SOURCE TEST REPORT
2022 SOURCE TESTING
CHRONIC HEALTH RISK
COVANTA MARION, INC.
SOLID WASTE COMBUSTOR UNITS 1 & 2
BROOKS, OREGON

Prepared For:

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For Submittal To:

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REVIEW AND CERTIFICATION

All work, calculations, and other activities and tasks performed and presented in this document were carried out by me or under my direction and supervision. I hereby certify that, to the best of my knowledge, Montrose operated in conformance with the requirements of the Montrose Quality Management System and ASTM D7036-04 during this test project.

Signature: _____ Date: 06 / 27 / 2022

Name: Peter Becker Title: Client Project Manager

I have reviewed, technically and editorially, details, calculations, results, conclusions, and other appropriate written materials contained herein. I hereby certify that, to the best of my knowledge, the presented material is authentic, accurate, and conforms to the requirements of the Montrose Quality Management System and ASTM D7036-04.

Signature: _____ Date: 06 / 27 / 2022

Name: Amber Little Title: Reporting Hub Manager

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1.0 INTRODUCTION

1.1 SUMMARY OF TEST PROGRAM

Covanta Marion, Inc. (Covanta) contracted Montrose Air Quality Services, LLC (Montrose) to perform an emissions test program on Solid Waste Combustors Units 1 and 2 at their facility located in Brooks, Oregon. The tests were conducted to measure specific reportable Toxic Air Contaminants (TAC) included under OAR 340-245-8020 for the purposes of generating representative emissions inventory pursuant to OAR 340-245-0040 for the Cleaner Air Oregon (CAO) Program. This report covers the Chronic Health Risk testing. Acute Health Risk test results are in a separate report.

Montrose performed the tests to measure the emission parameters listed in Table 1-1.

TABLE 1-1
SUMMARY OF TEST PROGRAM

Test Date	Unit ID/ Source Name	Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
3/9/2022	Unit 1	Velocity/Volumetric Flow Rate	EPA 1 & 2	3	120
“”	“”	O_2, CO_2	EPA 3	3	Bag sample
“”	“”	Moisture	EPA 4	3	120
“”	“”	PM, HCl, HF, HBr, Cl_2, Br_2	EPA 5/26A[1]	3	120
“”	Unit 2	Velocity/Volumetric Flow Rate	EPA 1 & 2	3	120
“”	“”	O_2, CO_2	EPA 3A	3	240
“”	“”	Multi metals	EPA 29	3	120
“”	“”	Cr^{+6}	EPA SW-846 0061	3	120
3/10/2022	Unit 1	Velocity/Volumetric Flow Rate	EPA 1 & 2	1	240
“”	“”	O_2, CO_2	EPA 3	1	Bag sample
“”	“”	Chlorobenzene/ chlorophenol	EPA 0023A	1	240

1 EPA Method 5 filters were sent for molybdenum and Mo compound analysis.

TABLE 1-1
SUMMARY OF TEST PROGRAM CONTINUED

Test Date	Unit ID/ Source Name	Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
3/10/2022	Unit 2	Velocity/Volumetric Flow Rate	EPA 1 & 2	1	240
“”	“”	O_2, CO_2	EPA 3A	1	240
“”	“”	PCDD/PCDF/PCBs	EPA 23	1	240
“”	“”	PAHs	CARB 429	1	240
3/11/2022	Unit 1	Velocity/Volumetric Flow Rate	EPA 1 & 2	1	240
“”	“”	O_2, CO_2	EPA 3	1	Bag sample
“”	“”	Chlorobenzene/ chlorophenol	EPA 0023A	1	240
“”	Unit 2	Velocity/Volumetric Flow Rate	EPA 1 & 2	2	240
“”	“”	O_2, CO_2	EPA 3A	2	240
“”	“”	PCDD/PCDF/PCBs	EPA 23	2	240
“”	“”	PAHs	CARB 429	2	240
All	Units 1 & 2	Post-test thermocouple calibration check	EPA ALT-011	--	--

To simplify this report, a list of Units and Abbreviations is included in Appendix D.1. Throughout this report, chemical nomenclature, acronyms, and reporting units are not defined. Please refer to the list for specific details.

This report presents the test results and supporting data, descriptions of the testing procedures, descriptions of the facility and sampling locations, and a summary of the quality assurance procedures used by Montrose. Detailed results for individual test runs can be found in Section 4.0. All supporting data can be found in the appendices.

The testing was conducted by the Montrose personnel listed in Table 1-2. The tests were conducted according to the test plan (protocol) dated November 24, 2021 that was submitted to the ODEQ and approved on December 3, 2021.

1.2 KEY PERSONNEL

A list of project participants is included on the following page:

Facility Information

Source Location:	Covanta Marion, Inc. 4850 Brooklake Road Brooks, OR 97305	
Project Contact:	Andrew Willis	Jeffrey Hahn
Role:	Environmental Compliance Specialist	Consultant
Company:	Covanta	Covanta
Telephone:	503-979-1807	201-723-6447
Email:	awillis@covanta.com	jhahn@covanta.com

Agency Information

Regulatory Agency:	Oregon DEQ	
Agency Contact:	Thomas Rhodes	Julia DeGagné
Telephone:	503-229-5534	503-866-9643
Email:	thomas.rhodes@deq.oregon.gov	julia.degagne@deq.oregon.gov

Testing Company Information

Testing Firm:	Montrose Air Quality Services, LLC	
Contact:	Peter Becker	Kristina Schafer
Title:	Client Project Manager	Hub District Manager
Telephone:	330-285-6884	253-480-3801
Email:	pbecker@montrose-env.com	kschafer@montrose-env.com

Laboratory Information

Laboratory:	Enthalpy Analytical	Vista
City, State:	Durham, NC	El Dorado Hills, CA
Method:	EPA Mod. 26A/EPA 29/EPA SW846 Method 8270D/EPA 0023A	EPA 23 & CARB Method 429
Laboratory:	MVA Scientific Consultants	Chester LabNet
City, State:	Duluth, GA	Tigard, OR
Method:	Molybdenum	SW 846 Method 0061

Test personnel and observers are summarized in Table 1-2.

TABLE 1-2
TEST PERSONNEL AND OBSERVERS

Name	Affiliation	Role/Responsibility
Kevin Crosby	Montrose	Test Coordinator
Peter Becker	Montrose	Project Manager/Field Team Leader/Qualified Individual (QI)/Trailer operator/Sample recovery/Sample train operator
Esha Chetty	Montrose	Sample recovery
Sebastian Wolfendale	Montrose	Stack Lead
Austin Goracke	Montrose	Sample train operator
Preston Bauder	Montrose	Sample train operator
Andy Vella	Montrose	Calculations and report preparation
Andrew Willis	Covanta	Observer/Client Liaison/Test Coordinator
Paul Kantola	Covanta	Corporate EHS
Jeff Hahn	Covanta	Consultant
Kenzie Billings	Oregon DEQ	CAO Project Manager
Thomas Rhodes	Oregon DEQ	CAO Source Test Coordinator
Julia DeGagné	Oregon DEQ	Air Toxics Project Manager

2.0 PLANT AND SAMPLING LOCATION DESCRIPTIONS

2.1 PROCESS DESCRIPTION, OPERATION, AND CONTROL EQUIPMENT

The Marion County Solid Waste-to-Energy Facility is located in Brooks, Oregon. The facility consists of two identical municipal solid waste-fired boilers of Martin GmbH Stoker Combustion System design. The combustors each have a capacity greater than 250 tons per day. The facility produces up to 13.1 MW of electricity daily. Each MWC unit exhausts through a common flue stack. Air pollution equipment for each independent train includes semi-dry flue gas scrubbers for acid gas control, fabric filter for particulate removal, selective non-catalytic reduction (SNCR) for control of nitrogen oxides and dry activated carbon injection for mercury emission controls. Each unit is also equipped with a continuous emission monitoring system to monitor emissions of nitrogen oxides, sulfur dioxide, carbon monoxide, and related process parameters.

2.2 FLUE GAS SAMPLING LOCATIONS

Information regarding the sampling locations is presented in Table 2-1.

TABLE 2-1
SAMPLING LOCATIONS

Sampling Location	Stack Inside Diameter (in.)	Distance from Nearest Disturbance		Number of Traverse Points
		Downstream EPA "B" (in./dia.)	Upstream EPA "A" (in./dia.)	
Unit 1	48	1200 / 25	1440 / 30	Isokinetic: 12 (6/port); Gaseous: 3
Unit 2	48	1200 / 25	1440 / 30	Isokinetic: 12 (6/port); Gaseous: 3

Sample locations were verified in the field to conform to EPA Method 1. Acceptable cyclonic flow conditions were confirmed prior to testing using EPA Method 1, Section 11.4. See Appendix A.1 for more information.

2.3 OPERATING CONDITIONS AND PROCESS DATA

Emission testing was performed under two distinct operating scenarios which included:

- A low fire/reduced steam load (80-90% of design steam load) to provide results used in calculation of acute health risk, and
- A high fire/increased steam load (90-110% of design steam load) to characterize chronic health risk.

The design steam load capacity is approximately 67 Klbs/hr. CMI operated under "worst case" conditions (refer to operating scenarios referenced above) for the Cleaner Air Oregon required testing, as described in detail in Section 2.9 of the DEQ Source Sampling Manual, i.e., both the low fire/reduced steam load and the high fire/increased steam load operating scenarios.

The “low fire/reduced steam load” scenario, which represents the maximum “worst case” boiler operating condition, would only occur in a few hours of operation in any given year. The results from the high fire operating scenario are presented in this test report.

The fuel processed during testing primarily consisted of municipal solid waste and other approved wastes (e.g., regulated medical waste, industrial solid wastes, liquid waste). CMI tracked the amounts of regulated medical waste and liquid wastes processed in each unit as well as the amount of industrial waste that was received during each testing day. These parameters are summarized in a supplemental document to this report. Operating data including continuous emissions monitoring (CEM), continuous opacity monitoring (COM), continuous parameter monitoring (CPM), and reagent feed rates are presented in Appendix B. These include:

- Steam flow, 1000 lb/hr
- Baghouse inlet temperature, °F
- Carbon injection rate, lb/hr
- Lime flow, lb/hr
- Ammonia flow, gph
- Auxiliary natural gas flow, kscfh
- NO_X, ppm (@ 7% O_2)
- SO_2, ppm (@ 7% O_2)
- CO, ppm (@ 7% O_2)
- Opacity (%)

3.0 SAMPLING AND ANALYTICAL PROCEDURES

3.1 TEST METHODS

The test methods for this test program were presented previously in Table 1-1. Additional information regarding specific applications or modifications to standard procedures is presented below.

3.1.1 EPA Method 1, Sample and Velocity Traverses for Stationary Sources

EPA Method 1 is used to assure that representative samples or measurements of volumetric flow rate are obtained by dividing the cross-section of the stack or duct into equal areas, and then locating a traverse point within each of the equal areas. Acceptable sample locations must be located at least two stack or duct equivalent diameters downstream from a flow disturbance and one-half equivalent diameter upstream from a flow disturbance.

Pertinent information regarding the performance of the method is presented below:

- Method Options: NA
- Method Exceptions: None

The sample port and traverse point locations are detailed in Appendix A.

3.1.2 EPA Method 2, Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)

EPA Method 2 is used to measure the gas velocity using an S-type pitot tube connected to a pressure measurement device, and to measure the gas temperature using a calibrated thermocouple connected to a thermocouple indicator. Typically, Type S (Stausscheibe) pitot tubes conforming to the geometric specifications in the test method are used, along with an inclined manometer. The measurements are made at traverse points specified by EPA Method 1. The molecular weight of the gas stream is determined from independent measurements of O_2, CO_2, and moisture. The stack gas volumetric flow rate is calculated using the measured average velocity head, the area of the duct at the measurement plane, the measured average temperature, the measured duct static pressure, the molecular weight of the gas stream, and the measured moisture.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - S-type pitot tube coefficient is 0.84
  - Inclined manometer is used to measure velocity
  - ALT-011 used to verify thermocouple functionality
- Method Exceptions: None

The typical sampling system is detailed in Figure 3-3.

3.1.3 EPA Method 3A, Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)

EPA Method 3A is an instrumental test method used to measure the concentration of O_2 and CO_2 in stack gas. The effluent gas is continuously or intermittently sampled and conveyed to analyzers that measure the concentration of O_2 and CO_2. The performance requirements of the method must be met to validate data.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - Calibration span values are 23.04% O_2 and 22.66% CO_2
- Method Exceptions: None
- Target and/or Minimum Required Sample Duration: 120 or 240 minutes (concurrent with test runs)

The typical sampling system is detailed in Figures 3-1 and 3-2.

FIGURE 3-1
US EPA METHOD 3A (TEDLAR BAG) SAMPLING TRAIN

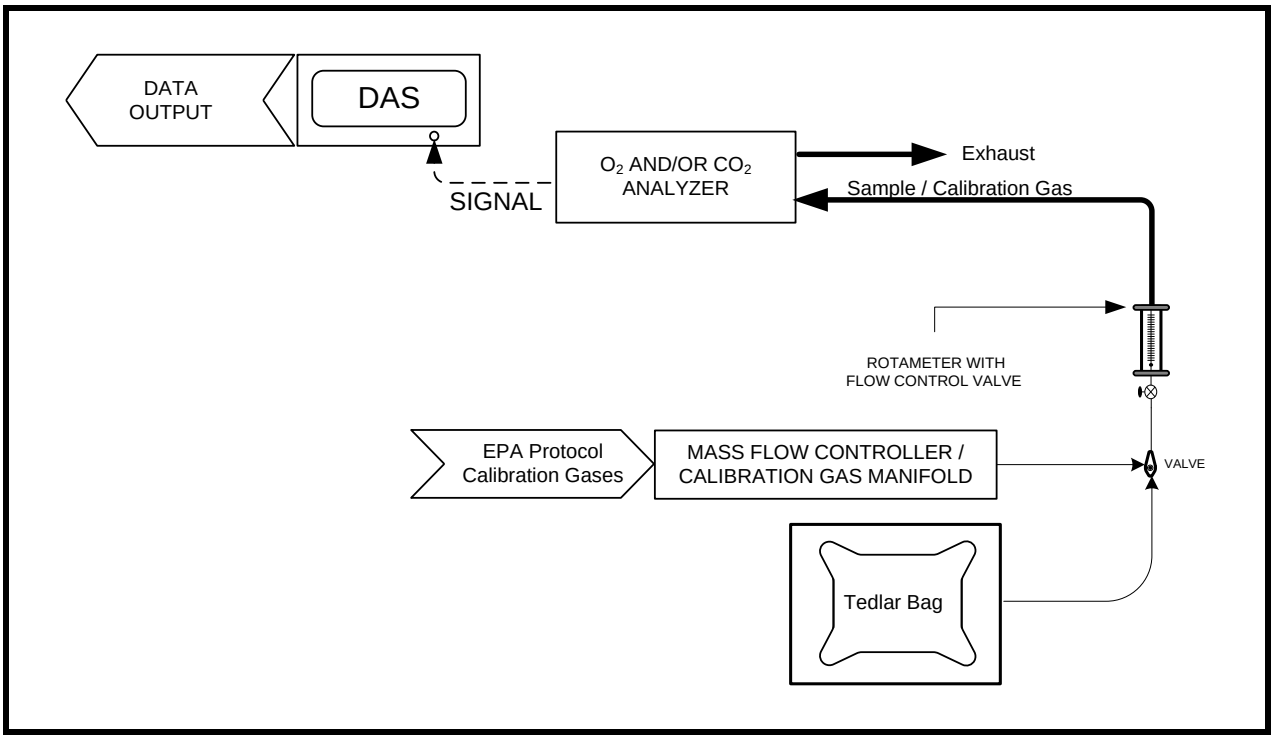
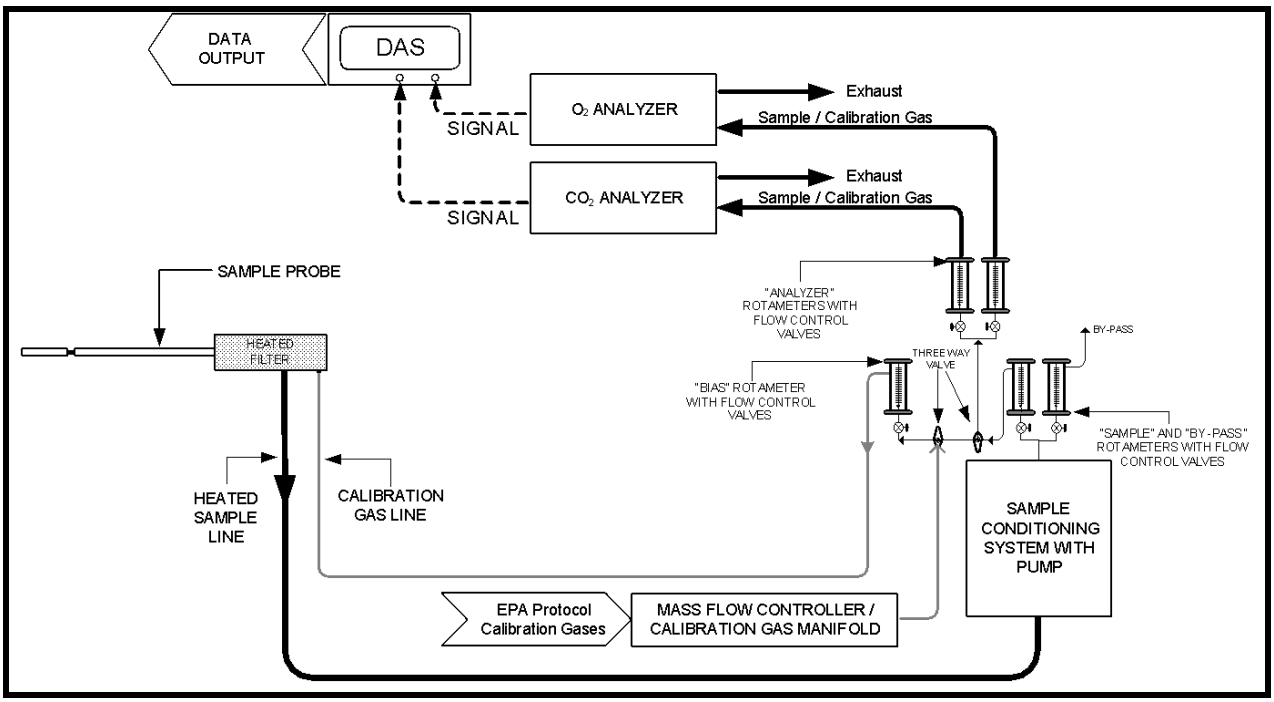


FIGURE 3-2
US EPA METHOD 3A (O_2/CO_2) SAMPLING TRAIN



3.1.4 EPA Method 4, Determination of Moisture Content in Stack Gas

EPA Method 4 is a manual, non-isokinetic method used to measure the moisture content of gas streams. Gas is sampled at a constant sampling rate through a probe and impinger train. Moisture is removed using a series of pre-weighed impingers containing methodology-specific liquids and silica gel immersed in an ice water bath. The impingers are weighed after each run to determine the percent moisture.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - The reference method is used to measure moisture
  - Moisture sampling is performed as part of the pollutant sample trains
  - Since it is theoretically impossible for measured moisture to be higher than psychrometric moisture, the psychrometric moisture is also calculated, and the lower moisture value is used in the calculations
- Method Exceptions: None
- Target and/or Minimum Required Sample Duration: Concurrent with isokinetic sampling
- Target and/or Minimum Required Sample Volume: 21 scf

The typical sampling system is detailed in Figures 3-3 and 3-4.

