2-IN-6 / Hydrar (SKC 226-17-1A) S18T012465 S18T012466	Hg-Elemental Source
S18T012467	18-02351-7-TL2-IN-7 / Hydrar (SKC 226-17-1A) S18T012468 S18T012469	Hg-Elemental Source
S18T012470	18-02351-7-TL2-IN-8 / Hydrar (SKC 226-17-1A) S18T012471 S18T012472	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	[signature]	Erica Wheeler	MO 252	03-25-18	0435
Retrieved from Storage:	[signature]	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	[signature]	BRETT GARNER	3-26-18	1200
Received By:	[signature]	LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180918 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
	~~18-02349-3-SC1-IN-8 / TDU (Tenax)~~ MJM 3/26/18		Furans Source
S18T012473	18-02349-6-SC1-BA-EF / Hydrar (SKC 226-17-1A)	S18T012474 S18T012475	Hg-Elemental Source
S18T012476	18-02349-6-SC1-BA-IN / Hydrar (SKC 226-17-1A)	S18T012477 S18T012478	Hg-Elemental Source
S18T012479	18-02349-6-SC1-BL-EF / Hydrar (SKC 226-17-1A)	S18T012480 S18T012481	Hg-Elemental Source
S18T012482	18-02349-6-SC1-BL-IN / Hydrar (SKC 226-17-1A)	S18T012483 S18T012484	Hg-Elemental Source
S18T012485	18-02349-6-SC1-EF-1 / Hydrar (SKC 226-17-1A)	S18T012486 S18T012487	Hg-Elemental Source
S18T012488	18-02349-6-SC1-EF-2 / Hydrar (SKC 226-17-1A)	S18T012489 S18T012490	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lulder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Set Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012491	18-02349-6-SC1-EF-3 / Hydrar (SKC 226-17-1A) S18T012492 S18T012493	Hg-Elemental Source
S18T012494	18-02349-6-SC1-EF-4 / Hydrar (SKC 226-17-1A) S18T012495 S18T012496	Hg-Elemental Source
S18T012497	18-02349-6-SC1-EF-5 / Hydrar (SKC 226-17-1A) S18T012498 S18T012499	Hg-Elemental Source
S18T012500	18-02349-6-SC1-EF-6 / Hydrar (SKC 226-17-1A) S18T012501 S18T012502	Hg-Elemental Source
S18T012503	18-02349-6-SC1-EF-7 / Hydrar (SKC 226-17-1A) S18T012504 S18T012505	Hg-Elemental Source
S18T012506	18-02349-6-SC1-EF-8 / Hydrar (SKC 226-17-1A) S18T012507 S18T012508	Hg-Elemental Source
S18T012509	18-02349-6-SC1-IN-1 / Hydrar (SKC 226-17-1A) S18T012510 S18T012511	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LHolder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012512	18-02349-6-SC1-IN-2 / Hydrar (SKC 226-17-1A)	S18T012513	Hg-Elemental Source
		S18T012514	
S18T012515	18-02349-6-SC1-IN-3 / Hydrar (SKC 226-17-1A)	S18T012516	Hg-Elemental Source
		S18T012517	
S18T012518	18-02349-6-SC1-IN-4 / Hydrar (SKC 226-17-1A)	S18T012519	Hg-Elemental Source
		S18T012520	
S18T012521	18-02349-6-SC1-IN-5 / Hydrar (SKC 226-17-1A)	S18T012522	Hg-Elemental Source
		S18T012523	
S18T012524	18-02349-6-SC1-IN-6 / Hydrar (SKC 226-17-1A)	S18T012525	Hg-Elemental Source
		S18T012526	
S18T012527	18-02349-6-SC1-IN-7 / Hydrar (SKC 226-17-1A)	S18T012528	Hg-Elemental Source
		S18T012529	
S18T012530	18-02349-6-SC1-IN-8 / Hydrar (SKC 226-17-1A)	S18T012531	Hg-Elemental Source
		S18T012532	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Shimon LaValle	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180918 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-4-TL1-IN-8 / TDU (Tenax) 3/29/18	Furans Source
S18T012556	18-02350-7-TL1-BA-EF / Hydrar (SKC 226-17-1A) S18T012557 S18T012558	Hg-Elemental Source
S18T012559	18-02350-7-TL1-BA-IN / Hydrar (SKC 226-17-1A) S18T012560 S18T012561	Hg-Elemental Source
S18T012562	18-02350-7-TL1-BL-EF / Hydrar (SKC 226-17-1A) S18T012563 S18T012564	Hg-Elemental Source
S18T012565	18-02350-7-TL1-BL-IN / Hydrar (SKC 226-17-1A) S18T012566 S18T012567	Hg-Elemental Source
S18T012568	18-02350-7-TL1-EF-1 / Hydrar (SKC 226-17-1A) S18T012569 S18T012570	Hg-Elemental Source
S18T012571	18-02350-7-TL1-EF-2 / Hydrar (SKC 226-17-1A) S18T012572 S18T012573	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		TOM SWENSON	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180918 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012574	18-02350-7-TL1-EF-3 / Hydrar (SKC 226-17-1A) S18T012575 S18T012576	Hg-Elemental Source
S18T012577	18-02350-7-TL1-EF-4 / Hydrar (SKC 226-17-1A) S18T012578 S18T012579	Hg-Elemental Source
S18T012580	18-02350-7-TL1-EF-5 / Hydrar (SKC 226-17-1A) S18T012581 S18T012582	Hg-Elemental Source
S18T012583	18-02350-7-TL1-EF-6 / Hydrar (SKC 226-17-1A) S18T012584 S18T012585	Hg-Elemental Source
S18T012586	18-02350-7-TL1-EF-7 / Hydrar (SKC 226-17-1A) S18T012587 S18T012588	Hg-Elemental Source
S18T012589	18-02350-7-TL1-EF-8 / Hydrar (SKC 226-17-1A) S18T012590 S18T012591	Hg-Elemental Source
S18T012592	18-02350-7-TL1-IN-1 / Hydrar (SKC 226-17-1A) S18T012593 S18T012594	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0352	03-24-18	0922
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3-26-18~~	1200
Received By:		DL Stenson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012595	18-02350-7-TL1-IN-2 / Hydrar (SKC 226-17-1A) S18T012596 S18T012597	Hg-Elemental Source
S18T012598	18-02350-7-TL1-IN-3 / Hydrar (SKC 226-17-1A) S18T012599 S18T012600	Hg-Elemental Source
S18T012601	18-02350-7-TL1-IN-4 / Hydrar (SKC 226-17-1A) S18T012602 S18T012603	Hg-Elemental Source
S18T012604	18-02350-7-TL1-IN-5 / Hydrar (SKC 226-17-1A) S18T012605 S18T012606	Hg-Elemental Source
S18T012607	18-02350-7-TL1-IN-6 / Hydrar (SKC 226-17-1A) S18T012608 S18T012609	Hg-Elemental Source
S18T012610	18-02350-7-TL1-IN-7 / Hydrar (SKC 226-17-1A) S18T012611 S18T012612	Hg-Elemental Source
S18T012613	18-02350-7-TL1-IN-8 / Hydrar (SKC 226-17-1A) S18T012614 S18T012615	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sexton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

C.4.8 Ammonia

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

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April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC(SC) Initials: DLS Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury:	~~80~~ 80	Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

Acetonitrile 80

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DUDSON	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132 S18T012133	NH3 Source
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135 S18T012136	NH3 Source
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138 S18T012139	NH3 Source
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141 S18T012142	NH3 Source
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144 S18T012145	NH3 Source
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147 S18T012148	NH3 Source
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX) MOM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LLolder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	3/26/18	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sroufe	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29) S18T012234 S18T012235	NH3 Source
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29) S18T012237 S18T012238	NH3 Source
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29) S18T012240 S18T012241	NH3 Source
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29) S18T012243 S18T012244	NH3 Source
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29) S18T012246 S18T012247	NH3 Source
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29) S18T012249 S18T012250	NH3 Source
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29) S18T012252 S18T012253	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

3/29/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	110252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX) 3/20/18		Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

Prepared for:

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April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC(SC) Initials: bhs Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury:	~~80~~ 80	Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

Acetonitrile 80

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DUDSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132 S18T012133	NH3 Source
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135 S18T012136	NH3 Source
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138 S18T012139	NH3 Source
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141 S18T012142	NH3 Source
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144 S18T012145	NH3 Source
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147 S18T012148	NH3 Source
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX) MOM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LuLolder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	3/26/18	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sroufe	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29)	S18T012234	NH3 Source
		S18T012235	
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29)	S18T012237	NH3 Source
		S18T012238	
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29)	S18T012240	NH3 Source
		S18T012241	
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29)	S18T012243	NH3 Source
		S18T012244	
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29)	S18T012246	NH3 Source
		S18T012247	
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29)	S18T012249	NH3 Source
		S18T012250	
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29)	S18T012252	NH3 Source
		S18T012253	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

3/29/18

S18T01

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRET GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRET GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	222S M0252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX) 3/20/18		Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

Prepared for:

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April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC(SC) Initials: bhs Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Acetonitrile 80 Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury: ~~80~~ 80		Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DUDSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132 S18T012133	NH3 Source
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135 S18T012136	NH3 Source
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138 S18T012139	NH3 Source
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141 S18T012142	NH3 Source
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144 S18T012145	NH3 Source
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147 S18T012148	NH3 Source
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX) MOM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LLolder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	3/26/18	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sorgen	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29) S18T012234 S18T012235	NH3 Source
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29) S18T012237 S18T012238	NH3 Source
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29) S18T012240 S18T012241	NH3 Source
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29) S18T012243 S18T012244	NH3 Source
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29) S18T012246 S18T012247	NH3 Source
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29) S18T012249 S18T012250	NH3 Source
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29) S18T012252 S18T012253	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51) 3/29/18	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX) 3/20/18		Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

Prepared for:

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April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1020 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC/SC Initials: BLS Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Acetonitrile 80 Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury: ~~80~~ 80		Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DUDSON	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132	NH3 Source
	S18T012133	
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135	NH3 Source
	S18T012136	
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138	NH3 Source
	S18T012139	
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141	NH3 Source
	S18T012142	
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144	NH3 Source
	S18T012145	
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147	NH3 Source
	S18T012148	
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	3/26/18	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LuLolder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	3/26/18	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sroufe	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29)	S18T012234	NH3 Source
		S18T012235	
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29)	S18T012237	NH3 Source
		S18T012238	
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29)	S18T012240	NH3 Source
		S18T012241	
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29)	S18T012243	NH3 Source
		S18T012244	
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29)	S18T012246	NH3 Source
		S18T012247	
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29)	S18T012249	NH3 Source
		S18T012250	
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29)	S18T012252	NH3 Source
		S18T012253	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51) 3/29/18	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	110252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX)		Nitrosamines Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

Prepared for:

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April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC/SC Initials: BLS Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Acetonitrile 80 Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury: ~~80~~ 80		Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DAVIDSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132 S18T012133	NH3 Source
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135 S18T012136	NH3 Source
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138 S18T012139	NH3 Source
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141 S18T012142	NH3 Source
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144 S18T012145	NH3 Source
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147 S18T012148	NH3 Source
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX) MOM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LuLolder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX) VDM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sorgen	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29) S18T012234 S18T012235	NH3 Source
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29) S18T012237 S18T012238	NH3 Source
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29) S18T012240 S18T012241	NH3 Source
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29) S18T012243 S18T012244	NH3 Source
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29) S18T012246 S18T012247	NH3 Source
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29) S18T012249 S18T012250	NH3 Source
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29) S18T012252 S18T012253	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

3/29/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRET GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRET GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	110252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX) 3/20/18		Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

Prepared for:

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Washington River Protection
Solutions, Inc.
P.O. Box 850
Richland, WA 99352
509-376-0737

Prepared by:

WAI Hanford Laboratory
1955 Jadwin Ave, Suite 330
Richland, WA 99354
509-373-3240

April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC(SC) Initials: bhs Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury:	~~80~~ 80	Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

Acetonitrile 80

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DAVIDSON	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132 S18T012133	NH3 Source
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135 S18T012136	NH3 Source
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138 S18T012139	NH3 Source
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141 S18T012142	NH3 Source
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144 S18T012145	NH3 Source
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147 S18T012148	NH3 Source
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX) MOM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LuLolder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	3/26/18	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sorgen	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29)	S18T012234	NH3 Source
		S18T012235	
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29)	S18T012237	NH3 Source
		S18T012238	
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29)	S18T012240	NH3 Source
		S18T012241	
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29)	S18T012243	NH3 Source
		S18T012244	
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29)	S18T012246	NH3 Source
		S18T012247	
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29)	S18T012249	NH3 Source
		S18T012250	
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29)	S18T012252	NH3 Source
		S18T012253	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51) 3/29/18	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	2M0252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX)		Nitrosamines Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

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April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

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Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

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Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC(SC) Initials: bhs Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury:	~~80~~ 80	Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

Acetonitrile 80

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DUDSON	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132 S18T012133	NH3 Source
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135 S18T012136	NH3 Source
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138 S18T012139	NH3 Source
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141 S18T012142	NH3 Source
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144 S18T012145	NH3 Source
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147 S18T012148	NH3 Source
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX) MOM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LuLolder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX) VDM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

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INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Strong	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29) S18T012234 S18T012235	NH3 Source
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29) S18T012237 S18T012238	NH3 Source
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29) S18T012240 S18T012241	NH3 Source
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29) S18T012243 S18T012244	NH3 Source
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29) S18T012246 S18T012247	NH3 Source
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29) S18T012249 S18T012250	NH3 Source
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29) S18T012252 S18T012253	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51) 3/29/18	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	222S	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX)		Nitrosamines Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

FINAL REPORT ON AMMONIA VAPOR TUBES FOR CARTRIDGE EVALUATION COLLECTED March 23-24, 2018

Document No.: 20180917 Rev. 0

Philip R. Bouslaugh
WAI Hanford Laboratory

Date Published
April 25, 2018

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April 25, 2018
Philip R. Bouslaugh, WHL Project Coordinator

NARRATIVE

**FINAL REPORT ON AMMONIA VAPOR TUBES
FOR CARTRIDGE EVALUATION
COLLECTED March 23-24, 2018**

This final report presents the results of eighty ammonia vapor tubes received at the 222-S Laboratory on March 26, 2018, in good condition and with adequate paperwork. The samples were logged into sample delivery group 20180917.

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. 4-0	LA-503-157, Rev. 2-8

ANALYTICAL SUMMARY

The vapor tubes were tested for ammonia, as specified on the chain of custody. Standard laboratory procedures for ion chromatography were followed as well as the requirements in WHL-MP-1029, *WHL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* (QAPP). Program specific work authorization instructions have been provided for WRPS IH sample analysis through verbal and electronic communication with the customer point of contact, and are kept as a record by the laboratory. When applicable, any client communication specific to the samples in this report will be included herein. All quality control criteria in the QAPP were met.

The measurement uncertainty was estimated based on the historical behavior of laboratory control samples (LCS). The results of 373 LCS determinations indicate a mean recovery of 98% with a standard deviation of 3.3%. Statistical process control limits for the LCS are 83-112%. The overall estimate of uncertainty is 6.7%, with coverage factor (k) = 2.

Due to background levels of ammonium (or interfering compounds) that are typically present in the media used in the sorbent tubes for collecting the vapor samples, positive results are obtained for the preparation blank. Laboratories typically correct the LCS and all field samples for these background levels, when detected. However, per agreement with the customer, no blank subtraction was performed. The client-requested reporting limit is 10 µg per sample, which makes the analysis of additional blanks and subsequent blank subtraction unnecessary. It is the laboratory's opinion that including the media contribution, which is well below the client's

requested reporting limit, provides results that are more conservative than when blank subtractions are performed.

Forty-four out of the eighty ammonia results for sample group 20180917 were above the reporting limit of 10 µg per sample.

Attachment 1

DATA SUMMARY REPORT

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-SD1-BA-EF	Total	S18T012071	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Front Resin	S18T012072	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-SD1-BA-EF	Back Resin	S18T012073	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Total	S18T012074	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Front Resin	S18T012075	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ba-in	Back Resin	S18T012076	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Total	S18T012077	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Front Resin	S18T012078	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-ef	Back Resin	S18T012079	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Total	S18T012080	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Front Resin	S18T012081	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-bl-in	Back Resin	S18T012082	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Total	S18T012083	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Front Resin	S18T012084	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-1	Back Resin	S18T012085	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Total	S18T012086	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Front Resin	S18T012087	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-2	Back Resin	S18T012088	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Total	S18T012107	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Front Resin	S18T012108	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-3	Back Resin	S18T012109	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Total	S18T012110	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Front Resin	S18T012111	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-4	Back Resin	S18T012112	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Total	S18T012113	Ammonia	ug/sample	n/a	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Front Resin	S18T012114	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-5	Back Resin	S18T012115	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-6	Total	S18T012116	Ammonia	ug/sample	n/a	<10.0	18.6	10.0
18-02348-7-sd1-ef-6	Front Resin	S18T012117	Ammonia	ug/sample	100	<10.0	18.0	10.0
18-02348-7-sd1-ef-6	Back Resin	S18T012118	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-7	Total	S18T012119	Ammonia	ug/sample	n/a	<10.0	30.3	10.0
18-02348-7-sd1-ef-7	Front Resin	S18T012120	Ammonia	ug/sample	100	<10.0	29.8	10.0
18-02348-7-sd1-ef-7	Back Resin	S18T012121	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-ef-8	Total	S18T012122	Ammonia	ug/sample	n/a	<10.0	53.8	10.0
18-02348-7-sd1-ef-8	Front Resin	S18T012123	Ammonia	ug/sample	100	<10.0	53.2	10.0
18-02348-7-sd1-ef-8	Back Resin	S18T012124	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-1	Total	S18T012125	Ammonia	ug/sample	n/a	<10.0	365	10.0
18-02348-7-sd1-in-1	Front Resin	S18T012126	Ammonia	ug/sample	100	<10.0	364	10.0
18-02348-7-sd1-in-1	Back Resin	S18T012127	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-2	Total	S18T012128	Ammonia	ug/sample	n/a	<10.0	408	10.0
18-02348-7-sd1-in-2	Front Resin	S18T012129	Ammonia	ug/sample	100	<10.0	408	10.0
18-02348-7-sd1-in-2	Back Resin	S18T012130	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-3	Total	S18T012131	Ammonia	ug/sample	n/a	<10.0	409	10.0
18-02348-7-sd1-in-3	Front Resin	S18T012132	Ammonia	ug/sample	100	<10.0	409	10.0
18-02348-7-sd1-in-3	Back Resin	S18T012133	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-4	Total	S18T012134	Ammonia	ug/sample	n/a	<10.0	306	10.0
18-02348-7-sd1-in-4	Front Resin	S18T012135	Ammonia	ug/sample	100	<10.0	306	10.0
18-02348-7-sd1-in-4	Back Resin	S18T012136	Ammonia	ug/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-5	Total	S18T012137	Ammonia	ug/sample	n/a	<10.0	274	10.0
18-02348-7-sd1-in-5	Front Resin	S18T012138	Ammonia	ug/sample	100	<10.0	273	10.0
18-02348-7-sd1-in-5	Back Resin	S18T012139	Ammonia	ug/sample	100	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02348-7-sd1-in-6	Total	S18T012140	Ammonia	µg/sample	n/a	<10.0	362	10.0
18-02348-7-sd1-in-6	Front Resin	S18T012141	Ammonia	µg/sample	100	<10.0	362	10.0
18-02348-7-sd1-in-6	Back Resin	S18T012142	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-7	Total	S18T012143	Ammonia	µg/sample	n/a	<10.0	304	10.0
18-02348-7-sd1-in-7	Front Resin	S18T012144	Ammonia	µg/sample	100	<10.0	303	10.0
18-02348-7-sd1-in-7	Back Resin	S18T012145	Ammonia	µg/sample	100	<10.0	<10.0	10.0
18-02348-7-sd1-in-8	Total	S18T012146	Ammonia	µg/sample	n/a	<10.0	231	10.0
18-02348-7-sd1-in-8	Front Resin	S18T012147	Ammonia	µg/sample	94.1	<10.0	230	10.0
18-02348-7-sd1-in-8	Back Resin	S18T012148	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Total	S18T012149	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Front Resin	S18T012150	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-sc1-ba-ef	Back Resin	S18T012151	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BA-IN	Total	S18T012152	Ammonia	µg/sample	n/a	<10.0	10.6	10.0
18-02349-7-SC1-BA-IN	Front Resin	S18T012153	Ammonia	µg/sample	94.1	<10.0	10.1	10.0
18-02349-7-SC1-BA-IN	Back Resin	S18T012154	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Total	S18T012155	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Front Resin	S18T012156	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-EF	Back Resin	S18T012157	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Total	S18T012158	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Front Resin	S18T012159	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-BL-IN	Back Resin	S18T012160	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Total	S18T012161	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Front Resin	S18T012162	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-1	Back Resin	S18T012163	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Total	S18T012164	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Front Resin	S18T012165	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-2	Back Resin	S18T012166	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Total	S18T012167	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Front Resin	S18T012168	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-3	Back Resin	S18T012169	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Total	S18T012170	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Front Resin	S18T012171	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-4	Back Resin	S18T012172	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Total	S18T012173	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Front Resin	S18T012174	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-5	Back Resin	S18T012175	Ammonia	µg/sample	94.1	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Total	S18T012176	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Front Resin	S18T012177	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-6	Back Resin	S18T012178	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Total	S18T012179	Ammonia	µg/sample	n/a	<10.0	10.3	10.0
18-02349-7-SC1-EF-7	Front Resin	S18T012180	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-7	Back Resin	S18T012181	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-EF-8	Total	S18T012182	Ammonia	µg/sample	n/a	<10.0	19.2	10.0
18-02349-7-SC1-EF-8	Front Resin	S18T012183	Ammonia	µg/sample	98.6	<10.0	18.5	10.0
18-02349-7-SC1-EF-8	Back Resin	S18T012184	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-1	Total	S18T012185	Ammonia	µg/sample	n/a	<10.0	314	10.0
18-02349-7-SC1-IN-1	Front Resin	S18T012186	Ammonia	µg/sample	98.6	<10.0	313	10.0
18-02349-7-SC1-IN-1	Back Resin	S18T012187	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-2	Total	S18T012188	Ammonia	µg/sample	n/a	<10.0	343	10.0
18-02349-7-SC1-IN-2	Front Resin	S18T012189	Ammonia	µg/sample	98.6	<10.0	343	10.0
18-02349-7-SC1-IN-2	Back Resin	S18T012190	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02349-7-SC1-IN-3	Total	S18T012191	Ammonia	µg/sample	n/a	<10.0	370	10.0
18-02349-7-SC1-IN-3	Front Resin	S18T012192	Ammonia	µg/sample	98.6	<10.0	369	10.0
18-02349-7-SC1-IN-3	Back Resin	S18T012193	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-4	Total	S18T012194	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02349-7-SC1-IN-4	Front Resin	S18T012195	Ammonia	µg/sample	98.6	<10.0	352	10.0
18-02349-7-SC1-IN-4	Back Resin	S18T012196	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-5	Total	S18T012197	Ammonia	µg/sample	n/a	<10.0	106	10.0
18-02349-7-SC1-IN-5	Front Resin	S18T012198	Ammonia	µg/sample	98.6	<10.0	105	10.0
18-02349-7-SC1-IN-5	Back Resin	S18T012199	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-6	Total	S18T012200	Ammonia	µg/sample	n/a	<10.0	360	10.0
18-02349-7-SC1-IN-6	Front Resin	S18T012201	Ammonia	µg/sample	98.6	<10.0	360	10.0
18-02349-7-SC1-IN-6	Back Resin	S18T012202	Ammonia	µg/sample	98.6	<10.0	<10.0	10.0
18-02349-7-SC1-IN-7	Total	S18T012203	Ammonia	µg/sample	n/a	<10.0	300	10.0
18-02349-7-SC1-IN-7	Front Resin	S18T012204	Ammonia	µg/sample	99.9	<10.0	300	10.0
18-02349-7-SC1-IN-7	Back Resin	S18T012205	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02349-7-SC1-IN-8	Total	S18T012206	Ammonia	µg/sample	n/a	<10.0	334	10.0
18-02349-7-SC1-IN-8	Front Resin	S18T012207	Ammonia	µg/sample	99.9	<10.0	334	10.0
18-02349-7-SC1-IN-8	Back Resin	S18T012208	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Total	S18T012209	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Front Resin	S18T012210	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-EF	Back Resin	S18T012211	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Total	S18T012212	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Front Resin	S18T012213	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BA-IN	Back Resin	S18T012214	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Total	S18T012215	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Front Resin	S18T012216	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-EF	Back Resin	S18T012217	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Total	S18T012218	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Front Resin	S18T012219	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-BL-IN	Back Resin	S18T012220	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Total	S18T012221	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Front Resin	S18T012222	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-1	Back Resin	S18T012223	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Total	S18T012224	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Front Resin	S18T012225	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-2	Back Resin	S18T012226	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Total	S18T012227	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Front Resin	S18T012228	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-3	Back Resin	S18T012229	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Total	S18T012230	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Front Resin	S18T012231	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-4	Back Resin	S18T012232	Ammonia	µg/sample	99.9	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Total	S18T012233	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Front Resin	S18T012234	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-5	Back Resin	S18T012235	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Total	S18T012236	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Front Resin	S18T012237	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-6	Back Resin	S18T012238	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Total	S18T012239	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Front Resin	S18T012240	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-7	Back Resin	S18T012241	Ammonia	µg/sample	101	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02350-8-TL1-EF-8	Total	S18T012242	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Front Resin	S18T012243	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-EF-8	Back Resin	S18T012244	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-1	Total	S18T012245	Ammonia	µg/sample	n/a	<10.0	353	10.0
18-02350-8-TL1-IN-1	Front Resin	S18T012246	Ammonia	µg/sample	101	<10.0	352	10.0
18-02350-8-TL1-IN-1	Back Resin	S18T012247	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-2	Total	S18T012248	Ammonia	µg/sample	n/a	<10.0	293	10.0
18-02350-8-TL1-IN-2	Front Resin	S18T012249	Ammonia	µg/sample	101	<10.0	292	10.0
18-02350-8-TL1-IN-2	Back Resin	S18T012250	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-3	Total	S18T012251	Ammonia	µg/sample	n/a	<10.0	321	10.0
18-02350-8-TL1-IN-3	Front Resin	S18T012252	Ammonia	µg/sample	101	<10.0	321	10.0
18-02350-8-TL1-IN-3	Back Resin	S18T012253	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-4	Total	S18T012254	Ammonia	µg/sample	n/a	<10.0	431	10.0
18-02350-8-TL1-IN-4	Front Resin	S18T012255	Ammonia	µg/sample	101	<10.0	430	10.0
18-02350-8-TL1-IN-4	Back Resin	S18T012256	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-5	Total	S18T012257	Ammonia	µg/sample	n/a	<10.0	386	10.0
18-02350-8-TL1-IN-5	Front Resin	S18T012258	Ammonia	µg/sample	101	<10.0	385	10.0
18-02350-8-TL1-IN-5	Back Resin	S18T012259	Ammonia	µg/sample	101	<10.0	<10.0	10.0
18-02350-8-TL1-IN-6	Total	S18T012260	Ammonia	µg/sample	n/a	<10.0	391	10.0
18-02350-8-TL1-IN-6	Front Resin	S18T012261	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02350-8-TL1-IN-6	Back Resin	S18T012262	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-7	Total	S18T012263	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02350-8-TL1-IN-7	Front Resin	S18T012264	Ammonia	µg/sample	99.1	<10.0	408	10.0
18-02350-8-TL1-IN-7	Back Resin	S18T012265	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02350-8-TL1-IN-8	Total	S18T012266	Ammonia	µg/sample	n/a	<10.0	389	10.0
18-02350-8-TL1-IN-8	Front Resin	S18T012267	Ammonia	µg/sample	99.1	<10.0	389	10.0
18-02350-8-TL1-IN-8	Back Resin	S18T012268	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Total	S18T012269	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Front Resin	S18T012270	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-EF	Back Resin	S18T012271	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Total	S18T012272	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Front Resin	S18T012273	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BA-IN	Back Resin	S18T012274	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Total	S18T012275	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Front Resin	S18T012276	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-EF	Back Resin	S18T012277	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Total	S18T012278	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Front Resin	S18T012279	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-BL-IN	Back Resin	S18T012280	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Total	S18T012281	Ammonia	µg/sample	n/a	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Front Resin	S18T012282	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-1	Back Resin	S18T012283	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-2	Total	S18T012284	Ammonia	µg/sample	n/a	<10.0	14.8	10.0
18-02351-8-TL2-EF-2	Front Resin	S18T012285	Ammonia	µg/sample	99.1	<10.0	14.2	10.0
18-02351-8-TL2-EF-2	Back Resin	S18T012286	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-3	Total	S18T012287	Ammonia	µg/sample	n/a	<10.0	59.8	10.0
18-02351-8-TL2-EF-3	Front Resin	S18T012289	Ammonia	µg/sample	99.1	<10.0	59.2	10.0
18-02351-8-TL2-EF-3	Back Resin	S18T012290	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0
18-02351-8-TL2-EF-4	Total	S18T012295	Ammonia	µg/sample	n/a	<10.0	130	10.0
18-02351-8-TL2-EF-4	Front Resin	S18T012298	Ammonia	µg/sample	98.8	<10.0	129	10.0
18-02351-8-TL2-EF-4	Back Resin	S18T012299	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0

DATA SUMMARY REPORT FOR SAMPLE GROUP 20180917

Customer Sample ID	Vapor Tube Portion	Laboratory Sample ID	Analyte	Result Unit	Standard % Recovery	Blank	Result	Reporting Limit
18-02351-8-TL2-EF-5	Total	S18T012304	Ammonia	µg/sample	n/a	<10.0	164	10.0
18-02351-8-TL2-EF-5	Front Resin	S18T012305	Ammonia	µg/sample	98.8	<10.0	164	10.0
18-02351-8-TL2-EF-5	Back Resin	S18T012306	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-6	Total	S18T012307	Ammonia	µg/sample	n/a	<10.0	143	10.0
18-02351-8-TL2-EF-6	Front Resin	S18T012308	Ammonia	µg/sample	98.8	<10.0	143	10.0
18-02351-8-TL2-EF-6	Back Resin	S18T012309	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-7	Total	S18T012310	Ammonia	µg/sample	n/a	<10.0	205	10.0
18-02351-8-TL2-EF-7	Front Resin	S18T012311	Ammonia	µg/sample	98.8	<10.0	204	10.0
18-02351-8-TL2-EF-7	Back Resin	S18T012312	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-EF-8	Total	S18T012313	Ammonia	µg/sample	n/a	<10.0	251	10.0
18-02351-8-TL2-EF-8	Front Resin	S18T012314	Ammonia	µg/sample	98.8	<10.0	250	10.0
18-02351-8-TL2-EF-8	Back Resin	S18T012315	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-1	Total	S18T012316	Ammonia	µg/sample	n/a	<10.0	373	10.0
18-02351-8-TL2-IN-1	Front Resin	S18T012323	Ammonia	µg/sample	98.8	<10.0	372	10.0
18-02351-8-TL2-IN-1	Back Resin	S18T012324	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-2	Total	S18T012325	Ammonia	µg/sample	n/a	<10.0	414	10.0
18-02351-8-TL2-IN-2	Front Resin	S18T012326	Ammonia	µg/sample	98.8	<10.0	413	10.0
18-02351-8-TL2-IN-2	Back Resin	S18T012327	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-3	Total	S18T012328	Ammonia	µg/sample	n/a	<10.0	410	10.0
18-02351-8-TL2-IN-3	Front Resin	S18T012329	Ammonia	µg/sample	98.8	<10.0	409	10.0
18-02351-8-TL2-IN-3	Back Resin	S18T012330	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-4	Total	S18T012331	Ammonia	µg/sample	n/a	<10.0	381	10.0
18-02351-8-TL2-IN-4	Front Resin	S18T012332	Ammonia	µg/sample	98.8	<10.0	381	10.0
18-02351-8-TL2-IN-4	Back Resin	S18T012333	Ammonia	µg/sample	98.8	<10.0	<10.0	10.0
18-02351-8-TL2-IN-5	Total	S18T012338	Ammonia	µg/sample	n/a	<10.0	409	10.0
18-02351-8-TL2-IN-5	Front Resin	S18T012339	Ammonia	µg/sample	99.6	<10.0	409	10.0
18-02351-8-TL2-IN-5	Back Resin	S18T012340	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-6	Total	S18T012341	Ammonia	µg/sample	n/a	<10.0	385	10.0
18-02351-8-TL2-IN-6	Front Resin	S18T012342	Ammonia	µg/sample	99.6	<10.0	385	10.0
18-02351-8-TL2-IN-6	Back Resin	S18T012343	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-7	Total	S18T012346	Ammonia	µg/sample	n/a	<10.0	413	10.0
18-02351-8-TL2-IN-7	Front Resin	S18T012347	Ammonia	µg/sample	99.6	<10.0	412	10.0
18-02351-8-TL2-IN-7	Back Resin	S18T012348	Ammonia	µg/sample	99.6	<10.0	<10.0	10.0
18-02351-8-TL2-IN-8	Total	S18T012349	Ammonia	µg/sample	n/a	<10.0	390	10.0
18-02351-8-TL2-IN-8	Front Resin	S18T012350	Ammonia	µg/sample	99.1	<10.0	390	10.0
18-02351-8-TL2-IN-8	Back Resin	S18T012351	Ammonia	µg/sample	99.1	<10.0	<10.0	10.0

Attachment 2

ANALYSIS DATE REPORT

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012072	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:20
S18T012073	18-02348-7-SD1-BA-EF	Ammonia	03/28/2018 17:30	03/29/2018 18:34
S18T012075	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 18:49
S18T012076	18-02348-7-sd1-ba-in	Ammonia	03/28/2018 17:30	03/29/2018 19:04
S18T012078	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:18
S18T012079	18-02348-7-sd1-bl-ef	Ammonia	03/28/2018 17:30	03/29/2018 19:33
S18T012081	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:16
S18T012082	18-02348-7-sd1-bl-in	Ammonia	03/28/2018 17:30	03/29/2018 20:31
S18T012084	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 20:46
S18T012085	18-02348-7-sd1-ef-1	Ammonia	03/28/2018 17:30	03/29/2018 21:00
S18T012087	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:15
S18T012088	18-02348-7-sd1-ef-2	Ammonia	03/28/2018 17:30	03/29/2018 21:29
S18T012108	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:44
S18T012109	18-02348-7-sd1-ef-3	Ammonia	03/28/2018 17:30	03/29/2018 21:59
S18T012111	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:13
S18T012112	18-02348-7-sd1-ef-4	Ammonia	03/28/2018 17:30	03/29/2018 22:28
S18T012114	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:11
S18T012115	18-02348-7-sd1-ef-5	Ammonia	03/28/2018 17:30	03/29/2018 23:26
S18T012117	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:41
S18T012118	18-02348-7-sd1-ef-6	Ammonia	03/28/2018 17:30	03/29/2018 23:55
S18T012120	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 01:52
S18T012121	18-02348-7-sd1-ef-7	Ammonia	03/28/2018 17:30	03/30/2018 02:06
S18T012123	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:21
S18T012124	18-02348-7-sd1-ef-8	Ammonia	03/28/2018 17:30	03/30/2018 02:36
S18T012126	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 07:42
S18T012127	18-02348-7-sd1-in-1	Ammonia	03/28/2018 17:30	03/30/2018 03:05
S18T012129	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 07:56
S18T012130	18-02348-7-sd1-in-2	Ammonia	03/28/2018 17:30	03/30/2018 04:03
S18T012132	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 08:11
S18T012133	18-02348-7-sd1-in-3	Ammonia	03/28/2018 17:30	03/30/2018 04:32
S18T012135	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 08:26
S18T012136	18-02348-7-sd1-in-4	Ammonia	03/28/2018 17:30	03/30/2018 05:01
S18T012138	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 08:40
S18T012139	18-02348-7-sd1-in-5	Ammonia	03/28/2018 17:30	03/30/2018 05:31
S18T012141	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 08:55
S18T012142	18-02348-7-sd1-in-6	Ammonia	03/28/2018 17:30	03/30/2018 06:00
S18T012144	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 09:09
S18T012145	18-02348-7-sd1-in-7	Ammonia	03/28/2018 17:30	03/30/2018 06:58
S18T012147	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	04/02/2018 10:04
S18T012148	18-02348-7-sd1-in-8	Ammonia	03/30/2018 08:00	03/30/2018 16:36
S18T012150	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 16:51
S18T012151	18-02349-7-sc1-ba-ef	Ammonia	03/30/2018 08:00	03/30/2018 17:05
S18T012153	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:20
S18T012154	18-02349-7-SC1-BA-IN	Ammonia	03/30/2018 08:00	03/30/2018 17:34
S18T012156	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:18
S18T012157	18-02349-7-SC1-BL-EF	Ammonia	03/30/2018 08:00	03/30/2018 18:33

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012159	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 18:47
S18T012160	18-02349-7-SC1-BL-IN	Ammonia	03/30/2018 08:00	03/30/2018 19:02
S18T012162	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:16
S18T012163	18-02349-7-SC1-EF-1	Ammonia	03/30/2018 08:00	03/30/2018 19:31
S18T012165	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 19:46
S18T012166	18-02349-7-SC1-EF-2	Ammonia	03/30/2018 08:00	03/30/2018 20:00
S18T012168	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:15
S18T012169	18-02349-7-SC1-EF-3	Ammonia	03/30/2018 08:00	03/30/2018 20:29
S18T012171	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:13
S18T012172	18-02349-7-SC1-EF-4	Ammonia	03/30/2018 08:00	03/30/2018 21:28
S18T012174	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:42
S18T012175	18-02349-7-SC1-EF-5	Ammonia	03/30/2018 08:00	03/30/2018 21:57
S18T012177	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/30/2018 23:53
S18T012178	18-02349-7-SC1-EF-6	Ammonia	03/30/2018 08:00	03/31/2018 00:08
S18T012180	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:23
S18T012181	18-02349-7-SC1-EF-7	Ammonia	03/30/2018 08:00	03/31/2018 00:37
S18T012183	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 00:52
S18T012184	18-02349-7-SC1-EF-8	Ammonia	03/30/2018 08:00	03/31/2018 01:06
S18T012186	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	04/02/2018 10:18
S18T012187	18-02349-7-SC1-IN-1	Ammonia	03/30/2018 08:00	03/31/2018 02:05
S18T012189	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	04/02/2018 10:33
S18T012190	18-02349-7-SC1-IN-2	Ammonia	03/30/2018 08:00	03/31/2018 02:34
S18T012192	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	04/02/2018 10:48
S18T012193	18-02349-7-SC1-IN-3	Ammonia	03/30/2018 08:00	03/31/2018 03:03
S18T012195	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	04/02/2018 11:02
S18T012196	18-02349-7-SC1-IN-4	Ammonia	03/30/2018 08:00	03/31/2018 03:32
S18T012198	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	04/02/2018 11:17
S18T012199	18-02349-7-SC1-IN-5	Ammonia	03/30/2018 08:00	03/31/2018 04:01
S18T012201	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	04/02/2018 11:31
S18T012202	18-02349-7-SC1-IN-6	Ammonia	03/30/2018 08:00	03/31/2018 05:00
S18T012204	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/03/2018 10:25
S18T012205	18-02349-7-SC1-IN-7	Ammonia	03/30/2018 14:00	04/02/2018 15:02
S18T012207	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/03/2018 10:40
S18T012208	18-02349-7-SC1-IN-8	Ammonia	03/30/2018 14:00	04/02/2018 15:31
S18T012210	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 15:45
S18T012211	18-02350-8-TL1-BA-EF	Ammonia	03/30/2018 14:00	04/02/2018 16:00
S18T012213	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:44
S18T012214	18-02350-8-TL1-BA-IN	Ammonia	03/30/2018 14:00	04/02/2018 16:58
S18T012216	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:13
S18T012217	18-02350-8-TL1-BL-EF	Ammonia	03/30/2018 14:00	04/02/2018 17:27
S18T012219	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:42
S18T012220	18-02350-8-TL1-BL-IN	Ammonia	03/30/2018 14:00	04/02/2018 17:57
S18T012222	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:11
S18T012223	18-02350-8-TL1-EF-1	Ammonia	03/30/2018 14:00	04/02/2018 18:26
S18T012225	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:40
S18T012226	18-02350-8-TL1-EF-2	Ammonia	03/30/2018 14:00	04/02/2018 18:55

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012228	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:39
S18T012229	18-02350-8-TL1-EF-3	Ammonia	03/30/2018 14:00	04/02/2018 19:53
S18T012231	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:08
S18T012232	18-02350-8-TL1-EF-4	Ammonia	03/30/2018 14:00	04/02/2018 20:22
S18T012234	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:19
S18T012235	18-02350-8-TL1-EF-5	Ammonia	03/30/2018 14:00	04/02/2018 22:34
S18T012237	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 22:48
S18T012238	18-02350-8-TL1-EF-6	Ammonia	03/30/2018 14:00	04/02/2018 23:03
S18T012240	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:17
S18T012241	18-02350-8-TL1-EF-7	Ammonia	03/30/2018 14:00	04/02/2018 23:32
S18T012243	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:16
S18T012244	18-02350-8-TL1-EF-8	Ammonia	03/30/2018 14:00	04/03/2018 00:30
S18T012246	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 10:54
S18T012247	18-02350-8-TL1-IN-1	Ammonia	03/30/2018 14:00	04/03/2018 00:59
S18T012249	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 11:09
S18T012250	18-02350-8-TL1-IN-2	Ammonia	03/30/2018 14:00	04/03/2018 01:29
S18T012252	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 11:24
S18T012253	18-02350-8-TL1-IN-3	Ammonia	03/30/2018 14:00	04/03/2018 01:58
S18T012255	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 11:38
S18T012256	18-02350-8-TL1-IN-4	Ammonia	03/30/2018 14:00	04/03/2018 02:27
S18T012258	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 11:53
S18T012259	18-02350-8-TL1-IN-5	Ammonia	03/30/2018 14:00	04/03/2018 03:25
S18T012261	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/10/2018 11:15
S18T012262	18-02350-8-TL1-IN-6	Ammonia	04/09/2018 08:55	04/09/2018 18:55
S18T012264	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/10/2018 11:29
S18T012265	18-02350-8-TL1-IN-7	Ammonia	04/09/2018 08:55	04/09/2018 19:24
S18T012267	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/10/2018 11:44
S18T012268	18-02350-8-TL1-IN-8	Ammonia	04/09/2018 08:55	04/09/2018 19:53
S18T012270	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:37
S18T012271	18-02351-8-TL2-BA-EF	Ammonia	04/09/2018 08:55	04/09/2018 20:51
S18T012273	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:06
S18T012274	18-02351-8-TL2-BA-IN	Ammonia	04/09/2018 08:55	04/09/2018 21:20
S18T012276	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:35
S18T012277	18-02351-8-TL2-BL-EF	Ammonia	04/09/2018 08:55	04/09/2018 21:50
S18T012279	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:04
S18T012280	18-02351-8-TL2-BL-IN	Ammonia	04/09/2018 08:55	04/09/2018 22:19
S18T012282	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:33
S18T012283	18-02351-8-TL2-EF-1	Ammonia	04/09/2018 08:55	04/09/2018 22:48
S18T012285	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:32
S18T012286	18-02351-8-TL2-EF-2	Ammonia	04/09/2018 08:55	04/09/2018 23:46
S18T012289	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:01
S18T012290	18-02351-8-TL2-EF-3	Ammonia	04/09/2018 08:55	04/10/2018 00:15
S18T012298	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 11:58
S18T012299	18-02351-8-TL2-EF-4	Ammonia	04/09/2018 08:55	04/10/2018 02:27
S18T012305	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 12:13
S18T012306	18-02351-8-TL2-EF-5	Ammonia	04/09/2018 08:55	04/10/2018 02:56

ANALYSIS DATE REPORT FOR SAMPLE GROUP 20180917

Laboratory Sample ID	Customer Sample ID	Method	Preparation Date	Analysis Date
S18T012308	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 12:28
S18T012309	18-02351-8-TL2-EF-6	Ammonia	04/09/2018 08:55	04/10/2018 03:25
S18T012311	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 12:42
S18T012312	18-02351-8-TL2-EF-7	Ammonia	04/09/2018 08:55	04/10/2018 04:23
S18T012314	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 13:26
S18T012315	18-02351-8-TL2-EF-8	Ammonia	04/09/2018 08:55	04/10/2018 04:52
S18T012323	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 13:40
S18T012324	18-02351-8-TL2-IN-1	Ammonia	04/09/2018 08:55	04/10/2018 05:22
S18T012326	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 13:55
S18T012327	18-02351-8-TL2-IN-2	Ammonia	04/09/2018 08:55	04/10/2018 05:51
S18T012329	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 14:10
S18T012330	18-02351-8-TL2-IN-3	Ammonia	04/09/2018 08:55	04/10/2018 06:20
S18T012332	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 14:24
S18T012333	18-02351-8-TL2-IN-4	Ammonia	04/09/2018 08:55	04/10/2018 07:18
S18T012339	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 09:42
S18T012340	18-02351-8-TL2-IN-5	Ammonia	04/11/2018 08:50	04/12/2018 04:11
S18T012342	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 09:57
S18T012343	18-02351-8-TL2-IN-6	Ammonia	04/11/2018 08:50	04/12/2018 04:40
S18T012347	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 10:11
S18T012348	18-02351-8-TL2-IN-7	Ammonia	04/11/2018 08:50	04/12/2018 05:38
S18T012350	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/17/2018 05:48
S18T012351	18-02351-8-TL2-IN-8	Ammonia	04/16/2018 08:55	04/16/2018 17:10

Attachment 3

RECEIPT PAPERWORK

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1000 Group No.: 20180917

Sample Custodian: Don Sorenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC(SC) Initials: BLS Date: 3-26-18

If No, comment on communication and resolution:

WRPS Ship 600

Run 240

WHL NH3 80 Hg 80

Number of IH Samples Received:

Aldehyde Screen:	80	Amines:	80	Ammonia:	80	Aromatic HC:		Asbestos:	
Beryllium:		Be-Bulk:		Be-Filter:		Be-Wipe:		1, 3-Butadiene:	160
Formaldehyde:		Furans:	80	Mercury:	~~80~~ 80	Methanol:	40	Nitrosamines:	80
Nitrous Oxide:		Pyridines:	80	SVOA:	80	VOA:	80	Other-IH:	

Acetonitrile 80

A-6005-302 (REV 5)

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012071	18-02348-7-SD1-BA-EF / CISA (SKC 226-29) S18T012072 S18T012073	NH3 Source
S18T012074	18-02348-7-SD1-BA-IN / CISA (SKC 226-29) S18T012075 S18T012076	NH3 Source
S18T012077	18-02348-7-SD1-BL-EF / CISA (SKC 226-29) S18T012078 S18T012079	NH3 Source
S18T012080	18-02348-7-SD1-BL-IN / CISA (SKC 226-29) S18T012081 S18T012082	NH3 Source
S18T012083	18-02348-7-SD1-EF-1 / CISA (SKC 226-29) S18T012084 S18T012085	NH3 Source
S18T012086	18-02348-7-SD1-EF-2 / CISA (SKC 226-29) S18T012087 S18T012088	NH3 Source
S18T012107	18-02348-7-SD1-EF-3 / CISA (SKC 226-29) S18T012108 S18T012109	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012110	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	S18T012111	NH3 Source
		S18T012112	
S18T012113	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	S18T012114	NH3 Source
		S18T012115	
S18T012116	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	S18T012117	NH3 Source
		S18T012118	
S18T012119	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	S18T012120	NH3 Source
		S18T012121	
S18T012122	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	S18T012123	NH3 Source
		S18T012124	
S18T012125	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	S18T012126	NH3 Source
		S18T012127	
S18T012128	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	S18T012129	NH3 Source
		S18T012130	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DAVIDSON	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012131	18-02348-7-SD1-IN-3 / CISA (SKC 226-29) S18T012132	NH3 Source
	S18T012133	
S18T012134	18-02348-7-SD1-IN-4 / CISA (SKC 226-29) S18T012135	NH3 Source
	S18T012136	
S18T012137	18-02348-7-SD1-IN-5 / CISA (SKC 226-29) S18T012138	NH3 Source
	S18T012139	
S18T012140	18-02348-7-SD1-IN-6 / CISA (SKC 226-29) S18T012141	NH3 Source
	S18T012142	
S18T012143	18-02348-7-SD1-IN-7 / CISA (SKC 226-29) S18T012144	NH3 Source
	S18T012145	
S18T012146	18-02348-7-SD1-IN-8 / CISA (SKC 226-29) S18T012147	NH3 Source
	S18T012148	
	~~18-02348-12-SD~~1-BA-EF / Thermosorb-N (TDX) MOM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012149	18-02349-7-SC1-BA-EF / CISA (SKC 226-29) S18T012150 S18T012151	NH3 Source
S18T012152	18-02349-7-SC1-BA-IN / CISA (SKC 226-29) S18T012153 S18T012154	NH3 Source
S18T012155	18-02349-7-SC1-BL-EF / CISA (SKC 226-29) S18T012156 S18T012157	NH3 Source
S18T012158	18-02349-7-SC1-BL-IN / CISA (SKC 226-29) S18T012159 S18T012160	NH3 Source
S18T012161	18-02349-7-SC1-EF-1 / CISA (SKC 226-29) S18T012162 S18T012163	NH3 Source
S18T012164	18-02349-7-SC1-EF-2 / CISA (SKC 226-29) S18T012165 S18T012166	NH3 Source
S18T012167	18-02349-7-SC1-EF-3 / CISA (SKC 226-29) S18T012168 S18T012169	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012170	18-02349-7-SC1-EF-4 / CISA (SKC 226-29) S18T012171	NH3 Source
	S18T012172	
S18T012173	18-02349-7-SC1-EF-5 / CISA (SKC 226-29) S18T012174	NH3 Source
	S18T012175	
S18T012176	18-02349-7-SC1-EF-6 / CISA (SKC 226-29) S18T012177	NH3 Source
	S18T012178	
S18T012179	18-02349-7-SC1-EF-7 / CISA (SKC 226-29) S18T012180	NH3 Source
	S18T012181	
S18T012182	18-02349-7-SC1-EF-8 / CISA (SKC 226-29) S18T012183	NH3 Source
	S18T012184	
S18T012185	18-02349-7-SC1-IN-1 / CISA (SKC 226-29) S18T012186	NH3 Source
	S18T012187	
S18T012188	18-02349-7-SC1-IN-2 / CISA (SKC 226-29) S18T012189	NH3 Source
	S18T012190	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lulder	3.26.18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012191	18-02349-7-SC1-IN-3 / CISA (SKC 226-29) S18T012192	NH3 Source
	S18T012193	
S18T012194	18-02349-7-SC1-IN-4 / CISA (SKC 226-29) S18T012195	NH3 Source
	S18T012196	
S18T012197	18-02349-7-SC1-IN-5 / CISA (SKC 226-29) S18T012198	NH3 Source
	S18T012199	
S18T012200	18-02349-7-SC1-IN-6 / CISA (SKC 226-29) S18T012201	NH3 Source
	S18T0121202	
S18T012203	18-02349-7-SC1-IN-7 / CISA (SKC 226-29) S18T012204	NH3 Source
	S18T012205	
S18T012206	18-02349-7-SC1-IN-8 / CISA (SKC 226-29) S18T012207	NH3 Source
	S18T012208	
	~~18-02349-12-SC1~~-BA-EF / Thermosorb-N (TDX) VDM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3 26 18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody 20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A	**MSIN:** R1-06		**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012209	18-02350-8-TL1-BA-EF / CISA (SKC 226-29) S18T012210 S18T012211	NH3 Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Stanton	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012212	18-02350-8-TL1-BA-IN / CISA (SKC 226-29) S18T012213 S18T012214	NH3 Source
S18T012215	18-02350-8-TL1-BL-EF / CISA (SKC 226-29) S18T012216 S18T012217	NH3 Source
S18T012218	18-02350-8-TL1-BL-IN / CISA (SKC 226-29) S18T012219 S18T012220	NH3 Source
S18T012221	18-02350-8-TL1-EF-1 / CISA (SKC 226-29) S18T012222 S18T012223	NH3 Source
S18T012224	18-02350-8-TL1-EF-2 / CISA (SKC 226-29) S18T012225 S18T012226	NH3 Source
S18T012227	18-02350-8-TL1-EF-3 / CISA (SKC 226-29) S18T012228 S18T012229	NH3 Source
S18T012230	18-02350-8-TL1-EF-4 / CISA (SKC 226-29) S18T012231 S18T012232	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROSELL	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sroufe	3/26/18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012233	18-02350-8-TL1-EF-5 / CISA (SKC 226-29) S18T012234 S18T012235	NH3 Source
S18T012236	18-02350-8-TL1-EF-6 / CISA (SKC 226-29) S18T012237 S18T012238	NH3 Source
S18T012239	18-02350-8-TL1-EF-7 / CISA (SKC 226-29) S18T012240 S18T012241	NH3 Source
S18T012242	18-02350-8-TL1-EF-8 / CISA (SKC 226-29) S18T012243 S18T012244	NH3 Source
S18T012245	18-02350-8-TL1-IN-1 / CISA (SKC 226-29) S18T012246 S18T012247	NH3 Source
S18T012248	18-02350-8-TL1-IN-2 / CISA (SKC 226-29) S18T012249 S18T012250	NH3 Source
S18T012251	18-02350-8-TL1-IN-3 / CISA (SKC 226-29) S18T012252 S18T012253	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sampler	3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012254	18-02350-8-TL1-IN-4 / CISA (SKC 226-29) S18T012255 S18T012256	NH3 Source
S18T012257	18-02350-8-TL1-IN-5 / CISA (SKC 226-29) S18T012258 S18T012259	NH3 Source
S18T012260	18-02350-8-TL1-IN-6 / CISA (SKC 226-29) S18T012261 S18T012262	NH3 Source
S18T012263	18-02350-8-TL1-IN-7 / CISA (SKC 226-29) S18T012264 S18T012265	NH3 Source
S18T012266	18-02350-8-TL1-IN-8 / CISA (SKC 226-29) S18T012267 S18T012268	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) DO 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Rosell	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/26/18~~	1200
Received By:			3-26-18	1200
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
S18T012269	18-02351-8-TL2-BA-EF / CISA (SKC 226-29) S18T012270 S18T012271	NH3 Source

3/29/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
S18T012272	18-02351-8-TL2-BA-IN / CISA (SKC 226-29) S18T012273 S18T012274	NH3 Source
S18T012275	18-02351-8-TL2-BL-EF / CISA (SKC 226-29) S18T012276 S18T012277	NH3 Source
S18T012278	18-02351-8-TL2-BL-IN / CISA (SKC 226-29) S18T012279 S18T012280	NH3 Source
S18T012281	18-02351-8-TL2-EF-1 / CISA (SKC 226-29) S18T012282 S18T012283	NH3 Source
S18T012284	18-02351-8-TL2-EF-2 / CISA (SKC 226-29) S18T012285 S18T012286	NH3 Source
S18T012287	18-02351-8-TL2-EF-3 / CISA (SKC 226-29) S18T012289 S18T012290	NH3 Source
S18T012295	18-02351-8-TL2-EF-4 / CISA (SKC 226-29) S18T012298 S18T012299	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012304	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	S18T012305	NH3 Source
		S18T012306	
S18T012307	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	S18T012308	NH3 Source
		S18T012309	
S18T012310	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	S18T012311	NH3 Source
		S18T012312	
S18T012313	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	S18T012314	NH3 Source
		S18T012315	
S18T012316	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	S18T012323	NH3 Source
		S18T012324	
S18T012325	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	S18T012326	NH3 Source
		S18T012327	
S18T012328	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	S18T012329	NH3 Source
		S18T012330	

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	2M0252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWIHD - Chain of Custody

20180917 Rev.0

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description		Required Analysis
S18T012331	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	S18T012332	NH3 Source
		S18T012333	
S18T012338	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	S18T012339	NH3 Source
		S18T012340	
S18T012341	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	S18T012342	NH3 Source
		S18T012343	
S18T012346	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	S18T012347	NH3 Source
		S18T012348	
S18T012349	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	S18T012350	NH3 Source
		S18T012351	
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)		Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX) 3/20/18		Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

C.4.9 Aldehydes

ANALYTICAL REPORT

Report Date: April 06, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1808948
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011540** Collected: 03/23/2018
Lab ID: 1808948001 Sampling Location: Cartridge Testing By Received: 03/29/2018
Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.065**	NA	NA	0.050
Acetone	**2.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011541** Collected: 03/23/2018
Lab ID: 1808948002 Sampling Location: Cartridge Testing By Received: 03/29/2018
Method: **EPA TO-11A** Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** Analyzed: 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.20**	NA	NA	0.050
Acetaldehyde	**0.14**	NA	NA	0.050
Acetone	<0.050	NA	NA	0.050

Results Continued on Next Page

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011541** Collected: 03/23/2018
Lab ID: 1808948002 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011542** Collected: 03/23/2018
Lab ID: 1808948003 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**2.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011543** Collected: 03/23/2018
Lab ID: 1808948004 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	<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: **S18T011544** Collected: 03/23/2018
Lab ID: 1808948005 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.15**	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	**0.073**	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: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011545**			Collected: 03/23/2018
Lab ID: 1808948006	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.20**	NA	NA	0.050
Acetone	**1.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011546**			Collected: 03/23/2018
Lab ID: 1808948007	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.21**	NA	NA	0.050
Acetone	**0.72**	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: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011547**			Collected: 03/23/2018
Lab ID: 1808948008	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.22**	NA	NA	0.050
Acetone	**2.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011548**			Collected: 03/23/2018
Lab ID: 1808948009	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.063**	NA	NA	0.050
Acetaldehyde	**0.20**	NA	NA	0.050
Acetone	**1.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011549**			Collected: 03/23/2018
Lab ID: 1808948010	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**0.26**	NA	NA	0.050
Acetone	**1.8**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011550**			Collected: 03/23/2018
Lab ID: 1808948011	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.23**	NA	NA	0.050
Acetaldehyde	**0.23**	NA	NA	0.050
Acetone	**1.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011551**			Collected: 03/23/2018
Lab ID: 1808948012	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**0.17**	NA	NA	0.050
Acetone	**2.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011552**			Collected: 03/23/2018
Lab ID: 1808948013	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.090**	NA	NA	0.050
Acetaldehyde	**0.67**	NA	NA	0.050
Acetone	**2.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.098**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011553**			Collected: 03/23/2018
Lab ID: 1808948014	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.50**	NA	NA	0.050
Acetone	**3.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.098**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011554**			Collected: 03/23/2018
Lab ID: 1808948015	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.49**	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.10**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011555**			Collected: 03/23/2018
Lab ID: 1808948016	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.44**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.091**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.28**	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: **S18T011556**			Collected: 03/23/2018
Lab ID: 1808948017	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.52**	NA	NA	0.050
Acetone	**4.1**	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	**0.29**	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: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011557**			Collected: 03/23/2018
Lab ID: 1808948018	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.51**	NA	NA	0.050
Acetone	**4.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.27**	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: **S18T011558**			Collected: 03/23/2018
Lab ID: 1808948019	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.52**	NA	NA	0.050
Acetone	**4.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.27**	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: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011559** Collected: 03/23/2018
Lab ID: 1808948020 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/02/2018 (211710)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.54**	NA	NA	0.050
Acetone	**4.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.12**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.34**	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: **S18T011560** Collected: 03/23/2018
Lab ID: 1808948021 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**0.13**	NA	NA	0.050
Acetone	**1.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011561**			Collected: 03/23/2018
Lab ID: 1808948022	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**0.15**	NA	NA	0.050
Acetone	**2.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011562**			Collected: 03/23/2018
Lab ID: 1808948023	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**1.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011563** Collected: 03/23/2018
Lab ID: 1808948024 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011564** Collected: 03/23/2018
Lab ID: 1808948025 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.14**	NA	NA	0.050
Acetone	**1.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011565** Collected: 03/23/2018
Lab ID: 1808948026 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.25**	NA	NA	0.050
Acetone	**1.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011566** Collected: 03/23/2018
Lab ID: 1808948027 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.28**	NA	NA	0.050
Acetone	**1.8**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011567**			Collected: 03/23/2018
Lab ID: 1808948028	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.32**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011568**			Collected: 03/23/2018
Lab ID: 1808948029	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.078**	NA	NA	0.050
Acetaldehyde	**0.31**	NA	NA	0.050
Acetone	**2.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011569** Collected: 03/23/2018
Lab ID: 1808948030 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**0.36**	NA	NA	0.050
Acetone	**2.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011570** Collected: 03/23/2018
Lab ID: 1808948031 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.24**	NA	NA	0.050
Acetaldehyde	**0.36**	NA	NA	0.050
Acetone	**0.83**	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: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011571** Collected: 03/23/2018
Lab ID: 1808948032 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.17**	NA	NA	0.050
Acetaldehyde	**0.33**	NA	NA	0.050
Acetone	**1.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011572** Collected: 03/23/2018
Lab ID: 1808948033 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.41**	NA	NA	0.050
Acetone	**5.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.075**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011573** Collected: 03/23/2018
Lab ID: 1808948034 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.32**	NA	NA	0.050
Acetone	**3.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.052**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.18**	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: **S18T011574** Collected: 03/23/2018
Lab ID: 1808948035 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.40**	NA	NA	0.050
Acetone	**5.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.079**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011575**			Collected: 03/23/2018
Lab ID: 1808948036	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.53**	NA	NA	0.050
Acetone	**6.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.28**	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: **S18T011576**			Collected: 03/23/2018
Lab ID: 1808948037	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**0.50**	NA	NA	0.050
Acetone	**6.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.10**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.27**	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: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011577**			Collected: 03/23/2018
Lab ID: 1808948038	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.092**	NA	NA	0.050
Acetaldehyde	**0.52**	NA	NA	0.050
Acetone	**5.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.098**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.27**	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: **S18T011578**			Collected: 03/23/2018
Lab ID: 1808948039	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.18**	NA	NA	0.050
Acetaldehyde	**0.52**	NA	NA	0.050
Acetone	**6.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.086**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.27**	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: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011579** — Collected: 03/23/2018
Lab ID: 1808948040 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: EPA TO-11A — Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) — Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211711)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**0.51**	NA	NA	0.050
Acetone	**6.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.10**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Comments

Quality Control: EPA TO-11A - (HBN: 211710)

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

Quality Control: EPA TO-11A - (HBN: 211711)

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

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

Method	Analyst	Peer Review
EPA TO-11A	/S/ Easton Welcher 04/05/2018 09:24	/S/ Christopher Winter 04/05/2018 11:25
EPA TO-11A	/S/ Easton Welcher 04/05/2018 10:54	/S/ Lyle Edwards 04/06/2018 11:23

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808948**
Client Project ID: 20180931 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808948

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18465 (HBN: 211710)
Analyzed By: Easton Welcher

Blank

LMB: 593701
Analyzed: 04/02/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	0.0786	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	1.12	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: 593702
Analyzed: 04/02/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 593703
Analyzed: 04/02/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Formaldehyde	3.18	3.00	106	87.8	116.8	2.92	97.4	8.52	0.0	20.0
Acetaldehyde	3.28	3.00	109	94.7	110.5	2.93	97.7	11.3	0.0	20.0
Acetone	3.55	3.00	118	69.2	119.9	3.23	108	9.44	0.0	20.0
Acrolein	3.19	3.00	106	83.5	120.2	2.95	98.3	7.82	0.0	20.0
Propionaldehyde	3.22	3.00	107	92.2	117.2	2.95	98.3	8.75	0.0	20.0
Crotonaldehyde	3.15	3.00	105	93.1	114.8	2.95	98.3	6.56	0.0	20.0
Butyraldehyde	3.26	3.00	109	86.6	120.8	2.92	97.3	11.0	0.0	20.0
Benzaldehyde	3.18	3.00	106	96.0	112.3	2.92	97.3	8.52	0.0	20.0
Isovaleraldehyde	3.23	3.00	108	95.4	121.6	2.87	95.7	11.8	0.0	20.0
Valeraldehyde	3.25	3.00	108	85.3	120.4	3.03	101	7.01	0.0	20.0
m,p-Tolualdehyde	3.52	3.00	117	80.0	120.0	3.14	105	11.4	0.0	20.0
o-Tolualdehyde	3.26	3.00	109	91.6	111.4	2.91	97.0	11.3	0.0	20.0
Hexanal	3.27	3.00	109	85.4	127.6	2.84	94.7	14.1	0.0	20.0
2,5-Dimethylbenzaldehyde	3.16	3.00	105	99.6	118.7	3.05	102	3.54	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808948