3.1.5 EPA Method 26A, Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method

EPA Method 26A is a manual, isokinetic method used to measure hydrogen chloride and hydrogen fluoride emissions from stationary sources. Gaseous and particulate pollutants are withdrawn isokinetically from the source and collected in an optional cyclone, on a filter, and in absorbing solutions. The cyclone collects any liquid droplets and is not necessary if the source emissions do not contain them; however, it is preferable to include the cyclone in the sampling train to protect the filter from any liquid present. The filter collects particulate matter including halide salts but is not routinely recovered or analyzed. Acidic and alkaline absorbing solutions collect the gaseous hydrogen halides and halogens, respectively. Following sampling of emissions containing liquid droplets, any halides/halogens dissolved in the liquid in the cyclone and on the filter are vaporized to gas and collected in the impingers by pulling conditioned ambient air through the sampling train. The hydrogen halides are solubilized in the acidic solution and form chloride (Cl^-), bromide (Br^-), and fluoride (F^-) ions. The halogens have a very low solubility in the acidic solution and pass through to the alkaline solution where they are hydrolyzed to form a proton (H^+), the halide ion, and the hypohalous acid (HClO or HBrO). Sodium thiosulfate is added to the alkaline solution to assure reaction with the hypohalous acid to form a second halide ion such that two halide ions are formed for each molecule of halogen gas. The halide ions in the separate solutions are measured by ion chromatography (IC). If desired, the particulate matter recovered from the filter and the probe is analyzed following the procedures in Method 5.

NOTE: If the tester intends to use this sampling arrangement to sample concurrently for particulate matter, the alternative Teflon probe liner, cyclone, and filter holder should not be used.

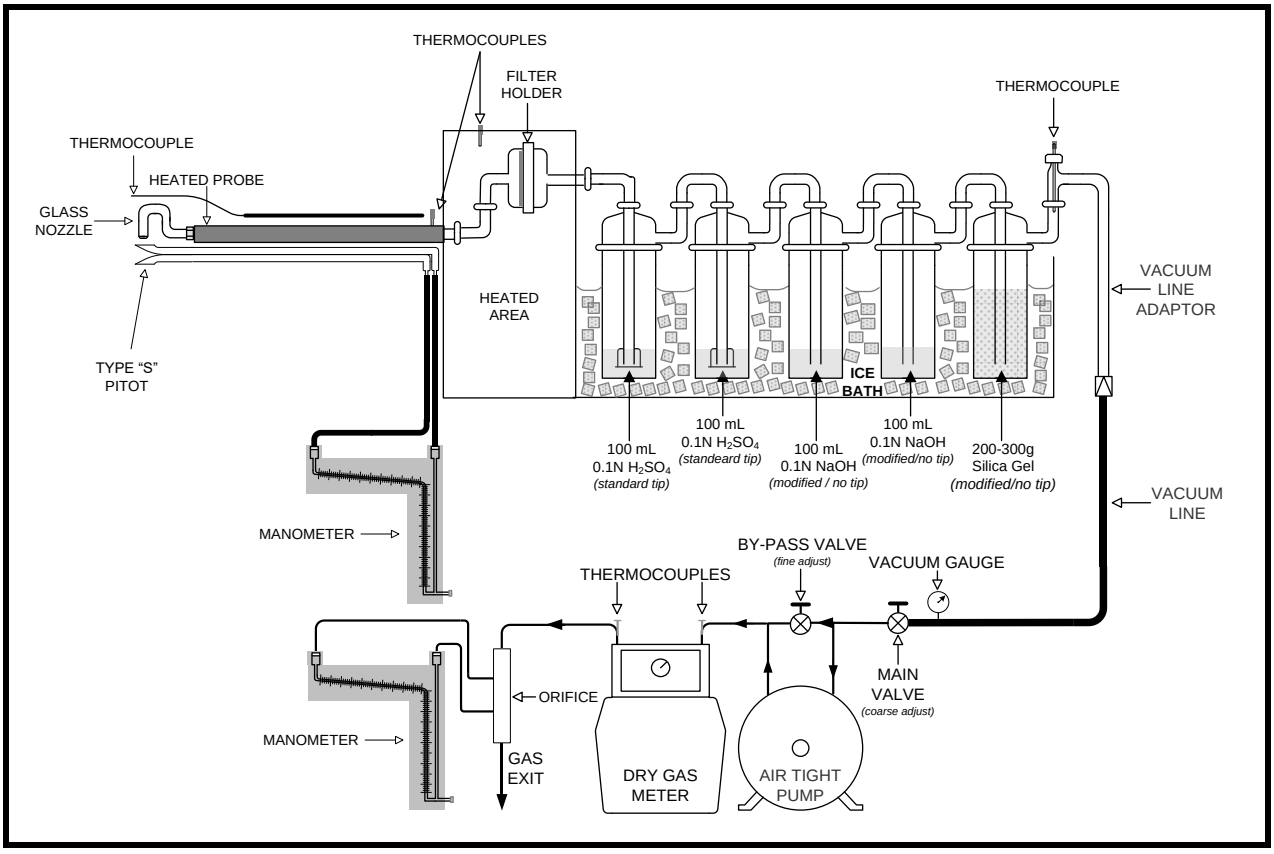
The Teflon filter support must be used. The tester must also meet the probe and filter temperature requirements of both sampling trains.

Pertinent information regarding the performance of the method is presented below:

- Method Options: NA
- Method Exceptions: None
- Target and/or Minimum Required Sample Duration: 120 minutes
- Target and/or Minimum Required Sample Volume: 60 dscf
- Analytical Laboratory: Enthalpy Analytical, Durham, NC

The typical sampling system is detailed in Figure 3-3.

FIGURE 3-3
US EPA METHOD 26A (HALIDES & HALOGENS) SAMPLING TRAIN



3.1.6 EPA Method 23, Determination of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources

EPA Method 23 is a manual, isokinetic method to measure polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) emissions using high resolution gas chromatography with high resolution mass spectroscopy (HRGC/HRMS). The stack gas is sampled through a nozzle, probe, filter, sorbent trap module encased in a water-cooled

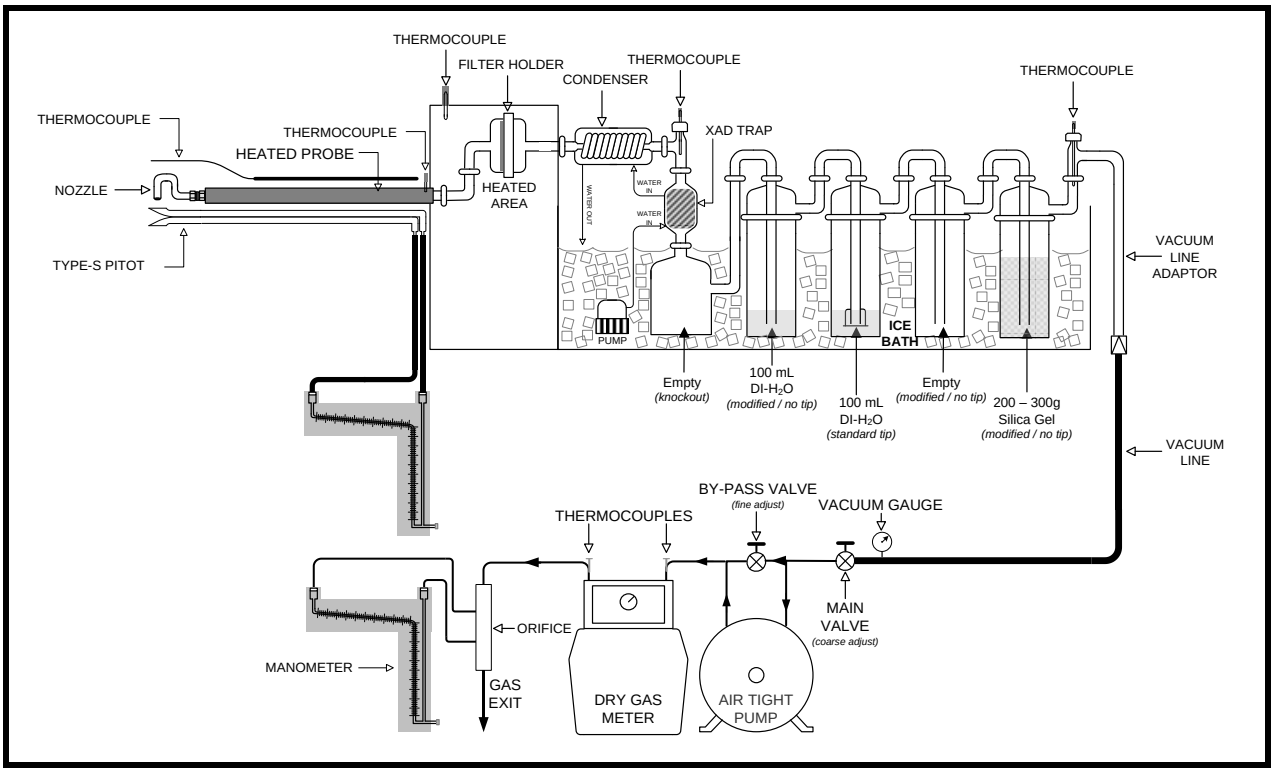
condenser, and impinger train. Dioxin/furan emissions are reported in emission concentration and emission rate units.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - In accordance with recent proposed modifications to EPA Method 23, PCBs are measured with dioxins/difurans
- Method Exceptions:
  - Acetone and toluene are used as the recovery solvents
- Target Analytes:
  - Each dioxin and furan congener, as well as totals for each class of congeners
  - Each PCB congener
- Target and/or Minimum Required Sample Duration: 240 minutes
- Minimum Required Sample Volume: 21 scf

The typical sampling system is detailed in Figure 3-4.

FIGURE 3-4
US EPA METHOD 23/23A SAMPLING TRAIN



3.1.7 EPA SW-846 Method 0023A, Sampling Method for Polychlorinated Dibenzo-*p*-dioxins and Polychlorinated Dibenzofuran Emissions from Stationary Sources

Gaseous and particulate PCDDs/PCDFs are isokinetically withdrawn from an emission source and collected in a multicomponent sampling train. The collection components consist of the front half glassware surfaces (nozzle, probe, and front half filter holder), the glass fiber filter, the back half glassware surfaces (back half filter holder and condenser coil) and the solid sorbent (XAD-2) module. Following sampling the glass collection components are rinsed. The PCDD/PCDF are then extracted from the front half rinses and filter and another separate extraction is performed on the XAD-2 and back half rinses. The filter and XAD-2 extracts are then analyzed separately. Surrogate recoveries are determined for both fractions. The analysis is performed using high resolution gas chromatography (HRGC) and high-resolution mass spectrometry (HRMS), using the procedures of Method 8290.

Pertinent information regarding the performance of the method is presented below:

- Method Options: Target analytes were chlorobenzenes, chlorophenols and a TIC scan for Tentatively Identified Compounds
- Method Exceptions: Only two runs were performed. See section 4.1.
- Target and/or Minimum Required Sample Duration: 240 minutes
- Target and/or Minimum Required Sample Volume: 120 dscf
- Analytical Laboratory: Enthalpy Analytical, Durham, NC

The typical sampling system is detailed in Figure 3-4.

3.1.8 CARB Method 429, Polycyclic Aromatic Hydrocarbons (PAH)

Triplicate samples for polycyclic aromatic hydrocarbons (PAH) were collected using CARB Method 429.

In this procedure the flue gas is withdrawn isokinetically and passed through a heated glass probe and Method 5 type Teflon coated filter to a Teflon line and an XAD-2 resin column. The resin column is connected to a series of impingers containing 100 ml each of sodium carbonate/sodium bicarbonate in the first two impingers, followed by an empty impinger and an impinger containing silica gel.

All sampling media are pre-cleaned to eliminate PAH contamination and other organic species. The filters are extracted with methylene chloride and stored in petri dishes lined with hexane rinsed aluminum foil and the XAD-2 resin is extracted until clean. Pre-test analysis for both the XAD-2 resin lot and filter extract is required. The sampling train components (including the probe, glassware and connecting lines) are pre-cleaned using high purity water, acetone, hexane and methylene chloride.

Field spikes are added to each XAD-2 resin module. A field blank is collected during each sampling program.

PAH Samples are recovered with high purity GC/MS grade acetone, hexane, and methylene chloride into amber glass bottles cleaned to EPA specifications for organics. Samples are kept at <4°C until extraction and analysis.

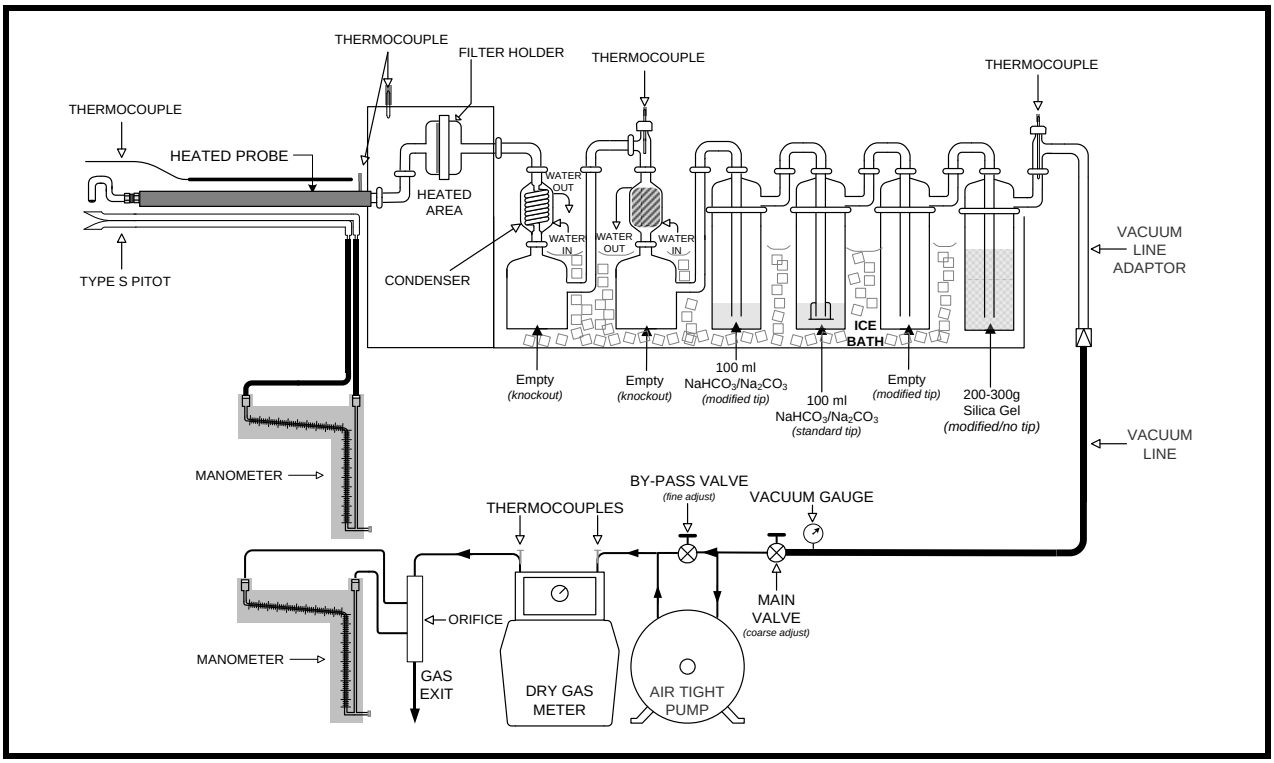
Samples are analyzed by HRGC/HRMS to obtain detection limits of 10-25 ng per sample per species. Sample analysis also includes analysis of a method blank, blank matrix spikes and spiking of the samples with deuterated PAH species to evaluate the extraction and analysis procedures.

Pertinent information regarding the performance of the methods is presented below:

- Method Deviations: None
- Method Options: N/A
- Target and Sample Duration: 240 minutes
- Target Sample Volume: 140 dscf
- Analytical Laboratory: Vista Analytical, El Dorado Hills, CA

The typical sampling system is detailed in Figure 3-5.

FIGURE 3-5
CARB METHOD 429 SAMPLING TRAIN



3.1.9 EPA SW-846 Method 0061, Determination of Hexavalent Chromium Emissions from Stationary Sources

EPA SW-846 Method 0061 is a manual method used to measure hexavalent chromium (Cr^{+6}) emissions from hazardous waste incinerators, municipal waste incinerators, municipal waste combustors, and sewage sludge incinerators. For incinerators and combustors, the Cr^{+6} emissions are collected isokinetically from the source. To eliminate the possibility of Cr^{+6} reduction between the nozzle and impinger, the emission samples are collected with a recirculatory train where the impinger reagent is continuously recirculated to the nozzle. Recovery procedures include a post-sampling purge and filtration. The impinger train samples are analyzed for Cr^{+6} by an ion chromatograph equipped with a post-column reactor and a visible wavelength detector. The IC/PCR separates the Cr^{+6} as chromate (CrO_4^{2-}) from other diphenylcarbazide reactions that occur in the post-column reactor. To increase sensitivity for trace levels of chromium, a preconcentration system is used in conjunction with the IC/PCR.

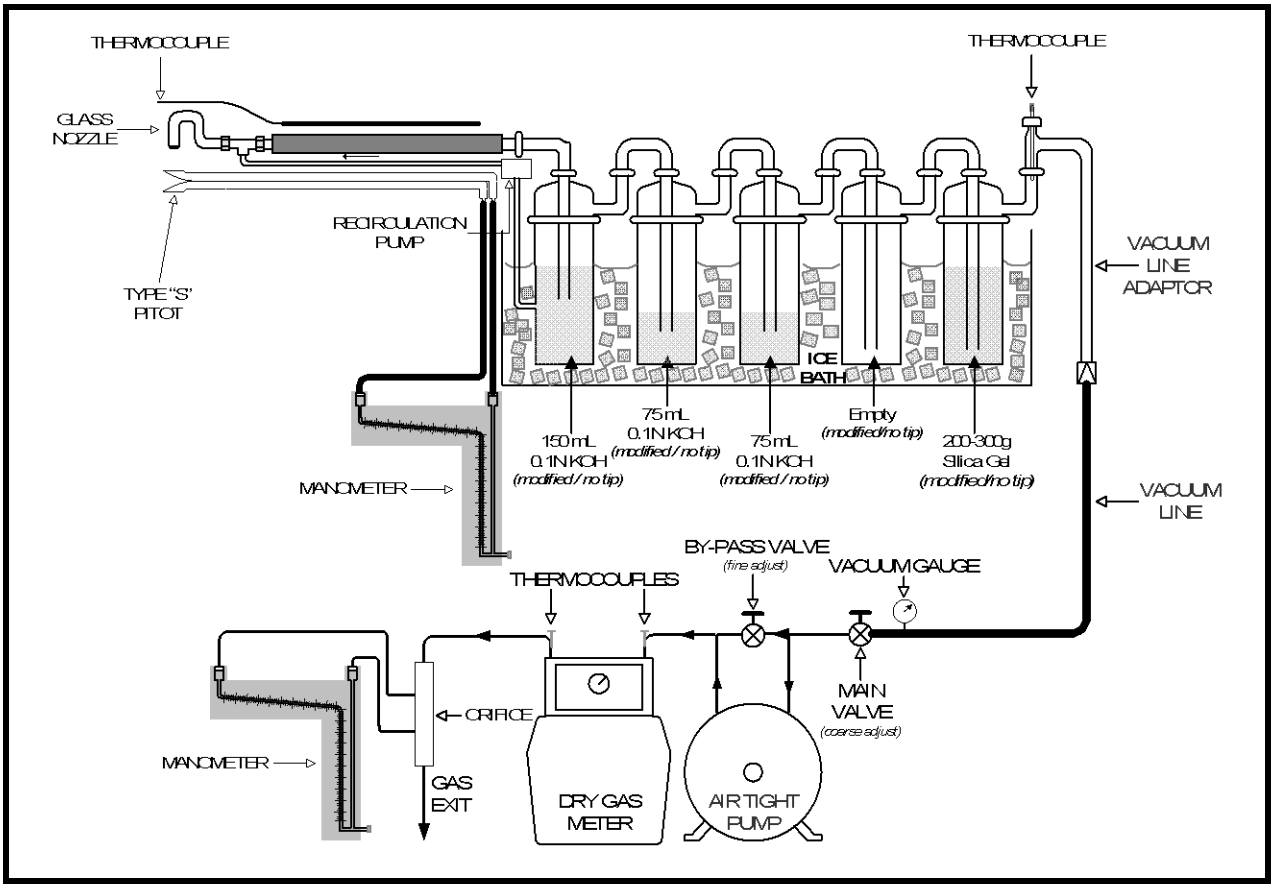
Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - Container No. 2 is not collected since total chromium is being performed in Method 29 sampling train
- Method Exceptions: NA
- Target and/or Minimum Required Sample Duration: 120 minutes

- Analytical Laboratory: Chester LabNet, Tigard, OR

The typical sampling system is detailed in Figure 3-6.

FIGURE 3-6
SW846 METHOD 0061 SAMPLING TRAIN



3.1.10 EPA Method ALT-011, Alternative Method 2 Thermocouple Calibration

EPA Approved Alternative Method 011 (ALT-011) is used as an alternative to the EPA Method 2 two-point thermocouple calibration. This procedure involves a single-point in-field check using a reference thermometer to confirm that the thermocouple system is operating properly. The temperatures of the thermocouple and reference thermometers shall agree to within ±2 °F.

3.2 PROCESS TEST METHODS

The test plan did not require that process samples be collected during this test program; therefore, no process sample data are presented in this test report.

4.0 TEST DISCUSSION AND RESULTS

4.1 FIELD TEST DEVIATIONS AND EXCEPTIONS

At 3:00 pm on March 11, 2022, Jeffrey L Hahn, PE called Thomas Rhodes of CAO to request that only two runs of EPA Method SW-846 0023A be completed, due to safety issues with testing late into the night of March 11th to complete a third run because of the late finish for run 2 at 15:46 on March 11th.

Thomas Rhodes agreed that only two runs of EPA Method SW-846 0023A would be needed if both runs produced valid results.

4.2 PRESENTATION OF RESULTS

The results of individual test runs performed are presented in Tables 4-1 through 4-8. Emissions are reported in units consistent with those in the applicable regulations or requirements. Additional information is included in the appendices as presented in the Table of Contents.

For each PCDD/PCDF and PCB compound that were identified as “ND” (non-detect) in the lab report, the results were calculated using either the EMPC (estimated maximum possible concentration) or half the value of the EDL (estimated detection limit). Additional PCDD/PCDF results with 2005 TEFs applied can be found in Appendix A.12.

All PAH results that were labeled ND were calculated with half of the detection limit, and were not field blank corrected.

EPA Method 5 filters were analyzed for molybdenum and related compounds by scanning electron microscope. The results are not tabulated in this report since no molybdenum was detected, but the lab report is available in Appendix C.2.

TABLE 4-1
HCl/HF/HBr EMISSIONS RESULTS -
UNIT 1

Run Number	1	2	3	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Time	1003-1208	1350-1555	1730-1945	--
Process Data				
steam rate, 1000 lb/hr	68.3	68.6	66.5	67.8
baghouse inlet temperature, °F	303	304	304	304
carbon injection rate, lb/hr	9.8	9.8	9.8	9.8
lime flow, lb/hr	249	250	249	249
ammonia flow, gph	0.5	0.7	0.6	0.6
aux. natural gas flow, kscfh	0	0	0	0
Sampling & Flue Gas Parameters				
sample duration, minutes	120	120	120	--
sample volume, dscf	80.2	78.1	79.7	79.3
isokinetic rate, %	99	98	99	--
O_2, % volume dry	12.7	12.0	12.1	12.3
CO_2, % volume dry	6.8	7.3	7.2	7.1
flue gas temperature, °F	234	234	235	234
moisture content, % volume	14.2	14.8	14.7	14.6
volumetric flow rate, dscfm	44,029	43,228	43,764	43,674
Hydrogen Chloride (HCl)				
mg	16.3	16.1	18.2	16.9
ppmvd	4.72	4.80	5.32	4.95
ppmvd @ 7% O_2	8.02	7.47	8.45	7.98
lb/hr	1.18	1.18	1.32	1.23
lb/1000 lb steam	0.0173	0.0172	0.0199	0.0181
Hydrogen Fluoride (HF)				
mg	<0.0250	<0.0239	<0.0260	<0.0250
ppmvd	<0.0132	<0.0130	<0.0138	<0.0133
ppmvd @ 7% O_2	<0.0225	<0.0202	<0.0220	<0.0215
lb/hr	<0.00181	<0.00175	<0.00189	<0.00182
lb/1000 lb steam	$<2.66 \times 10^{-5}$	$<2.55 \times 10^{-5}$	$<2.84 \times 10^{-5}$	$<2.68 \times 10^{-5}$
Hydrogen Bromide (HBr)				
mg	0.399	0.420	0.352	0.390
ppmvd	0.0522	0.0564	0.0463	0.0517
ppmvd @ 7% O_2	0.0886	0.0878	0.0735	0.0833
lb/hr	0.0290	0.0307	0.0255	0.0284
lb/1000 lb steam	4.24×10^{-4}	4.48×10^{-4}	3.84×10^{-4}	4.19×10^{-4}

TABLE 4-2
Cl_2/Br_2 EMISSIONS RESULTS -
UNIT 1

Run Number	1	2	3	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Time	1003-1208	1350-1555	1730-1945	--
Process Data				
steam rate, 1000 lb/hr	68.3	68.6	66.5	67.8
baghouse inlet temperature, °F	303	304	304	304
carbon injection rate, lb/hr	9.8	9.8	9.8	9.8
lime flow, lb/hr	249	250	249	249
ammonia flow, gph	0.5	0.7	0.6	0.6
aux. natural gas flow, kscfh	0	0	0	0
Sampling & Flue Gas Parameters				
sample duration, minutes	120	120	120	--
sample volume, dscf	80.2	78.1	79.7	79.3
isokinetic rate, %	99	98	99	--
O_2, % volume dry	12.7	12.0	12.1	12.3
CO_2, % volume dry	6.8	7.3	7.2	7.1
flue gas temperature, °F	234	234	235	234
moisture content, % volume	14.2	14.8	14.7	14.6
volumetric flow rate, dscfm	44,029	43,228	43,764	43,674
Chlorine (Cl_2)				
mg	<0.280	<0.255	<0.290	<0.268
ppmvd	<0.0418	<0.0391	<0.0436	<0.0405
ppmvd @ 7% O_2	<0.0710	<0.0608	<0.0691	<0.0659
lb/hr	<0.0203	<0.0186	<0.0210	<0.0195
lb/1000 lb steam	$<2.98 \times 10^{-4}$	$<2.72 \times 10^{-4}$	$<3.16 \times 10^{-4}$	$<2.85 \times 10^{-4}$
Bromine (Br_2)				
mg	<0.280	<0.255	<0.290	<0.275
ppmvd	<0.0186	<0.0173	<0.0193	<0.0184
ppmvd @ 7% O_2	<0.0291	<0.0270	<0.0307	<0.0297
lb/hr	<0.0203	<0.0186	<0.0210	<0.0200
lb/1000 lb steam	$<2.98 \times 10^{-4}$	$<2.72 \times 10^{-4}$	$<3.16 \times 10^{-4}$	$<2.95 \times 10^{-4}$

TABLE 4-3
CHLOROBENZENE/CHLOROPHENOL EMISSIONS RESULTS - UNIT 1

Run Number	1	2	Average
Date	3/10/2022	3/11/2022	--
Time	1330-1828	1005-1546	--
Sampling & Flue Gas Parameters			
sample duration, minutes	240	240	--
sample volume, dscf	124.2	128.2	126.2
isokinetic rate, %	104	103	--
O_2, % volume dry	12.9	11.4	12.2
CO_2, % volume dry	6.7	7.6	7.1
flue gas temperature, °F	227	235	231
moisture content, % volume	15.0	14.6	14.8
volumetric flow rate, dscfm	43,324	42,345	42,835
2-Chlorophenol			
ng/dscm	$<3.01 \times 10^{1}$	$<2.92 \times 10^{1}$	$<2.97 \times 10^{1}$
lb/hr	$<4.89 \times 10^{-6}$	$<4.63 \times 10^{-6}$	$<4.76 \times 10^{-6}$
1,3-Dichlorobenzene			
ng/dscm	$<4.04 \times 10^{1}$	3.95×10^{1}	$<3.99 \times 10^{1}$
lb/hr	$<6.55 \times 10^{-6}$	6.26×10^{-6}	$<6.40 \times 10^{-6}$
1,4-Dichlorobenzene (CCC)			
ng/dscm	$<6.68 \times 10^{1}$	$<6.47 \times 10^{1}$	$<6.58 \times 10^{1}$
lb/hr	$<1.08 \times 10^{-5}$	$<1.03 \times 10^{-5}$	$<1.05 \times 10^{-5}$
1,2-Dichlorobenzene			
ng/dscm	$<7.62 \times 10^{1}$	$<7.38 \times 10^{1}$	$<7.50 \times 10^{1}$
lb/hr	$<1.24 \times 10^{-5}$	$<1.17 \times 10^{-5}$	$<1.20 \times 10^{-5}$
2,4-Dichlorophenol			
ng/dscm	$<5.94 \times 10^{1}$	$<5.76 \times 10^{1}$	$<5.85 \times 10^{1}$
lb/hr	$<9.63 \times 10^{-6}$	$<9.12 \times 10^{-6}$	$<9.38 \times 10^{-6}$
1,2,4-Trichlorophenol			
ng/dscm	$<5.12 \times 10^{1}$	$<4.96 \times 10^{1}$	$<5.04 \times 10^{1}$
lb/hr	$<8.30 \times 10^{-6}$	$<7.86 \times 10^{-6}$	$<8.08 \times 10^{-6}$
2,4,6-Trichlorobenzene (CCC)			
ng/dscm	$<6.00 \times 10^{1}$	6.47×10^{1}	$<6.24 \times 10^{1}$
lb/hr	$<9.73 \times 10^{-6}$	1.03×10^{-5}	$<9.99 \times 10^{-6}$
2,4,5-Trichlorophenol			
ng/dscm	$<7.14 \times 10^{1}$	$<6.91 \times 10^{1}$	$<7.02 \times 10^{1}$
lb/hr	$<1.16 \times 10^{-5}$	$<1.10 \times 10^{-5}$	$<1.13 \times 10^{-5}$

TABLE 4-3
CHLOROBENZENE/CHLOROPHENOL EMISSIONS RESULTS CONTINUED - UNIT 1

Run Number	1	2	Average
Date	3/10/2022	3/11/2022	--
Time	1330-1828	1005-1546	--
2,3,4,6-Tetrachlorophenol			
ng/dscm	$<9.72 \times 10^{1}$	$<9.42 \times 10^{1}$	$<9.57 \times 10^{1}$
lb/hr	$<1.58 \times 10^{-5}$	$<1.49 \times 10^{-5}$	$<1.53 \times 10^{-5}$
Hexachlorobenzene			
ng/dscm	$<9.12 \times 10^{1}$	$<8.84 \times 10^{1}$	$<8.98 \times 10^{1}$
lb/hr	$<1.48 \times 10^{-5}$	$<1.40 \times 10^{-5}$	$<1.44 \times 10^{-5}$
Pentachlorophenol (CCC)			
ng/dscm	$<6.34 \times 10^{1}$	$<6.14 \times 10^{1}$	$<6.24 \times 10^{1}$
lb/hr	$<1.03 \times 10^{-5}$	$<9.74 \times 10^{-6}$	$<1.00 \times 10^{-5}$