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18465 (HBN: 211710)
	Prepared By: NA	**Analyzed By:** Easton Welcher

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

Analyst	Peer Review
/S/ Easton Welcher	/S/ Christopher Winter
04/05/2018 09:24	04/05/2018 11:25

Symbols and Definitions

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

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808948

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18466 (HBN: 211711)
Analyzed By: Easton Welcher

Blank

LMB: 593705
Analyzed: 04/03/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	0.0819	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	1.16	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: 593706
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 593707
Analyzed: 04/03/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Formaldehyde	2.99	3.02	98.9	87.8	116.8	2.96	98.0	1.01	0.0	20.0
Acetaldehyde	2.97	3.00	99.0	94.7	110.5	2.95	98.3	0.676	0.0	20.0
Acetone	3.23	3.00	108	69.2	119.9	2.68	89.3	18.6	0.0	20.0
Acrolein	2.98	3.00	99.3	83.5	120.2	2.98	99.3	0.00	0.0	20.0
Propionaldehyde	2.97	3.00	99.0	92.2	117.2	2.94	98.0	1.02	0.0	20.0
Crotonaldehyde	2.98	3.00	99.3	93.1	114.8	2.94	98.0	1.35	0.0	20.0
Butyraldehyde	2.99	3.00	99.7	86.6	120.8	2.97	99.0	0.671	0.0	20.0
Benzaldehyde	2.96	3.00	98.7	96.0	112.3	2.98	99.3	0.673	0.0	20.0
Isovaleraldehyde	2.87	3.00	95.7	95.4	121.6	2.86	95.4	0.251	0.0	20.0
Valeraldehyde	3.03	3.02	100	85.3	120.4	3.01	99.7	0.662	0.0	20.0
m,p-Tolualdehyde	3.20	3.00	107	80.0	120.0	3.17	106	0.942	0.0	20.0
o-Tolualdehyde	2.89	3.00	96.3	91.6	111.4	2.90	96.7	0.345	0.0	20.0
Hexanal	2.87	3.00	95.7	85.4	127.6	2.78	92.7	3.19	0.0	20.0
2,5-Dimethylbenzaldehyde	3.02	2.98	101	99.6	118.7	3.17	106	4.85	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808948

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18466 (HBN: 211711)
	Prepared By: NA	**Analyzed By:** Easton Welcher

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

Analyst	Peer Review
/S/ Easton Welcher	/S/ Lyle Edwards
04/05/2018 10:54	04/06/2018 11:23

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

1808948

Ass N/A

1808948

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180931

Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011540	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-BA-EF *	25C or low
2	S18T011541	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-BA-IN *	25C or low
3	S18T011542	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-BL-EF *	25C or low
4	S18T011543	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-BL-IN *	25C or low
5	S18T011544	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-1 *	25C or low
6	S18T011545	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-2 *	25C or low
7	S18T011546	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-3 *	25C or low
8	S18T011547	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-4 *	25C or low
9	S18T011548	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-5 *	25C or low
10	S18T011549	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-6 *	25C or low

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

EPA TO-11A

SPECIAL INSTRUCTIONS — Hold Time

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

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0915	Ro Rogers	3/28/18 0900
Ro Rogers	3/28/18 1400	FEDEX	
FEDEX		Desiree Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed — Disposed By — Date/Time: 04/02/18 13:00

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)

1808948 - Page 27 of 30

C.875

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180931
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011550	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-7 *	25C or low
12	S18T011551	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-EF-8 *	25C or low
13	S18T011552	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-1 *	25C or low
14	S18T011553	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-2 *	25C or low
15	S18T011554	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-3 *	25C or low
16	S18T011555	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-4 *	25C or low
17	S18T011556	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-5 *	25C or low
18	S18T011557	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-6 *	25C or low
19	S18T011558	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-7 *	25C or low
20	S18T011559	VA	3/23/18		SILICA GEL	Aldehyde 18-02349-8-SC1-IN-8 *	25C or low

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

EPA TO-11A

SPECIAL INSTRUCTIONS — Hold Time

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

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	FEDEX	
Fedex		[illegible]	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed	[illegible]	04/02/18 13:00

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180931
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6961 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011560	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-BA-EF *	25C or low
22	S18T011561	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-BA-IN *	25C or low
23	S18T011562	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-BL-EF *	25C or low
24	S18T011563	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-BL-IN *	25C or low
25	S18T011564	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-1 *	25C or low
26	S18T011565	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-2 *	25C or low
27	S18T011566	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-3 *	25C or low
28	S18T011567	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-4 *	25C or low
29	S18T011568	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-5 *	25C or low
30	S18T011569	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-6 *	25C or low

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

EPA TO-11A

SPECIAL INSTRUCTIONS Hold Time

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

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	K Bronson		3-28-18 0900		K.E. Rogers		3/28/18 0900
Relinquished By			Date/Time	Received By			Date/Time
K.E. Rogers			3/28/18 1400	FEDEX			
Relinquished By			Date/Time	Received By			Date/Time
FedEx							3/29/18 955
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed		04/03/18, 15:00

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180931
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: W 3/28/18 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011570	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-7	25C or low
32	S18T011571	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-EF-8	25C or low
33	S18T011572	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-1	25C or low
34	S18T011573	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-2	25C or low
35	S18T011574	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-3	25C or low
36	S18T011575	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-4	25C or low
37	S18T011576	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-5	25C or low
38	S18T011577	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-6	25C or low
39	S18T011578	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-7	25C or low
40	S18T011579	VA	3/23/18		SILICA GEL	Aldehyde 18-02350-9-TL1-IN-8	25C or low

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

EPA TO-11A

SPECIAL INSTRUCTIONS — Hold Time

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

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Jon Sronsar	3-28-18 0800	Joe Rogers	3/28/18 0900
Joe Rogers	3/28/18 1400	FEDEX	
Fedex		Desmee Hill Desmee Hill	03/29/18 955

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed	Easton	04/03/18 15:05

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: April 10, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011582** Collected: 03/24/2018
Lab ID: 1808949001 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.053**	NA	NA	0.050
Acetone	**2.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011583** Collected: 03/24/2018
Lab ID: 1808949002 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.20**	NA	NA	0.050
Acetaldehyde	**0.12**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050

Results Continued on Next Page

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011583** Collected: 03/24/2018
Lab ID: 1808949002 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011584** Collected: 03/24/2018
Lab ID: 1808949003 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**1.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011585** Collected: 03/24/2018
Lab ID: 1808949004 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011586** Collected: 03/24/2018
Lab ID: 1808949005 Sampling Location: Cartridge Testing By Received: 03/29/2018

Method: EPA TO-11A **Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) **Instrument:** HPLC13
Sampling Info: Air Volume Not Provided **Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.12**	NA	NA	0.050
Acetone	**2.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011587**			Collected: 03/24/2018
Lab ID: 1808949006	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.28**	NA	NA	0.050
Acetone	**2.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011588**			Collected: 03/24/2018
Lab ID: 1808949007	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.22**	NA	NA	0.050
Acetone	**2.8**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011589**			Collected: 03/24/2018
Lab ID: 1808949008	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.20**	NA	NA	0.050
Acetone	**3.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011590**			Collected: 03/24/2018
Lab ID: 1808949009	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.069**	NA	NA	0.050
Acetaldehyde	**0.22**	NA	NA	0.050
Acetone	**2.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011591**			Collected: 03/24/2018
Lab ID: 1808949010	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	**0.16**	NA	NA	0.050
Acetone	**1.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011592**			Collected: 03/24/2018
Lab ID: 1808949011	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.16**	NA	NA	0.050
Acetone	**2.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011593**			Collected: 03/24/2018
Lab ID: 1808949012	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.17**	NA	NA	0.050
Acetone	**3.1**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011594**			Collected: 03/24/2018
Lab ID: 1808949013	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.061**	NA	NA	0.050
Acetaldehyde	**0.53**	NA	NA	0.050
Acetone	**6.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.12**	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

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011595**			Collected: 03/24/2018
Lab ID: 1808949014	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.059**	NA	NA	0.050
Acetaldehyde	**0.54**	NA	NA	0.050
Acetone	**7.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011596**			Collected: 03/24/2018
Lab ID: 1808949015	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.52**	NA	NA	0.050
Acetone	**5.8**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.10**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011597**			Collected: 03/24/2018
Lab ID: 1808949016	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.41**	NA	NA	0.050
Acetone	**6.7**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.086**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011598**			Collected: 03/24/2018
Lab ID: 1808949017	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.55**	NA	NA	0.050
Acetone	**6.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.32**	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: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011599**			Collected: 03/24/2018
Lab ID: 1808949018	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.53**	NA	NA	0.050
Acetone	**8.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.29**	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: **S18T011600**			Collected: 03/24/2018
Lab ID: 1808949019	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.54**	NA	NA	0.050
Acetone	**8.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.10**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.32**	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: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011601**			Collected: 03/24/2018
Lab ID: 1808949020	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211812)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.53**	NA	NA	0.050
Acetone	**7.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.12**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.32**	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: **S18T011602**			Collected: 03/24/2018
Lab ID: 1808949021	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.10**	NA	NA	0.050
Acetaldehyde	**0.14**	NA	NA	0.050
Acetone	**2.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011603**			Collected: 03/24/2018
Lab ID: 1808949022	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.14**	NA	NA	0.050
Acetaldehyde	**0.15**	NA	NA	0.050
Acetone	**2.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011604**			Collected: 03/24/2018
Lab ID: 1808949023	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**3.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011605**				Collected: 03/24/2018
Lab ID: 1808949024	Sampling Location: Cartridge Testing By			Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211814)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	<0.050	NA	NA	0.050
Acetone	**1.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011606**				Collected: 03/24/2018
Lab ID: 1808949025	Sampling Location: Cartridge Testing By			Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)			**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/06/2018 (211814)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.18**	NA	NA	0.050
Acetone	**2.4**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011607**			Collected: 03/24/2018
Lab ID: 1808949026	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.28**	NA	NA	0.050
Acetone	**0.70**	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: **S18T011608**			Collected: 03/24/2018
Lab ID: 1808949027	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.25**	NA	NA	0.050
Acetone	**0.53**	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: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011609**			Collected: 03/24/2018
Lab ID: 1808949028	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.21**	NA	NA	0.050
Acetone	**1.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011610**			Collected: 03/24/2018
Lab ID: 1808949029	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**0.21**	NA	NA	0.050
Acetone	**1.3**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011611**			Collected: 03/24/2018
Lab ID: 1808949030	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.34**	NA	NA	0.050
Acetaldehyde	**0.23**	NA	NA	0.050
Acetone	**0.91**	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: **S18T011612**			Collected: 03/24/2018
Lab ID: 1808949031	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.080**	NA	NA	0.050
Acetaldehyde	**0.16**	NA	NA	0.050
Acetone	**1.6**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	<0.050	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	<0.050	NA	NA	0.050
Benzaldehyde	<0.050	NA	NA	0.050
Isovaleraldehyde	<0.050	NA	NA	0.050
Valeraldehyde	<0.050	NA	NA	0.050
m,p-Tolualdehyde	<0.050	NA	NA	0.050
o-Tolualdehyde	<0.050	NA	NA	0.050
Hexanal	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011613**			Collected: 03/24/2018
Lab ID: 1808949032	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.15**	NA	NA	0.050
Acetaldehyde	**0.21**	NA	NA	0.050
Acetone	**0.83**	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: **S18T011614**			Collected: 03/24/2018
Lab ID: 1808949033	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.083**	NA	NA	0.050
Acetaldehyde	**0.48**	NA	NA	0.050
Acetone	**6.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.097**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011615**			Collected: 03/24/2018
Lab ID: 1808949034	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.46**	NA	NA	0.050
Acetone	**5.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.085**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.27**	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: **S18T011616**			Collected: 03/24/2018
Lab ID: 1808949035	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.051**	NA	NA	0.050
Acetaldehyde	**0.46**	NA	NA	0.050
Acetone	**5.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.094**	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

ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011617**			Collected: 03/24/2018
Lab ID: 1808949036	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	<0.050	NA	NA	0.050
Acetaldehyde	**0.43**	NA	NA	0.050
Acetone	**4.8**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.087**	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	<0.050	NA	NA	0.050
2,5-Dimethylbenzaldehyde	<0.050	NA	NA	0.050

Sample ID: **S18T011618**			Collected: 03/24/2018
Lab ID: 1808949037	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.12**	NA	NA	0.050
Acetaldehyde	**0.54**	NA	NA	0.050
Acetone	**5.0**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.28**	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: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011619**			Collected: 03/24/2018
Lab ID: 1808949038	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.11**	NA	NA	0.050
Acetaldehyde	**0.54**	NA	NA	0.050
Acetone	**6.5**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.098**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.29**	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: **S18T011620**			Collected: 03/24/2018
Lab ID: 1808949039	Sampling Location: Cartridge Testing By		Received: 03/29/2018
Method: EPA TO-11A	**Media:** SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine)		**Instrument:** HPLC13
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.19**	NA	NA	0.050
Acetaldehyde	**0.53**	NA	NA	0.050
Acetone	**5.2**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.11**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.29**	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: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011621** — Collected: 03/24/2018
Lab ID: 1808949040 — Sampling Location: Cartridge Testing By — Received: 03/29/2018

Method: **EPA TO-11A** — Media: SKC 226-119, Silica Gel (2,4-Dinitrophenylhydrazine) — Instrument: HPLC13
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/06/2018 (211814)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Formaldehyde	**0.16**	NA	NA	0.050
Acetaldehyde	**0.54**	NA	NA	0.050
Acetone	**5.9**	NA	NA	0.050
Acrolein	<0.050	NA	NA	0.050
Propionaldehyde	**0.10**	NA	NA	0.050
Crotonaldehyde	<0.050	NA	NA	0.050
Butyraldehyde	**0.30**	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: 211812)

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

Quality Control: EPA TO-11A - (HBN: 211814)

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

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

Method	Analyst	Peer Review
EPA TO-11A	/S/ Easton Welcher 04/06/2018 12:23	/S/ Thomas Bosch 04/06/2018 14:47
EPA TO-11A	/S/ Easton Welcher 04/09/2018 15:49	/S/ Lyle Edwards 04/10/2018 09:08

Laboratory Contact Information

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ANALYTICAL REPORT

Workorder: **34-1808949**
Client Project ID: 20180932 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808949

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18482 (HBN: 211812)
Analyzed By: Easton Welcher

Blank

LMB: 593913
Analyzed: 04/04/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	0.0591	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	0.835	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: 593914
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 593915
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Formaldehyde	2.97	3.02	98.4	87.8	116.8	2.98	98.7	0.336	0.0	20.0
Acetaldehyde	2.96	3.00	98.7	94.7	110.5	2.96	98.7	0.00	0.0	20.0
Acetone	3.46	3.00	115	69.2	119.9	3.33	111	3.83	0.0	20.0
Acrolein	2.99	3.00	99.7	83.5	120.2	2.96	98.7	1.01	0.0	20.0
Propionaldehyde	2.95	3.00	98.3	92.2	117.2	2.96	98.7	0.338	0.0	20.0
Crotonaldehyde	2.93	3.00	97.7	93.1	114.8	2.96	98.7	1.02	0.0	20.0
Butyraldehyde	2.96	3.00	98.7	86.6	120.8	3.01	100	1.68	0.0	20.0
Benzaldehyde	2.95	3.00	98.3	96.0	112.3	2.98	99.3	1.01	0.0	20.0
Isovaleraldehyde	2.88	3.00	96.0	95.4	121.6	2.88	96.0	0.00	0.0	20.0
Valeraldehyde	3.04	3.02	101	85.3	120.4	3.03	100	0.329	0.0	20.0
m,p-Tolualdehyde	3.20	3.00	107	80.0	120.0	3.20	107	0.00	0.0	20.0
o-Tolualdehyde	2.92	3.00	97.3	91.6	111.4	2.91	97.0	0.343	0.0	20.0
Hexanal	2.85	3.00	95.0	85.4	127.6	2.85	95.0	0.00	0.0	20.0
2,5-Dimethylbenzaldehyde	3.04	2.98	102	99.6	118.7	3.02	101	0.660	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808949

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18482 (HBN: 211812)
	Prepared By: NA	**Analyzed By:** Easton Welcher

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

Analyst	Peer Review
/S/ Easton Welcher	/S/ Thomas Bosch
04/06/2018 12:23	04/06/2018 14:47

Symbols and Definitions

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

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808949

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: EPA TO-11A
Batch: ILC/18483 (HBN: 211814)
Analyzed By: Easton Welcher

Blank

LMB: 593919
Analyzed: 04/06/2018 00:00
Units: ug/sample

Analyte	Result	MDL	RL
Formaldehyde	0.0613	NA	0.0500
Acetaldehyde	ND	NA	0.0500
Acetone	1.15	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: 593920
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: ug/sample

LCSD: 593921
Analyzed: 04/06/2018 00:00
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Formaldehyde	3.03	3.02	100	87.8	116.8	3.02	100	0.331	0.0	20.0
Acetaldehyde	3.00	3.00	100	94.7	110.5	3.00	100	0.00	0.0	20.0
Acetone	3.24	3.00	108	69.2	119.9	3.19	106	1.56	0.0	20.0
Acrolein	2.95	3.00	98.3	83.5	120.2	3.04	101	3.01	0.0	20.0
Propionaldehyde	3.00	3.00	100	92.2	117.2	2.99	99.7	0.334	0.0	20.0
Crotonaldehyde	3.01	3.00	100	93.1	114.8	2.98	99.3	1.00	0.0	20.0
Butyraldehyde	3.03	3.00	101	86.6	120.8	2.99	99.7	1.33	0.0	20.0
Benzaldehyde	3.02	3.00	101	96.0	112.3	2.99	99.7	0.998	0.0	20.0
Isovaleraldehyde	2.92	3.00	97.3	95.4	121.6	2.94	98.0	0.683	0.0	20.0
Valeraldehyde	3.06	3.02	101	85.3	120.4	3.06	101	0.00	0.0	20.0
m,p-Tolualdehyde	3.23	3.00	108	80.0	120.0	3.22	107	0.310	0.0	20.0
o-Tolualdehyde	2.96	3.00	98.7	91.6	111.4	2.94	98.0	0.678	0.0	20.0
Hexanal	2.91	3.00	97.0	85.4	127.6	2.88	96.0	1.04	0.0	20.0
2,5-Dimethylbenzaldehyde	3.03	2.98	102	99.6	118.7	3.12	105	2.93	0.0	20.0

Comments

TO-11A: LMB result was used to blank correct QC and field sample results for formaldehyde and acetone.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808949

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** EPA TO-11A
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ILC/18483 (HBN: 211814)
	Prepared By: NA	**Analyzed By:** Easton Welcher

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

Analyst	Peer Review
/S/ Easton Welcher	/S/ Lyle Edwards
04/09/2018 15:49	04/10/2018 09:08

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

1808949

1808949

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180932

Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011582	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-BA-EF	25C or low
2	S18T011583	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-BA-IN	25C or low
3	S18T011584	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-BL-EF	25C or low
4	S18T011585	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-BL-IN	25C or low
5	S18T011586	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-1	25C or low
6	S18T011587	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-2	25C or low
7	S18T011588	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-3	25C or low
8	S18T011589	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-4	25C or low
9	S18T011590	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-5	25C or low
10	S18T011591	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-6	25C or low

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

EPA TO-11A

SPECIAL INSTRUCTIONS — Hold Time

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

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Dan Swanson	3-28-18 0900	J Graden	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fedex		Rosmeethill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed — Disposed By: — Date/Time: 04/04/18, 16:00

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180932
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033	Temp. ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.	7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011592	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-7 *	25C or low
12	S18T011593	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-EF-8 *	25C or low
13	S18T011594	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-1 *	25C or low
14	S18T011595	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-2 *	25C or low
15	S18T011596	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-3 *	25C or low
16	S18T011597	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-4 *	25C or low
17	S18T011598	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-5 *	25C or low
18	S18T011599	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-6 *	25C or low
19	S18T011600	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-7 *	25C or low
20	S18T011601	VA	3/24/18		SILICA GEL	Aldehyde 18-02348-8-SD1-IN-8 *	25C or low

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

EPA TO-11A

SPECIAL INSTRUCTIONS

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

Release 15
Reference Contract # 55502
EPA TO-11A

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Don Goonsor		3-28-18 0900	J Gradishar	J Gradishar		3/28/18 0900
Relinquished By	JA Gradishar WRPS		Date/Time	Received By			Date/Time
	JA Gradishar		3/28/18 1400		FEDEX		
Relinquished By			Date/Time	Received By			Date/Time
	Fedex			Annette Hill			03/29/18 9:55
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed	Easton White	04/04/18 16:00

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180932
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011602	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-BA-EF	25C or low
22	S18T011603	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-BA-IN	25C or low
23	S18T011604	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-BL-EF	25C or low
24	S18T011605	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-BL-IN	25C or low
25	S18T011606	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-1	25C or low
26	S18T011607	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-2	25C or low
27	S18T011608	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-3	25C or low
28	S18T011609	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-4	25C or low
29	S18T011610	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-5	25C or low
30	S18T011611	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-6	25C or low

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

EPA TO-11A

SPECIAL INSTRUCTIONS — Hold Time

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

Release 15
Reference Contract # 55502
EPA TO-11A

	Print / Sign	Date/Time		Print / Sign	Date/Time
Relinquished By	Don Sorenson	3-28-18 0900	Received By	JA Gradisher	3/28/18 0900
Relinquished By	JA Gradisher WRPS	3/28/18 1400	Received By	FEDEX	
Relinquished By	Fedex		Received By	Desiree Hill	03/29/18 955
Relinquished By			Received By		

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed		04/04/18 16:30

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180932
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: CARTRIDGE TESTING BY-110	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718582258 6
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011612	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-7	25C or Ice
32	S18T011613	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-EF-8	25C or Ice
33	S18T011614	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-1	25C or Ice
34	S18T011615	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-2	25C or Ice
35	S18T0116016	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-3	25C or Ice
36	S18T011617	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-4	25C or Ice
37	S18T011618	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-5	25C or Ice
38	S18T011629	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-6	25C or Ice
39	S18T011620	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-7	25C or Ice
40	S18T011621	VA	3/24/18		SILICA GEL	Aldehyde 18-02351-9-TL2-IN-8	25C or Ice

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

EPA TO-11A

SPECIAL INSTRUCTIONS — Hold Time

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

Release 15
Reference Contract # 55502
EPA TO-11A

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Isom	3-28-18 0900	JA Gradner	3/28/18 0900
JA Gradner WRPS	3/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/29/18 9:55

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed	Carlton Willis	04/04/18 16:30

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

A-6003-962 (03/05)

C.4.10 1,3-Butadiene

ANALYTICAL REPORT

Report Date: April 06, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011219**			Collected: 03/23/2018
Lab ID: 1808955001	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011220**			Collected: 03/23/2018
Lab ID: 1808955002	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011221**			Collected: 03/23/2018
Lab ID: 1808955003	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**		**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	**0.0012**	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011222**				Collected: 03/23/2018
Lab ID: 1808955004	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011223**				Collected: 03/23/2018
Lab ID: 1808955005	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011224**				Collected: 03/23/2018
Lab ID: 1808955006	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011225**				Collected: 03/23/2018
Lab ID: 1808955007	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011226**				Collected: 03/23/2018
Lab ID: 1808955008	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: 34-1808955
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011227**				Collected: 03/23/2018
Lab ID: 1808955009	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011228**				Collected: 03/23/2018
Lab ID: 1808955010	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011229**				Collected: 03/23/2018
Lab ID: 1808955011	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011230**				Collected: 03/23/2018
Lab ID: 1808955012	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011231**				Collected: 03/23/2018
Lab ID: 1808955013	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011232** Collected: 03/23/2018
Lab ID: 1808955014 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011233** Collected: 03/23/2018
Lab ID: 1808955015 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011234** Collected: 03/23/2018
Lab ID: 1808955016 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011235** Collected: 03/23/2018
Lab ID: 1808955017 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011236** Collected: 03/23/2018
Lab ID: 1808955018 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011237**				Collected: 03/23/2018
Lab ID: 1808955019	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011238**				Collected: 03/23/2018
Lab ID: 1808955020	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011239**				Collected: 03/23/2018
Lab ID: 1808955021	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011240**				Collected: 03/23/2018
Lab ID: 1808955022	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011241**				Collected: 03/23/2018
Lab ID: 1808955023	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011242** | Collected: 03/23/2018
Lab ID: 1808955024 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Instrument: GCI07**
Sampling Info: Air Volume Not Provided | **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011243** | Collected: 03/23/2018
Lab ID: 1808955025 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Instrument: GCI07**
Sampling Info: Air Volume Not Provided | **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011244** | Collected: 03/23/2018
Lab ID: 1808955026 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Instrument: GCI07**
Sampling Info: Air Volume Not Provided | **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011245** | Collected: 03/23/2018
Lab ID: 1808955027 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Instrument: GCI07**
Sampling Info: Air Volume Not Provided | **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011246** | Collected: 03/23/2018
Lab ID: 1808955028 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Instrument: GCI07**
Sampling Info: Air Volume Not Provided | **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011247**				Collected: 03/23/2018
Lab ID: 1808955029	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011248**				Collected: 03/23/2018
Lab ID: 1808955030	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011249**				Collected: 03/23/2018
Lab ID: 1808955031	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011250**				Collected: 03/23/2018
Lab ID: 1808955032	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011251**				Collected: 03/23/2018
Lab ID: 1808955033	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: 34-1808955
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011252**				Collected: 03/23/2018
Lab ID: 1808955034	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011253**				Collected: 03/23/2018
Lab ID: 1808955035	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011254**				Collected: 03/23/2018
Lab ID: 1808955036	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011255**				Collected: 03/23/2018
Lab ID: 1808955037	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011256**				Collected: 03/23/2018
Lab ID: 1808955038	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011257** Collected: 03/23/2018
Lab ID: 1808955039 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011258** Collected: 03/23/2018
Lab ID: 1808955040 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1808955

QC/QD pair 594511/594512 relate to samples 1808955001-020

QC/QD pair 594514/594515 relate to samples 1808955021-040

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 04/06/2018 14:05	/S/ Thomas J. Masoian 04/06/2018 15:27

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808955**
Client Project ID: 20180923 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808955

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9455 (HBN: 212072)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 594497
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594501
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594504
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594507
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594510
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594513
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

	LCS: 594498 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample					LCSD: 594499 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0219	0.0205	107	78.0	117.6	0.0197	96.0	10.6	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808955

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9455 (HBN: 212072)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 594502 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594503 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0188	0.0205	91.4	78.0	117.6	0.0205	100	9.04	0.0	20.0

LCS: 594505 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594506 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0152	0.0171	89.1	78.0	117.6	0.0163	95.3	6.72	0.0	20.0

LCS: 594508 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594509 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0176	0.0171	103	78.0	117.6	0.0153	89.7	13.7	0.0	20.0

LCS: 594511 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594512 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0128	0.0137	93.5	78.0	117.6	0.0127	92.8	0.730	0.0	20.0

LCS: 594514 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594515 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0155	0.0171	90.4	78.0	117.6	0.0151	88.6	2.05	0.0	20.0

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

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
04/06/2018 14:05	04/06/2018 15:27

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

1808955

Asset
N/A U 1808955

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180923
Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5816	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011219	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-BA-EFA	CHILL -4C
2	S18T011220	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-BA-EFB	CHILL -4C
3	S18T011221	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-BA-INA	CHILL -4C
4	S18T011222	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-BA-INB	CHILL -4C
5	S18T011223	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-BL-EFA	CHILL -4C
6	S18T011224	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-BL-EFB	CHILL -4C
7	S18T011225	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-BL-INA	CHILL -4C
8	S18T011226	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-BL-INB	CHILL -4C
9	S18T011227	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-1-A	CHILL -4C
10	S18T011228	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-1-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.A. Brown	3/28/18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
fedex			

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Reid — Date/Time: 04/06/18 0300

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)

1808955 - Page 13 of 16

C.921

Assembler: N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180923

Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011229	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-2-A	CHILL -4C
12	S18T011230	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-2-B	CHILL -4C
13	S18T011231	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-3-A	CHILL -4C
14	S18T011232	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-3-B	CHILL -4C
15	S18T011233	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-4-A	CHILL -4C
16	S18T011234	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-4-B	CHILL -4C
17	S18T011235	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-5-A	CHILL -4C
18	S18T011236	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-5-B	CHILL -4C
19	S18T011237	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-6-A	CHILL -4C
20	S18T011238	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-6-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
		Tami VanTassell	03-28-18 9250

Matrix*

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Fred Reinhardt Date/Time: 04/06/18 0300

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

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180923

Page 3 of 4

Assembler: N/A	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 · MSIN T6-05 · FAX 372-1878
Collector: WAY	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
SAF No.: N/A	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 · Temp. ON Ice
Project Title: 2018 CARTRIDGE EVALUATION	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Shipped To (Lab): ALS		Parts and Return No. 43795
Protocol: N/A	Data Turnaround: 10 DAYS	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011239	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-7-A	CHILL -4C
22	S18T011240	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-7-B	CHILL -4C
23	S18T011241	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-EF-8-A	CHILL -4C
24	S18T011242	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-EF-8-B	CHILL -4C
25	S18T011243	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-1-A	CHILL -4C
26	S18T011244	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-1-B	CHILL -4C
27	S18T011245	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-2-A	CHILL -4C
28	S18T011246	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-2-B	CHILL -4C
29	S18T011247	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-3-A	CHILL -4C
30	S18T011248	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-3-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Smidson [signature]	3-28-18 0900	JA Gradisher [signature]	3/28/18 0900
JA Gradisher WRPS [signature]	3/28/18 1400	FEDEX	
[signature]		[signature] Tamika Russell	3-29-18 0985

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 Rejnha [signature] — Date/Time: 04/06/18 0300

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

A-6003-962 (03/05)

Assembler: N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180923
Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011249	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-4-A ●	CHILL -4C
32	S18T011250	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-4-B ●	CHILL -4C
33	S18T011251	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-5-A ●	CHILL -4C
34	S18T011252	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-5-B ●	CHILL -4C
35	S18T011253	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-6-A ●	CHILL -4C
36	S18T011254	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-6-B ●	CHILL -4C
37	S18T011255	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-7-A ●	CHILL -4C
38	S18T011256	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-7-B ●	CHILL -4C
39	S18T011257	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-9-SC1-IN-8-A ●	CHILL -4C
40	S18T011258	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02349-10-SC1-IN-8-B ●	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

	Print	Sign	Date/Time		Print	Sign	Date/Time
Relinquished By	Dan Sorenson		3-28-18 0800	Received By	JA Gradisher	JA Gradisher	3/28/18 0900
Relinquished By	JA Gradisher WRPS	JA Gradisher	3/28/18 1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By	Tami VanTassell	Tami VanTassell	03-29-18 0855
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: Fred Rejali — Date/Time: 04/06/18 0300

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: April 06, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011259** Collected: 03/23/2018
Lab ID: 1808943001 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011260** Collected: 03/23/2018
Lab ID: 1808943002 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011261** Collected: 03/23/2018
Lab ID: 1808943003 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: 34-1808943
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011262**				Collected: 03/23/2018
Lab ID: 1808943004	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011263**				Collected: 03/23/2018
Lab ID: 1808943005	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011264**				Collected: 03/23/2018
Lab ID: 1808943006	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011265**				Collected: 03/23/2018
Lab ID: 1808943007	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011266**				Collected: 03/23/2018
Lab ID: 1808943008	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011267** — Collected: 03/23/2018
Lab ID: 1808943009 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011268** — Collected: 03/23/2018
Lab ID: 1808943010 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011269** — Collected: 03/23/2018
Lab ID: 1808943011 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011270** — Collected: 03/23/2018
Lab ID: 1808943012 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011271** — Collected: 03/23/2018
Lab ID: 1808943013 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011272** Collected: 03/23/2018
Lab ID: 1808943014 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011273** Collected: 03/23/2018
Lab ID: 1808943015 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011274** Collected: 03/23/2018
Lab ID: 1808943016 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011275** Collected: 03/23/2018
Lab ID: 1808943017 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011276** Collected: 03/23/2018
Lab ID: 1808943018 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011277**				Collected: 03/23/2018
Lab ID: 1808943019	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011278**				Collected: 03/23/2018
Lab ID: 1808943020	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011279**				Collected: 03/23/2018
Lab ID: 1808943021	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	**0.0013**	NA	NA	0.0010

Sample ID: **S18T011280**				Collected: 03/23/2018
Lab ID: 1808943022	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011281**				Collected: 03/23/2018
Lab ID: 1808943023	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011282** Collected: 03/23/2018
Lab ID: 1808943024 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011283** Collected: 03/23/2018
Lab ID: 1808943025 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011284** Collected: 03/23/2018
Lab ID: 1808943026 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011285** Collected: 03/23/2018
Lab ID: 1808943027 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011286** Collected: 03/23/2018
Lab ID: 1808943028 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011287** Collected: 03/23/2018
Lab ID: 1808943029 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011288** Collected: 03/23/2018
Lab ID: 1808943030 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011289** Collected: 03/23/2018
Lab ID: 1808943031 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011290** Collected: 03/23/2018
Lab ID: 1808943032 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011291** Collected: 03/23/2018
Lab ID: 1808943033 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011292** Collected: 03/23/2018
Lab ID: 1808943034 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011293** Collected: 03/23/2018
Lab ID: 1808943035 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	**0.0017**	NA	NA	0.0010

Sample ID: **S18T011294** Collected: 03/23/2018
Lab ID: 1808943036 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011295** Collected: 03/23/2018
Lab ID: 1808943037 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	**0.0019**	NA	NA	0.0010

Sample ID: **S18T011296** Collected: 03/23/2018
Lab ID: 1808943038 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011297** Collected: 03/23/2018
Lab ID: 1808943039 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011298** Collected: 03/23/2018
Lab ID: 1808943040 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1808943

QC/QD pair 594498/594499 relate to samples 1808943001-020

QC/QD pair 594502/594503 relate to samples 1808943021-040

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 04/06/2018 14:05	/S/ Thomas J. Masoian 04/06/2018 15:27

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808943**
Client Project ID: 20180924 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808943

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9455 (HBN: 212072)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 594497
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594501
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594504
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594507
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594510
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594513
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

	LCS: 594498 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample					LCSD: 594499 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0219	0.0205	107	78.0	117.6	0.0197	96.0	10.6	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808943

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9455 (HBN: 212072)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 594502 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594503 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0188	0.0205	91.4	78.0	117.6	0.0205	100	9.04	0.0	20.0

LCS: 594505 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594506 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0152	0.0171	89.1	78.0	117.6	0.0163	95.3	6.72	0.0	20.0

LCS: 594508 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594509 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0176	0.0171	103	78.0	117.6	0.0153	89.7	13.7	0.0	20.0

LCS: 594511 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594512 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0128	0.0137	93.5	78.0	117.6	0.0127	92.8	0.730	0.0	20.0

LCS: 594514 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594515 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0155	0.0171	90.4	78.0	117.6	0.0151	88.6	2.05	0.0	20.0

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

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
04/06/2018 14:05	04/06/2018 15:27

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

1808943

Assembl N/A W 1808943

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180924

Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN 26-05 FAX 372-1870
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp: ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011259	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-BA-EFA	CHILL -4C
2	S18T011260	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-BA-EFB	CHILL -4C
3	S18T011261	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-BA-INA	CHILL -4C
4	S18T011262	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-BA-INB	CHILL -4C
5	S18T011263	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-BL-EFA	CHILL -4C
6	S18T011264	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-BL-EFB	CHILL -4C
7	S18T011265	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-BL-INA	CHILL -4C
8	S18T011266	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-BL-INB	CHILL -4C
9	S18T011267	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-1-A	CHILL -4C
10	S18T011268	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-1-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

	Print	Sign	Date/Time
Relinquished By	Don Sroda		3-28-18 0900
Relinquished By	JA Gradisher WRPS	JA Gradisher	3/28/18 1400
Relinquished By	Fedex		
Relinquished By			

	Print	Sign	Date/Time
Received By	JA Gradisher	JA Gradisher	3/28/18 0900
Received By	FEDEX		
Received By	Desirae Hill	Desirae Hill	03/29/18 9:15
Received By			

Matrix*

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Fred Reid Date/Time: 04/06/18 0300

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)

1808943 - Page 13 of 16

C.937

Assembler: N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No: 20180924

Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 e-MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011269	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-2-A •	CHILL -4C
12	S18T011270	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-2-B •	CHILL -4C
13	S18T011271	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-3-A •	CHILL -4C
14	S18T011272	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-3-B •	CHILL -4C
15	S18T011273	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-4-A •	CHILL -4C
16	S18T011274	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-4-B •	CHILL -4C
17	S18T011275	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-5-A •	CHILL -4C
18	S18T011276	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-5-B •	CHILL -4C
19	S18T011277	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-6-A •	CHILL -4C
20	S18T011278	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-6-B •	CHILL -4C

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl W Howald IV, Carl_W_Howald@rl.gov, and Keisha Garcia, KeishaR_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Dan Stadler	3/28/18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fedex		Desiree Hill	03/29/18 9:50

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Rich 04/06/18 0300

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

A-6003-962 (03/05)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180924

Page 3 of 4

Assembler: N/A	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
Collector: WAY	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
SAF No.: N/A	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Project Title: 2018 CARTRIDGE EVALUATION	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Shipped To (Lab): ALS	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	
Protocol: N/A			

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011279	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-7-A	CHILL -4C
22	S18T011280	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-7-B	CHILL -4C
23	S18T011281	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-EF-8-A	CHILL -4C
24	S18T011282	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-EF-8-B	CHILL -4C
25	S18T011283	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-1-A	CHILL -4C
26	S18T011284	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-1-B	CHILL -4C
27	S18T011285	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-2-A	CHILL -4C
28	S18T011286	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-2-B	CHILL -4C
29	S18T011287	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-3-A	CHILL -4C
30	S18T011288	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-3-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
	Dan Saueressig	3-28-18 0920	JA Gradisher	JA Gradisher	3/28/18 0900
Relinquished By: JA Gradisher WRPS	JA Gradisher	3/28/18 1400	Received By	FEDEX	Date/Time
Relinquished By	FedEx	Date/Time	Received By: Jessica Hill	Jessica Hill	03/29/18 9:35 Date/Time
Relinquished By		Date/Time	Received By		Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		Fred Rajala	04/06/18 0300

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

A-6003-962 (03/05)

Assembler: N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180924

Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 77185822 5806	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011289	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-4-A	CHILL -4C
32	S18T011290	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-4-B	CHILL -4C
33	S18T011291	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-5-A	CHILL -4C
34	S18T011292	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-5-B	CHILL -4C
35	S18T011293	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-6-A	CHILL -4C
36	S18T011294	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-6-B	CHILL -4C
37	S18T011295	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-7-A	CHILL -4C
38	S18T011296	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-7-B	CHILL -4C
39	S18T011297	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-10-TL1-IN-8-A	CHILL -4C
40	S18T011298	VA	3/23/18		CHARCOAL TUBE	1,3-Butadiene 18-02350-11-TL1-IN-8-B	CHILL -4C

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

SPECIAL INSTRUCTIONS — Hold Time

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fedex		[illegible]	03/29/18 9:35

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Rijli 04/06/18 0300

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: April 06, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011299** Collected: 03/24/2018
Lab ID: 1808954001 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011300** Collected: 03/24/2018
Lab ID: 1808954002 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011301** Collected: 03/24/2018
Lab ID: 1808954003 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011302**				Collected: 03/24/2018
Lab ID: 1808954004	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011303**				Collected: 03/24/2018
Lab ID: 1808954005	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011304**				Collected: 03/24/2018
Lab ID: 1808954006	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011305**				Collected: 03/24/2018
Lab ID: 1808954007	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011306**				Collected: 03/24/2018
Lab ID: 1808954008	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011307** Collected: 03/24/2018
Lab ID: 1808954009 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media:** SKC 226-37 Sorbent Tube **Instrument:** GCI07
Sampling Info: Air Volume Not Provided **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011308** Collected: 03/24/2018
Lab ID: 1808954010 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media:** SKC 226-37 Sorbent Tube **Instrument:** GCI07
Sampling Info: Air Volume Not Provided **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011309** Collected: 03/24/2018
Lab ID: 1808954011 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media:** SKC 226-37 Sorbent Tube **Instrument:** GCI07
Sampling Info: Air Volume Not Provided **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011310** Collected: 03/24/2018
Lab ID: 1808954012 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media:** SKC 226-37 Sorbent Tube **Instrument:** GCI07
Sampling Info: Air Volume Not Provided **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011311** Collected: 03/24/2018
Lab ID: 1808954013 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media:** SKC 226-37 Sorbent Tube **Instrument:** GCI07
Sampling Info: Air Volume Not Provided **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011312** Collected: 03/24/2018
Lab ID: 1808954014 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011313** Collected: 03/24/2018
Lab ID: 1808954015 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011314** Collected: 03/24/2018
Lab ID: 1808954016 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011315** Collected: 03/24/2018
Lab ID: 1808954017 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011316** Collected: 03/24/2018
Lab ID: 1808954018 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011317** — Collected: 03/24/2018
Lab ID: 1808954019 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011318** — Collected: 03/24/2018
Lab ID: 1808954020 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011319** — Collected: 03/24/2018
Lab ID: 1808954021 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	**0.0034**	NA	NA	0.0010

Sample ID: **S18T011320** — Collected: 03/24/2018
Lab ID: 1808954022 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011321** — Collected: 03/24/2018
Lab ID: 1808954023 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011322**				Collected: 03/24/2018
Lab ID: 1808954024	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011323**				Collected: 03/24/2018
Lab ID: 1808954025	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011324**				Collected: 03/24/2018
Lab ID: 1808954026	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011325**				Collected: 03/24/2018
Lab ID: 1808954027	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011326**				Collected: 03/24/2018
Lab ID: 1808954028	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/06/2018 (212072)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011327** — Collected: 03/24/2018
Lab ID: 1808954029 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: **NIOSH 1024** — Media: SKC 226-37 Sorbent Tube — Instrument: GCI07
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011328** — Collected: 03/24/2018
Lab ID: 1808954030 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: **NIOSH 1024** — Media: SKC 226-37 Sorbent Tube — Instrument: GCI07
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011329** — Collected: 03/24/2018
Lab ID: 1808954031 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: **NIOSH 1024** — Media: SKC 226-37 Sorbent Tube — Instrument: GCI07
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	**0.0024**	NA	NA	0.0010

Sample ID: **S18T011330** — Collected: 03/24/2018
Lab ID: 1808954032 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: **NIOSH 1024** — Media: SKC 226-37 Sorbent Tube — Instrument: GCI07
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	**0.0011**	NA	NA	0.0010

Sample ID: **S18T011331** — Collected: 03/24/2018
Lab ID: 1808954033 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: **NIOSH 1024** — Media: SKC 226-37 Sorbent Tube — Instrument: GCI07
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/06/2018 (212072)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011332** Collected: 03/24/2018
Lab ID: 1808954034 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011333** Collected: 03/24/2018
Lab ID: 1808954035 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011334** Collected: 03/24/2018
Lab ID: 1808954036 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011335** Collected: 03/24/2018
Lab ID: 1808954037 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011336** Collected: 03/24/2018
Lab ID: 1808954038 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011337** Collected: 03/24/2018
Lab ID: 1808954039 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011338** Collected: 03/24/2018
Lab ID: 1808954040 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/06/2018 (212072)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1808954

QC/QD pair 594505/594506 relate to samples 1808954001-020

QC/QD pair 594508/594509 relate to samples 1808954021-040

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 04/06/2018 14:05	/S/ Thomas J. Masoian 04/06/2018 15:27

Laboratory Contact Information

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Phone: (801) 266-7700
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ANALYTICAL REPORT

Workorder: **34-1808954**
Client Project ID: 20180925 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808954

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9455 (HBN: 212072)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Blank

MB: 594497
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594501
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594504
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594507
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594510
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594513
Analyzed: 04/06/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

	LCS: 594498 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample					LCSD: 594499 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0219	0.0205	107	78.0	117.6	0.0197	96.0	10.6	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808954

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9455 (HBN: 212072)
	Prepared By: NA	**Analyzed By:** Fred Rejali

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 594502 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594503 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0188	0.0205	91.4	78.0	117.6	0.0205	100	9.04	0.0	20.0

LCS: 594505 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594506 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0152	0.0171	89.1	78.0	117.6	0.0163	95.3	6.72	0.0	20.0

LCS: 594508 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594509 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0176	0.0171	103	78.0	117.6	0.0153	89.7	13.7	0.0	20.0

LCS: 594511 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594512 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0128	0.0137	93.5	78.0	117.6	0.0127	92.8	0.730	0.0	20.0

LCS: 594514 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample						LCSD: 594515 Analyzed: 04/06/2018 00:00 Dilution: 1 Units: mg/sample				
Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
1,3-Butadiene	0.0155	0.0171	90.4	78.0	117.6	0.0151	88.6	2.05	0.0	20.0

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

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
04/06/2018 14:05	04/06/2018 15:27

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

1808954

1808954

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180925

Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS- 033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011299	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-BA-EFA	CHILL -4C
2	S18T011300	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-BA-EFB	CHILL -4C
3	S18T011301	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-BA-INA	CHILL -4C
4	S18T011302	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-BA-INB	CHILL -4C
5	S18T011303	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-BL-EFA	CHILL -4C
6	S18T011304	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-BL-EFB	CHILL -4C
7	S18T011305	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-BL-INA	CHILL -4C
8	S18T011306	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-BL-INB	CHILL -4C
9	S18T011307	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-1-A	CHILL -4C
10	S18T011308	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-1-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
	Don Swenson	3-28-18 0900	JA Gradisher	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	JA Gradisher	3/28/18 1400	FEDEX		
Fed Ex			Penny A. Foote	Penny A. Foote	29-Mar-2018 0955

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 Rejnt. Date/Time: 04106118 0300

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

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C.953

Assembler: N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180925

Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WJS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011309	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-2-A	CHILL -4C
12	S18T011310	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-2-B	CHILL -4C
13	S18T011311	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-3-A	CHILL -4C
14	S18T011312	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-3-B	CHILL -4C
15	S18T011313	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-4-A	CHILL -4C
16	S18T011314	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-4-B	CHILL -4C
17	S18T011315	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-5-A	CHILL -4C
18	S18T011316	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-5-B	CHILL -4C
19	S18T011317	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-6-A	CHILL -4C
20	S18T011318	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-6-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

Send Results to Carl W Howald IV, Carl_N_Howald@rl.gov, and Keisha Garcia, Keisha_R_Garcia@rl.gov see SOW for email

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
DA Isterson	[signature]	3/28/18 0900	JA Gradisher	[signature]	3/28/18 0900
JA Gradisher WRPS	[signature]		FEDEX		
Fed Ex			Penny A. Cook	[signature]	29-Mar-2018 0955

Matrix*

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Fred Rejal 04/06/18 0300

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180925
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011319	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-7-A	CHILL -4C
22	S18T011320	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-7-B	CHILL -4C
23	S18T011321	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-EF-8-A	CHILL -4C
24	S18T011322	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-EF-8-B	CHILL -4C
25	S18T011323	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-1-A	CHILL -4C
26	S18T011324	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-1-B	CHILL -4C
27	S18T011325	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-2-A	CHILL -4C
28	S18T011326	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-2-B	CHILL -4C
29	S18T011327	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-3-A	CHILL -4C
30	S18T011328	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-3-B	CHILL -4C

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

SPECIAL INSTRUCTIONS — Hold Time

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fed Ex		Penny A. Foote	29-Mar-2018 0955

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 Rejch 04106118 Date/Time: 0300

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180925
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5864	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011329	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-4-A	CHILL -4C
32	S18T011330	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-4-B	CHILL -4C
33	S18T011331	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-5-A	CHILL -4C
34	S18T011332	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-5-B	CHILL -4C
35	S18T011333	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-6-A	CHILL -4C
36	S18T011334	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-6-B	CHILL -4C
37	S18T011335	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-7-A	CHILL -4C
38	S18T011336	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-7-B	CHILL -4C
39	S18T011337	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-9-SD1-IN-8-A	CHILL -4C
40	S18T011338	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02348-10-SD1-IN-8-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
	Don Bronson	3-27-18 0900	JA Gradisher	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	JA Gradisher	3/28/18 1400	FEDEX		
Fed Ex					

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		Fred Rajabi	04/06/18 0300

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: April 04, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011339** Collected: 03/24/2018
Lab ID: 1808940001 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011340** Collected: 03/24/2018
Lab ID: 1808940002 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011341** Collected: 03/24/2018
Lab ID: 1808940003 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011342** | Collected: 03/24/2018
Lab ID: 1808940004 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Sampling Info: Air Volume Not Provided** | **Instrument: GCI07** | **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011343** | Collected: 03/24/2018
Lab ID: 1808940005 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Sampling Info: Air Volume Not Provided** | **Instrument: GCI07** | **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011344** | Collected: 03/24/2018
Lab ID: 1808940006 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Sampling Info: Air Volume Not Provided** | **Instrument: GCI07** | **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011345** | Collected: 03/24/2018
Lab ID: 1808940007 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Sampling Info: Air Volume Not Provided** | **Instrument: GCI07** | **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011346** | Collected: 03/24/2018
Lab ID: 1808940008 | Sampling Location: 2018 Cartridge Evalu | Received: 03/29/2018
Method: NIOSH 1024 | **Media: SKC 226-37 Sorbent Tube** | **Sampling Info: Air Volume Not Provided** | **Instrument: GCI07** | **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011347** Collected: 03/24/2018
Lab ID: 1808940009 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011348** Collected: 03/24/2018
Lab ID: 1808940010 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011349** Collected: 03/24/2018
Lab ID: 1808940011 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011350** Collected: 03/24/2018
Lab ID: 1808940012 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011351** Collected: 03/24/2018
Lab ID: 1808940013 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011352**				Collected: 03/24/2018
Lab ID: 1808940014	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/04/2018 (211625)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011353**				Collected: 03/24/2018
Lab ID: 1808940015	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/04/2018 (211625)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011354**				Collected: 03/24/2018
Lab ID: 1808940016	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/04/2018 (211625)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011355**				Collected: 03/24/2018
Lab ID: 1808940017	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/04/2018 (211625)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011356**				Collected: 03/24/2018
Lab ID: 1808940018	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**			**Instrument: GCI07** **Analyzed: 04/04/2018 (211625)**
Analyte	**Result (mg/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (mg/sample)**
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011357** — Collected: 03/24/2018
Lab ID: 1808940019 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	**0.0011**	NA	NA	0.0010

Sample ID: **S18T011358** — Collected: 03/24/2018
Lab ID: 1808940020 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011359** — Collected: 03/24/2018
Lab ID: 1808940021 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011360** — Collected: 03/24/2018
Lab ID: 1808940022 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011361** — Collected: 03/24/2018
Lab ID: 1808940023 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011362** — Collected: 03/24/2018
Lab ID: 1808940024 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011363** — Collected: 03/24/2018
Lab ID: 1808940025 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011364** — Collected: 03/24/2018
Lab ID: 1808940026 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011365** — Collected: 03/24/2018
Lab ID: 1808940027 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011366** — Collected: 03/24/2018
Lab ID: 1808940028 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media:** SKC 226-37 Sorbent Tube — **Instrument:** GCI07
Sampling Info: Air Volume Not Provided — **Analyzed:** 04/04/2018 (211625)

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011367** — Collected: 03/24/2018
Lab ID: 1808940029 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media: SKC 226-37 Sorbent Tube** — **Sampling Info: Air Volume Not Provided** — **Instrument: GCI07** — **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011368** — Collected: 03/24/2018
Lab ID: 1808940030 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media: SKC 226-37 Sorbent Tube** — **Sampling Info: Air Volume Not Provided** — **Instrument: GCI07** — **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011369** — Collected: 03/24/2018
Lab ID: 1808940031 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media: SKC 226-37 Sorbent Tube** — **Sampling Info: Air Volume Not Provided** — **Instrument: GCI07** — **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011370** — Collected: 03/24/2018
Lab ID: 1808940032 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media: SKC 226-37 Sorbent Tube** — **Sampling Info: Air Volume Not Provided** — **Instrument: GCI07** — **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011371** — Collected: 03/24/2018
Lab ID: 1808940033 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018
Method: NIOSH 1024 — **Media: SKC 226-37 Sorbent Tube** — **Sampling Info: Air Volume Not Provided** — **Instrument: GCI07** — **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011372** Collected: 03/24/2018
Lab ID: 1808940034 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011373** Collected: 03/24/2018
Lab ID: 1808940035 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011374** Collected: 03/24/2018
Lab ID: 1808940036 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011375** Collected: 03/24/2018
Lab ID: 1808940037 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011376** Collected: 03/24/2018
Lab ID: 1808940038 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018
Method: NIOSH 1024 **Media: SKC 226-37 Sorbent Tube** **Instrument: GCI07**
Sampling Info: Air Volume Not Provided **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011377**		Collected: 03/24/2018
Lab ID: 1808940039	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**	**Instrument: GCI07** **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Sample ID: **S18T011378**		Collected: 03/24/2018
Lab ID: 1808940040	Sampling Location: 2018 Cartridge Evalu	Received: 03/29/2018
Method: NIOSH 1024	**Media: SKC 226-37 Sorbent Tube** **Sampling Info: Air Volume Not Provided**	**Instrument: GCI07** **Analyzed: 04/04/2018 (211625)**

Analyte	Result (mg/sample)	Result (mg/m³)	Result (ppm)	RL (mg/sample)
1,3-Butadiene	<0.0010	NA	NA	0.0010

Comments

Workorder: 1808940

QC/QD pair 594124/594125 relate to samples 1808940001-020

QC/QD pair 594127/594128 relate to samples 1808940021-040

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

Method	Analyst	Peer Review
NIOSH 1024	/S/ Fred Rejali 04/04/2018 14:21	/S/ Thomas J. Masoian 04/04/2018 17:04

Laboratory Contact Information

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960 W Levoy Drive
Salt Lake City, Utah 84123

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

ANALYTICAL REPORT

Workorder: **34-1808940**
Client Project ID: 20180926 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808940

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: NIOSH 1024
Batch: IFID/9427 (HBN: 211625)
Analyzed By: Fred Rejali

Blank

MB: 593430
Analyzed: 04/04/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594123
Analyzed: 04/04/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

MB: 594126
Analyzed: 04/04/2018 00:00
Units: mg/sample

Analyte	Result	MDL	RL
1,3-Butadiene	ND	NA	0.00100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 593431
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 593432
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
1,3-Butadiene	0.0242	0.0239	101	78.0	117.6	0.0236	98.7	2.48	0.0	20.0

LCS: 594124
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594125
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
1,3-Butadiene	0.0226	0.0239	94.5	78.0	117.6	0.0249	104	9.47	0.0	20.0

LCS: 594127
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

LCSD: 594128
Analyzed: 04/04/2018 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
1,3-Butadiene	0.0193	0.0239	80.6	78.0	117.6	0.0226	94.5	15.9	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808940

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1024
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/9427 (HBN: 211625)
	Prepared By: NA	**Analyzed By:** Fred Rejali

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

Analyst	Peer Review
/S/ Fred Rejali	/S/ Thomas J. Masoian
04/04/2018 14:21	04/04/2018 17:04

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

1808940

Asset W 1808940
N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180926
Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1078
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5860	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011339	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-BA-EFA	CHILL -4C
2	S18T011340	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-BA-EFB	CHILL -4C
3	S18T011341	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-BA-INA	CHILL -4C
4	S18T011342	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-BA-INB	CHILL -4C
5	S18T011343	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-BL-EFA	CHILL -4C
6	S18T011344	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-BL-EFB	CHILL -4C
7	S18T011345	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-BL-INA	CHILL -4C
8	S18T011346	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-BL-INB	CHILL -4C
9	S18T011347	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-BF-1-A	CHILL -4C
10	S18T011348	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-BF-1-B	CHILL -4C

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

SPECIAL INSTRUCTIONS — Hold Time

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D Jonassen	3.28.18 0900	RE Rogers	3/28/18 0900
RE Rogers	3/28/18 1400	FEDEX	
		Tawn Van Tassell	3-29-18 0855

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): used in process — Disposed By: Fred Rajala — Date/Time: 04/04/18 0700

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

A-6003-962 (03/05)

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C.969

Assembler: N/A	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180926
		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. wts-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011349	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-EF-2-A	CHILL -4C
12	S18T011350	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-EF-2-B	CHILL -4C
13	S18T011351	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-EF-3-A	CHILL -4C
14	S18T011352	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-EF-3-B	CHILL -4C
15	S18T011353	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-EF-4-A	CHILL -4C
16	S18T011354	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-EF-4-B	CHILL -4C
17	S18T011355	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-EF-5-A	CHILL -4C
18	S18T011356	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-EF-5-B	CHILL -4C
19	S18T011357	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-EF-6-A	CHILL -4C
20	S18T011358	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-EF-6-B	CHILL -4C

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

SPECIAL INSTRUCTIONS — Hold Time

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Bronson	3/28/18 0900	[illegible]	3/28/18 0900
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	3/28/18 1400	FEDEX	
Relinquished By	Date/Time	Received By	Date/Time
[illegible]		[illegible]	03-29-18
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		
SI = Sil	VA = Vapor		
A = Air	X = Other		
DS = Drum Solids			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		Fred Rejali	04/04/18 0700

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180926
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN: T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011359	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-EF-7-A	CHILL -4C
22	S18T011360	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-EF-7-B	CHILL -4C
23	S18T011361	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-EF-8-A	CHILL -4C
24	S18T011362	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-EF-8-B	CHILL -4C
25	S18T011363	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-1-A	CHILL -4C
26	S18T011364	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-1-B	CHILL -4C
27	S18T011365	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-2-A	CHILL -4C
28	S18T011366	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-2-B	CHILL -4C
29	S18T011367	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-3-A	CHILL -4C
30	S18T011368	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-3-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Bronson	3-28-18 0900		
		FEDEX	
	3/28/18 1400		3/28/18 0900
			03-29-18 9:15

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By: Fred Rajah Date/Time: 04/04/18 0700

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180926
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. WTS-033 Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No. 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011369	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-4-A	CHILL -4C
32	S18T011370	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-4-B	CHILL -4C
33	S18T011371	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-5-A	CHILL -4C
34	S18T011372	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-5-B	CHILL -4C
35	S18T011373	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-6-A	CHILL -4C
36	S18T011374	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-6-B	CHILL -4C
37	S18T011375	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-7-A	CHILL -4C
38	S18T011376	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-7-B	CHILL -4C
39	S18T011377	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-10-TL2-IN-8-A	CHILL -4C
40	S18T011378	VA	3/24/18		CHARCOAL TUBE	1,3-Butadiene 18-02351-11-TL2-IN-8-B	CHILL -4C

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

SPECIAL INSTRUCTIONS

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

Reference Contract # 55502
RELEASE 15
NIOSH 1024 CHILL BELOW -4 C

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Lawson	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1400	FEDEX	
[illegible]		[illegible] Tami VanTassell	03-28-18 [illegible]

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		Fred Rajah	04/04/18 0700

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

A-6003-962 (03/05)

C.4.11 Pyridines

ANALYTICAL REPORT

Report Date: April 05, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011099**				Collected: 03/23/2018
Lab ID: 1808941001	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/02/2018 (211667)
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: **S18T011100**				Collected: 03/23/2018
Lab ID: 1808941002	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/02/2018 (211667)
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: **S18T011101**				Collected: 03/23/2018
Lab ID: 1808941003	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/02/2018 (211667)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011102**			Collected: 03/23/2018
Lab ID: 1808941004	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

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: **S18T011103**			Collected: 03/23/2018
Lab ID: 1808941005	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

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: **S18T011104**			Collected: 03/23/2018
Lab ID: 1808941006	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

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: **S18T011105**			Collected: 03/23/2018
Lab ID: 1808941007	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011106**			Collected: 03/23/2018
Lab ID: 1808941008	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

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: **S18T011107**			Collected: 03/23/2018
Lab ID: 1808941009	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

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: **S18T011108**			Collected: 03/23/2018
Lab ID: 1808941010	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

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: **S18T011109**			Collected: 03/23/2018
Lab ID: 1808941011	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211667)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011110**				Collected: 03/23/2018
Lab ID: 1808941012	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/02/2018 (211667)
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: **S18T011111**				Collected: 03/23/2018
Lab ID: 1808941013	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211667)
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: **S18T011112**				Collected: 03/23/2018
Lab ID: 1808941014	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211667)
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: **S18T011113**				Collected: 03/23/2018
Lab ID: 1808941015	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/03/2018 (211667)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011114**			Collected: 03/23/2018
Lab ID: 1808941016	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211667)

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: **S18T011115**			Collected: 03/23/2018
Lab ID: 1808941017	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211667)

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: **S18T011116**			Collected: 03/23/2018
Lab ID: 1808941018	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211667)

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: **S18T011117**			Collected: 03/23/2018
Lab ID: 1808941019	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211667)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011118**			Collected: 03/23/2018
Lab ID: 1808941020	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211667)

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: **S18T011119**			Collected: 03/23/2018
Lab ID: 1808941021	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211669)

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: **S18T011120**			Collected: 03/23/2018
Lab ID: 1808941022	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211669)

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: **S18T011121**			Collected: 03/23/2018
Lab ID: 1808941023	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211669)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011122**			Collected: 03/23/2018
Lab ID: 1808941024	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211669)

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: **S18T011123**			Collected: 03/23/2018
Lab ID: 1808941025	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211669)

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: **S18T011124**			Collected: 03/23/2018
Lab ID: 1808941026	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/02/2018 (211669)

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: **S18T011125**			Collected: 03/23/2018
Lab ID: 1808941027	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011126**			Collected: 03/23/2018
Lab ID: 1808941028	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011127**			Collected: 03/23/2018
Lab ID: 1808941029	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011128**			Collected: 03/23/2018
Lab ID: 1808941030	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011129**			Collected: 03/23/2018
Lab ID: 1808941031	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011130**			Collected: 03/23/2018
Lab ID: 1808941032	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011131**			Collected: 03/23/2018
Lab ID: 1808941033	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011132**			Collected: 03/23/2018
Lab ID: 1808941034	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011133**			Collected: 03/23/2018
Lab ID: 1808941035	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011134**			Collected: 03/23/2018
Lab ID: 1808941036	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011135**			Collected: 03/23/2018
Lab ID: 1808941037	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011136**			Collected: 03/23/2018
Lab ID: 1808941038	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

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: **S18T011137**			Collected: 03/23/2018
Lab ID: 1808941039	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211669)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011138** — Collected: 03/23/2018
Lab ID: 1808941040 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018

Method: NIOSH 1613 Mod. — Media: SKC 226-01, Charcoal Tube 100/50mg — Instrument: 5975-B
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/03/2018 (211669)

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

Comments

Workorder: 1808941

Samples 1808941001-020 are associated with QC samples 593580, 593581, and 593582. Samples 1808941021-040 are associated with QC samples 593594, 593595, and 593596.