TABLE 4-4
HEXAVALENT CHROMIUM EMISSIONS RESULTS - UNIT 2

Run Number	1	2	3	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Time	0940-1153	1350-1612	1730-1945	--
Process Data				
steam rate, 1000 lb/hr	67.6	68.1	68.6	68.1
baghouse inlet temperature, °F	302	304	304	303
carbon injection rate, lb/hr	9.8	9.8	9.9	9.8
lime flow, lb/hr	249	250	249	249
ammonia flow, gph	0.6	0.5	0.4	0.5
aux. natural gas flow, kscfh	0	0	0	0
Sampling & Flue Gas Parameters				
sample duration, minutes	120	120	120	--
sample volume, dscf	79.6	80.0	82.8	80.8
isokinetic rate, %	100	97	102	--
O_2, % volume dry	12.0	11.6	11.8	11.8
CO_2, % volume dry	7.6	7.8	7.5	7.7
flue gas temperature, °F	274	272	274	274
moisture content, % volume	13.	13.	15.3	13.9
volumetric flow rate, dscfm	43,136	44,676	44,066	43,959
Hexavalent Chromium (Cr^{+6})				
µg	2.18	2.79	0.39	1.79
µg/dscm	0.967	1.23	0.165	0.788
ppmvd	4.47×10^{-4}	5.70×10^{-4}	7.66×10^{-5}	3.65×10^{-4}
ppmvd @ 7% O_2	7.01×10^{-4}	8.49×10^{-4}	1.17×10^{-5}	5.56×10^{-4}
lb/hr	1.56×10^{-4}	2.06×10^{-4}	2.73×10^{-5}	1.30×10^{-4}
lb/1000 lb steam	2.31×10^{-6}	3.03×10^{-6}	3.98×10^{-7}	1.91×10^{-6}

TABLE 4-5
METALS EMISSIONS RESULTS -
UNIT 2

Run Number	1	2	3	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Time	0940-1153	1350-1555	1730-1935	--
Process Data				
steam rate, 1000 lb/hr	67.6	68.4	68.5	68.2
baghouse inlet temperature, °F	302	304	304	303
carbon injection rate, lb/hr	9.8	9.8	9.8	9.8
lime flow, lb/hr	249	250	249	249
ammonia flow, gph	0.6	0.5	0.4	0.5
aux. natural gas flow, kscfh	0	0	0	0
Sampling & Flue Gas Parameters				
sample duration, minutes	120	120	120	--
sample volume, dscf	78.1	78.7	78.2	78.3
isokinetic rate, %	100	100	101	--
O_2, % volume dry	12.0	11.6	11.8	11.8
CO_2, % volume dry	7.6	7.8	7.5	7.7
flue gas temperature, °F	273	273	273	273
moisture content, % volume	14.9	15.9	16.0	15.6
volumetric flow rate, dscfm	42,037	41,870	41,591	41,833
Aluminum				
µg	163.0	123.1	<118.7	<134.9
mg/dscm	7.37×10^{-2}	5.53×10^{-2}	$<5.36 \times 10^{-2}$	$<6.08 \times 10^{-2}$
mg/dscm @ 7% O_2	1.16×10^{-1}	8.23×10^{-2}	$<8.22 \times 10^{-2}$	$<9.33 \times 10^{-2}$
lb/hr	1.16×10^{-2}	8.66×10^{-3}	$<8.34 \times 10^{-3}$	$<9.53 \times 10^{-3}$
lb/1000 lb steam	1.72×10^{-4}	1.27×10^{-4}	$<1.22 \times 10^{-4}$	$<1.40 \times 10^{-4}$
Antimony				
µg	5.43	<9.15	9.76	<8.12
mg/dscm	2.46×10^{-3}	$<4.11 \times 10^{-3}$	4.41×10^{-3}	$<3.66 \times 10^{-3}$
mg/dscm @ 7% O_2	3.85×10^{-3}	$<6.12 \times 10^{-3}$	6.76×10^{-3}	$<5.58 \times 10^{-3}$
lb/hr	3.86×10^{-4}	$<6.44 \times 10^{-4}$	6.86×10^{-4}	$<5.72 \times 10^{-4}$
lb/1000 lb steam	5.71×10^{-6}	$<9.41 \times 10^{-6}$	1.00×10^{-5}	$<8.38 \times 10^{-6}$
Arsenic				
µg	0.56	<0.80	<0.58	<0.65
mg/dscm	2.54×10^{-4}	$<3.59 \times 10^{-4}$	$<2.60 \times 10^{-4}$	$<2.91 \times 10^{-4}$
mg/dscm @ 7% O_2	3.98×10^{-4}	$<5.35 \times 10^{-4}$	$<3.98 \times 10^{-4}$	$<4.44 \times 10^{-4}$
lb/hr	3.99×10^{-5}	$<5.63 \times 10^{-5}$	$<4.04 \times 10^{-5}$	$<4.55 \times 10^{-5}$
lb/1000 lb steam	5.90×10^{-7}	$<8.22 \times 10^{-7}$	$<5.90 \times 10^{-7}$	$<6.68 \times 10^{-7}$

TABLE 4-5
METALS EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Barium				
µg	3.05	2.53	2.42	2.67
mg/dscm	1.38×10^{-3}	1.14×10^{-3}	1.09×10^{-3}	1.20×10^{-3}
mg/dscm @ 7% O_2	2.16×10^{-3}	1.69×10^{-3}	1.68×10^{-3}	1.84×10^{-3}
lb/hr	2.17×10^{-4}	1.78×10^{-4}	1.70×10^{-4}	1.88×10^{-4}
lb/1000 lb steam	3.21×10^{-6}	2.60×10^{-6}	2.49×10^{-6}	2.77×10^{-6}
Beryllium				
µg	<0.06	<0.06	<0.06	<0.06
mg/dscm	$<2.76 \times 10^{-5}$	$<2.74 \times 10^{-5}$	$<2.75 \times 10^{-5}$	$<2.75 \times 10^{-5}$
mg/dscm @ 7% O_2	$<4.32 \times 10^{-5}$	$<4.8 \times 10^{-5}$	$<4.22 \times 10^{-5}$	$<4.21 \times 10^{-5}$
lb/hr	$<4.34 \times 10^{-6}$	$<4.29 \times 10^{-6}$	$<4.29 \times 10^{-6}$	$<4.31 \times 10^{-6}$
lb/1000 lb steam	$<6.42 \times 10^{-8}$	$<6.27 \times 10^{-8}$	$<6.26 \times 10^{-8}$	$<6.32 \times 10^{-8}$
Cadmium				
µg	0.91	<1.59	<2.16	<1.55
mg/dscm	4.13×10^{-4}	$<7.14 \times 10^{-4}$	$<9.75 \times 10^{-4}$	$<7.01 \times 10^{-4}$
mg/dscm @ 7% O_2	6.48×10^{-4}	$<1.06 \times 10^{-3}$	$<1.50 \times 10^{-3}$	$<1.07 \times 10^{-3}$
lb/hr	6.50×10^{-5}	$<1.12 \times 10^{-4}$	$<1.52 \times 10^{-4}$	$<1.10 \times 10^{-4}$
lb/1000 lb steam	9.62×10^{-7}	$<1.64 \times 10^{-6}$	$<2.22 \times 10^{-6}$	$<1.60 \times 10^{-6}$
Chromium				
µg	2.37	3.86	2.84	3.03
mg/dscm	1.07×10^{-3}	1.73×10^{-3}	1.28×10^{-3}	1.36×10^{-3}
mg/dscm @ 7% O_2	1.68×10^{-3}	2.58×10^{-3}	1.97×10^{-3}	2.08×10^{-3}
lb/hr	1.69×10^{-4}	2.72×10^{-4}	2.00×10^{-4}	2.13×10^{-4}
lb/1000 lb steam	2.50×10^{-6}	3.97×10^{-6}	2.92×10^{-6}	3.13×10^{-6}
Cobalt				
µg	0.35	0.25	0.32	0.31
mg/dscm	1.57×10^{-4}	1.11×10^{-4}	1.45×10^{-4}	1.38×10^{-4}
mg/dscm @ 7% O_2	2.45×10^{-4}	1.66×10^{-4}	2.23×10^{-4}	2.11×10^{-4}
lb/hr	2.46×10^{-5}	1.74×10^{-5}	2.26×10^{-5}	2.16×10^{-5}
lb/1000 lb steam	3.64×10^{-7}	2.55×10^{-7}	3.31×10^{-7}	3.17×10^{-7}
Copper				
µg	4.08	4.24	3.95	4.09
mg/dscm	1.84×10^{-3}	1.90×10^{-3}	1.78×10^{-3}	1.84×10^{-3}
mg/dscm @ 7% O_2	2.89×10^{-3}	2.83×10^{-3}	2.74×10^{-3}	2.82×10^{-3}
lb/hr	2.90×10^{-4}	2.98×10^{-4}	2.78×10^{-4}	2.89×10^{-4}
lb/1000 lb steam	4.29×10^{-6}	4.36×10^{-6}	4.05×10^{-6}	4.23×10^{-6}

TABLE 4-5
METALS EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Iron				
µg	233.8	248.6	276.2	252.9
mg/dscm	1.06×10^{-1}	1.12×10^{-1}	1.25×10^{-1}	1.14×10^{-1}
mg/dscm @ 7% O_2	1.66×10^{-1}	1.66×10^{-1}	1.91×10^{-1}	1.74×10^{-1}
lb/hr	1.66×10^{-2}	1.75×10^{-2}	1.94×10^{-2}	1.78×10^{-2}
lb/1000 lb steam	2.46×10^{-4}	2.56×10^{-4}	2.83×10^{-4}	2.62×10^{-4}
Lead				
µg	5.74	10.6	<10.6	<8.98
mg/dscm	2.60×10^{-3}	4.76×10^{-3}	$<4.79 \times 10^{-3}$	$<4.05 \times 10^{-3}$
mg/dscm @ 7% O_2	4.07×10^{-3}	7.09×10^{-3}	$<7.35 \times 10^{-3}$	$<6.17 \times 10^{-3}$
lb/hr	4.08×10^{-4}	7.45×10^{-4}	$<7.46 \times 10^{-4}$	$<6.33 \times 10^{-4}$
lb/1000 lb steam	6.04×10^{-6}	1.09×10^{-5}	$<1.09 \times 10^{-5}$	$<9.27 \times 10^{-6}$
Manganese				
µg	4.43	3.83	3.61	3.96
mg/dscm	2.00×10^{-3}	1.72×10^{-3}	1.63×10^{-3}	1.79×10^{-3}
mg/dscm @ 7% O_2	3.14×10^{-3}	2.56×10^{-3}	2.50×10^{-3}	2.74×10^{-3}
lb/hr	3.15×10^{-4}	2.70×10^{-4}	2.54×10^{-4}	2.80×10^{-4}
lb/1000 lb steam	4.66×10^{-6}	3.94×10^{-6}	3.71×10^{-6}	4.10×10^{-6}
Mercury				
µg	<1.48	<1.38	<1.43	<1.43
mg/dscm	$<6.67 \times 10^{-4}$	$<6.21 \times 10^{-4}$	$<6.46 \times 10^{-4}$	$<6.45 \times 10^{-4}$
mg/dscm @ 7% O_2	$<1.05 \times 10^{-3}$	$<9.25 \times 10^{-4}$	$<9.91 \times 10^{-4}$	$<9.87 \times 10^{-4}$
lb/hr	$<1.05 \times 10^{-4}$	$<9.73 \times 10^{-5}$	$<1.01 \times 10^{-4}$	$<1.01 \times 10^{-4}$
lb/1000 lb steam	$<1.55 \times 10^{-6}$	$<1.42 \times 10^{-6}$	$<1.47 \times 10^{-6}$	$<1.48 \times 10^{-6}$
Molybdenum				
µg	<3.05	<3.05	<3.05	<3.05
mg/dscm	$<1.38 \times 10^{-3}$	$<1.37 \times 10^{-3}$	$<1.38 \times 10^{-3}$	$<1.38 \times 10^{-3}$
mg/dscm @ 7% O_2	$<2.16 \times 10^{-3}$	$<2.04 \times 10^{-3}$	$<2.11 \times 10^{-3}$	$<2.10 \times 10^{-3}$
lb/hr	$<2.17 \times 10^{-4}$	$<2.14 \times 10^{-4}$	$<2.14 \times 10^{-4}$	$<2.15 \times 10^{-4}$
lb/1000 lb steam	$<3.21 \times 10^{-6}$	$<3.13 \times 10^{-6}$	$<3.13 \times 10^{-6}$	$<3.16 \times 10^{-6}$
Nickel				
µg	1.64	2.40	1.25	1.76
mg/dscm	7.40×10^{-4}	1.08×10^{-3}	5.63×10^{-4}	7.93×10^{-4}
mg/dscm @ 7% O_2	1.16×10^{-3}	1.60×10^{-3}	8.64×10^{-4}	1.21×10^{-3}
lb/hr	1.16×10^{-4}	1.68×10^{-4}	8.77×10^{-5}	1.24×10^{-4}
lb/1000 lb steam	1.72×10^{-6}	2.46×10^{-6}	1.28×10^{-6}	1.82×10^{-6}

TABLE 4-5
METALS EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Phosphorus				
µg	13.67	29.71	13.27	18.88
mg/dscm	6.18×10^{-3}	1.33×10^{-2}	5.99×10^{-3}	8.50×10^{-3}
mg/dscm @ 7% O_2	9.69×10^{-3}	1.99×10^{-2}	9.19×10^{-3}	1.29×10^{-2}
lb/hr	9.73×10^{-4}	2.09×10^{-3}	9.32×10^{-4}	1.33×10^{-3}
lb/1000 lb steam	1.44×10^{-5}	3.06×10^{-5}	1.36×10^{-5}	1.95×10^{-5}
Potassium				
µg	276.2	366.0	345.6	329.3
mg/dscm	1.25×10^{-1}	1.64×10^{-1}	1.56×10^{-1}	1.48×10^{-1}
mg/dscm @ 7% O_2	1.96×10^{-1}	2.45×10^{-1}	2.39×10^{-1}	2.27×10^{-1}
lb/hr	1.97×10^{-2}	2.57×10^{-2}	2.43×10^{-2}	2.32×10^{-2}
lb/1000 lb steam	2.91×10^{-4}	3.76×10^{-4}	3.55×10^{-4}	3.41×10^{-4}
Selenium				
µg	1.00	<0.78	0.72	<0.83
mg/dscm	4.54×10^{-4}	$<3.51 \times 10^{-4}$	3.23×10^{-4}	$<3.76 \times 10^{-4}$
mg/dscm @ 7% O_2	7.11×10^{-4}	$<5.22 \times 10^{-4}$	4.95×10^{-4}	$<5.76 \times 10^{-4}$
lb/hr	7.14×10^{-5}	$<5.49 \times 10^{-5}$	5.02×10^{-5}	$<5.88 \times 10^{-5}$
lb/1000 lb steam	1.06×10^{-6}	$<8.03 \times 10^{-7}$	7.33×10^{-7}	$<8.64 \times 10^{-7}$
Silver				
µg	0.29	<0.22	0.28	<0.26
mg/dscm	1.30×10^{-4}	$<9.92 \times 10^{-5}$	1.26×10^{-4}	$<1.19 \times 10^{-4}$
mg/dscm @ 7% O_2	2.04×10^{-4}	$<1.48 \times 10^{-4}$	1.94×10^{-4}	$<1.82 \times 10^{-4}$
lb/hr	2.05×10^{-5}	$<1.55 \times 10^{-5}$	1.97×10^{-5}	$<1.86 \times 10^{-5}$
lb/1000 lb steam	3.03×10^{-7}	$<2.27 \times 10^{-7}$	2.87×10^{-7}	$<2.73 \times 10^{-7}$
Thallium				
µg	<0.22	<0.21	<0.21	<0.21
mg/dscm	$<9.77 \times 10^{-5}$	$<9.56 \times 10^{-5}$	$<9.61 \times 10^{-5}$	$<9.65 \times 10^{-5}$
mg/dscm @ 7% O_2	$<1.53 \times 10^{-4}$	$<1.42 \times 10^{-4}$	$<1.48 \times 10^{-4}$	$<1.48 \times 10^{-4}$
lb/hr	$<1.54 \times 10^{-5}$	$<1.50 \times 10^{-5}$	$<1.50 \times 10^{-5}$	$<1.51 \times 10^{-5}$
lb/1000 lb steam	$<2.27 \times 10^{-7}$	$<2.19 \times 10^{-7}$	$<2.18 \times 10^{-7}$	$<2.22 \times 10^{-7}$
Vanadium				
µg	<6.10	<6.10	<6.10	<6.10
mg/dscm	$<2.73 \times 10^{-3}$	$<2.74 \times 10^{-3}$	$<2.75 \times 10^{-3}$	$<2.75 \times 10^{-3}$
mg/dscm @ 7% O_2	$<4.33 \times 10^{-3}$	$<4.08 \times 10^{-3}$	$<4.23 \times 10^{-3}$	$<4.21 \times 10^{-3}$
lb/hr	$<4.34 \times 10^{-4}$	$<4.29 \times 10^{-4}$	$<7.29 \times 10^{-4}$	$<4.31 \times 10^{-4}$
lb/1000 lb steam	$<6.42 \times 10^{-6}$	$<6.27 \times 10^{-6}$	$<6.26 \times 10^{-6}$	$<6.32 \times 10^{-6}$

TABLE 4-5
METALS EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Zinc				
µg	112.4	160.5	152.6	141.8
mg/dscm	5.08×10^{-2}	7.21×10^{-2}	6.89×10^{-2}	6.39×10^{-2}
mg/dscm @ 7% O_2	7.96×10^{-2}	1.07×10^{-1}	1.06×10^{-1}	9.76×10^{-2}
lb/hr	8.00×10^{-3}	1.13×10^{-2}	1.07×10^{-2}	1.00×10^{-2}
lb/1000 lb steam	1.18×10^{-4}	1.65×10^{-4}	1.57×10^{-4}	1.47×10^{-4}

TABLE 4-6
DIOXIN/FURAN EMISSIONS RESULTS -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
Sampling & Flue Gas Parameters				
sample duration, minutes	240	240	240	--
sample volume, dscf	129.0	143.1	129.6	133.9
isokinetic rate, %	97	93	101	--
O_2, % volume dry	11.6	11.5	10.5	11.2
CO_2, % volume dry	7.7	7.9	8.7	8.1
flue gas temperature, °F	272	274	274	273
moisture content, % volume	14.9	15.1	17.4	15.8
volumetric flow rate, dscfm	42,639	41,726	41,108	41,824
2378-Cl4-Dibenzo-p-dioxin				
ng/dscm	$<9.88 \times 10^{-4}$	$<1.17 \times 10^{-3}$	$<1.03 \times 10^{-3}$	$<1.06 \times 10^{-3}$
lb/hr	$<1.58 \times 10^{-10}$	$<1.83 \times 10^{-10}$	$<1.58 \times 10^{-10}$	$<1.66 \times 10^{-10}$
12378-Cl5-Dibenzo-p-dioxin				
ng/dscm	$<1.03 \times 10^{-3}$	$<1.63 \times 10^{-3}$	$<1.85 \times 10^{-3}$	$<1.50 \times 10^{-3}$
lb/hr	$<1.64 \times 10^{-10}$	$<2.55 \times 10^{-10}$	$<2.84 \times 10^{-10}$	$<2.35 \times 10^{-10}$
123478-Cl6-Dibenzo-p-dioxin				
ng/dscm	$<9.96 \times 10^{-4}$	$<1.54 \times 10^{-3}$	$<2.46 \times 10^{-3}$	$<1.66 \times 10^{-3}$
lb/hr	$<1.59 \times 10^{-10}$	$<2.41 \times 10^{-10}$	$<3.78 \times 10^{-10}$	$<2.59 \times 10^{-10}$
123678-Cl6-Dibenzo-p-dioxin				
ng/dscm	3.53×10^{-3}	3.60×10^{-3}	4.47×10^{-3}	3.87×10^{-3}
lb/hr	5.63×10^{-10}	5.62×10^{-10}	6.88×10^{-10}	6.04×10^{-10}
123789-Cl6-Dibenzo-p-dioxin				
ng/dscm	$<1.66 \times 10^{-3}$	2.76×10^{-3}	$<2.42 \times 10^{-3}$	$<2.28 \times 10^{-3}$
lb/hr	$<2.65 \times 10^{-10}$	4.31×10^{-10}	$<3.72 \times 10^{-10}$	$<3.56 \times 10^{-10}$
1234678-Cl7-Dibenzo-p-dioxin				
ng/dscm	2.32×10^{-2}	2.54×10^{-2}	2.69×10^{-2}	2.52×10^{-2}
lb/hr	3.71×10^{-9}	3.97×10^{-9}	4.14×10^{-9}	3.94×10^{-9}
12346789-Cl8-Dibenzo-p-dioxin				
ng/dscm	3.45×10^{-2}	3.33×10^{-2}	3.02×10^{-2}	3.27×10^{-2}
lb/hr	5.50×10^{-9}	5.20×10^{-9}	4.65×10^{-9}	5.12×10^{-9}
2378-Cl4-Dibenzofuran				
ng/dscm	4.71×10^{-3}	2.37×10^{-3}	$<2.35 \times 10^{-3}$	$<3.14 \times 10^{-3}$
lb/hr	7.51×10^{-10}	3.70×10^{-10}	$<3.62 \times 10^{-10}$	$<4.94 \times 10^{-10}$

TABLE 4-6
DIOXIN/FURAN EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
12378-Cl5-Dibenzofuran				
ng/dscm	$<2.69 \times 10^{-3}$	$<3.23 \times 10^{-3}$	4.41×10^{-3}	$<3.45 \times 10^{-3}$
lb/hr	$<4.29 \times 10^{-10}$	$<5.05 \times 10^{-10}$	6.79×10^{-10}	$<5.38 \times 10^{-10}$
23478-Cl5-Dibenzofuran				
ng/dscm	5.23×10^{-3}	5.33×10^{-3}	4.96×10^{-3}	5.17×10^{-3}
lb/hr	8.34×10^{-10}	8.32×10^{-10}	7.63×10^{-10}	8.10×10^{-10}
123478-Cl6-Dibenzofuran				
ng/dscm	$<3.56 \times 10^{-3}$	4.29×10^{-3}	4.36×10^{-3}	$<4.07 \times 10^{-3}$
lb/hr	$<5.68 \times 10^{-10}$	6.70×10^{-10}	6.71×10^{-10}	$<6.36 \times 10^{-10}$
123678-Cl6-Dibenzofuran				
ng/dscm	4.82×10^{-3}	4.59×10^{-3}	5.18×10^{-3}	4.86×10^{-3}
lb/hr	7.69×10^{-10}	7.17×10^{-10}	7.97×10^{-10}	7.61×10^{-10}
234678-Cl6-Dibenzofuran				
ng/dscm	4.05×10^{-3}	$<2.40 \times 10^{-3}$	4.82×10^{-3}	$<3.76 \times 10^{-3}$
lb/hr	6.46×10^{-10}	$<3.74 \times 10^{-10}$	7.42×10^{-10}	$<5.88 \times 10^{-10}$
123789-Cl6-Dibenzofuran				
ng/dscm	$<1.63 \times 10^{-3}$	1.23×10^{-3}	$<1.39 \times 10^{-3}$	$<1.42 \times 10^{-3}$
lb/hr	$<2.61 \times 10^{-10}$	1.93×10^{-10}	$<2.13 \times 10^{-10}$	$<2.22 \times 10^{-10}$
1234678-Cl7-Dibenzofuran				
ng/dscm	1.34×10^{-2}	1.39×10^{-2}	1.39×10^{-2}	1.37×10^{-2}
lb/hr	2.14×10^{-9}	2.17×10^{-9}	2.14×10^{-9}	2.15×10^{-9}
1234789-Cl7-Dibenzofuran				
ng/dscm	2.26×10^{-3}	$<1.54 \times 10^{-3}$	2.42×10^{-3}	$<2.07 \times 10^{-3}$
lb/hr	3.60×10^{-10}	$<2.40 \times 10^{-10}$	3.72×10^{-10}	$<3.24 \times 10^{-10}$
12346789-Cl8-Dibenzofuran				
ng/dscm	4.35×10^{-3}	$<5.75 \times 10^{-3}$	4.55×10^{-3}	$<4.88 \times 10^{-3}$
lb/hr	6.94×10^{-10}	$<8.98 \times 10^{-10}$	7.00×10^{-10}	$<7.64 \times 10^{-10}$
Total Cl4-Dibenzo-p-dioxins				
ng/dscm	$<2.74 \times 10^{-2}$	$<1.62 \times 10^{-2}$	1.79×10^{-2}	$<2.05 \times 10^{-2}$
lb/hr	$<4.37 \times 10^{-9}$	$<2.53 \times 10^{-9}$	2.76×10^{-9}	$<3.22 \times 10^{-9}$

TABLE 4-6
DIOXIN/FURAN EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
Total Cl5-Dibenzo-p-dioxins				
ng/dscm	1.84×10^{-2}	2.19×10^{-2}	1.56×10^{-2}	1.86×10^{-2}
lb/hr	2.93×10^{-9}	3.41×10^{-9}	2.40×10^{-9}	2.92×10^{-9}
Total Cl6-Dibenzo-p-dioxins				
ng/dscm	5.42×10^{-2}	6.02×10^{-2}	7.25×10^{-2}	6.23×10^{-2}
lb/hr	8.65×10^{-9}	9.40×10^{-9}	1.12×10^{-8}	9.73×10^{-9}
Total Cl7-Dibenzo-p-dioxins				
ng/dscm	4.54×10^{-2}	4.89×10^{-2}	5.01×10^{-2}	4.81×10^{-2}
lb/hr	7.25×10^{-9}	7.63×10^{-9}	7.71×10^{-9}	7.53×10^{-9}
Total Cl4-Dibenzofurans				
ng/dscm	5.01×10^{-2}	6.27×10^{-2}	4.71×10^{-2}	5.33×10^{-2}
lb/hr	7.99×10^{-9}	9.79×10^{-9}	7.25×10^{-9}	8.34×10^{-9}
Total Cl5-Dibenzofurans				
ng/dscm	3.15×10^{-2}	4.51×10^{-2}	5.80×10^{-2}	4.49×10^{-2}
lb/hr	5.02×10^{-9}	7.05×10^{-9}	8.93×10^{-9}	7.00×10^{-9}
Total Cl6-Dibenzofurans				
ng/dscm	3.97×10^{-2}	3.92×10^{-2}	4.47×10^{-2}	4.12×10^{-2}
lb/hr	6.33×10^{-9}	6.13×10^{-9}	6.88×10^{-9}	6.44×10^{-9}
Total Cl7-Dibenzofurans				
ng/dscm	2.55×10^{-2}	1.77×10^{-2}	1.63×10^{-2}	1.98×10^{-2}
lb/hr	4.06×10^{-9}	2.77×10^{-9}	2.51×10^{-9}	3.11×10^{-9}
Total PCDD				
ng/dscm	$<1.45 \times 10^{-1}$	$<1.47 \times 10^{-1}$	$<1.56 \times 10^{-1}$	$<1.50 \times 10^{-1}$
lb/hr	$<2.32 \times 10^{-8}$	$<2.30 \times 10^{-8}$	$<2.40 \times 10^{-8}$	$<2.34 \times 10^{-8}$
Total PCDF				
ng/dscm	$<1.47 \times 10^{-1}$	$<1.65 \times 10^{-1}$	$<1.66 \times 10^{-1}$	$<1.59 \times 10^{-1}$
lb/hr	$<2.34 \times 10^{-8}$	$<2.57 \times 10^{-8}$	$<2.56 \times 10^{-8}$	$<2.49 \times 10^{-8}$
Total Dioxins/Furans				
ng/dscm	$<2.92 \times 10^{-1}$	$<3.12 \times 10^{-1}$	$<3.22 \times 10^{-1}$	$<3.09 \times 10^{-1}$
lb/hr	$<4.66 \times 10^{-8}$	$<4.87 \times 10^{-8}$	$<4.96 \times 10^{-8}$	$<4.83 \times 10^{-8}$

TABLE 4-7
PCB EMISSIONS RESULTS -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
Sampling & Flue Gas Parameters				
sample duration, minutes	240	240	240	--
sample volume, dscf	129.0	143.1	129.6	133.9
isokinetic rate, %	97	93	101	--
O_2, % volume dry	11.6	11.5	10.5	11.2
CO_2, % volume dry	7.7	7.9	8.7	8.1
flue gas temperature, °F	272	274	274	273
moisture content, % volume	14.9	15.1	17.4	15.8
volumetric flow rate, dscfm	42,639	41,726	41,108	41,824
PCB-5/8 [2,4'-DiCB]				
ng/dscm	3.34×10^{-1}	8.93×10^{-1}	9.24×10^{2}	4.40×10^{-1}
lb/hr	5.33×10^{-8}	1.39×10^{-7}	1.42×10^{-8}	6.90×10^{-8}
PCB-18 [2,2',5-TrCB]				
ng/dscm	2.29×10^{-1}	6.22×10^{-1}	5.91×10^{-2}	3.03×10^{-1}
lb/hr	3.65×10^{-8}	9.71×10^{-8}	9.10×10^{-9}	4.76×10^{-8}
PCB-28 [2,4,4'-TrCB]				
ng/dscm	1.81×10^{-1}	2.28×10^{-1}	4.33×10^{-2}	1.51×10^{-1}
lb/hr	2.89×10^{-8}	3.57×10^{-8}	6.67×10^{-9}	2.37×10^{-8}
PCB-44 [2,2',3,5'-TeCB]				
ng/dscm	1.01×10^{-1}	9.42×10^{-2}	$<2.72 \times 10^{-2}$	$<7.42 \times 10^{-2}$
lb/hr	1.62×10^{-8}	1.47×10^{-8}	$<4.19 \times 10^{-9}$	$<1.17 \times 10^{-8}$
PCB-52/69 [2,2',5,5'-TeCB]				
ng/dscm	9.72×10^{-2}	1.09×10^{-1}	3.46×10^{-2}	8.03×10^{-2}
lb/hr	1.55×10^{-8}	1.70×10^{-8}	5.32×10^{-9}	1.26×10^{-8}
PCB-66/76 [2,3',4,4'-TeCB]				
ng/dscm	4.95×10^{-2}	4.54×10^{-2}	2.29×10^{-2}	3.93×10^{-2}
lb/hr	7.91×10^{-9}	7.09×10^{-9}	3.52×10^{-9}	6.17×10^{-9}
PCB-77 [3,3',4,4'-TeCB]				
ng/dscm	1.25×10^{-2}	1.97×10^{-2}	$<7.22 \times 10^{-3}$	$<1.32 \times 10^{-2}$
lb/hr	2.00×10^{-9}	3.08×10^{-9}	$<1.11 \times 10^{-9}$	$<2.06 \times 10^{-9}$
PCB-81 [3,4,4',5-TeCB]				
ng/dscm	$<2.45 \times 10^{-3}$	$<2.01 \times 10^{-3}$	$<2.47 \times 10^{-3}$	$<2.31 \times 10^{-3}$
lb/hr	$<3.91 \times 10^{-10}$	$<3.14 \times 10^{-10}$	$<3.81 \times 10^{-10}$	$<3.62 \times 10^{-10}$

TABLE 4-7
PCB EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
PCB-90/101 [2,2',4,5,5'-PeCB]				
ng/dscm	8.43×10^{-2}	5.85×10^{-2}	2.59×10^{-2}	5.62×10^{-2}
lb/hr	1.35×10^{-8}	9.13×10^{-9}	3.99×10^{-9}	8.86×10^{-9}
PCB-105 [2,3,3',4,4'-PeCB]				
ng/dscm	3.01×10^{-2}	1.40×10^{-2}	9.32×10^{-3}	1.78×10^{-2}
lb/hr	4.80×10^{-9}	2.19×10^{-9}	1.43×10^{-9}	2.81×10^{-9}
PCB-106/118 [2,3',4,4',5-PeCB]				
ng/dscm	6.38×10^{-2}	3.95×10^{-2}	1.97×10^{-2}	4.10×10^{-2}
lb/hr	1.02×10^{-8}	6.16×10^{-9}	3.03×10^{-9}	6.46×10^{-9}
PCB-114 [2,3,4,4',5-PeCB]				
ng/dscm	$<6.46 \times 10^{-3}$	$<3.48 \times 10^{-3}$	$<2.22 \times 10^{-3}$	$<4.05 \times 10^{-3}$
lb/hr	$<1.03 \times 10^{-9}$	$<5.43 \times 10^{-10}$	$<3.42 \times 10^{-10}$	$<6.39 \times 10^{-10}$
PCB-123 [2',3,4,4',5-PeCB]				
ng/dscm	$<3.15 \times 10^{-3}$	$<2.34 \times 10^{-3}$	$<1.92 \times 10^{-4}$	$<2.47 \times 10^{-3}$
lb/hr	$<5.02 \times 10^{-10}$	$<3.66 \times 10^{-10}$	$<2.95 \times 10^{-10}$	$<3.88 \times 10^{-10}$
PCB-126 [3,3',4,4',5-PeCB]				
ng/dscm	$<6.51 \times 10^{-3}$	$<3.45 \times 10^{-3}$	$<2.23 \times 10^{-3}$	$<4.07 \times 10^{-3}$
lb/hr	$<1.04 \times 10^{-9}$	$<5.39 \times 10^{-10}$	$<3.43 \times 10^{-10}$	$<6.41 \times 10^{-10}$
PCB-128/162 [2,2',3,3',4,4'-HxCB]				
ng/dscm	1.34×10^{-2}	7.25×10^{-3}	5.59×10^{-3}	8.73×10^{-3}
lb/hr	2.13×10^{-9}	1.13×10^{-9}	8.59×10^{-10}	1.37×10^{-9}
PCB-138/163/164 [2,2',3,4,4',5'-HxCB]				
ng/dscm	5.91×10^{-2}	2.81×10^{-2}	2.08×10^{-2}	3.60×10^{-2}
lb/hr	9.43×10^{-9}	4.39×10^{-9}	3.19×10^{-9}	5.67×10^{-9}
PCB-153 [2,2',4,4',5,5'-HxCB]				
ng/dscm	$<5.01 \times 10^{-2}$	$<2.02 \times 10^{-2}$	1.69×10^{-2}	$<2.91 \times 10^{-2}$
lb/hr	$<7.99 \times 10^{-9}$	$<3.16 \times 10^{-9}$	2.61×10^{-9}	$<4.59 \times 10^{-9}$
PCB-156 [2,3,3',4,4',5-HxCB]				
ng/dscm	$<2.79 \times 10^{-3}$	3.82×10^{-3}	$<2.05 \times 10^{-3}$	$<2.89 \times 10^{-3}$
lb/hr	$<4.45 \times 10^{-10}$	5.97×10^{-10}	$<3.16 \times 10^{-10}$	$<4.53 \times 10^{-10}$