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 04/04/2018 14:21	/S/ Benson Boy 04/05/2018 13:55

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808941**
Client Project ID: 20180919 032318
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808941

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1613 Mod.
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ISVO/3883 (HBN: 211667)
	Prepared By: NA	**Analyzed By:** David Teynor

Blank

LMB: 593580
Analyzed: 04/02/2018 14:37
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: 593581
Analyzed: 04/02/2018 14:58
Dilution: 1
Units: ug/sample

LCSD: 593582
Analyzed: 04/02/2018 15:19
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Pyridine	4.98	5.00	99.6	28.7	141.2	5.11	102	2.66	0.0	22.1
2,4-Dimethylpyridine	4.80	5.00	96.0	18.3	119.1	4.91	98.3	2.34	0.0	22.2

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

Analyst	Peer Review
/S/ David Teynor	/S/ Benson Boy
04/04/2018 14:21	04/05/2018 13:54

Symbols and Definitions

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

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808941

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1613 Mod.
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ISVO/3884 (HBN: 211669)
	Prepared By: NA	**Analyzed By:** David Teynor

Blank

LMB: 593594
Analyzed: 04/02/2018 18:36
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: 593595 Analyzed: 04/02/2018 18:15 Dilution: 1 Units: ug/sample					LCSD: 593596 Analyzed: 04/02/2018 18:58 Dilution: 1 Units: ug/sample				
Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Pyridine	4.85	5.00	97.1	28.7	141.2	5.02	100	3.38	0.0	22.1
2,4-Dimethylpyridine	4.86	5.00	97.2	18.3	119.1	5.01	100	2.95	0.0	22.2

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

Analyst	Peer Review
/S/ David Teynor	/S/ Benson Boy
04/04/2018 11:57	04/05/2018 13:54

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

1808941

Ass. # 1808941
N/A

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180919
Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No: 373-6861	MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011099	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-BA-EF	N/A
2	S18T011100	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-BA-IN	N/A
3	S18T011101	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-BL-EF	N/A
4	S18T011102	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-BL-IN	N/A
5	S18T011103	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-1	N/A
6	S18T011104	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-2	N/A
7	S18T011105	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-3	N/A
8	S18T011106	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-4	N/A
9	S18T011107	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-5	N/A
10	S18T011108	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

	Print	Sign	Date/Time
Relinquished By	Don Sorenson		3/28/18 0900
Received By	JA Gradisher	JA Gradisher	3/28/18 0900
Relinquished By	JA Gradisher WRPS	JA Gradisher	3/28/18 1400
Received By	FEDEX		Date/Time
Relinquished By	fedex		Date/Time
Received By	Tawnia Jarrell Tawni VanTassell		03-29-18 9:55
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): DOT — Disposed By — Date/Time: 4/3/18 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)

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C.987

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180919
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp. ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011109	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-7	N/A
12	S18T011110	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-EF-8	N/A
13	S18T011111	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-1	N/A
14	S18T011112	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-2	N/A
15	S18T011113	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-3	N/A
16	S18T011114	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-4	N/A
17	S18T011115	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-5	N/A
18	S18T011116	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-6	N/A
19	S18T011117	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-7	N/A
20	S18T011118	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02349-11-SC1-IN-8	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	J A Gradishar	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
		Tami VanTassell	03-29-18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	DOT	[illegible]	3/29/18 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)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No.
N/A		20180919
		Page 3 of 4

Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05
SAF No. N/A	Sample Origin 2018 CARTRIDGE EVALUATION	FAX N/A	Purchase Order/Charge Code 203606/CB20
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No. 7718 5822 5866	
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No. 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011119	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-BA-EF	N/A
22	S18T011120	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-BA-IN	N/A
23	S18T011121	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-BL-EF	N/A
24	S18T011122	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-BL-IN	N/A
25	S18T011123	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-1	N/A
26	S18T011124	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-2	N/A
27	S18T011125	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-3	N/A
28	S18T011126	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-4	N/A
29	S18T011127	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-5	N/A
30	S18T011128	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Don Strenge			3-28-18 0900	JA Gradisher			3/28/18 0900
Relinquished By			Date/Time	Received By			Date/Time
JA Gradisher WRPS			3/28/18 1400				
Relinquished By			Date/Time	Received By	FEDEX		Date/Time
							03-29-18 0925
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	DJT		4/2/18 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)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180919
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011129	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-7	N/A
32	S18T011130	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-EF-8	N/A
33	S18T011131	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-1	N/A
34	S18T011132	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-2	N/A
35	S18T011133	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-3	N/A
36	S18T011134	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-4	N/A
37	S18T011135	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-5	N/A
38	S18T011136	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-6	N/A
39	S18T011137	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-7	N/A
40	S18T011138	VA	03/23/18		CHARCOAL TUBE	Pyridines 18-02350-12-TL1-IN-8	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Dan Simonson	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
		Tam Van Tassell	03778455

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	DOT		4/2/18 10100

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: April 05, 2018

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

Phone: (509) 373-1262

E-mail: robert_w_sosa@rl.gov

Workorder: 34-1808957
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011139** Collected: 03/24/2018
Lab ID: 1808957001 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1613 Mod. **Media:** SKC 226-01, Charcoal Tube 100/50mg **Instrument:** 5975-A
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211670)

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: **S18T011140** Collected: 03/24/2018
Lab ID: 1808957002 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1613 Mod. **Media:** SKC 226-01, Charcoal Tube 100/50mg **Instrument:** 5975-A
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211670)

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: **S18T011141** Collected: 03/24/2018
Lab ID: 1808957003 Sampling Location: 2018 Cartridge Evalu Received: 03/29/2018

Method: NIOSH 1613 Mod. **Media:** SKC 226-01, Charcoal Tube 100/50mg **Instrument:** 5975-A
Sampling Info: Air Volume Not Provided **Analyzed:** 04/03/2018 (211670)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011142**			Collected: 03/24/2018
Lab ID: 1808957004	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

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: **S18T011143**			Collected: 03/24/2018
Lab ID: 1808957005	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

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: **S18T011144**			Collected: 03/24/2018
Lab ID: 1808957006	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

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: **S18T011145**			Collected: 03/24/2018
Lab ID: 1808957007	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011146**			Collected: 03/24/2018
Lab ID: 1808957008	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

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: **S18T011147**			Collected: 03/24/2018
Lab ID: 1808957009	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

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: **S18T011148**			Collected: 03/24/2018
Lab ID: 1808957010	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

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: **S18T011149**			Collected: 03/24/2018
Lab ID: 1808957011	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211670)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011150**				Collected: 03/24/2018
Lab ID: 1808957012	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211670)
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: **S18T011151**				Collected: 03/24/2018
Lab ID: 1808957013	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211670)
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: **S18T011152**				Collected: 03/24/2018
Lab ID: 1808957014	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211670)
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: **S18T011153**				Collected: 03/24/2018
Lab ID: 1808957015	Sampling Location: 2018 Cartridge Evalu			Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg			**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided			**Analyzed:** 04/04/2018 (211670)
Analyte	**Result (ug/sample)**	**Result (mg/m³)**	**Result (ppm)**	**RL (ug/sample)**
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011154**			Collected: 03/24/2018
Lab ID: 1808957016	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211670)

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: **S18T011155**			Collected: 03/24/2018
Lab ID: 1808957017	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211670)

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: **S18T011156**			Collected: 03/24/2018
Lab ID: 1808957018	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211670)

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: **S18T011157**			Collected: 03/24/2018
Lab ID: 1808957019	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211670)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011158**			Collected: 03/24/2018
Lab ID: 1808957020	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-A
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211670)

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: **S18T011159**			Collected: 03/24/2018
Lab ID: 1808957021	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

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: **S18T011160**			Collected: 03/24/2018
Lab ID: 1808957022	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

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: **S18T011161**			Collected: 03/24/2018
Lab ID: 1808957023	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011162**			Collected: 03/24/2018
Lab ID: 1808957024	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

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: **S18T011163**			Collected: 03/24/2018
Lab ID: 1808957025	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

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: **S18T011164**			Collected: 03/24/2018
Lab ID: 1808957026	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

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: **S18T011165**			Collected: 03/24/2018
Lab ID: 1808957027	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011166**			Collected: 03/24/2018
Lab ID: 1808957028	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/03/2018 (211671)

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: **S18T011167**			Collected: 03/24/2018
Lab ID: 1808957029	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011168**			Collected: 03/24/2018
Lab ID: 1808957030	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011169**			Collected: 03/24/2018
Lab ID: 1808957031	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011170**			Collected: 03/24/2018
Lab ID: 1808957032	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011171**			Collected: 03/24/2018
Lab ID: 1808957033	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011172**			Collected: 03/24/2018
Lab ID: 1808957034	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011173**			Collected: 03/24/2018
Lab ID: 1808957035	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011174**			Collected: 03/24/2018
Lab ID: 1808957036	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011175**			Collected: 03/24/2018
Lab ID: 1808957037	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011176**			Collected: 03/24/2018
Lab ID: 1808957038	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

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: **S18T011177**			Collected: 03/24/2018
Lab ID: 1808957039	Sampling Location: 2018 Cartridge Evalu		Received: 03/29/2018
Method: NIOSH 1613 Mod.	**Media:** SKC 226-01, Charcoal Tube 100/50mg		**Instrument:** 5975-B
	Sampling Info: Air Volume Not Provided		**Analyzed:** 04/04/2018 (211671)

Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Pyridine	<0.50	NA	NA	0.50
2,4-Dimethylpyridine	<0.50	NA	NA	0.50

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

Analytical Results

Sample ID: **S18T011178** — Collected: 03/24/2018
Lab ID: 1808957040 — Sampling Location: 2018 Cartridge Evalu — Received: 03/29/2018

Method: **NIOSH 1613 Mod.** — Media: SKC 226-01, Charcoal Tube 100/50mg — Instrument: 5975-B
Sampling Info: **Air Volume Not Provided** — Analyzed: 04/04/2018 (211671)

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

Comments

Workorder: 1808957

Samples 1808957001-020 are associated with QC samples 593598, 593599, and 293600. Samples 1808957021-040 are associated with QC samples 593602, 593603, and 593604.

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 04/04/2018 15:30	/S/ Benson Boy 04/05/2018 16:29

Laboratory Contact Information

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

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

ANALYTICAL REPORT

Workorder: **34-1808957**
Client Project ID: 20180920 032418
Purchase Order: 55502 Rel15
Project Manager: Rand Potter

General Lab Comments

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

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

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

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

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

Definitions

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

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

Rand Potter, Project Manager, ALS Environmental

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808957

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1613 Mod.
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ISVO/3885 (HBN: 211670)
	Prepared By: NA	**Analyzed By:** David Teynor

Blank

LMB: 593598
Analyzed: 04/03/2018 14:57
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: 593599
Analyzed: 04/03/2018 15:18
Dilution: 1
Units: ug/sample

LCSD: 593600
Analyzed: 04/03/2018 15:39
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Pyridine	5.18	5.00	104	28.7	141.2	5.13	103	0.995	0.0	22.1
2,4-Dimethylpyridine	5.00	5.00	100	18.3	119.1	4.92	98.3	1.74	0.0	22.2

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

Analyst	Peer Review
/S/ David Teynor	/S/ Benson Boy
04/04/2018 15:02	04/05/2018 16:29

Symbols and Definitions

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

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

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1808957

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 1613 Mod.
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** ISVO/3886 (HBN: 211671)
	Prepared By: NA	**Analyzed By:** David Teynor

Blank

LMB: 593602
Analyzed: 04/03/2018 16:46
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: 593603
Analyzed: 04/03/2018 17:08
Dilution: 1
Units: ug/sample

LCSD: 593604
Analyzed: 04/03/2018 17:29
Dilution: 1
Units: ug/sample

Analyte	Result	Target	%Rec	QC Limits		Result	%Rec	RPD	QC Limits	
Pyridine	4.54	5.00	90.7	28.7	141.2	4.73	94.7	4.23	0.0	22.1
2,4-Dimethylpyridine	4.51	5.00	90.2	18.3	119.1	4.68	93.5	3.63	0.0	22.2

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

Analyst	Peer Review
/S/ David Teynor	/S/ Benson Boy
04/04/2018 15:30	04/05/2018 16:29

Symbols and Definitions

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

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

1808957

N/A W

1808957

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20180920

Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033	Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 771858225866	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1	S18T011139	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-BA-EF	N/A
2	S18T011140	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-BA-IN	N/A
3	S18T011141	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-BL-EF	N/A
4	S18T011142	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-BL-IN	N/A
5	S18T011143	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-1	N/A
6	S18T011144	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-2	N/A
7	S18T011145	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-3	N/A
8	S18T011146	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-4	N/A
9	S18T011147	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-5	N/A
10	S18T011148	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

Send Results to Carl Howald IV & 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
DR Sorenson	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400		
Fedex		FEDEX	
		Desiree Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): PJT — Disposed By — Date/Time: 4/3/18 10:00

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

A-6003-962 (03/05)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180920
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WIS-033 Temp.: ON Ice
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
11	S18T011149	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-7	N/A
12	S18T011150	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-EF-8	N/A
13	S18T011151	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-1	N/A
14	S18T011152	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-2	N/A
15	S18T011153	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-3	N/A
16	S18T011154	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-4	N/A
17	S18T011155	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-5	N/A
18	S18T011156	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-6	N/A
19	S18T011157	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-7	N/A
20	S18T011158	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02348-11-SD1-IN-8	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3/28/18 0900	JA Gradishar	3/28/18 0900
JA Gradishar WRPS	3/28/18 1400	FEDEX	
FedEx		Delinel Hill	03/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process): DJT — Disposed By — Date/Time: 4/3/18 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)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180920
N/A		Page 3 of 4

Collector WAY	Contact/Requestor CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX N/A
SAF No. N/A	Sample Origin 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code 203006/CB20	
Project Title 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No. N/A	Ice Chest No. WTS-033	Temp. ON ICE
Shipped To (Lab) ALS	Method of Shipment	Bill of Lading/Air Bill No.	771858225 58666
Protocol N/A	Data Turnaround 10 DAYS	Parts and Return No.	43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
21	S18T011159	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-BA-EF	N/A
22	S18T011160	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-BA-IN	N/A
23	S18T011161	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-BL-EF	N/A
24	S18T011162	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-BL-IN	N/A
25	S18T011163	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-1	N/A
26	S18T011164	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-2	N/A
27	S18T011165	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-3	N/A
28	S18T011166	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-4	N/A
29	S18T011167	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-5	N/A
30	S18T011168	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

RELEASE 15
Reference Contract # 55502

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Jardine	3.27.18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fedex		Desiree Hill	3/28/18 9:5

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): DOT — Disposed By — Date/Time 4/3/18 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)

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180920
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX N/A
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.: WTS-033 Temp.: ON ICE
Shipped To (Lab): ALS	Method of Shipment	Bill of Lading/Air Bill No.: 7718 5822 5866
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.: 43795

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
31	S18T011169	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-7	N/A
32	S18T011170	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-EF-8	N/A
33	S18T011171	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-1	N/A
34	S18T011172	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-2	N/A
35	S18T011173	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-3	N/A
36	S18T011174	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-4	N/A
37	S18T011175	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-5	N/A
38	S18T011176	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-6	N/A
39	S18T011177	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-7	N/A
40	S18T011178	VA	03/24/18		CHARCOAL TUBE	Pyridines 18-02351-12-TL2-IN-8	N/A

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

SPECIAL INSTRUCTIONS

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

RELEASE 15
Reference Contract # 55502

Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brenton	3-28-18 0900	JA Gradisher	3/28/18 0900
JA Gradisher WRPS	3/28/18 1400	FEDEX	
Fedex		Dennett Hill	3/29/18 9:55

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	DDT		4/3/18 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)

C.4.12 Nitrosamines

RJ LEE GROUP

RJ Lee Group, Inc. | Columbia Basin Analytical Laboratories
2710 North 20th Avenue, Pasco WA 99301
Tel: (509) 545-4989 | Fax: (509) 544-6010

Carl Howald IV
Washington River Protection Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352
2018 Cartridge Evaluation

06/08/18
Contract: 55503 R9

Subject: Nitrosamines Analysis Report, Group Number 20180933

Enclosed is the final report for group 20180933 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20180933 has been assigned a Columbia Basin Analytical Laboratories login order number of W803176. This report consists of a summary report of the samples, a single quality control report for the analysis batch, and a copy of the chain of custody.

General Set Comments

Columbia Basin Analytical Laboratories received 40 samples on 03/28/18 to be tested for Nitrosamines. The samples were analyzed in accordance with NIOSH 2522-Modified for N-Nitrosodimethylamine, N-Nitrosomethylethylamine, N-Nitrosodiethylamine, N-Nitrosodi-n-propylamine, N-Nitrosodi-n-butylamine, N-Nitrosopiperidine, N-Nitrosopyrrolidine,and N-Nitrosomorpholine. All results have been corrected for desorption efficiency and measurable levels in the blanks.

Recent changes to the extraction solvent mixture in combination with apparent variations in the sampling mediaresulted in unpredictable extraction efficiencies. These inconsistencies were observed by batch QC analysis. Ultimately samples were quantitatively eluted and the results presented herein should be considered quantitative. All data qualifiers have been maticulously applied according to our SOP.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples.

SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-EF	04/02/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	J
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-BA-IN	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	J

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-EF	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-BL-IN	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-1	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-2	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-3	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-4	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-5	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02349-12-SC1-EF-6	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-7	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	I
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02349-12-SC1-EF-8	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	I

RJ LEE GROUP

SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02349-12-SC1-IN-1	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-1	05/03/18	N-Nitrosodimethylamine	62-75-9	5.961	0.112	µg/tube	D l,m
18-02349-12-SC1-IN-1	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-1	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-1	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.051	0.011	µg/tube	l
18-02349-12-SC1-IN-1	04/04/18	N-Nitrosomorpholine	59-89-2	0.022	0.011	µg/tube	l
18-02349-12-SC1-IN-1	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-1	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	l,m
18-02349-12-SC1-IN-2	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-2	05/03/18	N-Nitrosodimethylamine	62-75-9	5.993	0.112	µg/tube	D l,m
18-02349-12-SC1-IN-2	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-2	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-2	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.055	0.011	µg/tube	l
18-02349-12-SC1-IN-2	04/04/18	N-Nitrosomorpholine	59-89-2	0.023	0.011	µg/tube	l
18-02349-12-SC1-IN-2	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-2	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	l,m
18-02349-12-SC1-IN-3	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-3	05/03/18	N-Nitrosodimethylamine	62-75-9	5.439	0.112	µg/tube	D l,m
18-02349-12-SC1-IN-3	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-3	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-3	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.050	0.011	µg/tube	l
18-02349-12-SC1-IN-3	04/04/18	N-Nitrosomorpholine	59-89-2	0.014	0.011	µg/tube	l
18-02349-12-SC1-IN-3	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-3	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	l,m
18-02349-12-SC1-IN-4	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-4	05/03/18	N-Nitrosodimethylamine	62-75-9	4.778	0.112	µg/tube	D l,m
18-02349-12-SC1-IN-4	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-4	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-4	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.045	0.011	µg/tube	l
18-02349-12-SC1-IN-4	04/04/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-4	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-4	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	l,m
18-02349-12-SC1-IN-5	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-5	04/24/18	N-Nitrosodimethylamine	62-75-9	4.089	0.112	µg/tube	D l,m
18-02349-12-SC1-IN-5	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-5	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-5	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.043	0.011	µg/tube	l
18-02349-12-SC1-IN-5	04/05/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-5	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-5	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	l,m

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02349-12-SC1-IN-6	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-6	04/24/18	N-Nitrosodimethylamine	62-75-9	4.204	0.112	µg/tube	D lm
18-02349-12-SC1-IN-6	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-6	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-6	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.044	0.011	µg/tube	l
18-02349-12-SC1-IN-6	04/05/18	N-Nitrosomorpholine	59-89-2	0.011	0.011	µg/tube	X l
18-02349-12-SC1-IN-6	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-6	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	lm
18-02349-12-SC1-IN-7	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-7	04/04/18	N-Nitrosodimethylamine	62-75-9	3.754	0.112	µg/tube	D lm
18-02349-12-SC1-IN-7	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-7	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-7	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.043	0.011	µg/tube	l
18-02349-12-SC1-IN-7	04/05/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-7	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-7	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	lm
18-02349-12-SC1-IN-8	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-8	04/24/18	N-Nitrosodimethylamine	62-75-9	3.700	0.112	µg/tube	DC lm
18-02349-12-SC1-IN-8	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-8	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02349-12-SC1-IN-8	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.039	0.011	µg/tube	l
18-02349-12-SC1-IN-8	04/05/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-8	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	l
18-02349-12-SC1-IN-8	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	µg/tube	lm
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-EF	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-BA-IN	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	l

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-EF	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-BL-IN	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-1	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-2	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-3	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	I

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-4	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-5	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	µg/tube	
18-02350-13-TL1-EF-6	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosodimethylamine	62-75-9	<0.015	0.015	µg/tube	lm
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosomethylethylamine	10595-95-6	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-7	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosodimethylamine	62-75-9	<0.015	0.015	µg/tube	lm
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosomethylethylamine	10595-95-6	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-EF-8	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02350-13-TL1-IN-1	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-1	05/03/18	N-Nitrosodimethylamine	62-75-9	7.854	0.149	µg/tube	DC lm
18-02350-13-TL1-IN-1	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-1	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-1	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.064	0.014	µg/tube	l
18-02350-13-TL1-IN-1	04/05/18	N-Nitrosomorpholine	59-89-2	0.026	0.014	µg/tube	l
18-02350-13-TL1-IN-1	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-1	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l
18-02350-13-TL1-IN-2	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-2	05/03/18	N-Nitrosodimethylamine	62-75-9	6.650	0.149	µg/tube	D lm
18-02350-13-TL1-IN-2	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-2	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-2	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.056	0.014	µg/tube	l
18-02350-13-TL1-IN-2	04/05/18	N-Nitrosomorpholine	59-89-2	0.019	0.014	µg/tube	l
18-02350-13-TL1-IN-2	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-2	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l
18-02350-13-TL1-IN-3	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-3	05/03/18	N-Nitrosodimethylamine	62-75-9	6.328	0.149	µg/tube	D lm
18-02350-13-TL1-IN-3	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-3	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-3	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.052	0.014	µg/tube	l
18-02350-13-TL1-IN-3	04/05/18	N-Nitrosomorpholine	59-89-2	0.015	0.014	µg/tube	X l
18-02350-13-TL1-IN-3	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-3	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l
18-02350-13-TL1-IN-4	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-4	05/03/18	N-Nitrosodimethylamine	62-75-9	6.599	0.149	µg/tube	D lm
18-02350-13-TL1-IN-4	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-4	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-4	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.056	0.014	µg/tube	l
18-02350-13-TL1-IN-4	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-4	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-4	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l
18-02350-13-TL1-IN-5	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-5	04/24/18	N-Nitrosodimethylamine	62-75-9	5.630	0.149	µg/tube	DC lm
18-02350-13-TL1-IN-5	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	*
18-02350-13-TL1-IN-5	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-5	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.050	0.014	µg/tube	l
18-02350-13-TL1-IN-5	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-5	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-5	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02350-13-TL1-IN-6	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-6	04/24/18	N-Nitrosodimethylamine	62-75-9	5.567	0.149	µg/tube	D lm
18-02350-13-TL1-IN-6	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-6	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-6	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.054	0.014	µg/tube	l
18-02350-13-TL1-IN-6	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-6	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-6	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l
18-02350-13-TL1-IN-7	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-7	04/24/18	N-Nitrosodimethylamine	62-75-9	5.184	0.149	µg/tube	D lm
18-02350-13-TL1-IN-7	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	*
18-02350-13-TL1-IN-7	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-7	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.052	0.014	µg/tube	l
18-02350-13-TL1-IN-7	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-7	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-7	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l
18-02350-13-TL1-IN-8	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	µg/tube	l
18-02350-13-TL1-IN-8	04/24/18	N-Nitrosodimethylamine	62-75-9	4.776	0.149	µg/tube	D lm
18-02350-13-TL1-IN-8	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-8	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	µg/tube	
18-02350-13-TL1-IN-8	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.047	0.014	µg/tube	l
18-02350-13-TL1-IN-8	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-8	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	µg/tube	l
18-02350-13-TL1-IN-8	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	µg/tube	l

Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV. There were recovery failures in the LCS, MRL.

RSD Failures in the LCS

There were 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 Nitrosamines had an R-value that was 0.995 or better, over a range of 5.00 ng/mL to 1,000.00 ng/mL.

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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.

05/14/18

Scientist III J Grissmerson

If you have any questions, please feel free to contact J Grissmerson at jgrissmerson@rjleegroup.com or at 509-545-4989.

This report has been reviewed and approved by the following individual:

06/08/18

Office Manager JJ Furlong

RJ LEE GROUP

Carl Howald IV
Washington River Protection Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352

Laboratory Report

NIOSH 2522-Modified
on
Summary Table

RJ Lee Work Order: W803176
COC No.: 20180933
Samples Received: 03/28/18
Extraction Date: 04/02/18
Report Date: 06/08/18

Client Project: 2018 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-BA-EF | S18T011623	03/23/18	04/02/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-BA-IN | S18T011624	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-BL-EF | S18T011625	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-BL-IN | S18T011625	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-EF-1 | S18T011627	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-EF-2 | S18T011628	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-EF-3 | S18T011629	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-EF-4 | S18T011630	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-EF-5 | S18T011631	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02349-12-SC1-EF-6 | S18T011632	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02349-12-SC1-EF-7 | S18T011633	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	J
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.011	0.011	
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02349-12-SC1-EF-8 | S18T011634	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	J

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18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.470	0.011	J
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	4.839	0.112	JD
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.635	0.037	Jm
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	0.017	0.010	Jm
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.051	0.011	J
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosomorpholine	59-89-2	0.022	0.011	J
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-1 | S18T011635	03/23/18	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.568	0.011	J
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	4.898	0.112	JD
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.512	0.037	J
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	0.015	0.010	Jm
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.055	0.011	J
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosomorpholine	59-89-2	0.023	0.011	J
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-2 | S18T011636	03/23/18	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.785	0.011	J
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	4.124	0.112	JD
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.517	0.037	Jm
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	0.013	0.010	Jm
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.050	0.011	J
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosomorpholine	59-89-2	0.014	0.011	J
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-3 | S18T011637	03/23/18	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm

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18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.454	0.011	J
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	3.924	0.112	JD
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.401	0.037	Jm
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosomethylethylamine	10595-95-6	0.045	0.011	J
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	J
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-4 | S18T011638	03/23/18	04/04/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.481	0.011	J
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	3.404	0.112	JD
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.204	0.037	Jm
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.043	0.011	J
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	J
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-5 | S18T011639	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.663	0.011	J
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	3.393	0.112	JD
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.148	0.037	Jm
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.044	0.011	J
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	0.011	0.011	JX
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-6 | S18T011640	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm

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18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.252	0.011	
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	3.502	0.112	JD
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.043	0.011	J
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	J
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-7 | S18T011641	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	J
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	0.413	0.011	
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/04/18	N-Nitrosodimethylamine	62-75-9	3.147	0.112	J D
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.140	0.037	C Jm
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.010	0.010	
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.039	0.011	J
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	J
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	J
18-02349-12-SC1-IN-8 | S18T011642	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.013	0.013	Jm
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-BA-EF | S18T011643	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-BA-IN | S18T011644	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J

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18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-BL-EF | S18T011645	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-BL-IN | S18T011646	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-EF-1 | S18T011647	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-EF-2 | S18T011648	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J

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18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-EF-3 | S18T011649	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-EF-4 | S18T011650	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-EF-5 | S18T011651	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosodiethylamine	55-18-5	<0.012	0.012	
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosodimethylamine	62-75-9	<0.012	0.012	
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosomethylethylamine	10595-95-6	<0.012	0.012	
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosomorpholine	59-89-2	<0.012	0.012	
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosopiperidine	100-75-4	<0.012	0.012	
18-02350-13-TL1-EF-6 | S18T011652	03/23/18	04/03/18	N-Nitrosopyrrolidine	930-55-2	<0.014	0.014	J

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18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	l
18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	<0.015	0.015	lm
18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	<0.014	0.014	l
18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	l
18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	l
18-02350-13-TL1-EF-7 | S18T011653	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	l
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	l
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	<0.015	0.015	lm
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	<0.014	0.014	l
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	l
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	l
18-02350-13-TL1-EF-8 | S18T011654	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	l

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18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	ļ
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	1.554	0.015	ļm
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	6.145	0.149	D ļm
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.135	0.037	C ļm
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	0.020	0.010	
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.064	0.014	ļ
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	0.026	0.014	ļ
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	ļ
18-02350-13-TL1-IN-1 | S18T011655	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	ļ
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	ļ
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	0.531	0.015	ļm
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	5.360	0.149	D ļm
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.743	0.037	ļm
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	0.016	0.010	
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.056	0.014	ļ
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	0.019	0.014	ļ
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	ļ
18-02350-13-TL1-IN-2 | S18T011656	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	ļ

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18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	1.131	0.015	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	4.538	0.149	D
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.640	0.037	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	0.019	0.010	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.052	0.014	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	0.015	0.014	X
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	
18-02350-13-TL1-IN-3 | S18T011657	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	0.866	0.015	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	4.938	0.149	D
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.780	0.037	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	05/03/18	N-Nitrosodimethylamine	62-75-9	0.015	0.010	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.056	0.014	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	
18-02350-13-TL1-IN-4 | S18T011658	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	

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18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	0.700	0.015	
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	4.306	0.149	D
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.623	0.037	C
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	*
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.050	0.014	
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	
18-02350-13-TL1-IN-5 | S18T011659	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	0.745	0.015	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	4.560	0.149	D
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.262	0.037	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.054	0.014	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	
18-02350-13-TL1-IN-6 | S18T011660	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	0.596	0.015	
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	4.353	0.149	D
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.235	0.037	
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	*
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.052	0.014	
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	
18-02350-13-TL1-IN-7 | S18T011661	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosodiethylamine	55-18-5	<0.013	0.013	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosodimethylamine	62-75-9	0.559	0.015	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/23/18	N-Nitrosodimethylamine	62-75-9	3.960	0.149	D
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/24/18	N-Nitrosodimethylamine	62-75-9	0.257	0.037	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosodi-n-propylamine	621-64-7	<0.011	0.011	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosomethylethylamine	10595-95-6	0.047	0.014	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosomorpholine	59-89-2	<0.014	0.014	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosopiperidine	100-75-4	<0.014	0.014	
18-02350-13-TL1-IN-8 | S18T011662	03/23/18	04/05/18	N-Nitrosopyrrolidine	930-55-2	<0.022	0.022	

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P.O. Box 850 MSIN H1-40
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Quality Control

NIOSH 2522-Modified

RJ Lee Work Order: W803176
COC No.: 20180933
Samples Received: 03/28/18
Extraction Date: 04/02/18
Report Date: 06/08/18