TABLE 4-7
PCB EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
PCB-157 [2,3,3',4,4',5'-HxCB]				
ng/dscm	$<3.17 \times 10^{-3}$	$<1.71 \times 10^{-3}$	$<2.21 \times 10^{-3}$	$<2.37 \times 10^{-3}$
lb/hr	$<5.07 \times 10^{-10}$	$<2.67\times 10^{-10}$	$<3.40 \times 10^{-10}$	$<3.71 \times 10^{-10}$
PCB-167 [2,3',4,4',5,5'-HxCB]				
ng/dscm	$<2.90 \times 10^{-3}$	$<1.54 \times 10^{-3}$	$<2.15 \times 10^{-3}$	$<2.19 \times 10^{-3}$
lb/hr	$<4.63 \times 10^{-10}$	$<2.40 \times 10^{-10}$	$<3.30 \times 10^{-10}$	$<3.44 \times 10^{-10}$
PCB-169 [3,3',4,4',5,5'-HxCB]				
ng/dscm	$<3.07 \times 10^{-3}$	$<1.57 \times 10^{-3}$	$<2.12 \times 10^{-3}$	$<2.25 \times 10^{-3}$
lb/hr	$<4.89 \times 10^{-10}$	$<2.46 \times 10^{-10}$	$<3.27 \times 10^{-10}$	$<3.54 \times 10^{-10}$
PCB-170 [2,2',3,3',4,4',5-HpCB]				
ng/dscm	$<5.45 \times 10^{-3}$	$<2.10 \times 10^{-2}$	$<2.58 \times 10^{-3}$	$<9.67 \times 10^{-3}$
lb/hr	$<8.69 \times 10^{-10}$	$<3.28 \times 10^{-9}$	$<3.97 \times 10^{-10}$	$<1.51 \times 10^{-9}$
PCB-180 [2,2',3,4,4',5,5'-HpCB]				
ng/dscm	1.70×10^{-2}	$<7.28 \times 10^{-3}$	1.17×10^{-2}	$<1.20 \times 10^{-2}$
lb/hr	2.71×10^{-9}	$<1.14 \times 10^{-9}$	1.81×10^{-9}	$<1.88 \times 10^{-9}$
PCB-182/187 [2,2',3,4',5,5',6-HpCB]				
ng/dscm	1.52×10^{-2}	$<5.40 \times 10^{-3}$	$<5.26 \times 10^{-3}$	$<8.63 \times 10^{-3}$
lb/hr	2.43×10^{-9}	$<8.44 \times 10^{-10}$	$<8.09 \times 10^{-10}$	$<1.36 \times 10^{-9}$
PCB-189 [2,3,3',4,4',5,5'-HpCB]				
ng/dscm	$<4.21 \times 10^{-3}$	$<1.78 \times 10^{-3}$	$<1.62 \times 10^{-3}$	$<2.54 \times 10^{-3}$
lb/hr	$<6.73 \times 10^{-10}$	$<2.79 \times 10^{-10}$	$<2.49 \times 10^{-10}$	$<4.00 \times 10^{-10}$
PCB-195 [2,2',3,3',4,4',5,6-OcCB]				
ng/dscm	$<7.77 \times 10^{-3}$	$<4.56 \times 10^{-3}$	$<3.76 \times 10^{-3}$	$<5.37 \times 10^{-3}$
lb/hr	$<1.24 \times 10^{-9}$	$<7.13 \times 10^{-10}$	$<5.79 \times 10^{-10}$	$<8.44 \times 10^{-10}$
PCB-206 [2,2',3,3',4,4',5,5',6-NoCB]				
ng/dscm	$<2.61 \times 10^{-2}$	1.85×10^{-2}	2.45×10^{-2}	$<2.30 \times 10^{-2}$
lb/hr	$<4.16 \times 10^{-9}$	2.89×10^{-9}	3.76×10^{-9}	$<3.60 \times 10^{-9}$
PCB-209 [2,2',3,3',4,4',5,5',6,6'-DeCB]				
ng/dscm	5.66×10^{-2}	4.44×10^{-2}	5.83×10^{-2}	5.31×10^{-2}
lb/hr	9.04×10^{-9}	6.93×10^{-9}	8.97×10^{-9}	8.32×10^{-9}

TABLE 4-7
PCB EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
Total monoCB				
ng/dscm	3.34×10^{-1}	4.91×10^{-1}	2.92×10^{-1}	3.72×10^{-1}
lb/hr	5.33×10^{-8}	7.67×10^{-8}	4.49×10^{-8}	5.83×10^{-8}
Total diCB				
ng/dscm	1.04×10^{0}	2.15×10^{0}	2.07×10^{-1}	1.13×10^{0}
lb/hr	1.66×10^{-7}	3.36×10^{-7}	3.18×10^{-8}	1.78×10^{-7}
Total triCB				
ng/dscm	1.16×10^{0}	2.15×10^{0}	1.69×10^{-1}	1.16×10^{0}
lb/hr	1.86×10^{-7}	3.35×10^{-7}	2.60×10^{-8}	1.82×10^{-7}
Total tetraCB				
ng/dscm	6.95×10^{-1}	7.80×10^{-1}	1.37×10^{-1}	5.37×10^{-1}
lb/hr	1.11×10^{-7}	1.22×10^{-7}	2.10×10^{-8}	8.46×10^{-8}
Total pentaCB				
ng/dscm	3.94×10^{-1}	1.61×10^{-1}	1.22×10^{-1}	2.26×10^{-1}
lb/hr	6.29×10^{-8}	2.51×10^{-8}	1.88×10^{-8}	3.56×10^{-8}
Total hexaCB				
ng/dscm	1.54×10^{-1}	9.37×10^{-2}	4.55×10^{-2}	9.76×10^{-2}
lb/hr	2.45×10^{-8}	1.46×10^{-8}	7.00×10^{-9}	1.54×10^{-8}
Total heptaCB				
ng/dscm	4.98×10^{-2}	6.78×10^{-3}	1.41×10^{-2}	2.36×10^{-2}
lb/hr	7.95×10^{-9}	1.06×10^{-9}	2.16×10^{-9}	3.72×10^{-9}
Total octaCB				
ng/dscm	7.88×10^{-3}	1.41×10^{-2}	2.18×10^{-2}	1.46×10^{-2}
lb/hr	1.26×10^{-9}	2.21×10^{-9}	3.36×10^{-9}	2.27×10^{-9}
Total nonaCB				
ng/dscm	$<2.61 \times 10^{-2}$	1.85×10^{-2}	2.52×10^{-2}	$<2.32 \times 10^{-2}$
lb/hr	$<4.16 \times 10^{-9}$	2.89×10^{-9}	3.88×10^{-9}	$<3.64 \times 10^{-9}$
DecaCB				
ng/dscm	$<5.66 \times 10^{-2}$	4.44×10^{-2}	5.83×10^{-2}	$<5.31 \times 10^{-2}$
lb/hr	$<9.04 \times 10^{-9}$	6.93×10^{-9}	8.97×10^{-9}	$<8.32 \times 10^{-9}$

TABLE 4-7
PCB EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
Total PCB				
ng/dscm	3.89×10^{0}	5.90×10^{0}	1.09×10^{0}	3.62×10^{0}
lb/hr	6.20×10^{-7}	9.21×10^{-7}	1.68×10^{-7}	5.70×10^{-7}

TABLE 4-8
PAH EMISSIONS RESULTS -
UNIT 2

Run Number	1	2	3	Average
Date	3/10/2022	3/11/2022	3/11/2022	--
Time	1343-1818	0835-1240	1342-1747	--
Sampling & Flue Gas Parameters				
sample duration, minutes	240	240	240	--
sample volume, dscf	139.6	152.7	159.4	150.6
isokinetic rate, %	98	100	101	--
O_2, % volume dry	11.6	11.5	10.5	11.2
CO_2, % volume dry	7.7	7.9	8.7	8.1
flue gas temperature, °F	273	271	275	273
moisture content, % volume	14.8	14.2	16.8	15.3
volumetric flow rate, dscfm	43,161	43,441	42,727	43,109
Naphthalene				
ng/dscm	74.3	91.1	111.0	92.1
lb/hr	1.20×10^{-5}	1.48×10^{-5}	1.77×10^{-5}	1.49×10^{-5}
2-Methylnaphthalene				
ng/dscm	15.5	20.4	45.4	27.1
lb/hr	2.50×10^{-6}	3.31×10^{-6}	7.26×10^{-6}	4.36×10^{-6}
Acenaphthylene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Acenaphthene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Fluorene				
ng/dscm	<5.06	14.8	<4.43	<8.10
lb/hr	$<8.17 \times 10^{-7}$	2.41×10^{-6}	$<7.08 \times 10^{-7}$	$<1.31 \times 10^{-6}$
Phenanthrene				
ng/dscm	70.0	94.3	19.4	61.3
lb/hr	1.13×10^{-5}	1.53×10^{-5}	3.11×10^{-6}	9.92×10^{-6}
Anthracene				
ng/dscm	<5.06	5.34	<4.43	<4.94
lb/hr	$<8.17 \times 10^{-7}$	8.68×10^{-7}	$<7.08 \times 10^{-7}$	$<7.98 \times 10^{-7}$

TABLE 4-8
PAH EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	1/26/2022	1/27/2022	1/27/2022	--
Time	1410-1827	0927-1339	1441-1905	--
Fluoranthene (CCC)				
ng/dscm	6.37	28.4	5.71	13.5
lb/hr	1.03×10^{-6}	4.62×10^{-6}	9.14×10^{-7}	2.19×10^{-6}
Pyrene				
ng/dscm	<5.06	28.0	5.47	<12.8
lb/hr	$<8.17 \times 10^{-7}$	4.55×10^{-6}	8.75×10^{-7}	$<2.08 \times 10^{-6}$
Benzo(a)anthracene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Chrysene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Benzo(b)fluoranthene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Benzo(k)fluoranthene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Benzo(e)pyrene				
ng/dscm	<5.06	11.4	<5.06	<6.98
lb/hr	$<8.17 \times 10^{-7}$	1.86×10^{-6}	$<8.17 \times 10^{-7}$	$<1.13 \times 10^{-6}$
Benzo(a)pyrene (CCC)				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Perylene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Indeno(1,2,3-cd) pyrene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$

TABLE 4-8
PAH EMISSIONS RESULTS CONTINUED -
UNIT 2

Run Number	1	2	3	Average
Date	1/26/2022	1/27/2022	1/27/2022	--
Time	1410-1827	0927-1339	1441-1905	--
Dibenz(a,h) anthracene				
ng/dscm	<5.06	<4.62	<4.43	<4.70
lb/hr	$<8.17 \times 10^{-7}$	$<7.52 \times 10^{-7}$	$<7.08 \times 10^{-7}$	$<7.59 \times 10^{-7}$
Benzo(g,h,i) perylene				
ng/dscm	<5.06	18.2	9.55	<10.9
lb/hr	$<8.17 \times 10^{-7}$	2.96×10^{-6}	1.53×10^{-6}	$<1.77 \times 10^{-6}$
Total PAH Suite[2]				
ng/dscm	<204	<335	<225	<255
lb/hr	$<3.30 \times 10^{-5}$	$<5.45 \times 10^{-5}$	$<3.60 \times 10^{-5}$	$<4.12 \times 10^{-5}$

2 Calculated using ½ the DL for compounds that were found to be below the analytical detection limit

5.0 INTERNAL QA/QC ACTIVITIES

5.1 QA/QC AUDITS

The meter boxes and sampling trains used during sampling performed within the requirements of their respective methods. All post-test leak checks, minimum metered volumes, and minimum sample durations met the applicable QA/QC criteria.

EPA Method 3A calibration audits were all within the measurement system performance specifications for the calibration drift checks, system calibration bias checks, and calibration error checks.

EPA Method 26A analytical QA/QC results are included in the laboratory report. The method QA/QC criteria were met.

EPA Method 23 and Method 0023A analytical QA/QC results are included in the laboratory report. The method QA/QC criteria were met, except where noted in Section 5.2.

CARB Method 429 analytical QA/QC results are included in the laboratory report. The method QA/QC criteria were met, except where noted in Section 5.2.

EPA SW846 Method 0061 analytical QA/QC results are included in the laboratory report. The method QA/QC criteria were met.

The molybdenum analysis is included in Appendix C.2 of this report, but emissions are not tabulated because molybdenum was not detected in any samples.

5.2 QA/QC DISCUSSION

Several PAH compounds were measured above the detection limit in the field blank. Montrose is still looking into the cause of this, but no conclusion was reached at the time this test report was written. The glassware used for this sample was first used to collect the Run 1 sample for CARB Method 429, then was used for the field blank, then was used for Run 3.

Vista Analytical did not pre-spike the EPA 23 traps with PCBs. They were spiked with pre-labeled PCDD/PCDFs and the responses met the method criteria. From this we can conclude that there was no sample loss with the PCBs since they are more resilient compounds than the PCDD/PCDFs.

The following notes were provided by Enthalpy Analytical in the EPA Method 8270D & TICs Narrative Summary (see Appendix C.1).

- Most of the surrogates met the recovery criteria. The exceptions include 2-fluorophenol in sample 1-00023A and PB-0023A, 2-fluorophenol and pyrene-d10 in sample 2-00023A, and pyrene-d10 in FB-0023A.
- The Laboratory Control Sample (LCS) met the 50-150% recovery criteria with the exception of 1,3-dichlorobenzene, 1.4-dichlorobenzene, and 1.2-dichlorobenzene which all failed low. Reanalysis confirmed these results with the exception that 1,2-dichlorobenzene passed at 50.1% recovery.

The following notes were provided by Vista in the CARB Method 429 Quality Control report (see Appendices C.4 and C.5).

- The LCS/LCSD recoveries for Fluorene were greater than 150% in the batch B22D094. This analyte was not detected in the associated sample “1-PAH”. The recoveries of all other analytes were within the acceptance criteria.

5.3 QUALITY STATEMENT

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one Qualified Individual (QI) as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is included in the report appendices. The content of this report is modeled after the EPA Emission Measurement Center Guideline Document (GD-043).

APPENDIX A
FIELD DATA AND CALCULATIONS

Appendix A.1
Sampling Locations

MONTROSE AIR QUALITY SERVICES

EPA METHOD 1 FIELD DATA

Project Information

Client / Facility: COVANTA Marion
Source / Location: Unit 1 (North)
Date: 3.7.2022
Data taken by: PB / AG

Circular/Elliptical Duct Measurements

	Port 1	Port 2	Port 3	Port 4
Far wall to outside of port distance, in.:	53.5	53.5		
Port length, in. (confirm flush with inside wall):	5.5	5.5		
Duct inner diameter, in.:	480	480		
Port diameter, in.:	4.0	4.0		
Upstream distance (A), in.:	1440.0			
Downstream distance (B), in.:	1200.0			
Number of ports (must be 90° to each other):	2			

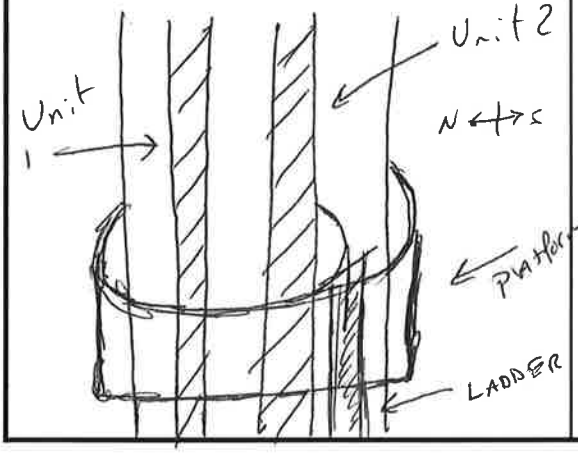
Duct Parameters

Material (steel, fiberglass, PVC)	Steel
Type of port (flange, npt nipple, etc.)	Nipple
Orientation (vertical, horizontal, if diagonal specify angle)	Vertical
Elevation of ports above ground, ft.	~140

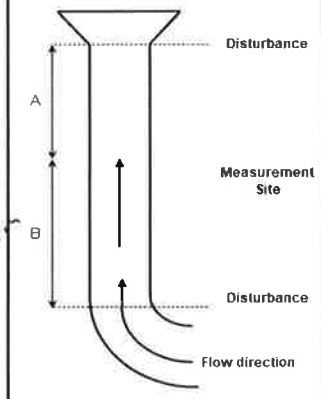
Cyclonic flow expected?	NO
Pitot ID	175-TP-6
Manometer ID	MB-31
Angle finder / protractor ID	700

Traverse point	Outside port distance, in.	Null angle, α
1	7.6	-2
2	12.5	-1
3	19.7	0
4	39.3	1
5	46.5	-7
6	51.4	-13
1	7.6	-3
2	12.5	-4
3	19.7	-2
4	39.3	-7
5	46.5	-10
6	51.4	-11
Average of absolute α		

Diagram of duct and sampling location

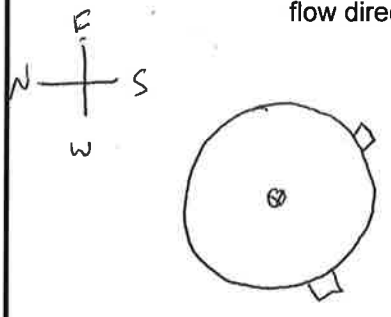


Example:

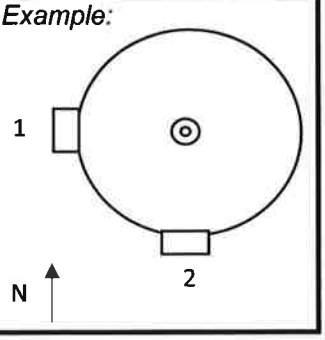


Cross-section sketch showing port locations and numbering

Label the following: port number 1, 2, etc.
north direction or other landmark
flow direction - ⊗ into page ⊙ out of page



Example:

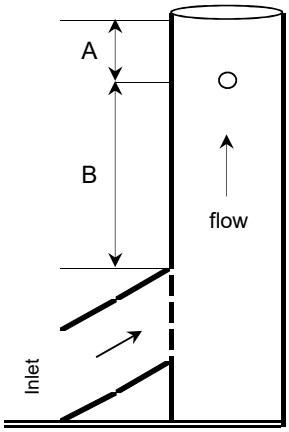


*For stacks having diameters greater than 24 in., no traverse points shall be within 1.00 in. of the stack walls; and for stack diameters equal to or less than 24 in., no traverse points shall be located within 0.50 in. - EPA Method 1 section 11.3.1 & 11.3.2

**If schematics are unavailable, internal width can be estimated by measuring the portion of the port length not visible on the outside of the duct, which would be an estimate of the insulation thickness. Double this distance and subtract it from the outside width.

Covanta Marion / Unit 1 Stack
TRAVERSE POINT LAYOUT (PARTICULATE)
CIRCULAR STACKS OVER 24 INCHES

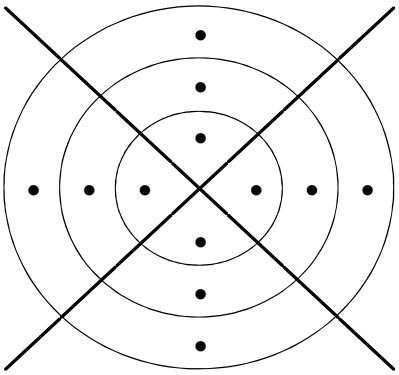
Stack diameter:	**48.0**	***inches***
Upstream diameter (A):	**1440.0**	***inches***
Downstream diameter (B):	**1200.0**	***inches***
Port length:	**5.50**	***inches***
Number of ports being used:	**2**	***see note***
Equivalent upstream diameter (A):	**30.000**	***Pass***
Equivalent downstream diameter (B):	**25.000**	***Pass***
All points at least 1.0" from stack wall:	**2.112**	***Pass***
Total points:	**12**	
Points per port:	**6**	



Typical vertical exhaust stack

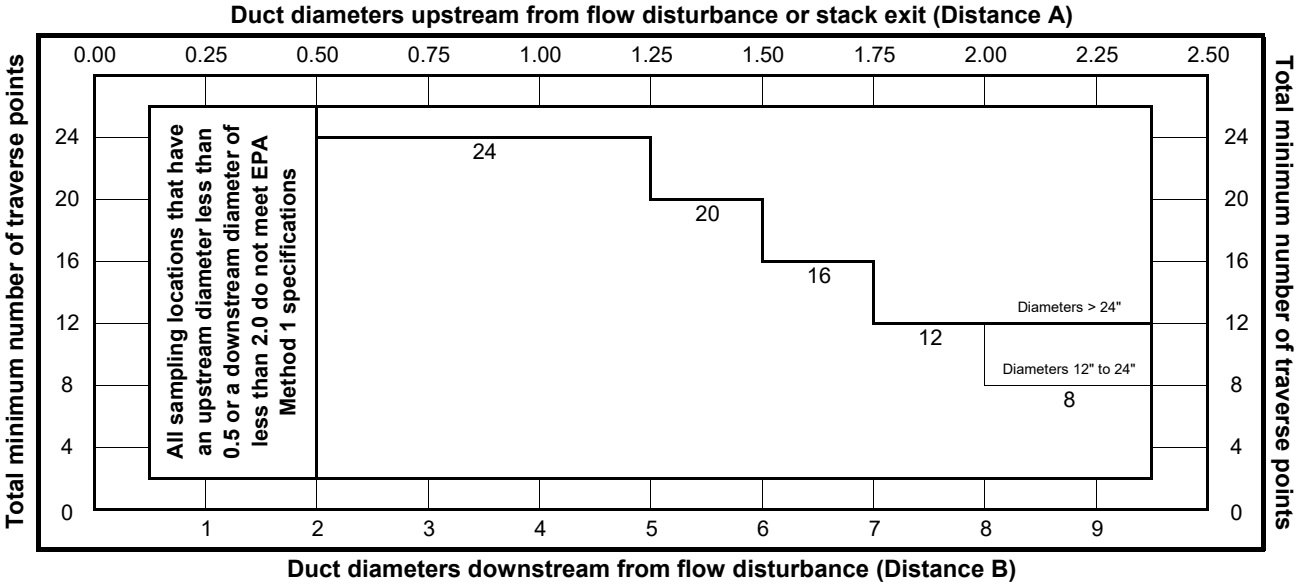
Point	% Diameter	Inside wall Distance (in)	Outside port Distance (in)
1	4.4	2.1	7.6
2	14.6	7.0	12.5
3	29.6	14.2	19.7
4	70.4	33.8	39.3
5	85.4	41.0	46.5
6	95.6	45.9	51.4
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A

DUCT AREA = 12.566 ft^2



Example: Location of 12 points

Note: No traverse point shall be within 1.0" of the stack walls (see EPA 1 section 11.3.1). Points automatically adjusted to meet this criterion.



MONTROSE AIR QUALITY SERVICES

EPA METHOD 1 FIELD DATA

Project Information

Client / Facility: Covanta Marion — Date: 3.7.2022

Source / Location: Unit 2 (South) — Data taken by: RB/AG

Circular/Elliptical Duct Measurements

	Port 1	Port 2	Port 3	Port 4
Far wall to outside of port distance, in.:	53.5	53.5		
Port length, in. (confirm flush with inside wall):	5.5	5.5		
Duct inner diameter, in.:	48	48		
Port diameter, in.:	4.0	4.0		
Upstream distance (A), in.:	1440.0			
Downstream distance (B), in.:	1200.0			
Number of ports (must be 90° to each other):	2			

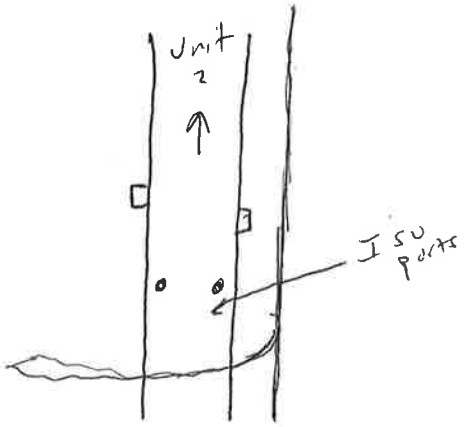
Duct Parameters

Material (steel, fiberglass, PVC)	Steel
Type of port (flange, npt nipple, etc.)	Nipple
Orientation (vertical, horizontal, if diagonal specify angle)	Vertical
Elevation of ports above ground, ft.	~140

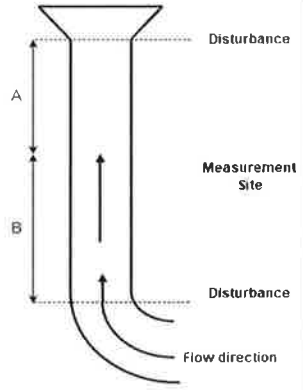
Cyclonic flow expected?	NO
Pitot ID	175-TP-6
Manometer ID	MB-31
Angle finder / protractor ID	700

Traverse point	Outside port distance, in.	Null angle, α
1	7.6	6
2	12.5	5
3	19.7	4
4	39.3	3
5	46.5	4
6	51.4	11
1	7.6	5
2	12.5	4
3	19.7	3
4	39.3	1
5	46.5	2
6	51.4	4
Average of absolute α		

Diagram of duct and sampling location



Example:

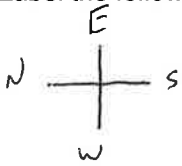


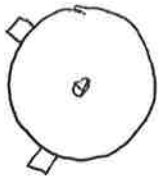
Cross-section sketch showing port locations and numbering

Label the following: port number 1, 2, etc.

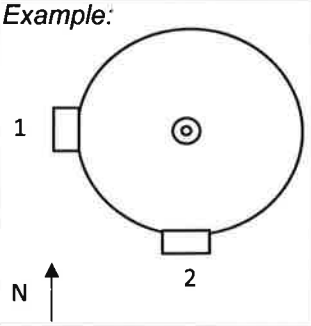
north direction or other landmark

flow direction - ⊗ into page ⊙ out of page





Example:

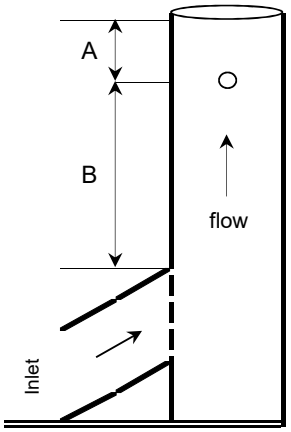


*For stacks having diameters greater than 24 in., no traverse points shall be within 1.00 in. of the stack walls; and for stack diameters equal to or less than 24 in., no traverse points shall be located within 0.50 in. - EPA Method 1 section 11.3.1 & 11.3.2

**If schematics are unavailable, internal width can be estimated by measuring the portion of the port length not visible on the outside of the duct, which would be an estimate of the insulation thickness. Double this distance and subtract it from the outside width.

Covanta Marion / Unit 2 Stack
TRAVERSE POINT LAYOUT (PARTICULATE)
CIRCULAR STACKS OVER 24 INCHES

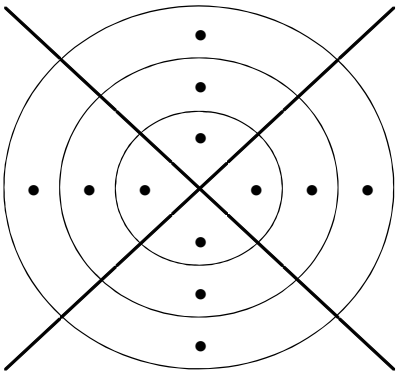
Stack diameter:	**48.0**	***inches***
Upstream diameter (A):	**1440.0**	***inches***
Downstream diameter (B):	**1200.0**	***inches***
Port length:	**5.50**	***inches***
Number of ports being used:	**2**	***see note***
Equivalent upstream diameter (A):	**30.000**	***Pass***
Equivalent downstream diameter (B):	**25.000**	***Pass***
All points at least 1.0" from stack wall:	**2.112**	***Pass***
Total points:	**12**	
Points per port:	**6**	



Typical vertical exhaust stack

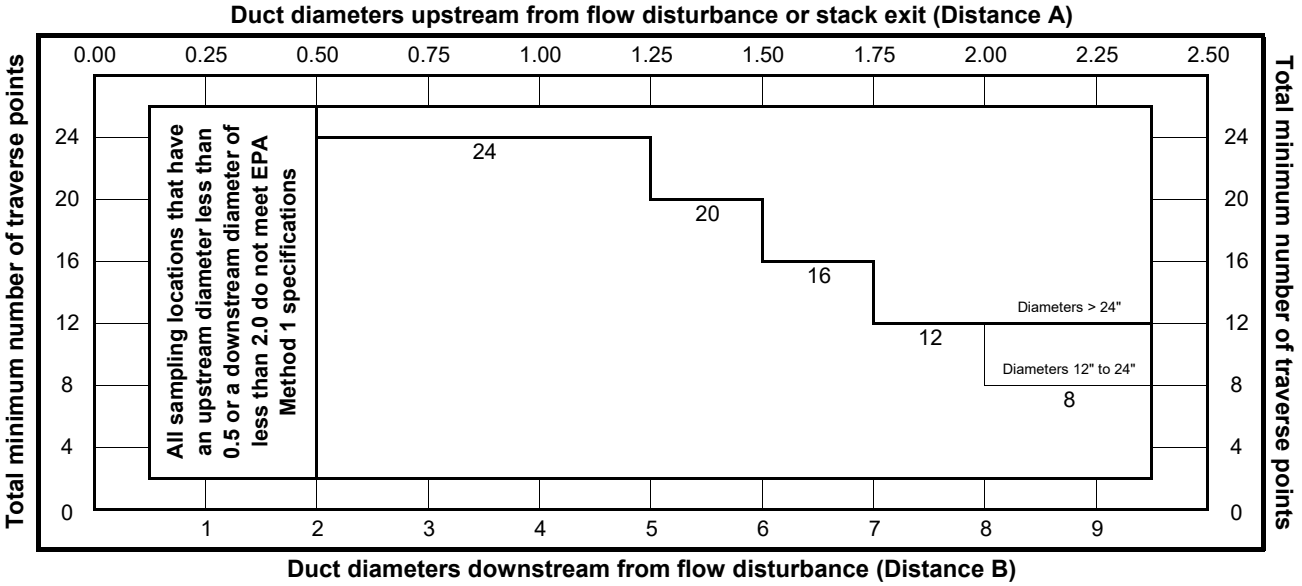
Point	% Diameter	Inside wall Distance (in)	Outside port Distance (in)
1	4.4	2.1	7.6
2	14.6	7.0	12.5
3	29.6	14.2	19.7
4	70.4	33.8	39.3
5	85.4	41.0	46.5
6	95.6	45.9	51.4
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A
N/A	#N/A	#N/A	#N/A

DUCT AREA = 12.566 ft^2



Example: Location of 12 points

Note: No traverse point shall be within 1.0" of the stack walls (see EPA 1 section 11.3.1). Points automatically adjusted to meet this criterion.



Appendix A.2
Halogens & Halides Data Sheets

MONTROSE AIR QUALITY SERVICES

EPA Method 5/16A Chronic Field Datasheet (Isokinetic)

Project Information
Date 3/9/22 Project # Proj-010935.
Customer/Facility Covanta
Unit ID/Sample Location Unit 1 Chronic
Run # 1 Operator SW.

Sampling Conditions
Static Pressure, in. H_2O -1.5. Ambient Temp, °F 43.
Barometric Pressure, in. Hg 29.84. Ref. Barometer ID
Wind Speed / Direction Precipitation, Y / N, type —
Probe / Filter Temp Range, °F 248 ± 25.

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack		
Probe	SGG	
Filter Box		
Filter Exit	Final	
Meter outlet		
Impinger Exit	Raw	
Other		

Ref. Thermometer ID
Continuity Check ☐ Continuity w/ Proper Polarity
Notes:

Sampling Equipment IDs
Meterbox ID 31 (MB-31)
Umbilical ID PDX-31-7
Nozzle ID G929
Pitot / Probe ID S-22
Manometer ID MB-31
Sensitivity 0.01

Calibration
Meterbox Y 0.9902
Meterbox ΔH@, in. H_2O 1.8162
Nozzle diameter, Dn, in. 0.188.
Pitot coefficient, Cp 0.84.
Manometer zero and level ☑ yes
K-Factor 0.80.

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5"	☐ @	☑ @ 4"
Pitot (-), pass @ in. H_2O	☑ @ 4"	☐ @	☑ @ 4"
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.003 @ 12"	@	0.005 @ 13"

Intermediate leak check volume, ft^3 / /

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet		Pump Vacuum, in. Hg
1	0	1003.	964.575.	1.9	1.5	1.5.	236.	254	260	250	58.		74.		3.
2	10		971.35	2.0	1.6	1.6	237.	250	258	255	51.		76.		3.
3	20		978.30	2.1	1.7	1.7	236.	251	258	258	54.		79.		3.
4	30		985.65.	1.9	1.5	1.5.	236.	251	258	260.	57.		81.		3.
5	40		992.50	1.7	1.4	1.4.	234.	252	254	262	61.		84.		3.
6	50		999.15.	1.7	1.4	1.4	234.	251.	253.	263.	63.		86.		3.
1	60	1103/1108	1005.762	1.9	1.5	1.5.	233.	250.	252.	251	66.		87.		3.
2	70		1012.70.	1.9	1.5	1.5.	233.	250.	255	258	64.		87.		3.
3	80		1019.55	2.0	1.6	1.6.	232.	251.	254	259	62.		87.		3.
4	90		1026.70	2.1	1.7	1.7	233.	250.	252	262	62.		88.		3.
5	100		1034.10.	1.8	1.4	1.4.	232.	251.	255.	268.	60.		90.		3.
6.	110		1041.55.	1.6.	1.3	1.3	231.	251.	253.	267.	63.		92.		3.
	120	1208	1047.918												
Averages															

SGW 3/9

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By RB Team Leader ✓

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MONTROSE AIR QUALITY SERVICES

EPA Method 5/26A. Chronic Field Datasheet (Isokinetic)

Project Information
Date 3/9/22. Project # PROJ-010935.
Customer/Facility Covanta.
Unit ID/Sample Location 1 Unit Chronic
Run # 2. Operator SW.

Sampling Conditions
Static Pressure, in. H_2O -1.3. Ambient Temp, °F 50f.
Barometric Pressure, in. Hg 29.84. Ref. Barometer ID
Wind Speed / Direction N 9mph Precipitation, Y / N, type —
Probe / Filter Temp Range, °F 248+25.