Client Project: 2018 Cartridge Evaluation

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	LCS1	04/02/18	0.200	0.185	0.86		9.31	92.3	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS1	04/03/18	0.200	0.202	0.90		11.64	101	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS1	04/05/18	0.200	0.159	0.77		15.25	79.7	70 - 130	
N-Nitrosodiethylamine	55-18-5	LCS1	04/24/18	0.200	0.110	0.39		35.83	55.1	70 - 130	¦ Rd
N-Nitrosodimethylamine	62-75-9	LCS1	04/02/18	0.200	0.176	0.83		7.95	87.7	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS1	04/03/18	0.200	0.207	0.89		15.16	103	81.8 - 134	R
N-Nitrosodimethylamine	62-75-9	LCS1	04/05/18	0.200	0.140	0.67		25.02	69.8	70 - 130	¦ Rd
N-Nitrosodimethylamine	62-75-9	LCS1	04/24/18	0.200	0.093	0.27		63.13	46.3	70 - 130	¦ Rd
N-Nitrosodi-n-butylamine	924-16-3	LCS1	04/02/18	0.201	0.209	0.94		11.99	104	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS1	04/03/18	0.201	0.212	0.98		8.72	106	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS1	04/05/18	0.201	0.186	0.93		5.77	92.7	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS1	04/24/18	0.201	0.147	0.62		20.45	73.4	70 - 130	Rd
N-Nitrosodi-n-propylamine	621-64-7	LCS1	04/02/18	0.200	0.201	0.92		10.69	100	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS1	04/03/18	0.200	0.212	0.96		11.49	106	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS1	04/05/18	0.200	0.183	0.90		7.36	91.2	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS1	04/24/18	0.200	0.137	0.53		25.73	68.2	70 - 130	¦ Rd
N-Nitrosomethylethylamine	10595-95-6	LCS1	04/02/18	0.200	0.179	0.85		9.12	89.2	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS1	04/03/18	0.200	0.203	0.89		13.63	102	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS1	04/05/18	0.200	0.150	0.72		19.38	74.9	70 - 130	Rd
N-Nitrosomethylethylamine	10595-95-6	LCS1	04/24/18	0.200	0.105	0.33		50.92	52.3	70 - 130	¦ Rd
N-Nitrosomorpholine	59-89-2	LCS1	04/02/18	0.200	0.180	0.83		9.69	89.7	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS1	04/03/18	0.200	0.201	0.88		13.34	100	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS1	04/05/18	0.200	0.150	0.73		18.38	74.6	70 - 130	Rd
N-Nitrosomorpholine	59-89-2	LCS1	04/24/18	0.200	0.107	0.35		46.95	53.6	70 - 130	¦Rd
N-Nitrosopiperidine	100-75-4	LCS1	04/02/18	0.200	0.179	0.84		8.95	89.3	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS1	04/03/18	0.200	0.204	0.88		15.02	102	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS1	04/05/18	0.200	0.145	0.71		20.19	72.5	70 - 130	Rd
N-Nitrosopiperidine	100-75-4	LCS1	04/24/18	0.200	0.104	0.33		48.90	52.2	70 - 130	¦Rd
N-Nitrosopyrrolidine	930-55-2	LCS1	04/02/18	0.200	0.147	0.72		4.05	73.4	84.5 - 126	d
N-Nitrosopyrrolidine	930-55-2	LCS1	04/03/18	0.200	0.183	0.76		18.77	91.2	84.5 - 126	Rd
N-Nitrosopyrrolidine	930-55-2	LCS1	04/05/18	0.200	0.099	0.46		43.39	49.5	70 - 130	¦ Rd
N-Nitrosopyrrolidine	930-55-2	LCS1	04/24/18	0.200	0.067	0.18		81.23	33.7	70 - 130	¦ Rd
N-Nitrosodiethylamine	55-18-5	LCS-1	05/03/18	0.200	0.192	0.98		1.99	95.8	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-1	05/03/18	0.200	0.203	1.01		0.86	102	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	05/03/18	0.201	0.188	0.96		2.21	93.7	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	05/03/18	0.200	0.193	0.98		1.44	96.5	70 - 130	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	05/03/18	0.200	0.192	0.96		0.78	95.7	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-1	05/03/18	0.200	0.190	0.96		1.31	95.1	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-1	05/03/18	0.200	0.189	0.97		2.18	94.3	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-1	05/03/18	0.200	0.190	0.96		1.48	94.5	70 - 130	

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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	LCS2	04/02/18	0.200	0.154	0.86		9.31	77.1	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS2	04/03/18	0.200	0.179	0.90		11.64	89.2	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS2	04/05/18	0.200	0.176	0.77		15.25	87.8	70 - 130	
N-Nitrosodiethylamine	55-18-5	LCS2	04/24/18	0.200	0.062	0.39		35.83	31.2	70 - 130	¦ Rd
N-Nitrosodimethylamine	62-75-9	LCS2	04/02/18	0.200	0.151	0.83		7.95	75.3	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS2	04/03/18	0.200	0.175	0.89		15.16	87.4	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS2	04/05/18	0.200	0.165	0.67		25.02	82.5	70 - 130	Rd
N-Nitrosodimethylamine	62-75-9	LCS2	04/24/18	0.200	0.041	0.27		63.13	20.6	70 - 130	¦ Rd
N-Nitrosodi-n-butylamine	924-16-3	LCS2	04/02/18	0.201	0.164	0.94		11.99	81.9	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS2	04/03/18	0.201	0.202	0.98		8.72	101	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS2	04/05/18	0.201	0.198	0.93		5.77	98.5	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS2	04/24/18	0.201	0.097	0.62		20.45	48.3	70 - 130	¦ Rd
N-Nitrosodi-n-propylamine	621-64-7	LCS2	04/02/18	0.200	0.163	0.92		10.69	81.2	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS2	04/03/18	0.200	0.194	0.96		11.49	97.1	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS2	04/05/18	0.200	0.193	0.90		7.36	96.3	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS2	04/24/18	0.200	0.083	0.53		25.73	41.3	70 - 130	¦ Rd
N-Nitrosomethylethylamine	10595-95-6	LCS2	04/02/18	0.200	0.152	0.85		9.12	76.0	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS2	04/03/18	0.200	0.174	0.89		13.63	87.0	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS2	04/05/18	0.200	0.171	0.72		19.38	85.2	70 - 130	Rd
N-Nitrosomethylethylamine	10595-95-6	LCS2	04/24/18	0.200	0.051	0.33		50.92	25.3	70 - 130	¦ Rd
N-Nitrosomorpholine	59-89-2	LCS2	04/02/18	0.200	0.149	0.83		9.69	74.2	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS2	04/03/18	0.200	0.172	0.88		13.34	85.7	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS2	04/05/18	0.200	0.171	0.73		18.38	85.4	70 - 130	Rd
N-Nitrosomorpholine	59-89-2	LCS2	04/24/18	0.200	0.053	0.35		46.95	26.3	70 - 130	¦ Rd
N-Nitrosopiperidine	100-75-4	LCS2	04/02/18	0.200	0.151	0.84		8.95	75.2	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS2	04/03/18	0.200	0.170	0.88		15.02	85.0	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS2	04/05/18	0.200	0.168	0.71		20.19	84.0	70 - 130	Rd
N-Nitrosopiperidine	100-75-4	LCS2	04/24/18	0.200	0.052	0.33		48.90	26.0	70 - 130	¦ Rd
N-Nitrosopyrrolidine	930-55-2	LCS2	04/02/18	0.200	0.137	0.72		4.05	68.2	84.5 - 126	¦ d
N-Nitrosopyrrolidine	930-55-2	LCS2	04/03/18	0.200	0.145	0.76		18.77	72.1	84.5 - 126	¦ Rd
N-Nitrosopyrrolidine	930-55-2	LCS2	04/05/18	0.200	0.129	0.46		43.39	64.5	70 - 130	¦ Rd
N-Nitrosopyrrolidine	930-55-2	LCS2	04/24/18	0.200	0.028	0.18		81.23	13.7	70 - 130	¦ Rd
N-Nitrosodiethylamine	55-18-5	LCS-2	05/03/18	0.200	0.196	0.98		1.99	97.9	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-2	05/03/18	0.200	0.203	1.01		0.86	101	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	05/03/18	0.201	0.192	0.96		2.21	96.0	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	05/03/18	0.200	0.197	0.98		1.44	98.2	70 - 130	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	05/03/18	0.200	0.193	0.96		0.78	96.5	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-2	05/03/18	0.200	0.193	0.96		1.31	96.5	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-2	05/03/18	0.200	0.195	0.97		2.18	97.5	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-2	05/03/18	0.200	0.194	0.96		1.48	97.0	70 - 130	

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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	LCS3	04/02/18	0.200	0.178	0.86		9.31	89.1	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS3	04/03/18	0.200	0.160	0.90		11.64	79.9	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS3	04/05/18	0.200	0.129	0.77		15.25	64.5	70 - 130	¦ Rd
N-Nitrosodiethylamine	55-18-5	LCS3	04/24/18	0.200	0.061	0.39		35.83	30.7	70 - 130	¦ Rd
N-Nitrosodimethylamine	62-75-9	LCS3	04/02/18	0.200	0.171	0.83		7.95	85.5	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS3	04/03/18	0.200	0.153	0.89		15.16	76.5	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS3	04/05/18	0.200	0.099	0.67		25.02	49.2	70 - 130	¦ Rd
N-Nitrosodimethylamine	62-75-9	LCS3	04/24/18	0.200	0.028	0.27		63.13	14.0	70 - 130	¦ Rd
N-Nitrosodi-n-butylamine	924-16-3	LCS3	04/02/18	0.201	0.195	0.94		11.99	97.0	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS3	04/03/18	0.201	0.178	0.98		8.72	88.8	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS3	04/05/18	0.201	0.176	0.93		5.77	87.8	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS3	04/24/18	0.201	0.128	0.62		20.45	63.7	70 - 130	¦ Rd
N-Nitrosodi-n-propylamine	621-64-7	LCS3	04/02/18	0.200	0.190	0.92		10.69	94.8	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS3	04/03/18	0.200	0.168	0.96		11.49	83.9	85.5 - 126	
N-Nitrosodi-n-propylamine	621-64-7	LCS3	04/05/18	0.200	0.167	0.90		7.36	83.1	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS3	04/24/18	0.200	0.100	0.53		25.73	50.1	70 - 130	¦ Rd
N-Nitrosomethylethylamine	10595-95-6	LCS3	04/02/18	0.200	0.179	0.85		9.12	89.5	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS3	04/03/18	0.200	0.155	0.89		13.63	77.5	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS3	04/05/18	0.200	0.115	0.72		19.38	57.4	70 - 130	¦ Rd
N-Nitrosomethylethylamine	10595-95-6	LCS3	04/24/18	0.200	0.043	0.33		50.92	21.5	70 - 130	¦ Rd
N-Nitrosomorpholine	59-89-2	LCS3	04/02/18	0.200	0.171	0.83		9.69	85.5	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS3	04/03/18	0.200	0.154	0.88		13.34	77.0	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS3	04/05/18	0.200	0.118	0.73		18.38	58.8	70 - 130	¦ Rd
N-Nitrosomorpholine	59-89-2	LCS3	04/24/18	0.200	0.049	0.35		46.95	24.4	70 - 130	¦ Rd
N-Nitrosopiperidine	100-75-4	LCS3	04/02/18	0.200	0.173	0.84		8.95	86.6	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS3	04/03/18	0.200	0.152	0.88		15.02	76.1	84 - 126	¦ Rd
N-Nitrosopiperidine	100-75-4	LCS3	04/05/18	0.200	0.111	0.71		20.19	55.6	70 - 130	¦ Rd
N-Nitrosopiperidine	100-75-4	LCS3	04/24/18	0.200	0.044	0.33		48.90	22.2	70 - 130	¦ Rd
N-Nitrosopyrrolidine	930-55-2	LCS3	04/02/18	0.200	0.146	0.72		4.05	73.0	84.5 - 126	d
N-Nitrosopyrrolidine	930-55-2	LCS3	04/03/18	0.200	0.127	0.76		18.77	63.5	84.5 - 126	¦ Rd
N-Nitrosopyrrolidine	930-55-2	LCS3	04/05/18	0.200	0.050	0.46		43.39	24.8	70 - 130	¦ Rd
N-Nitrosopyrrolidine	930-55-2	LCS3	04/24/18	0.200	0.012	0.18		81.23	5.7	70 - 130	¦ Rd
N-Nitrosodiethylamine	55-18-5	LCS-3	05/03/18	0.200	0.200	0.98		1.99	99.7	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-3	05/03/18	0.200	0.200	1.01		0.86	99.9	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	05/03/18	0.201	0.196	0.96		2.21	97.9	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	05/03/18	0.200	0.199	0.98		1.44	99.2	70 - 130	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	05/03/18	0.200	0.195	0.96		0.78	97.2	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-3	05/03/18	0.200	0.195	0.96		1.31	97.6	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-3	05/03/18	0.200	0.197	0.97		2.18	98.3	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-3	05/03/18	0.200	0.194	0.96		1.48	97.0	70 - 130	

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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	MB	04/02/18		<0.010	0.86	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	04/03/18		<0.010	0.90	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	04/05/18		<0.010	0.77	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	04/24/18		<0.010	0.39	<0.010				
N-Nitrosodiethylamine	55-18-5	MB	05/03/18		<0.010	0.98	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	04/02/18		<0.010	0.83	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	04/03/18		<0.010	0.89	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	04/05/18		<0.010	0.67	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	04/24/18		<0.010	0.27	<0.010				
N-Nitrosodimethylamine	62-75-9	MB	05/03/18		<0.010	1.01	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	04/02/18		<0.010	0.94	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	04/03/18		<0.010	0.98	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	04/05/18		<0.010	0.93	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	04/24/18		<0.010	0.62	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	05/03/18		<0.010	0.96	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	04/02/18		<0.010	0.92	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	04/03/18		<0.010	0.96	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	04/05/18		<0.010	0.90	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	04/24/18		<0.010	0.53	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	05/03/18		<0.010	0.98	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	04/02/18		<0.010	0.85	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	04/03/18		<0.010	0.89	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	04/05/18		<0.010	0.72	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	04/24/18		<0.010	0.33	<0.010				
N-Nitrosomethylethylamine	10595-95-6	MB	05/03/18		<0.010	0.96	<0.010				
N-Nitrosomorpholine	59-89-2	MB	04/02/18		<0.010	0.83	<0.010				
N-Nitrosomorpholine	59-89-2	MB	04/03/18		<0.010	0.88	<0.010				
N-Nitrosomorpholine	59-89-2	MB	04/05/18		<0.010	0.73	<0.010				
N-Nitrosomorpholine	59-89-2	MB	04/24/18		<0.010	0.35	<0.010				
N-Nitrosomorpholine	59-89-2	MB	05/03/18		<0.010	0.96	<0.010				
N-Nitrosopiperidine	100-75-4	MB	04/02/18		<0.010	0.84	<0.010				
N-Nitrosopiperidine	100-75-4	MB	04/03/18		<0.010	0.88	<0.010				
N-Nitrosopiperidine	100-75-4	MB	04/05/18		<0.010	0.71	<0.010				
N-Nitrosopiperidine	100-75-4	MB	04/24/18		<0.010	0.33	<0.010				
N-Nitrosopiperidine	100-75-4	MB	05/03/18		<0.010	0.97	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	04/02/18		<0.010	0.72	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	04/03/18		<0.010	0.76	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	04/05/18		<0.010	0.46	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	04/24/18		<0.010	0.18	<0.010				
N-Nitrosopyrrolidine	930-55-2	MB	05/03/18		<0.010	0.96	<0.010				

RJ LEE GROUP

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	MRL	04/02/18	0.010	0.009	0.86	0.011		108	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	04/03/18	0.010	0.007	0.90	0.008		81.4	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	04/05/18	0.010	0.008	0.77	0.010		102	60 - 140	
N-Nitrosodiethylamine	55-18-5	MRL	04/24/18	0.010	<0.002	0.39	<0.005		0.00	60 - 140	m, d
N-Nitrosodiethylamine	55-18-5	MRL	05/03/18	0.010	0.008	0.98	0.008		82.0	60 - 140	
N-Nitrosodimethylamine	62-75-9	MRL	04/02/18	0.010	0.008	0.83	0.010		101	71.6 - 181	
N-Nitrosodimethylamine	62-75-9	MRL	04/03/18	0.010	0.007	0.89	0.008		79.8	71.6 - 181	
N-Nitrosodimethylamine	62-75-9	MRL	04/05/18	0.010	0.006	0.67	0.009		90.1	60 - 140	m, d
N-Nitrosodimethylamine	62-75-9	MRL	04/24/18	0.010	<0.004	0.27	<0.015		0.00	60 - 140	m, d
N-Nitrosodimethylamine	62-75-9	MRL	05/03/18	0.010	0.007	1.01	0.007		69.0	60 - 140	
N-Nitrosodi-n-butylamine	924-16-3	MRL	04/02/18	0.010	0.009	0.94	0.010		96.5	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	04/03/18	0.010	0.009	0.98	0.009		87.9	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	04/05/18	0.010	0.010	0.93	0.010		104	60 - 140	
N-Nitrosodi-n-butylamine	924-16-3	MRL	04/24/18	0.010	0.002	0.62	0.004		39.3	60 - 140	m, d
N-Nitrosodi-n-butylamine	924-16-3	MRL	05/03/18	0.010	0.009	0.96	0.009		93.5	60 - 140	
N-Nitrosodi-n-propylamine	621-64-7	MRL	04/02/18	0.010	0.009	0.92	0.009		93.2	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	04/03/18	0.010	0.007	0.96	0.007		68.0	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	04/05/18	0.010	0.008	0.90	0.009		86.8	60 - 140	
N-Nitrosodi-n-propylamine	621-64-7	MRL	04/24/18	0.010	0.002	0.53	0.003		34.3	60 - 140	m, d
N-Nitrosodi-n-propylamine	621-64-7	MRL	05/03/18	0.010	0.008	0.98	0.008		80.6	60 - 140	
N-Nitrosomethylethylamine	10595-95-6	MRL	04/02/18	0.010	0.009	0.85	0.011		111	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	04/03/18	0.010	0.007	0.89	0.008		82.0	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	04/05/18	0.010	0.007	0.72	0.009		93.6	60 - 140	
N-Nitrosomethylethylamine	10595-95-6	MRL	04/24/18	0.010	0.002	0.33	0.005		52.0	60 - 140	m, d
N-Nitrosomethylethylamine	10595-95-6	MRL	05/03/18	0.010	0.009	0.96	0.010		96.4	60 - 140	
N-Nitrosomorpholine	59-89-2	MRL	04/02/18	0.010	0.009	0.83	0.011		113	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	04/03/18	0.010	0.007	0.88	0.008		81.0	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	04/05/18	0.010	0.006	0.73	0.009		88.2	60 - 140	d
N-Nitrosomorpholine	59-89-2	MRL	04/24/18	0.010	<0.002	0.35	<0.006		0.00	60 - 140	m, d
N-Nitrosomorpholine	59-89-2	MRL	05/03/18	0.010	0.008	0.96	0.008		84.3	60 - 140	
N-Nitrosopiperidine	100-75-4	MRL	04/02/18	0.010	0.009	0.84	0.011		112	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	04/03/18	0.010	0.007	0.88	0.008		76.3	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	04/05/18	0.010	0.006	0.71	0.009		91.3	60 - 140	d
N-Nitrosopiperidine	100-75-4	MRL	04/24/18	0.010	<0.002	0.33	<0.006		0.00	60 - 140	m, d
N-Nitrosopiperidine	100-75-4	MRL	05/03/18	0.010	0.008	0.97	0.009		85.4	60 - 140	
N-Nitrosopyrrolidine	930-55-2	MRL	04/02/18	0.010	0.010	0.72	0.014		140	43.3 - 163	d
N-Nitrosopyrrolidine	930-55-2	MRL	04/03/18	0.010	0.007	0.76	0.009		91.4	43.3 - 163	
N-Nitrosopyrrolidine	930-55-2	MRL	04/05/18	0.010	0.007	0.46	0.015		148	60 - 140	M
N-Nitrosopyrrolidine	930-55-2	MRL	04/24/18	0.010	<0.002	0.18	<0.010		0.00	60 - 140	m, d
N-Nitrosopyrrolidine	930-55-2	MRL	05/03/18	0.010	0.007	0.96	0.008		76.0	60 - 140	

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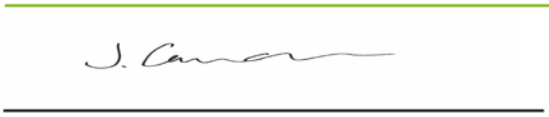
Report Qualifiers:

A = Target analyte media breakthrough suspect, see analytical report
B = Analyte detected in the associated blank
C = Poor agreement between initial and confirmatory analyses, result should be considered qualitative only
D = Analyte analyzed in a dilution
d = Desorption efficiency outside of acceptable limits
E = Report concentration was above the instrument calibration range
H = Holding times for preparation or analysis exceeded
J = Analyte detected below quantitation limits, concentration is estimated
L = Sample condition at receipt out of compliance with method
P = Library spectrum match, rsd >90% w RT match defined conditions
Q = Result out of method specific acceptance QC criteria
R = % Relative Standard Deviation of LCS outside of acceptable limits
S = Spike Recovery outside accepted recovery limits
L̄ = LCS Spike Recovery limits above recovery limits
L̲ = LCS Spike Recovery limits below recovery limits
M̄ = MRL Spike Recovery limits above recovery limits
M̲ = MRL Spike Recovery limits below recovery limits
U = Analyte analyzed for but not detected
X = Analyte not detected upon confirmatory analysis
Z = Not ELAP accredited analyte
** = Analyte detected upon confirmatory analysis only*
N/A = Not Applicable
ND = Not Detected



Scientist III J Grissmerson

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.

W803176

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180933
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.	Temp. 20.8
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011623	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-BA-EF ✓	N/A
	S18T011624	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-BA-IN ✓	N/A
	S18T011625	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-BL-EF ✓	N/A
	S18T011626	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-BL-IN ✓	N/A
	S18T011627	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-1 ✓	N/A
	S18T011628	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-2 ✓	N/A
	S18T011629	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-3 ✓	N/A
	S18T011630	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-4 ✓	N/A
	S18T011631	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-5 ✓	N/A
	S18T011632	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-6 ✓	N/A

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

SPECIAL INSTRUCTIONS Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Bronson	3-28-18 0900	K.E. Rogers	3/28/18 0900
K.E. Rogers	3/28/18 11:50	Leanne Skoy	03/28/18 1150

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed 04/02/18	Dennis Smith	05/14/18 1340

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)

W803176

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180933
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.	Temp. 20.8
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011633	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-7	N/A
	S18T011634	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-EF-8	N/A
	S18T011635	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-1	N/A
	S18T011636	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-2	N/A
	S18T011637	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-3	N/A
	S18T011638	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-4	N/A
	S18T011639	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-5	N/A
	S18T011640	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-6	N/A
	S18T011641	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-7	N/A
	S18T011642	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02349-12-SC1-IN-8	N/A

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

SPECIAL INSTRUCTIONS Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sroka	3/28/18 0800	K.E. Rogers	3/28/18 0900
K.E. Rogers	3/28/18 1150	Hanna Stoy	03/28/18 1150

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed 04/02/18	Dermece Smith	05/14/18 1340

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)

W803176

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180933
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6861	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.	Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011643	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-BA-EF	N/A
	S18T011644	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-BA-IN	N/A
	S18T011645	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-BL-EF	N/A
	S18T011646	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-BL-IN	N/A
	S18T011647	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-1	N/A
	S18T011648	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-2	N/A
	S18T011649	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-3	N/A
	S18T011650	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-4	N/A
	S18T011651	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-5	N/A
	S18T011652	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-6	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 11:50	[illegible]	03/28/18 1150

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed 04/03/18	Dennese Smith	05/14/18 1340

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)

W803176

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180933
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No.: 373-6851	MSIN: T6-05 FAX: 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.	Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011653	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-7	N/A
	S18T011654	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-EF-8	N/A
	S18T011655	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-1	N/A
	S18T011656	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-2	N/A
	S18T011657	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-3	N/A
	S18T011658	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-4	N/A
	S18T011659	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-5	N/A
	S18T011660	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-6	N/A
	S18T011661	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-7	N/A
	S18T011662	VA	03/23/18		Thermosorb-N	Nitrosamines 18-02350-13-TL1-IN-8	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3/28/18 0900	K Rogers	3/28/18 0900
K Rogers	3/28/18 11:50	Jeanne Story	03/28/18 1150

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed 04/03/18	Dunnea Smith	05/14/18 1340

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

A-6003-962 (03/05)

RJ LEE GROUP

RJ Lee Group, Inc. | Columbia Basin Analytical Laboratories
2710 North 20th Avenue, Pasco WA 99301
Tel: (509) 545-4989 | Fax: (509) 544-6010

Carl Howald IV
Washington River Protection Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352
2018 Cartridge Evaluation

05/16/18
Contract: 55503 R9

Subject: Nitrosamines Analysis Report, Group Number 20180934

Enclosed is the final report for group 20180934 number analyzed for Nitrosamines using NIOSH 2522-Modified. This group number 20180934 has been assigned a Columbia Basin Analytical Laboratories login order number of W803177. This report consists of a summary report of the samples, a single quality control report for the analysis batch, and a copy of the chain of custody.

General Set Comments

Columbia Basin Analytical Laboratories received 40 samples on 03/28/18 to be tested for Nitrosamines. The samples were analyzed in accordance with NIOSH 2522-Modified for N-Nitrosodimethylamine, N-Nitrosomethylethylamine, N-Nitrosodiethylamine, N-Nitrosodi-n-propylamine, N-Nitrosodi-n-butylamine, N-Nitrosopiperidine, N-Nitrosopyrrolidine,and N-Nitrosomorpholine. All results have been corrected for desorption efficiency and measurable levels in the blanks.

Results

There were detectable nitrosamines concentrations at or above the reporting limit in the samples.

SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-EF	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosodimethylamine	62-75-9	0.018	0.010	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-BA-IN	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-EF	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-BL-IN	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-1	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-2	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-3	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-4	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-5	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-6	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosomethylethylamine	10595-95-6	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-7	04/30/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosomethylethylamine	10595-95-6	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-EF-8	04/30/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02348-12-SD1-IN-1	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-1	05/04/18	N-Nitrosodimethylamine	62-75-9	3.535	0.081	µg/tube	D
18-02348-12-SD1-IN-1	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-1	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-1	04/30/18	N-Nitrosomethylethylamine	10595-95-6	0.037	0.008	µg/tube	
18-02348-12-SD1-IN-1	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-1	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-1	04/30/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-2	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-2	05/04/18	N-Nitrosodimethylamine	62-75-9	3.810	0.081	µg/tube	D
18-02348-12-SD1-IN-2	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-2	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-2	04/30/18	N-Nitrosomethylethylamine	10595-95-6	0.041	0.008	µg/tube	
18-02348-12-SD1-IN-2	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-2	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-2	04/30/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-3	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-3	05/04/18	N-Nitrosodimethylamine	62-75-9	3.559	0.081	µg/tube	D
18-02348-12-SD1-IN-3	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-3	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-3	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.039	0.008	µg/tube	
18-02348-12-SD1-IN-3	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-3	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-3	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-4	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-4	05/04/18	N-Nitrosodimethylamine	62-75-9	2.388	0.081	µg/tube	D
18-02348-12-SD1-IN-4	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-4	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-4	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.025	0.008	µg/tube	
18-02348-12-SD1-IN-4	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-4	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-4	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-5	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-5	05/04/18	N-Nitrosodimethylamine	62-75-9	3.105	0.081	µg/tube	D
18-02348-12-SD1-IN-5	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-5	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-5	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.035	0.008	µg/tube	
18-02348-12-SD1-IN-5	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-5	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-5	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02348-12-SD1-IN-6	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-6	05/04/18	N-Nitrosodimethylamine	62-75-9	2.663	0.081	µg/tube	D
18-02348-12-SD1-IN-6	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-6	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-6	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.031	0.008	µg/tube	
18-02348-12-SD1-IN-6	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-6	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-6	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-7	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-7	05/04/18	N-Nitrosodimethylamine	62-75-9	2.608	0.081	µg/tube	D
18-02348-12-SD1-IN-7	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-7	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-7	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.029	0.008	µg/tube	
18-02348-12-SD1-IN-7	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-7	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-7	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-8	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02348-12-SD1-IN-8	05/04/18	N-Nitrosodimethylamine	62-75-9	2.575	0.081	µg/tube	D
18-02348-12-SD1-IN-8	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-8	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-8	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.029	0.008	µg/tube	
18-02348-12-SD1-IN-8	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-8	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02348-12-SD1-IN-8	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-EF	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosodimethylamine	62-75-9	0.036	0.010	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-BA-IN	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-EF	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-BL-IN	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-1	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-2	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-3	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-4	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-5	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-6	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-EF-7	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-EF-8	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02351-13-TL2-IN-1	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-1	05/04/18	N-Nitrosodimethylamine	62-75-9	4.165	0.086	µg/tube	D
18-02351-13-TL2-IN-1	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-1	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-1	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.043	0.009	µg/tube	
18-02351-13-TL2-IN-1	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-1	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-1	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-2	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-2	05/04/18	N-Nitrosodimethylamine	62-75-9	4.629	0.086	µg/tube	D
18-02351-13-TL2-IN-2	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-2	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-2	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.044	0.009	µg/tube	
18-02351-13-TL2-IN-2	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-2	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-2	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-3	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-3	05/04/18	N-Nitrosodimethylamine	62-75-9	4.337	0.086	µg/tube	D
18-02351-13-TL2-IN-3	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-3	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-3	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.042	0.009	µg/tube	
18-02351-13-TL2-IN-3	05/02/18	N-Nitrosomorpholine	59-89-2	0.009	0.008	µg/tube	
18-02351-13-TL2-IN-3	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-3	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-4	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-4	05/05/18	N-Nitrosodimethylamine	62-75-9	4.301	0.086	µg/tube	D
18-02351-13-TL2-IN-4	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-4	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-4	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.042	0.009	µg/tube	
18-02351-13-TL2-IN-4	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	*
18-02351-13-TL2-IN-4	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-4	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-5	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-5	05/05/18	N-Nitrosodimethylamine	62-75-9	3.477	0.086	µg/tube	D
18-02351-13-TL2-IN-5	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-5	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-5	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.035	0.009	µg/tube	
18-02351-13-TL2-IN-5	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-5	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-5	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	

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SampleName | Lab ID	Analyzed	Analyte	CAS Number	Results	RL	Units	Flags
18-02351-13-TL2-IN-6	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-6	05/05/18	N-Nitrosodimethylamine	62-75-9	2.695	0.086	µg/tube	D
18-02351-13-TL2-IN-6	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-6	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-6	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.027	0.009	µg/tube	
18-02351-13-TL2-IN-6	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-6	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-6	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-7	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-7	05/05/18	N-Nitrosodimethylamine	62-75-9	2.401	0.086	µg/tube	D
18-02351-13-TL2-IN-7	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-7	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-7	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.026	0.009	µg/tube	
18-02351-13-TL2-IN-7	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-7	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-7	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-8	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-8	05/05/18	N-Nitrosodimethylamine	62-75-9	2.676	0.086	µg/tube	D
18-02351-13-TL2-IN-8	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	µg/tube	
18-02351-13-TL2-IN-8	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-8	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.027	0.009	µg/tube	
18-02351-13-TL2-IN-8	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-8	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	µg/tube	
18-02351-13-TL2-IN-8	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	µg/tube	

Recovery Failures in the ICV, CCV, LCS, and MRL

There were no recovery failures in the CCV, ICV, LCS. There were recovery failures in the MRL.

RSD Failures in the LCS

There were no RSD failures between the laboratory control samples.

Measurable Blank Values

There were no measurable analytes in the blank samples.

Calibration Curves

The calibration curves for Nitrosamines had an R-value that was 0.995 or better, over a range of 5.00 ng/mL to 1,000.00 ng/mL.

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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.

05/14/18

Scientist III J Grissmerson

If you have any questions, please feel free to contact J Grissmerson at jgrissmerson@rjleegroup.com or at 509-545-4989.

This report has been reviewed and approved by the following individual:

05/16/18

Office Manager JJ Furlong

RJ LEE GROUP

Carl Howald IV
Washington River Protection Solutions, LLC
P.O. Box 850 MSIN H1-40
Richland, WA 99352

Laboratory Report

NIOSH 2522-Modified
on
Summary Table

RJ Lee Work Order: W803177
COC No.: 20180934
Samples Received: 03/28/18
Extraction Date: 04/30/18
Report Date: 05/16/18

Client Project: 2018 Cartridge Evaluation

Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-BA-EF | S18T011663	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.018	0.010	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-BA-IN | S18T011664	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-BL-EF | S18T011665	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-BL-IN | S18T011666	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-EF-1 | S18T011667	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-EF-2 | S18T011668	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-EF-3 | S18T011669	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-EF-4 | S18T011670	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-EF-5 | S18T011671	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02348-12-SD1-EF-6 | S18T011672	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosomethylethylamine	10595-95-6	<0.008	0.008	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-EF-7 | S18T011673	03/24/18	04/30/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosodimethylamine	62-75-9	<0.008	0.008	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosomethylethylamine	10595-95-6	<0.008	0.008	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-EF-8 | S18T011674	03/24/18	04/30/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.123	0.008	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	3.413	0.081	D
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	04/30/18	N-Nitrosomethylethylamine	10595-95-6	0.037	0.008	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-1 | S18T011675	03/24/18	04/30/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	04/30/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.100	0.008	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	3.709	0.081	D
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	04/30/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	04/30/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	04/30/18	N-Nitrosomethylethylamine	10595-95-6	0.041	0.008	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	04/30/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	04/30/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-2 | S18T011676	03/24/18	04/30/18	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	RL	Qualifiers
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	3.458	0.081	D
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.101	0.008	
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.039	0.008	
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-3 | S18T011677	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.040	0.008	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	2.348	0.081	D
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.025	0.008	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-4 | S18T011678	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	3.038	0.081	D
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.066	0.008	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.035	0.008	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-5 | S18T011679	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.044	0.008	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	2.620	0.081	D
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.031	0.008	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-6 | S18T011680	03/24/18	05/01/18	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	RL	Qualifiers
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	2.552	0.081	D
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.056	0.008	
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.029	0.008	
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-7 | S18T011681	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	2.528	0.081	D
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosodimethylamine	62-75-9	0.047	0.008	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosodi-n-butylamine	924-16-3	<0.008	0.008	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosomethylethylamine	10595-95-6	0.029	0.008	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02348-12-SD1-IN-8 | S18T011682	03/24/18	05/01/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-BA-EF | S18T011683	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.036	0.010	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-BA-IN | S18T011684	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-BL-EF | S18T011685	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-BL-IN | S18T011686	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-EF-1 | S18T011687	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-EF-2 | S18T011688	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-EF-3 | S18T011689	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-EF-4 | S18T011690	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	

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Sample Identification Client Sample ID	Sampling Date	Analysis Date	Analyte	CAS Number	Concentration	RL	Qualifiers
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-EF-5 | S18T011691	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.011	0.011	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.010	0.010	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.011	0.011	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.010	0.010	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.011	0.011	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.011	0.011	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.011	0.011	
18-02351-13-TL2-EF-6 | S18T011692	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.011	0.011	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-EF-7 | S18T011693	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	<0.009	0.009	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	<0.009	0.009	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-EF-8 | S18T011694	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.165	0.009	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	4.000	0.086	D
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.043	0.009	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-1 | S18T011695	03/24/18	05/02/18	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	RL	Qualifiers
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.123	0.009	
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	4.506	0.086	D
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.044	0.009	
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-2 | S18T011696	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.154	0.009	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/04/18	N-Nitrosodimethylamine	62-75-9	4.183	0.086	D
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.042	0.009	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	0.009	0.008	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-3 | S18T011697	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.112	0.009	
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/05/18	N-Nitrosodimethylamine	62-75-9	4.190	0.086	D
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.042	0.009	
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	*
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-4 | S18T011698	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.134	0.009	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/05/18	N-Nitrosodimethylamine	62-75-9	3.343	0.086	D
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.035	0.009	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-5 | S18T011699	03/24/18	05/02/18	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	RL	Qualifiers
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.035	0.009	
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/05/18	N-Nitrosodimethylamine	62-75-9	2.660	0.086	D
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.027	0.009	
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-6 | S18T011700	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/05/18	N-Nitrosodimethylamine	62-75-9	2.372	0.086	D
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.029	0.009	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.026	0.009	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-7 | S18T011701	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosodiethylamine	55-18-5	<0.009	0.009	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosodimethylamine	62-75-9	0.053	0.009	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/05/18	N-Nitrosodimethylamine	62-75-9	2.623	0.086	D
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosodi-n-butylamine	924-16-3	<0.009	0.009	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosodi-n-propylamine	621-64-7	<0.008	0.008	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosomethylethylamine	10595-95-6	0.027	0.009	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosomorpholine	59-89-2	<0.008	0.008	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosopiperidine	100-75-4	<0.008	0.008	
18-02351-13-TL2-IN-8 | S18T011702	03/24/18	05/02/18	N-Nitrosopyrrolidine	930-55-2	<0.009	0.009	

RJ LEE GROUP

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Quality Control

NIOSH 2522-Modified

RJ Lee Work Order: W803177
COC No.: 20180934
Samples Received: 03/28/18
Extraction Date: 04/27/18
Report Date: 05/16/18

Client Project: 2018 Cartridge Evaluation

Analyte	CAS No.	Sample ID	Analyzed Date	Expected *µg/tube*	Result *µg/tube*	DE	DE Corrected	RSD *%*	REC *%*	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	LCS-1	04/30/18	0.200	0.240	1.17		2.19	120	70 - 130	
N-Nitrosodiethylamine	55-18-5	LCS-1	05/01/18	0.200	0.183	0.93		1.89	91.5	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-1	05/02/18	0.200	0.231	1.17		1.79	115	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-1	04/30/18	0.200	0.249	1.23		0.67	124	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-1	05/01/18	0.200	0.194	0.99		2.68	96.9	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-1	05/02/18	0.200	0.228	1.16		1.35	114	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	04/30/18	0.201	0.243	1.20		1.34	121	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	05/01/18	0.201	0.184	0.95		2.87	91.9	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-1	05/02/18	0.201	0.232	1.18		1.67	115	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	05/02/18	0.200	0.235	1.19		1.57	117	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	04/30/18	0.200	0.241	1.20		2.21	120	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-1	05/01/18	0.200	0.189	0.96		2.12	94.6	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	05/01/18	0.200	0.181	0.93		2.86	90.5	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	05/02/18	0.200	0.230	1.17		2.37	115	70 - 130	
N-Nitrosomethylethylamine	10595-95-6	LCS-1	04/30/18	0.200	0.239	1.19		0.95	119	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-1	04/30/18	0.200	0.235	1.18		0.81	117	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-1	05/01/18	0.200	0.182	0.93		2.65	90.8	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-1	05/02/18	0.200	0.235	1.18		1.27	117	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-1	05/01/18	0.200	0.181	0.93		3.07	90.3	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-1	04/30/18	0.200	0.237	1.18		1.12	118	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-1	05/02/18	0.200	0.237	1.20		1.14	118	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-1	04/30/18	0.200	0.236	1.16		1.17	118	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-1	05/01/18	0.200	0.180	0.91		1.88	89.7	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-1	05/02/18	0.200	0.234	1.18		1.36	117	70 - 130	

RJ LEE GROUP

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	LCS-2	04/30/18	0.200	0.230	1.17		2.19	115	70 - 130	
N-Nitrosodiethylamine	55-18-5	LCS-2	05/02/18	0.200	0.236	1.17		1.79	118	70 - 130	
N-Nitrosodiethylamine	55-18-5	LCS-2	05/01/18	0.200	0.187	0.93		1.89	93.2	83.2 - 129	
N-Nitrosodimethylamine	62-75-9	LCS-2	05/01/18	0.200	0.198	0.99		2.68	99.0	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-2	04/30/18	0.200	0.247	1.23		0.67	123	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-2	05/02/18	0.200	0.233	1.16		1.35	116	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	05/01/18	0.201	0.191	0.95		2.87	95.3	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	05/02/18	0.201	0.237	1.18		1.67	118	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-2	04/30/18	0.201	0.237	1.20		1.34	118	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	04/30/18	0.200	0.235	1.20		2.21	117	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	05/02/18	0.200	0.236	1.19		1.57	118	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-2	05/01/18	0.200	0.191	0.96		2.12	95.1	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	05/01/18	0.200	0.187	0.93		2.86	93.5	83.6 - 125	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	05/02/18	0.200	0.236	1.17		2.37	118	70 - 130	
N-Nitrosomethylethylamine	10595-95-6	LCS-2	04/30/18	0.200	0.237	1.19		0.95	118	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-2	05/02/18	0.200	0.236	1.18		1.27	118	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-2	05/01/18	0.200	0.188	0.93		2.65	93.7	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-2	04/30/18	0.200	0.235	1.18		0.81	117	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-2	05/01/18	0.200	0.183	0.93		3.07	91.6	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-2	05/02/18	0.200	0.239	1.20		1.14	120	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-2	04/30/18	0.200	0.233	1.18		1.12	117	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-2	05/01/18	0.200	0.184	0.91		1.88	91.7	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-2	05/02/18	0.200	0.234	1.18		1.36	117	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-2	04/30/18	0.200	0.230	1.16		1.17	115	70 - 130	
N-Nitrosodiethylamine	55-18-5	LCS-3	05/01/18	0.200	0.190	0.93		1.89	95.1	83.2 - 129	
N-Nitrosodiethylamine	55-18-5	LCS-3	04/30/18	0.200	0.234	1.17		2.19	117	70 - 130	
N-Nitrosodiethylamine	55-18-5	LCS-3	05/02/18	0.200	0.239	1.17		1.79	119	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-3	04/30/18	0.200	0.246	1.23		0.67	123	70 - 130	
N-Nitrosodimethylamine	62-75-9	LCS-3	05/01/18	0.200	0.205	0.99		2.68	102	81.8 - 134	
N-Nitrosodimethylamine	62-75-9	LCS-3	05/02/18	0.200	0.234	1.16		1.35	117	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	05/01/18	0.201	0.195	0.95		2.87	97.3	85 - 126	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	04/30/18	0.201	0.242	1.20		1.34	121	70 - 130	
N-Nitrosodi-n-butylamine	924-16-3	LCS-3	05/02/18	0.201	0.239	1.18		1.67	119	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	04/30/18	0.200	0.245	1.20		2.21	122	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	05/02/18	0.200	0.242	1.19		1.57	121	70 - 130	
N-Nitrosodi-n-propylamine	621-64-7	LCS-3	05/01/18	0.200	0.197	0.96		2.12	98.4	85.5 - 126	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	04/30/18	0.200	0.241	1.19		0.95	120	70 - 130	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	05/02/18	0.200	0.241	1.17		2.37	120	70 - 130	
N-Nitrosomethylethylamine	10595-95-6	LCS-3	05/01/18	0.200	0.192	0.93		2.86	95.9	83.6 - 125	
N-Nitrosomorpholine	59-89-2	LCS-3	05/01/18	0.200	0.192	0.93		2.65	95.7	84.8 - 127	
N-Nitrosomorpholine	59-89-2	LCS-3	04/30/18	0.200	0.238	1.18		0.81	119	70 - 130	
N-Nitrosomorpholine	59-89-2	LCS-3	05/02/18	0.200	0.241	1.18		1.27	120	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-3	04/30/18	0.200	0.239	1.18		1.12	119	70 - 130	
N-Nitrosopiperidine	100-75-4	LCS-3	05/01/18	0.200	0.192	0.93		3.07	95.7	84 - 126	
N-Nitrosopiperidine	100-75-4	LCS-3	05/02/18	0.200	0.242	1.20		1.14	121	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-3	04/30/18	0.200	0.234	1.16		1.17	117	70 - 130	
N-Nitrosopyrrolidine	930-55-2	LCS-3	05/01/18	0.200	0.187	0.91		1.88	93.1	84.5 - 126	
N-Nitrosopyrrolidine	930-55-2	LCS-3	05/02/18	0.200	0.239	1.18		1.36	119	70 - 130	

RJ LEE GROUP

Analyte	CAS No.	Sample ID	Analyzed Date	Expected µg/tube	Result µg/tube	DE	DE Corrected	RSD %	REC %	Limits	Qualifier
N-Nitrosodiethylamine	55-18-5	MB	04/30/18		<0.010	1.17	<0.009				
N-Nitrosodiethylamine	55-18-5	MB	05/01/18		<0.010	0.93	<0.011				
N-Nitrosodiethylamine	55-18-5	MB	05/02/18		<0.010	1.17	<0.009				
N-Nitrosodimethylamine	62-75-9	MB	04/30/18		<0.010	1.23	<0.008				
N-Nitrosodimethylamine	62-75-9	MB	05/02/18		<0.010	1.16	<0.009				
N-Nitrosodimethylamine	62-75-9	MB	05/01/18		<0.010	0.99	<0.010				
N-Nitrosodi-n-butylamine	924-16-3	MB	04/30/18		<0.010	1.20	<0.008				
N-Nitrosodi-n-butylamine	924-16-3	MB	05/01/18		<0.010	0.95	<0.011				
N-Nitrosodi-n-butylamine	924-16-3	MB	05/02/18		<0.010	1.18	<0.009				
N-Nitrosodi-n-propylamine	621-64-7	MB	05/01/18		<0.010	0.96	<0.010				
N-Nitrosodi-n-propylamine	621-64-7	MB	04/30/18		<0.010	1.20	<0.008				
N-Nitrosodi-n-propylamine	621-64-7	MB	05/02/18		<0.010	1.19	<0.008				
N-Nitrosomethylethylamine	10595-95-6	MB	04/30/18		<0.010	1.19	<0.008				
N-Nitrosomethylethylamine	10595-95-6	MB	05/01/18		<0.010	0.93	<0.011				
N-Nitrosomethylethylamine	10595-95-6	MB	05/02/18		<0.010	1.17	<0.009				
N-Nitrosomorpholine	59-89-2	MB	05/02/18		<0.010	1.18	<0.008				
N-Nitrosomorpholine	59-89-2	MB	04/30/18		<0.010	1.18	<0.008				
N-Nitrosomorpholine	59-89-2	MB	05/01/18		<0.010	0.93	<0.011				
N-Nitrosopiperidine	100-75-4	MB	05/01/18		<0.010	0.93	<0.011				
N-Nitrosopiperidine	100-75-4	MB	05/02/18		<0.010	1.20	<0.008				
N-Nitrosopiperidine	100-75-4	MB	04/30/18		<0.010	1.18	<0.008				
N-Nitrosopyrrolidine	930-55-2	MB	05/01/18		<0.010	0.91	<0.011				
N-Nitrosopyrrolidine	930-55-2	MB	04/30/18		<0.010	1.16	<0.009				
N-Nitrosopyrrolidine	930-55-2	MB	05/02/18		<0.010	1.18	<0.009				
N-Nitrosodiethylamine	55-18-5	MRL	05/01/18	0.010	0.007	0.93	0.008		78.5	39.6 - 158	
N-Nitrosodiethylamine	55-18-5	MRL	04/30/18	0.010	0.010	1.17	0.009		87.3	60 - 140	
N-Nitrosodiethylamine	55-18-5	MRL	05/02/18	0.010	0.008	1.17	0.007		68.8	60 - 140	
N-Nitrosodimethylamine	62-75-9	MRL	05/02/18	0.010	0.011	1.16	0.009		93.8	60 - 140	
N-Nitrosodimethylamine	62-75-9	MRL	04/30/18	0.010	0.010	1.23	0.008		80.6	60 - 140	
N-Nitrosodimethylamine	62-75-9	MRL	05/01/18	0.010	0.007	0.99	0.007		68.4	71.6 - 181	
N-Nitrosodi-n-butylamine	924-16-3	MRL	05/01/18	0.010	0.007	0.95	0.008		77.2	27.4 - 210	
N-Nitrosodi-n-butylamine	924-16-3	MRL	05/02/18	0.010	0.008	1.18	0.006		64.5	60 - 140	
N-Nitrosodi-n-butylamine	924-16-3	MRL	04/30/18	0.010	0.011	1.20	0.010		94.8	60 - 140	
N-Nitrosodi-n-propylamine	621-64-7	MRL	05/01/18	0.010	0.007	0.96	0.007		72.7	47.8 - 163	
N-Nitrosodi-n-propylamine	621-64-7	MRL	05/02/18	0.010	0.008	1.19	0.007		69.8	60 - 140	
N-Nitrosodi-n-propylamine	621-64-7	MRL	04/30/18	0.010	0.009	1.20	0.008		76.0	60 - 140	
N-Nitrosomethylethylamine	10595-95-6	MRL	05/02/18	0.010	0.011	1.17	0.010		96.5	60 - 140	
N-Nitrosomethylethylamine	10595-95-6	MRL	05/01/18	0.010	0.007	0.93	0.008		79.0	50.8 - 164	
N-Nitrosomethylethylamine	10595-95-6	MRL	04/30/18	0.010	0.011	1.19	0.009		92.1	60 - 140	
N-Nitrosomorpholine	59-89-2	MRL	05/01/18	0.010	0.008	0.93	0.008		82.0	36 - 169	
N-Nitrosomorpholine	59-89-2	MRL	05/02/18	0.010	0.008	1.18	0.007		65.4	60 - 140	
N-Nitrosomorpholine	59-89-2	MRL	04/30/18	0.010	0.009	1.18	0.008		75.8	60 - 140	
N-Nitrosopiperidine	100-75-4	MRL	04/30/18	0.010	0.009	1.18	0.008		79.1	60 - 140	
N-Nitrosopiperidine	100-75-4	MRL	05/01/18	0.010	0.007	0.93	0.008		75.5	26.8 - 171	
N-Nitrosopiperidine	100-75-4	MRL	05/02/18	0.010	0.009	1.20	0.008		75.0	60 - 140	
N-Nitrosopyrrolidine	930-55-2	MRL	05/02/18	0.010	0.009	1.18	0.008		76.0	60 - 140	
N-Nitrosopyrrolidine	930-55-2	MRL	04/30/18	0.010	0.011	1.16	0.009		91.7	60 - 140	
N-Nitrosopyrrolidine	930-55-2	MRL	05/01/18	0.010	0.009	0.91	0.010		95.9	43.3 - 163	

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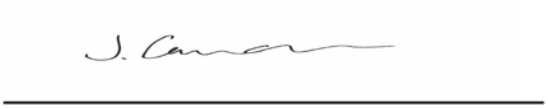
Report Qualifiers:

A = Target analyte media breakthrough suspect, see analytical report
B = Analyte detected in the associated blank
C = Poor agreement between initial and confirmatory analyses, result should be considered qualitative only
D = Analyte analyzed in a dilution
d = Desorption efficiency outside of acceptable limits
E = Report concentration was above the instrument calibration range
H = Holding times for preparation or analysis exceeded
J = Analyte detected below quantitation limits, concentration is estimated
L = Sample condition at receipt out of compliance with method
P = Library spectrum match, rsd >90% w RT match defined conditions
Q = Result out of method specific acceptance QC criteria
R = % Relative Standard Deviation of LCS outside of acceptable limits
S = Spike Recovery outside accepted recovery limits
L = LCS Spike Recovery limits above recovery limits
L = LCS Spike Recovery limits below recovery limits
M = MRL Spike Recovery limits above recovery limits
M = MRL Spike Recovery limits below recovery limits
U = Analyte analyzed for but not detected
X = Analyte not detected upon confirmatory analysis
Z = Not ELAP accredited analyte
** = Analyte detected upon confirmatory analysis only*
N/A = Not Applicable
ND = Not Detected



Scientist III J Grissmerson

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.

W803177

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180934
N/A		Page 1 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.	Temp. 21.8 °C
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011663	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-BA-EF	N/A
	S18T011664	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-BA-IN	N/A
	S18T011665	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-BL-EF	N/A
	S18T011666	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-BL-IN	N/A
	S18T011667	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-1	N/A
	S18T011668	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-2	N/A
	S18T011669	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-3	N/A
	S18T011670	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-4	N/A
	S18T011671	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-5	N/A
	S18T011672	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-6	N/A

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

SPECIAL INSTRUCTIONS Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
[illegible]	3-28-18 0900	[illegible]	3/28/18 0900
[illegible]	3/28/18 1150	Jeanne Story	03/28/18 1160

Matrix*

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process): Consumed 04/20/18

Disposed By: Dennis Smith

Date/Time: 05/14/18 1345

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)

W803177

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180934
N/A		Page 2 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011673	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-7 ✓	N/A
	S18T011674	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-EF-8 ✓	N/A
	S18T011675	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-1 ✓	N/A
	S18T011676	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-2 ✓	N/A
	S18T011677	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-3 ✓	N/A
	S18T011678	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-4 ✓	N/A
	S18T011679	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-5 ✓	N/A
	S18T011680	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-6 ✓	N/A
	S18T011681	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-7 ✓	N/A
	S18T011682	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02348-12-SD1-IN-8 ✓	N/A

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

SPECIAL INSTRUCTIONS Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Sorenson	3-28-18 0910	K Rogers	3/28/18 0900
K Rogers	3/28/18 1150	Jeanne Story	3/28/18 1150

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed 04/27/18	Dermese Smith	05/14/18 1345

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)

W803177

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180934
N/A		Page 3 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861 MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No. Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011683	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-BA-EF	N/A
	S18T011684	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-BA-IN	N/A
	S18T011685	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-BL-EF	N/A
	S18T011686	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-BL-IN	N/A
	S18T011687	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-1	N/A
	S18T011688	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-2	N/A
	S18T011689	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-3	N/A
	S18T011690	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-4	N/A
	S18T011691	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-5	N/A
	S18T011692	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-6	N/A

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

SPECIAL INSTRUCTIONS Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Brockman	3-28-18 0900	K E Rogers	3/28/18 0900
K E Rogers	3/28/18 1150	Jeanne Foy	03/28/18 1150
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed 04/20/18	Dennis Smith	05/14/18 1345

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)

W803177

Assembler	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. No. 20180934
N/A		Page 4 of 4

Collector: WAY	Contact/Requestor: CARL HOWALD IV	Telephone No. 373-6861	MSIN T6-05 FAX 372-1878
SAF No.: N/A	Sample Origin: 2018 CARTRIDGE EVALUATION	Purchase Order/Charge Code: 203006/CB20	
Project Title: 2018 CARTRIDGE EVALUATION	Logbook/ Work Package No.: N/A	Ice Chest No.	Temp.
Shipped To (Lab): CBAL	Method of Shipment	Bill of Lading/Air Bill No.	
Protocol: N/A	Data Turnaround: 10 DAYS	Parts and Return No.	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
	S18T011693	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-7 ✓	N/A
	S18T011694	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-EF-8 ✓	N/A
	S18T011695	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-1 ✓	N/A
	S18T011696	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-2 ✓	N/A
	S18T011697	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-3 ✓	N/A
	S18T011698	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-4 ✓	N/A
	S18T011699	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-5 ✓	N/A
	S18T011700	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-6 ✓	N/A
	S18T011701	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-7 ✓	N/A
	S18T011702	VA	03/24/18		Thermosorb-N	Nitrosamines 18-02351-13-TL2-IN-8 ✓	N/A

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

SPECIAL INSTRUCTIONS — Hold Time

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

CONTRACT 55503
RELEASE 9

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Don Samson	3.28.18 0811	K.E. Rogers	3/28/18 0900
K.E. Rogers	3/28/18 11:50	Deanne Story	03/28/18 1150

Matrix*

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
	Consumed 04/27/18	Denese Smith	05/14/18 1345

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 Forms

222-S	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	ATS-LO-090-101 Rev DH-2

Date Samples Received: 3-26-18 Total Number of Samples: 1200 Group No.:

Sample Custodian: Don Sorgenson IH Technician: [signature] 3-26-18

Sample Custodian to Complete

Action	Yes	No	N/A	Comments
RSR provided?	○	○	⊘	
Verify GKI is complete	○	○	⊘	☐ In Project File
Received from an alpha facility?	○	⊘		☐ Contact PC for approval to release
Check that outer custody seal is intact, if present	○	○	⊘	
Record cooler temperature in centigrade, as appropriate	⊘	○	○	☐ Check if no cooler and/or no ice 4.8°
Samples are intact and in good condition	⊘	○	○	If No, provide comments below.
RSA/COC provided and complete containing the following information?				
• Client name and client sample number	⊘	○	○	
• Date and time of sampling	⊘	○	○	
• Sampling location or origin	⊘	○	○	
• Container type, size, and number	⊘	○	○	
• Preservatives *(if used)* noted on the COC/RSA and sample bottles	○	○	⊘	
• Analysis request is clear	⊘	○	○	
• Signature of persons relinquishing and receiving samples	⊘	○	○	
• Date and/or time of sample custody exchange	⊘	○	○	
Verify that sample numbers on containers match the COC and/or RSA	⊘	○	○	
Samples stored properly *(e.g., refrigeration)*	⊘	○	○	

Notify the PC immediately if any problems are noted. Any "No" checked boxes require PC resolution. For WRPS samples, the initials block below is completed by the responsible WRPS PC.

Samples acceptable for release? ⊘ Yes ○ No PC/SC Initials: DLS RAC Date: 3-26-18 3/26/18

If No, comment on communication and resolution:

WRPS Shrp 600

WHL NH3 80 Hg 80

Run 240

Number of IH Samples Received:

Aldehyde Screen: 80	Amines: 80	Ammonia: 80	Aromatic HC:		Asbestos:
Beryllium:	Be-Bulk:	Be-Filter:	Be-Wipe:		1, 3-Butadiene: 160
Formaldehyde:	Furans: 80	Mercury: ~~80~~ 80	Methanol: 40		Nitrosamines: 80
Nitrous Oxide:	Pyridines: 80	SVOA: 80	VOA: 80		Other-IH:

Acetonitrile 80

A-6005-302 (REV 5)

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-1-SD1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069347
	18-02348-1-SD1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069398
	18-02348-1-SD1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 208435
	18-02348-2-SD1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02348-2-SD1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02348-2-SD1-BL-EF / TDU-VOC (Carbotrap300/PE/G) MDM	VOC Source
	18-02348-2-SD1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-1-SD1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069444
	18-02348-1-SD1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069343
	18-02348-1-SD1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069330
	18-02348-1-SD1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069356
	18-02348-1-SD1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069446
	18-02348-1-SD1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069452
	18-02348-1-SD1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069328

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DA SANDSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-11-SD1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-1-SD1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066314
	18-02348-1-SD1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066183
	18-02348-1-SD1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066325

Mam 3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sorensen	3-26-18	1700
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-1-SD1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2068377
	18-02348-1-SD1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066180
	18-02348-1-SD1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066168
	18-02348-1-SD1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066328
	18-02348-1-SD1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066353
	18-02348-1-SD1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2068192
	18-02348-1-SD1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L13231

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:		DAVID GARNER	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-1-SD1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02348-1-SD1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02348-1-SD1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G) MDM 3/26/18	Semi-VOC Source
	18-02348-2-SD1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045745
	18-02348-2-SD1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045685
	18-02348-2-SD1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045106
	18-02348-2-SD1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045097

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-2-SD1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045699
	18-02348-2-SD1-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045838
	18-02348-2-SD1-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045694
	18-02348-2-SD1-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045351
	18-02348-2-SD1-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045775
	18-02348-2-SD1-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045756
	18-02348-2-SD1-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045842

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-2-SD1-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045844
	18-02348-2-SD1-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045208
	18-02348-2-SD1-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045129
	18-02348-2-SD1-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044431
	18-02348-2-SD1-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045101
	18-02348-2-SD1-IN-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045400
	18-02348-2-SD1-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045066

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-2-SD1-IN-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045762
	18-02348-2-SD1-IN-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044286

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	4:00 12:00
Relinquished By:				MD3-26-18
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-8-SD1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-4-SD1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-BL-EF / XAD-7-NBD (SKC 226-96) 3/26/18	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1202
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-8-SD1-EF-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-EF-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DOL SORENSEN	3-26-18	1207
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-8-SD1-BL-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-EF-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-EF-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-EF-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-EF-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-EF-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-5-SD1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-8-SD1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-BA-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

MJM 3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DK Swanson	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-4-SD1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-3-SD1-BA-EF / TDU (Tenax)	Furans Source
	18-02348-3-SD1-BA-IN / TDU (Tenax)	Furans Source
	18-02348-3-SD1-BL-EF / TDU (Tenax)	Furans Source
	18-02348-3-SD1-BL-IN / TDU (Tenax)	Furans Source
	18-02348-3-SD1-EF-1 / TDU (Tenax)	Furans Source MDM 3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	094[illegible]

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		ROL SWANSON	3/26/18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-4-SD1-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-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	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DAN SIMON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-4-SD1-EF-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-IN-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-IN-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-IN-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-IN-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-IN-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-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	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DM Scanlon	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-8-SD1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-7 / Silica Gel (SKC 226-119) MDM 3/26/18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-4-SD1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sonson	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-7-SD1-IN-3 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-02348-12-SD1-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source

3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3/26/18	1700
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-11-SD1-EF-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-EF-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-EF-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-4 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-11-SD1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-1-SD1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02348-1-SD1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02348-1-SD1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G) 3/26/18	Semi-VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DM Simpson	3/26/18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-11-SD1-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-BL-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-EF-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-EF-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-EF-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-EF-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-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	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		RON SORENSEN	3/26/18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-12-SD1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-11-SD1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source

MOM 3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-12-SD1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-11-SD1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02348-11-SD1-BA-IN / Charcoal Tube (~~SKC 226-01~~) MDM 3/26/18	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0940

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR SOMBA	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-12-SD1-EF-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-EF-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-EF-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-EF-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-IN-3 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DAN SWANSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-12-SD1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-BL-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-BL-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-EF-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-EF-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-EF-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02348-12-SD1-EF-4 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3/26/18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-9-SD1-BA-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-BA-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-BA-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-BA-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-BL-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-BL-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-BL-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		ORSAMPLE	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-10-SD1-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Simpson	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-9-SD1-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3/26/18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-10-SD1-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DJOHNSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-9-SD1-IN-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-10-SD1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-5-SD1-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-BA-IN / Charcoal Tube (SKC-226-09) MDW 3/26/18	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1260
Received By:			3-26-18	1260
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-4-SD1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02348-4-SD1-IN-8 / XAD-7-NBD (SKC 226-96) 3/26/18	Dimethylamine/ethylamine/methylamine Source
	18-02348-3-SD1-BA-EF / TDU (Tenax)	Furans Source 2069063
	18-02348-3-SD1-BA-IN / TDU (Tenax)	Furans Source 2067724
	18-02348-3-SD1-BL-EF / TDU (Tenax)	Furans Source 2067562
	18-02348-3-SD1-BL-IN / TDU (Tenax)	Furans Source 2067667
	18-02348-3-SD1-EF-1 / TDU (Tenax)	Furans Source 2067650

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1800
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-3-SD1-EF-2 / TDU (Tenax)	Furans Source 2067608
	18-02348-3-SD1-EF-3 / TDU (Tenax)	Furans Source 2067611
	18-02348-3-SD1-EF-4 / TDU (Tenax)	Furans Source 2067749
	18-02348-3-SD1-EF-5 / TDU (Tenax)	Furans Source 2067786
	18-02348-3-SD1-EF-6 / TDU (Tenax)	Furans Source 2069062
	18-02348-3-SD1-EF-7 / TDU (Tenax)	Furans Source 2067762
	18-02348-3-SD1-EF-8 / TDU (Tenax)	Furans Source 2067797

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1201
Received By:		DN SAMSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-3-SD1-IN-1 / TDU (Tenax)	Furans Source 2067560
	18-02348-3-SD1-IN-2 / TDU (Tenax)	Furans Source 2067791
	18-02348-3-SD1-IN-3 / TDU (Tenax)	Furans Source 2054713
	18-02348-3-SD1-IN-4 / TDU (Tenax)	Furans Source 2067760
	18-02348-3-SD1-IN-5 / TDU (Tenax)	Furans Source 2067660
	18-02348-3-SD1-IN-6 / TDU (Tenax)	Furans Source 2069198
	18-02348-3-SD1-IN-7 / TDU (Tenax)	Furans Source 2067680

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1207
Received By:		DR SOMSEN	3-26-18	1207
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-3-SD1-IN-8 / TDU (Tenax)	Furans Source 2669079
	18-02348-6-SD1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-EF-1 / Hydrar (SKC 226-17-1A) MDM 3/26/18	Hg-Elemental Source
	18-02348-6-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	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DM Swanson	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-10-SD1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-9-SD1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02348-10-SD1-IN-8-B / Charcoal Tube (SKC-226-37) 3/26/18	1,3-Butadiene Source
	18-02348-5-SD1-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3-26-18~~	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-5-SD1-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-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	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DW Swanson	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-5-SD1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-8-SD1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-SD1-BA-IN / Silica Gel (SKC 226-119) MDM 3/26/18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02348-8-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 Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DON SORENSON	3/26/18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-5-SD1-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02348-5-SD1-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-3-SD1-IN-8 / TDU (Tenax) MDM 3/26/18	Furans Source
	18-02348-6-SD1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-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	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DON SIMPSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-6-SD1-EF-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-EF-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-EF-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-EF-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-EF-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-EF-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-IN-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DK Stetson	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-6-SD1-IN-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-IN-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-IN-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-IN-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-IN-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-IN-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02348-6-SD1-IN-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-7-SD1-BA-EF / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-BA-IN / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-BL-EF / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-BL-IN / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-EF-1 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-EF-2 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-EF-3 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-7-SD1-EF-4 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-EF-5 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-EF-6 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-EF-7 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-EF-8 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-1 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-2 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DONSON	3-26-18	1200
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:** 03/24/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02348 - AP Stack Cartridge Testing Sat-Sun Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02348-7-SD1-IN-3 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02348-7-SD1-IN-8 / CISA (SKC 226-29)	NH3 Source
	~~18-02348-12-SD1-BA-EF~~ / Thermosorb-N (TDX) MDM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/25/18	0540
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-5-SC1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-8-SC1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-BA-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

MBM 3-26-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-8-SC1-BL-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-EF-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-EF-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-EF-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-EF-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-EF-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-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 Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-8-SC1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-7 / Silica Gel (SKC 226-119) MDM 3-26-18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-4-SC1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LMolder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-4-SC1-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-EF-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-4-SC1-EF-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lldden	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-4-SC1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-3-SC1-BA-EF / TDU (Tenax)	Furans Source
	18-02349-3-SC1-BA-IN / TDU (Tenax)	Furans Source
	18-02349-3-SC1-BL-EF / TDU (Tenax)	Furans Source
	18-02349-3-SC1-BL-IN / TDU (Tenax)	Furans Source MDM 3-26-18
	18-02349-3-SC1-EF-1 / TDU (Tenax)	Furans Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lloyd	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-8-SC1-EF-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-EF-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-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 Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-8-SC1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-4-SC1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Llodra	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-7-SC1-IN-3 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-02349-12-SC1-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-12-SC1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-BL-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-BL-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-EF-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-EF-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-EF-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-EF-4 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0910

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-12-SC1-EF-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-EF-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-EF-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-EF-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-3 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-12-SC1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-11-SC1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-BA-IN / Charcoal Tube (SKC 226-01) 3/26/18	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:	Brett G	Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:	Brett G	BRETT GARNER	3-26-18	1200
Received By:	Sharon L Holden	Sharon L Holden	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-11-SC1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-7 / Charcoal Tube (SKC 226-01) MDM 3/26/18	Pyridines Source
	18-02349-11-SC1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-1-SC1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069200
	18-02349-1-SC1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048882
	18-02349-1-SC1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2067816

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lloyd	3/26/18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-1-SC1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048847
	18-02349-1-SC1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069463
	18-02349-1-SC1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2067820
	18-02349-1-SC1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 5/24/18 ~~2068~~ 2070373
	18-02349-1-SC1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2067953
	18-02349-1-SC1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069303
	18-02349-1-SC1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2067975

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-1-SC1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2070734
	18-02349-1-SC1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source A023712
	18-02349-1-SC1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048879
	18-02349-1-SC1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049012
	18-02349-1-SC1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049030
	18-02349-1-SC1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048896
	18-02349-1-SC1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2048957

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	~~0915~~ 0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Llewellyn	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-1-SC1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08591
	18-02349-1-SC1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08616
	18-02349-1-SC1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source A023704
	18-02349-2-SC1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02349-2-SC1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02349-2-SC1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02349-2-SC1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source

MDM 3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-1-SC1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02349-1-SC1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02349-1-SC1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G) MDM 3/26/18	Semi-VOC Source
	18-02349-2-SC1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045981
	18-02349-2-SC1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045317
	18-02349-2-SC1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045313
	18-02349-2-SC1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046564

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lloyd	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-2-SC1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045181
	18-02349-2-SC1-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045934
	18-02349-2-SC1-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046418
	18-02349-2-SC1-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046345
	18-02349-2-SC1-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046338
	18-02349-2-SC1-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046348
	18-02349-2-SC1-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045774

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARER	3-26-18	1200
Received By:		Sharon Holder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-2-SC1-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046429
	18-02349-2-SC1-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046217
	18-02349-2-SC1-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046341
	18-02349-2-SC1-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049393
	18-02349-2-SC1-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045701
	18-02349-2-SC1-IN-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045768
	18-02349-2-SC1-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044907

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lloyd	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-2-SC1-IN-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045227
	18-02349-2-SC1-IN-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045909

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-12-SC1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-12-SC1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02349-11-SC1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source

MDM 3-26-18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Ludlow	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-11-SC1-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-BL-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-EF-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-EF-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-EF-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-EF-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-EF-5 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Shawn Lloyd	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-11-SC1-EF-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-EF-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-EF-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-4 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-11-SC1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-11-SC1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02349-1-SC1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02349-1-SC1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02349-1-SC1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G) MDM 3-26-18	Semi-VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Sharon L Holder	Sharon L Holder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-4-SC1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02349-4-SC1-IN-8 / XAD-7-NBD (SKC 226-96) MAM 3/26/18	Dimethylamine/ethylamine/methylamine Source
	18-02349-3-SC1-BA-EF / TDU (Tenax)	Furans Source 204850
	18-02349-3-SC1-BA-IN / TDU (Tenax)	Furans Source 205462
	18-02349-3-SC1-BL-EF / TDU (Tenax)	Furans Source 205707
	18-02349-3-SC1-BL-IN / TDU (Tenax)	Furans Source 204852 ~~204991~~ MM 3.26.18
	18-02349-3-SC1-EF-1 / TDU (Tenax)	Furans Source 204990

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lloyd	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-3-SC1-EF-2 / TDU (Tenax)	Furans Source 2050083
	18-02349-3-SC1-EF-3 / TDU (Tenax)	Furans Source 2050235
	18-02349-3-SC1-EF-4 / TDU (Tenax)	Furans Source 2050085
	18-02349-3-SC1-EF-5 / TDU (Tenax)	Furans Source 2049712
	18-02349-3-SC1-EF-6 / TDU (Tenax)	Furans Source 2049734
	18-02349-3-SC1-EF-7 / TDU (Tenax)	Furans Source 2049725
	18-02349-3-SC1-EF-8 / TDU (Tenax)	Furans Source 2049830

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-3-SC1-IN-1 / TDU (Tenax)	Furans Source 2049855
	18-02349-3-SC1-IN-2 / TDU (Tenax)	Furans Source 2050233
	18-02349-3-SC1-IN-3 / TDU (Tenax)	Furans Source 2050091
	18-02349-3-SC1-IN-4 / TDU (Tenax)	Furans Source 2054748
	18-02349-3-SC1-IN-5 / TDU (Tenax)	Furans Source 2050239
	18-02349-3-SC1-IN-6 / TDU (Tenax)	Furans Source 2049831
	18-02349-3-SC1-IN-7 / TDU (Tenax)	Furans Source 2067672

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Shana Lilolde	3:26:18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-3-SC1-IN-8 / TDU (Tenax)	Furans Source 2069056
	18-02349-6-SC1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-BL-IN / Hydrar (SKC 226-17-1A) MOM 3/26/18	Hg-Elemental Source
	18-02349-6-SC1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-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	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Shawn L Holden	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-9-SC1-BA-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-BA-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-BA-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-BA-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-BL-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-BL-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-BL-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Shana L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-10-SC1-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Wade	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-9-SC1-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-EF-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lladde	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-10-SC1-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lloyd	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-9-SC1-IN-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-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	3/24/18	0620
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Shana Lilolde	Shana Lilolde	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-10-SC1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-5-SC1-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-BA-IN / Charcoal Tube (SKC-226-09) MDM 3-26-18	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Shawn LaMoldu	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-10-SC1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-9-SC1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-10-SC1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02349-5-SC1-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

MOM 3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holdie	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-5-SC1-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-EF-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-5-SC1-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Mollet	3-26-18	1206
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

SWHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-5-SC1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-5-SC1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02349-8-SC1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-BA-IN / Silica Gel (SKC 226-119) MDM	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02349-8-SC1-BL-EF / Silica Gel (SKC 226-119) 3/26/18	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Wade	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	~~18-02349-3-SC1-IN-8~~ / TDU (Tenax) MDM 3/26/18	Furans Source
	18-02349-6-SC1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-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	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lulder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-6-SC1-EF-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-EF-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-EF-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-EF-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-EF-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-EF-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-IN-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0945

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holder	3.26.18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-6-SC1-IN-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-IN-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-IN-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-IN-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-IN-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-IN-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02349-6-SC1-IN-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Shannon L Holder	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-7-SC1-BA-EF / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-BA-IN / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-BL-EF / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-BL-IN / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-EF-1 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-EF-2 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-EF-3 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon L Holden	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-7-SC1-EF-4 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-EF-5 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-EF-6 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-EF-7 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-EF-8 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-1 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-2 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon LMolden	3-26-18	1200
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:** 03/23/2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02349 - AP Stack Cartridge Testing Fri-Sat Yellow Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02349-7-SC1-IN-3 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02349-7-SC1-IN-8 / CISA (SKC 226-29)	NH3 Source
	~~18-02349-12-SC1-BA-EF~~ / Thermosorb-N (TDX) MDM 3/26/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Roblee	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0915

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Sharon Lholder	3.26.18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-11-TL1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-6-TL1-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DJR SAMPLER	3-26-18	1200
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:** 3/24/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-6-TL1-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-EF-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	03/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-6-TL1-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M0-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN SWANSON	3-26-18	1200
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:** 03/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-6-TL1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-9-TL1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-BA-IN / Silica Gel (SKC 226-119) 3/20/18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-282	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Grayson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-10-TL1-BA-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-BA-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-BA-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-BA-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-BL-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-BL-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-BL-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DL Strong	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-11-TL1-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica L Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DK Swenson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-10-TL1-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-EF-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Bergson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-11-TL1-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	~~03-24-18~~ 03-26-18 EJW	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Tor Swenson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-10-TL1-IN-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		5-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DON STANSEN	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-11-TL1-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-10-TL1-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-11-TL1-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02350-6-TL1-BA-EF / Charcoal Tube (SKC-226-09)	~~Acetonitrile Source~~
	18-02350-6-TL1-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Sorenson	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-6-TL1-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-6-TL1-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02350-9-TL1-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-BA-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0920

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DRS OTTOMSON	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-9-TL1-BL-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-EF-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-EF-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-EF-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-EF-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-EF-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-EF-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	M0-262	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:			3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-9-TL1-EF-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-EF-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE PROBE	MO-262	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3/25/18~~ 3-26-18	1200
Received By:		DR Stanton	3-26-18	1207
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-9-TL1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-5-TL1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE BARLEE	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		OR Signature	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
	~~18-02350-8-TL1-BA-EF~~ / CISA (SKC 226-29) 3/20/18	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE PORTER	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DYLAN BOYER	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-BA-EF / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-BA-IN / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-BL-EF / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-BL-IN / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-EF-1 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-EF-2 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-EF-3 / Silica Gel (SKC-226-51)	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE RODGER	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0920

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DON SPENCER	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-EF-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-EF-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-EF-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-EF-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-EF-8 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-1 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-2 / Silica Gel (SKC-226-51)	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		MIKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0920

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DAL Stanton	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-8-TL1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0620
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	DL Stenson	DL Stenson	3-26-18	1200
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:** 03-23-18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-13-TL1-BL-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-BL-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-EF-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-EF-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-EF-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-EF-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-EF-5 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0620
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:		ROLSTON	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-13-TL1-EF-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-EF-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-EF-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0620
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:		DR Swenson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-13-TL1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-12-TL1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0620
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:		DOE Courier	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-13-TL1-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-13-TL1-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02350-12-TL1-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source

DO 3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:		DW Stenberg	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-12-TL1-BL-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-EF-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-EF-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-EF-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-EF-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-EF-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-EF-6 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Stenson	3268	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-12-TL1-EF-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-EF-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DA Sorenson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-12-TL1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-1-TL1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02350-1-TL1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02350-1-TL1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02350-1-TL1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	DR Swanson	DR Swanson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-9-TL1-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-7 / Silica Gel (SKC 226-119) 3/29/18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-9-TL1-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02350-5-TL1-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DVLSpence	3/26/18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-5-TL1-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-EF-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Scranton	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-5-TL1-EF-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-IN-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-IN-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-IN-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-IN-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-IN-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-IN-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	7M0252	03-24-18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Swanson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-5-TL1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-5-TL1-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-4-TL1-BA-EF / TDU (Tenax)	Furans Source
	18-02350-4-TL1-BA-IN / TDU (Tenax)	Furans Source
	18-02350-4-TL1-BL-EF / TDU (Tenax)	Furans Source
	18-02350-4-TL1-BL-IN / TDU (Tenax)	Furans Source
	18-02350-4-TL1-EF-1 / TDU (Tenax)	Furans Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DN Swanson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-1-TL1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G) SWY 3-22-18	Semi-VOC Source
	18-02350-1-TL1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02350-2-TL1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049507
	18-02350-2-TL1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049548
	18-02350-2-TL1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049365
	18-02350-2-TL1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049540
	18-02350-2-TL1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049472

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0950

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR STENSON	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-2-TL1-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045899
	18-02350-2-TL1-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045415
	18-02350-2-TL1-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049391
	18-02350-2-TL1-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049506
	18-02350-2-TL1-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049381
	18-02350-2-TL1-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049550
	18-02350-2-TL1-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049388

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Swenson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-2-TL1-IN-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049645

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Spencer	3-26-18	1200
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:** 03-28-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-2-TL1-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045535
	18-02350-2-TL1-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049497
	18-02350-2-TL1-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049541
	18-02350-2-TL1-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045355
	18-02350-2-TL1-IN-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049631
	18-02350-2-TL1-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045843
	18-02350-2-TL1-IN-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2049644

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0625
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DOE Brunson	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-12-TL1-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-12-TL1-IN-7 / Charcoal Tube (SKC 226-01) 3/26/18	Pyridines Source
	18-02350-12-TL1-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02350-1-TL1-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069299
	18-02350-1-TL1-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066374
	18-02350-1-TL1-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069332
	18-02350-1-TL1-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066395

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Stenson	3-26-18	1200
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:** 03/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-1-TL1-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069257
	18-02350-1-TL1-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069495
	18-02350-1-TL1-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069250
	18-02350-1-TL1-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069461
	18-02350-1-TL1-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069344
	18-02350-1-TL1-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066442
	18-02350-1-TL1-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066513

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		Jake Robles	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		D L Sorenson	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-1-TL1-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066550
	18-02350-1-TL1-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2049041
	18-02350-1-TL1-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066573
	18-02350-1-TL1-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066424
	18-02350-1-TL1-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066398
	18-02350-1-TL1-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066541
	18-02350-1-TL1-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069304

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DA Stanton	3-26-18	1200
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:** 3/28/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-1-TL1-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069468
	18-02350-1-TL1-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08617
	18-02350-2-TL1-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02350-2-TL1-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02350-2-TL1-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02350-2-TL1-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02350-2-TL1-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sorenson	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-4-TL1-EF-2 / TDU (Tenax)	Furans Source 2069057
	18-02350-4-TL1-EF-3 / TDU (Tenax)	Furans Source 2069073
	18-02350-4-TL1-EF-4 / TDU (Tenax)	Furans Source 2068980
	18-02350-4-TL1-EF-5 / TDU (Tenax)	Furans Source 2067531
	18-02350-4-TL1-EF-6 / TDU (Tenax)	Furans Source 2069030
	18-02350-4-TL1-EF-7 / TDU (Tenax)	Furans Source 2069175
	18-02350-4-TL1-EF-8 / TDU (Tenax)	Furans Source 2069139

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Stevens	3/26/18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-5-TL1-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source 3/20/18
	18-02350-5-TL1-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02350-4-TL1-BA-EF / TDU (Tenax)	Furans Source 2069043
	18-02350-4-TL1-BA-IN / TDU (Tenax)	Furans Source 2069122
	18-02350-4-TL1-BL-EF / TDU (Tenax)	Furans Source 2069025
	18-02350-4-TL1-BL-IN / TDU (Tenax)	Furans Source 2069215
	18-02350-4-TL1-EF-1 / TDU (Tenax)	Furans Source 2068972

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DL Brenden	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-4-TL1-IN-1 / TDU (Tenax)	Furans Source 2069070
	18-02350-4-TL1-IN-2 / TDU (Tenax)	Furans Source 2069199
	18-02350-4-TL1-IN-3 / TDU (Tenax)	Furans Source 2069033
	18-02350-4-TL1-IN-4 / TDU (Tenax)	Furans Source 2067674
	18-02350-4-TL1-IN-5 / TDU (Tenax)	Furans Source 2069006
	18-02350-4-TL1-IN-6 / TDU (Tenax)	Furans Source 2069106
	18-02350-4-TL1-IN-7 / TDU (Tenax)	Furans Source 2069160

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DL Sorenson	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-4-TL1-IN-8 / TDU (Tenax)	Furans Source 2069168
	18-02350-7-TL1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-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	3/24/18	0620
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

3.26.18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3-26-18~~	1200
Received By:		DR Swenson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-7-TL1-IN-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-IN-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-IN-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-IN-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-IN-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-IN-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-IN-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR SAMSON	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-7-TL1-EF-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-IN-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0822
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3-26-18~~	1200
Received By:		DR Stinson	3-26-18	1200
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:** 03-23-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-4-TL1-IN-8 / TDU (Tenax) 3/29/18	Furans Source
	18-02350-7-TL1-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02350-7-TL1-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-24-18	0622
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		RYAN SWENSON	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-3-TL1-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-3-TL1-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
	18-02350-8-TL1-BA-EF / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Stenson	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-8-TL1-BA-IN / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-BL-EF / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-BL-IN / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-EF-1 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-EF-2 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-EF-3 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-EF-4 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		DAVE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sorensen	3/26/18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-8-TL1-EF-5 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-EF-6 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-EF-7 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-EF-8 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-1 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-2 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-3 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLES	M0-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		DR Sanders	3-26-18	1200
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:** 3/23/18
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02350 - AP Stack Cartridge Testing Fri-Sat Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02350-8-TL1-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02350-8-TL1-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-02350-13-TL1-BA-EF / Thermosorb-N (TDX) 16 3/20/18	~~Nitrosamines Source~~
	18-02350-13-TL1-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:		JAKE ROBLEE	MO-252	3/24/18	0620
Retrieved from Storage:		Brett Garner		3/26/18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	~~3-26-18~~	1200
Received By:			3-26-18	1200
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-6-TL2-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-9-TL2-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-BA-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0452
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	1200
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-9-TL2-BL-IN / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-EF-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-EF-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-EF-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-EF-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-EF-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-EF-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0452
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-9-TL2-EF-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-EF-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-1 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-2 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-3 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-4 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-5 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	7M0252	03-25-18	0452
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-9-TL2-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-5-TL2-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0452
Retrieved from Storage:		BRETT GARNER		3-26-18	0950

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-13-TL2-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-12-TL2-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-BA-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source

3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0514
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-12-TL2-BL-IN / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-EF-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-EF-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-EF-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-EF-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-EF-5 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-EF-6 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0514
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-12-TL2-EF-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-EF-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-1 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-2 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-3 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-4 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-5 / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0514
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-12-TL2-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-1-TL2-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02351-1-TL2-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02351-1-TL2-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02351-1-TL2-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source

3/20/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0514
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-6 / CISA (SKC 226-29) 3/20/18	NH3 Source
	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0524
Retrieved from Storage:		BRETT GARNER		3-26-18	0910

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-13-TL2-BL-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-BL-IN / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-EF-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-EF-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-EF-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-EF-4 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-EF-5 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0524
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-13-TL2-EF-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-EF-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-EF-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-1 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-2 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-3 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-4 / Thermosorb-N (TDX)	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0524
Retrieved from Storage:		BRETT GARNER		3-26-18	0970

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	LESLIE DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-13-TL2-IN-5 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-6 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-7 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-IN-8 / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-12-TL2-BA-EF / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-BA-IN / Charcoal Tube (SKC 226-01) 3/20/18	Pyridines Source
	18-02351-12-TL2-BL-EF / Charcoal Tube (SKC 226-01)	Pyridines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0524
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3/26/18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-5-TL2-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source 3/20/18
	18-02351-4-TL2-BA-EF / TDU (Tenax)	Furans Source 2049849
	18-02351-4-TL2-BA-IN / TDU (Tenax)	Furans Source 2054716
	18-02351-4-TL2-BL-EF / TDU (Tenax)	Furans Source 2054590
	18-02351-4-TL2-BL-IN / TDU (Tenax)	Furans Source 2054750
	18-02351-4-TL2-EF-1 / TDU (Tenax)	Furans Source 2054601

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0438
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3-26-18	1200
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-4-TL2-EF-2 / TDU (Tenax)	Furans Source 2049876
	18-02351-4-TL2-EF-3 / TDU (Tenax)	Furans Source 2054721
	18-02351-4-TL2-EF-4 / TDU (Tenax)	Furans Source 2049708
	18-02351-4-TL2-EF-5 / TDU (Tenax)	Furans Source 2049711
	18-02351-4-TL2-EF-6 / TDU (Tenax)	Furans Source 2054723
	18-02351-4-TL2-EF-7 / TDU (Tenax)	Furans Source 2054561
	18-02351-4-TL2-EF-8 / TDU (Tenax)	Furans Source 2049710

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0 252	03-25-18	0438
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1204
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-4-TL2-IN-1 / TDU (Tenax)	Furans Source 2054705
	18-02351-4-TL2-IN-2 / TDU (Tenax)	Furans Source 2054734
	18-02351-4-TL2-IN-3 / TDU (Tenax)	Furans Source 2049736
	18-02351-4-TL2-IN-4 / TDU (Tenax)	Furans Source 2049856
	18-02351-4-TL2-IN-5 / TDU (Tenax)	Furans Source 2054706
	18-02351-4-TL2-IN-6 / TDU (Tenax)	Furans Source 2054752
	18-02351-4-TL2-IN-7 / TDU (Tenax)	Furans Source 2054741

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	MO 252	03-25-18	0438
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-4-TL2-IN-8 /.TDU (Tenax)	Furans Source 2069184
	18-02351-7-TL2-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0438
Retrieved from Storage:	Brett	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett	BRETT GARNER	3-26-18	1200
Received By:		Zeslie DIAZ	3/26/18	1200
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-9-TL2-IN-6 / Silica Gel (SKC 226-119)	Aldehyde Panel ~~Source~~ **Method:** EPA TO-11A 3/24/18
	18-02351-9-TL2-IN-7 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-IN-8 / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-5-TL2-BA-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-BA-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-BL-EF / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-BL-IN / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Ezra Wheeler	Ezra Wheeler	2102	03-25-18	0521
Retrieved from Storage:		BRETT GARNER		3-26-18	0920

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-5-TL2-EF-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-EF-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-EF-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-EF-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-EF-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-EF-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-EF-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0521
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-5-TL2-EF-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-1 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-2 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-3 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-4 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-5 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-6 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0521
Retrieved from Storage:		BRETT GARNER		3-26-18	0970

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LeslieDiaz	3/26/18	1200
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-5-TL2-IN-7 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-5-TL2-IN-8 / XAD-7-NBD (SKC 226-96)	Dimethylamine/ethylamine/methylamine Source
	18-02351-4-TL2-BA-EF / TDU (Tenax)	Furans Source
	18-02351-4-TL2-BA-IN / TDU (Tenax)	Furans Source 3/20/18
	18-02351-4-TL2-BL-EF / TDU (Tenax)	Furans Source
	18-02351-4-TL2-BL-IN / TDU (Tenax)	Furans Source
	18-02351-4-TL2-EF-1 / TDU (Tenax)	Furans Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	MO 252	03-25-18	0521
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

3-26-18

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LUIS M DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-BA-EF / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-BA-IN / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-BL-EF / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-BL-IN / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-EF-1 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-EF-2 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-EF-3 / Silica Gel (SKC-226-51)	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0517
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	1300 1200 3-26-18
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-EF-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-EF-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-EF-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-EF-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-EF-8 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-1 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-2 / Silica Gel (SKC-226-51)	Methanol Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica JWheeler	Erica Wheeler	M0252	03-25-18	0517
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
	~~18-02351-8-TL2-BA-EF / GISA (SKC 226-29)~~ 3/20/18	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0517
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LeslieDiaz	3/26/18	1200
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-11-TL2-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-6-TL2-BA-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0506
Retrieved from Storage:		BRETT GARNER		3-26-18	0900

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3-26-18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-6-TL2-BL-EF / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-BL-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-EF-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-EF-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-EF-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-EF-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-EF-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0506
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-28-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-6-TL2-EF-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-EF-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-EF-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-1 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-2 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-3 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-4 / Charcoal Tube (SKC-226-09)	Acetonitrile Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0506
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3-26-18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-6-TL2-IN-5 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-6 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-7 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-6-TL2-IN-8 / Charcoal Tube (SKC-226-09)	Acetonitrile Source
	18-02351-9-TL2-BA-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-BA-IN / Silica Gel (SKC 226-119) 3/28/18	Aldehyde Panel Source **Method:** EPA TO-11A
	18-02351-9-TL2-BL-EF / Silica Gel (SKC 226-119)	Aldehyde Panel Source **Method:** EPA TO-11A

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	M0252	03-25-18	0506
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	1210
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-10-TL2-BA-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-BA-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-BA-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-BA-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-BL-EFA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-BL-EFB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-BL-INA / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0448
Retrieved from Storage:		BRETT GARNER		3-26-18	0936

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-11-TL2-BL-INB / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-EF-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-EF-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-EF-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-EF-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-EF-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-EF-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0448
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-10-TL2-EF-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-EF-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-EF-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-EF-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-EF-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-EF-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-EF-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0648
Retrieved from Storage:		BRETT GARNER		3-26-18	0980

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-11-TL2-EF-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-EF-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-EF-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-1-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-1-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-2-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-2-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	7M0252	03-25-18	0448
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0920

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-10-TL2-IN-3-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-3-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-4-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-4-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-5-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-5-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-6-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0448
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-11-TL2-IN-6-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-7-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-7-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-10-TL2-IN-8-A / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-11-TL2-IN-8-B / Charcoal Tube (SKC-226-37)	1,3-Butadiene Source
	18-02351-6-TL2-BA-EF / Charcoal Tube (SKC-226-09)	~~Acetonitrile Source~~
	18-02351-6-TL2-BA-IN / Charcoal Tube (SKC-226-09)	Acetonitrile Source

3/26/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0448
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-1-TL2-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source
	18-02351-1-TL2-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G) DC 3/20/18	Semi-VOC Source
	18-02351-2-TL2-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045837
	18-02351-2-TL2-BA-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045925
	18-02351-2-TL2-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044901
	18-02351-2-TL2-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045896
	18-02351-2-TL2-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2044960

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0458
Retrieved from Storage:		BRETT GARNER		7-26-18	0920

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-2-TL2-EF-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046393
	18-02351-2-TL2-EF-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046263
	18-02351-2-TL2-EF-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045825
	18-02351-2-TL2-EF-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2045345
	18-02351-2-TL2-EF-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046353
	18-02351-2-TL2-EF-7 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046371
	18-02351-2-TL2-EF-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046395

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0458
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0970

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie DIAZ	3-26-18	1210
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-2-TL2-IN-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046870
	18-02351-2-TL2-IN-2 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046574
	18-02351-2-TL2-IN-3 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046232
	18-02351-2-TL2-IN-4 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046283
	18-02351-2-TL2-IN-5 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046472
	18-02351-2-TL2-IN-6 / TDU-VOC (Carbotrap300/PE/G)	VOC Source 2046258
	18-02351-2-TL2-IN-7 / TDU-VOC (Carbotrap300/PE/G) Rec'd Broken LMD 3-26-18	VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0458
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments: Rec'd 18-02351-2-TL2-IN-7 Broken LMD 3-26-18

SWIHD - Chain of Custody

INDUSTRIAL HYGIENE CHAIN OF CUSTODY AND LABORATORY REQUEST

Contractor: Washington River Protection Solutions			**Date Sampled:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-2-TL2-IN-8 / TDU-VOC (Carbotrap300/PE/G)	VOC Source
		245919

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0458
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0920

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-12-TL2-IN-6 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-7 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-12-TL2-IN-8 / Charcoal Tube (SKC 226-01)	Pyridines Source
	18-02351-1-TL2-BA-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2067571
	18-02351-1-TL2-BA-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2068174
	18-02351-1-TL2-BL-EF / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2070020
	18-02351-1-TL2-BL-IN / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2068411

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0430
Retrieved from Storage:	Brett	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Lashire Diaz	3/26/18	1200
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-1-TL2-EF-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069925
	18-02351-1-TL2-EF-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069886
	18-02351-1-TL2-EF-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069955
	18-02351-1-TL2-EF-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2070049
	18-02351-1-TL2-EF-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069902
	18-02351-1-TL2-EF-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2070017
	18-02351-1-TL2-EF-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source L08624

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0430
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-1-TL2-EF-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066571
	18-02351-1-TL2-IN-1 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069362
	18-02351-1-TL2-IN-2 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069401
	18-02351-1-TL2-IN-3 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069465
	18-02351-1-TL2-IN-4 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069480
	18-02351-1-TL2-IN-5 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2066439
	18-02351-1-TL2-IN-6 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069464

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0430
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0430

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	LESLIE DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-1-TL2-IN-7 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069371
	18-02351-1-TL2-IN-8 / TDU-SVOC (Carbotrap150/Gerst/G)	Semi-VOC Source 2069443
	18-02351-2-TL2-BA-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02351-2-TL2-BA-IN / TDU-VOC (Carbotrap300/PE/G) DD 3/20/18	VOC Source
	18-02351-2-TL2-BL-EF / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02351-2-TL2-BL-IN / TDU-VOC (Carbotrap300/PE/G)	VOC Source
	18-02351-2-TL2-EF-1 / TDU-VOC (Carbotrap300/PE/G)	VOC Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0430
Retrieved from Storage:	Brett Garner	Brett Garner		3/26/18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	1210
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-4-TL2-IN-8 / TDU (Tenax) 3/24/18	Furans Source
	18-02351-7-TL2-BA-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-BA-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-BL-EF / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-BL-IN / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica J Wheeler	Erica Wheeler	HO 252	03-25-18	0435
Retrieved from Storage:	Brett Garner	BRETT GARNER		7-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	LESLIE DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-7-TL2-EF-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-EF-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-IN-1 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	40 252	03-25-18	0435
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-7-TL2-IN-2 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-IN-3 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-IN-4 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-IN-5 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-IN-6 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-IN-7 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source
	18-02351-7-TL2-IN-8 / Hydrar (SKC 226-17-1A)	Hg-Elemental Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0435
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-3-TL2-IN-3 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-4 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-5 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-6 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-7 / Silica Gel (SKC-226-51)	Methanol Source
	18-02351-3-TL2-IN-8 / Silica Gel (SKC-226-51)	Methanol Source
518701	18-02351-8-TL2-BA-EF / CISA (SKC 226-29)	NH3 Source

3/29/18

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237		**Turnaround:** N/A
Return Report To: Maxwell, Sally A		**MSIN:** R1-06	**Phone:** (509)373-3324

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-8-TL2-BA-IN / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-BL-EF / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-BL-IN / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-EF-1 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-EF-2 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-EF-3 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-EF-4 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		LESLIE DIAZ	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-8-TL2-EF-5 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-EF-6 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-EF-7 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-EF-8 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-1 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-2 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-3 / CISA (SKC 226-29)	NH3 Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	M0252	03-25-18	0509
Retrieved from Storage:	Brett Garner	BRETT GARNER		3-26-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:	Brett Garner	BRETT GARNER	3-26-18	1200
Received By:	Leslie Diaz	Leslie Diaz	3/26/18	12:00
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:** 03-24-2018
CACN: 203006	**COA:** CB20	**Survey No.:** 18-02351 - AP Stack Cartridge Testing Sat-Sun Green Mac	
Contact Name: Way, Zachary K	**Phone:** (509)373-4237	**Turnaround:** N/A	
Return Report To: Maxwell, Sally A	**MSIN:** R1-06	**Phone:** (509)373-3324	

Laboratory Log No.	Sample ID/Type/Description	Required Analysis
	18-02351-8-TL2-IN-4 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-5 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-6 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-7 / CISA (SKC 226-29)	NH3 Source
	18-02351-8-TL2-IN-8 / CISA (SKC 226-29)	NH3 Source
	18-02351-13-TL2-BA-EF / Thermosorb-N (TDX)	Nitrosamines Source
	18-02351-13-TL2-BA-IN / Thermosorb-N (TDX) 3/20/18	Nitrosamines Source

Special Instructions:

	Signature	Printed Name	Location	Date	Time
Delivered to Storage:	Erica Wheeler	Erica Wheeler	MO 252	03-25-18	0509
Retrieved from Storage:		BRETT GARNER		3-20-18	0930

	Signature	Printed Name	Date	Time
Relinquished By:		BRETT GARNER	3-26-18	1200
Received By:		Leslie Diaz	3/26/18	12:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				

Additional Comments:

Pacific Northwest
NATIONAL LABORATORY

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U.S. DEPARTMENT OF
ENERGY