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack		
Probe	SE	
Filter Box		
Filter Exit	Final	
Meter outlet	Run	
Impinger Exit		
Other		

Ref. Thermometer ID
Continuity Check ☐ Continuity w/ Proper Polarity
Notes:

Sampling Equipment IDs
Meterbox ID MB31
Umbilical ID PDL-36-7
Nozzle ID G999
Pitot / Probe ID S-22
Manometer ID MB-31
Sensitivity 0.01 1350

Calibration
Meterbox Y 0.9902
Meterbox ΔH@, in. H_2O 1.8162.
Nozzle diameter, Dn, in. 0.188
Pitot coefficient, Cp 0.84.
Manometer zero and level ☑ yes
K-Factor 0.80

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 4"	☐ @	☑ @ 5"
Pitot (-), pass @ in. H_2O	☑ @ 4"	☐ @	☑ @ 4"
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.009 @ 12"	@	0.010 @ 14"

Intermediate leak check volume, ft^3 / /

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet		Pump Vacuum, in. Hg
1	0	~~1335~~ 1350	49.122	1.9	1.5	1.5.	232	251.	250	258	64.		90.		3.
2	10		56.00.	2.0	1.6	1.6.	232	250	251	260	57.		87.		4.
3	20		63.10.	2.2	1.8	1.8.	232.	250	252	259	53.		87.		5.
4	30		70.60.	2.0	1.6	1.6	232	251	252	257	54.		89.		4.
5	40		77.65.	1.7.	1.4	1.4.	234.	252	250	260.	54.		91.		4.
6	50		84.30.	1.6.	1.3	1.3.	235.	250	254	259.	54.		91.		3.
1	60	1450/1455	90.774	1.6	1.3	1.3	236	250	253	257	58		90.		3.
2	70		97.20.	1.6	1.3	1.3	235.	251	252	258	54.		93		3.
3	80		103.60	1.9	1.5	1.5.	236.	252	250	259.	54		94.		4.
4	90		110.60.	2.0	1.6	1.6.	235.	253	252	261.	56.		95.		4.
5	100		117.85.	1.8.	1.4	1.4.	237.	252.	253	260	56.		94.		3.
6.	110		124.65.	1.8	1.4	1.4	236.	251	252	259	57.		94.		3.
	120	1555.	131.404												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By RB Team Leader RB

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MONTROSE AIR QUALITY SERVICES

EPA Method 5/26A - Chronic Field Datasheet (Isokinetic)

Project Information
Date 3/9/22 Project # PROJ-010935
Customer/Facility COVANTA
Unit ID/Sample Location 1 Unit 1 Chronic
Run # 3 Operator SW

Sampling Conditions
Static Pressure, in. H_2O -1.2 Ambient Temp, °F 51f
Barometric Pressure, in. Hg 29.84 Ref. Barometer ID NOAA
Wind Speed / Direction N 13 mph Precipitation, Y / N, type —
Probe / Filter Temp Range, °F 248 +25

Sampling Equipment IDs
Meterbox ID MB31
Umbilical ID PDC-30-7
Nozzle ID 6G929
Pitot / Probe ID S-22
Manometer ID MB-31
Sensitivity 0.01

Calibration
Meterbox Y 0.9902
Meterbox ΔH@, in. H_2O 1.862
Nozzle diameter, Dn, in. 0.188
Pitot coefficient, Cp 0.84
Manometer zero and level ☑ yes
K-Factor 0.8

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5"	☐ @	☑ @ 4"
Pitot (-), pass @ in. H_2O	☑ @ 4"	☐ @	☑ @ 4"
Pitot visual inspection	☑ pass	~~☐ pass~~	☐ pass
Nozzle visual inspection	☑ pass	~~☐ pass~~	☐ pass
Meter, cfm @ in. Hg	0.005 @ 12"	@	0.009 @ 13"
Intermediate leak check volume, ft^3	/	/	/

ALT 011

	TC ID:	Ambient °F	Ref. °F
Stack	S-22	57	56.1
Probe	S-22	57	56.1
Filter Box	BXO-05-2	57	56.1
Filter Exit	5451	57	56.1
Meter outlet	MB-31	57	56.1
Impinger Exit	7	56	56.1
Other			

Ref. Thermometer ID 21018701?
Continuity Check ☑ Continuity w/ Proper Polarity
Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet		Pump Vacuum, in. Hg
1	0	1730.	132.375	2.0	1.6	1.6.	235.	250	250	253.	51.		87.		3.
2	10		139.45.	1.9	1.5	1.5.	236.	251	252	257	49.		85.		4.
3	20		146.35.	2.1	1.7	1.7.	236.	251	255	260.	50.		83.		4.
4	30		153.75.	2.0	1.6	1.6.	235.	250	257	259.	51.		82.		4.
5	40		160.85.	1.9.	1.5	1.5.	235.	250	253	258.	52.		84.		3.
6	50		167.60.	1.7.	1.4	1.4.	234	250	255	260.	52.		84.		3.
1	60	1830/1835	174.185.	1.7.	14	1.4	234.	252.	254	259.	52.		82.		3.
2	70		180.80.	1.8.	1.4	1.4	234.	250	252	257.	51		82.		3.
3	80		187.50	2.0	1.6	1.6.	234.	251.	255.	261.	51.		81.		4.
4	90		194.60	2.0	1.6	1.6.	234.	251.	258	260.	55.		80.		4.
5	100	~~PAUSE~~ 1930	201.60.	1.9.	1.5	1.5.	233.	251.	257	259.	56.		80.		4.
6	110		208.60	1.6	1.3	1.3	234.	251	255	257	58.	—	80.		4.
	120	~~1935.~~ 1945.	215.000												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PM Team Leader PP

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5/26A Chronic

MONTROSE AIR QUALITY SERVICES

Sample Recovery & Calibration Check Datasheet

Page 1 of 1

Project Information

Date 03/9/2022 Project # PROJ-010935

Customer / Facility Covanta Marion

Unit ID / Sample Location Unit 1 Chronic

Run # R1-3 ~~Unit + Ck~~ 3/9 Operator PB

EPA 26A

Equipment Identification

Ref. Thermometer 1

Hygrometer

Field Balance P1802108

Check Weights 10641

Calipers 0693615

Balance Audit (Field balance must be within 0.5g of check weight mass)

Date 3/9/22

Standard mass, g 500.

Field balance mass, g 499.9

Ambient Conditions (Mobile Lab)

Relative humidity, %

Temperature, °F 68

Mobile lab # TRANSIT

Moisture Determination

		Run1			Run 2			Run 3		
	Contents	Initial	Final	Net	Initial	Final	Net	Initial	Final	Net
Knockout	-									
Impinger 1	0.1N H_2SO_4	698.3	867.6	169.3	745.7	945.4	199.7	699.7	896.9	197.2
Impinger 2	0.1N H_2SO_4	771.7	845.7	74.0	749.3	800.4	51.1	772.1	838.4	66.3
Impinger 3	0.1N NaOH	739.2	755.5	26.3	741.7	750.0	8.3	740.5	754.1	13.6
Impinger 4	0.1N NaOH	738.5	746.8	8.3	753.5	774.2	20.7	741.8	746.0	4.2
Impinger 5										
Impinger 6										
Impinger 7										
Impinger 8										
Silica Gel	S.G	951.8	964.1	12.3	869.7	877.2	7.5	964.1	974.7	10.6
Line Rinse										
Train Net Gain (Vlc)				290.2			287.3			291.9

Nozzle Measurements (Difference between any two measurements must not be more than 0.004 in (0.1 mm))

Nozzle 1 diameters	0.188	D1	0.188	D2	0.189	D3	0.188	Average
Nozzle 2 diameters	0.189	D1	0.188	D2	0.188	D3	0.188	Average
Nozzle 3 diameters	0.189	D1	0.188	D2	0.188	D3	0.188	Average

Nozzle Material ☐ quartz ☑ glass ☐ steel ☐ titanium ☐ inconel ☐ other

Probe Type ☑ heated ☐ unheated ☐ air-cooled ☐ water-cooled ☐ other

Probe Liner ☐ quartz ☑ glass ☐ steel ☐ Teflon ☐ other

Filter Information

Front Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Filter Number: Run 1: 5/26-1 Run 2: 5/26-2 Run 3: 5/26-3 Run :

Back Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Reagent Information

Type	Lot Number
0.1N H_2SO_4	248-10-5 (60030)
0.1N NaOH	226-87-8 (Q093002)
Type I H_2O	R000606

Sample Observations

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓

Checked by: PB Team Leader: PB

001AS-QMS-FM-226

Appendix A.3
Metals Data Sheets

MONTROSE AIR QUALITY SERVICES

Chronic
EPA Method 29 Field Datasheet (Isokinetic)

Project Information
Date 3/9/22 Project # PROJ-010935
Customer/Facility Covanta
Unit ID/Sample Location Stack #2 South
Run # 1 Operator AG

Sampling Conditions
Static Pressure, in. H_2O -1.1 Ambient Temp, °F 43
Barometric Pressure, in. Hg 29.84 Ref. Barometer ID NOAA
Wind Speed / Direction 6/E Precipitation (Y) N, type Light
Probe / Filter Temp Range, °F 248±25

Sampling Equipment IDs
Meterbox ID MB32
Umbilical ID PDX-30-1
Nozzle ID G-315
Pitot / Probe ID 6-1
Manometer ID MB32
Sensitivity 0.01

Calibration
Meterbox Y 0.9940
Meterbox ΔH@, in. H_2O 1.6681
Nozzle diameter, Dn, in. 0.189
Pitot coefficient, Cp 0.84
Manometer zero and level ☑ yes
K-Factor 0.80/0.75

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 9.5	☐ @	☑ @ 9.0
Pitot (-), pass @ in. H_2O	☑ @ 5.0	☐ @	☑ @ 4.0
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.001 @ 9	@	0.001 @ 8
Intermediate leak check volume, ft^3			

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack		
Probe		
Filter Box		
Filter Exit		
Meter outlet		
Impinger Exit		
Other		

See final Run

Ref. Thermometer ID
Continuity Check ☐ Continuity w/ Proper Polarity
Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet		Pump Vacuum, in. Hg
1	0	0940	885.942	1.8	1.44	1.4	270	235	245		42		47		2.0
2	10		889.68	2.0	1.6	1.6	271	234	243		42		47		2.0
3	20		896.65	2.1	1.68	1.7	273	233	247		46		47		2.0
4	30		904.02	2.0	1.6	1.6	272	234	245		47		49		2.0
5	40		911.19	1.8	1.44	1.4	274	234	246		49		52		2.0
6	50		918.32	1.6	1.28	1.3	273	229	246		51		57		2.0
1	60	1040/1053	924.734	2.0	1.6	1.6	273	230	245		45		62		2.0
2	70		931.54	1.8	1.44	1.4	273	233	244		45		64		2.0
3	80		937.96	1.9	1.425	1.4	272	234	248		45		66		2.0
4	90		944.39	1.8	1.4	1.4	273	232	243		45		69		2.0
5	100		950.85	1.7	~~1.36~~ 1.375	~~1.4~~ 1.3	274	233	243		46		70		2.0
6	110		956.99	1.6	1.2	1.2	274	231	246		45		68		2.0
	120	1153	962.994												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By BB Team Leader BB

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MONTROSE AIR QUALITY SERVICES

Chronic

EPA Method 29 Field Datasheet (Isokinetic)

Project Information

Date 3/9/22 Project # PROJ-D10935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 2 Operator AG

Sampling Conditions

Static Pressure, in. H_2O -1.1 Ambient Temp, °F 51

Barometric Pressure, in. Hg 29.81 Ref. Barometer ID NOAA

Wind Speed / Direction 10/NE Precipitation, Y / (N) type None

Probe / Filter Temp Range, °F 248±25

Sampling Equipment IDs

Meterbox ID MB32

Umbilical ID PDX-30-1

Nozzle ID G-228

Pitot / Probe ID 6-6

Manometer ID MB32

Sensitivity 0.01

Calibration

Meterbox Y 0.9940

Meterbox ΔH@, in. H_2O 1.6081

Nozzle diameter, Dn, in. 0.190

Pitot coefficient, Cp 0.84

Manometer zero and level ☑ yes

K-Factor 0.75

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5.0	☐ @	☑ @ 4.0
Pitot (-), pass @ in. H_2O	☑ @ 4.0	☐ @	☑ @ 4.0
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.001 @ 7	@	0.001 @ 10
Intermediate leak check volume, ft^3		/	/

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack		
Probe		
Filter Box		
Filter Exit		
Meter outlet		
Impinger Exit		
Other		

Ref. Thermometer ID

Continuity Check ☐ Continuity w/ Proper Polarity

Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet		Pump Vacuum, in. Hg
1	0	1350	963.144	1.8	1.35	1.4	272	232	242		45		54		2.0
2	10		969.55	2.0	1.5	1.5	273	234	244		44		55		2.0
3	20		976.76	2.0	1.5	1.5	273	233	247		47		56		2.0
4	30		982.93	2.1	1.575	1.6	273	233	248		50		58		2.0
5	40		989.81	1.7	1.275	1.3	274	233	244		52		60		2.0
6	50		996.14	1.6	1.2	1.2	272	233	246		52		58		2.0
1	60	1450 1455	1002.120	1.7	1.275	1.3	273	234	246		51		57		2.0
2	70		1008.24	1.9	1.425	1.4	274	234	246		51		58		2.0
3	80		1014.70	2.2	1.65	1.7	274	234	247		52		57		2.0
4	90		1021.83	2.0	1.5	1.5	275	233	245		54		57		2.0
5	100		1028.38	1.8	1.35	1.4	274	233	245		55		56		2.0
6	110		1034.70	1.6	1.2	1.2	273	233	244		55		56		2.0
	120	1555	1040.548												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PB Team Leader PB

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Chronic

MONTROSE AIR QUALITY SERVICES

EPA Method 29 Field Datasheet (Isokinetic)

Project Information

Date 3/9/22 Project # PROJ-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 3 Operator AG

Sampling Conditions

Static Pressure, in. H_2O -1.1 Ambient Temp, °F 52

Barometric Pressure, in. Hg 29.64 Ref. Barometer ID N/A

Wind Speed / Direction 13/NE Precipitation, Y / N, type None

Probe / Filter Temp Range, °F 248/275

ALT 011	TC ID:	Ambient °F	Ref. °F
Stack	6-1/6-6	57/56	56.1
Probe	6-1/6-6	57/56	56.1
Filter Box	PDX-05-1	58	56.1
Filter Exit			
Meter outlet	MB32	57	56.1
Impinger Exit	I-45	56	56.1
Other			

Ref. Thermometer ID 210187011

Continuity Check ☑ Continuity w/ Proper Polarity

Notes:

Sampling Equipment IDs

Meterbox ID MB32

Umbilical ID PDX-30-1

Nozzle ID G-315

Pitot / Probe ID 6-1

Manometer ID MB32

Sensitivity 0.01

Calibration

Meterbox Y 0.9940

Meterbox ΔH@, in. H_2O 1.6681

Nozzle diameter, Dn, in. 0.189

Pitot coefficient, Cp 0.84

Manometer zero and level ☑ yes

K-Factor 0.75

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 4.0	☐ @	☑ @ 4.5
Pitot (-), pass @ in. H_2O	☑ @ 5.0	☐ @	☑ @ 4.0
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.001 @ 7	@	0.001 @ 10
Intermediate leak check volume, ft^3	/	/	/

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet		Pump Vacuum, in. Hg
1	0	1730	40.643	1.9	1.425	1.4	274	234	244		45		51		2.0
2	10		47.01	2.0	1.5	1.5	273	233	246		45		51		2.0
3	20		53.63	1.9	1.425	1.4	273	234	245		48		52		2.0
4	30		59.90	2.1	1.575	1.6	272	231	244		50		53		2.0
5	40		66.78	1.8	1.35	1.4	273	232	244		51		53		2.0
6	50		73.15	1.6	1.2	1.2	273	230	245		50		53		2.0
1	60	1830/1835	79.031	1.8	1.35	1.4	274	231	243		48		52		2.0
2	70		85.38	2.0	1.5	1.5	273	234	245		49		52		2.0
3	80		92.00	1.8	1.35	1.4	274	235	245		49		51		2.0
4	90		98.30	1.8	1.35	1.4	273	233	246		51		52		2.0
5	100		104.62	1.7	1.275	1.3	273	232	244		51		52		2.0
6	110		110.76	1.7	1.275	1.3	272	234	244		50		53		2.0
	120	1935	116.910												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By RD Team Leader RS

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MONTROSE AIR QUALITY SERVICES

M29 Chronic

Sample Recovery & Calibration Check Datasheet

Page 1 of 1

Project Information

Date: 3.9.2022 Project #: PROJ-010935

Customer / Facility: COVANTA Marion

Unit ID / Sample Location: Stack 2 (South) Chronic

Run #: 1-3 Operator: PA

Equipment Identification

Ref. Thermometer: NOAA

Hygrometer: /

Field Balance: 624

Check Weights: 106411

Calipers: 0093615

Balance Audit (Field balance must be within 0.5g of check weight mass)

Date	3.8.22	3.9.22	
Standard mass, g	500.0	500.0	
Field balance mass, g	499.9	499.9	

Ambient Conditions (Mobile Lab)

Relative humidity, %: /

Temperature, °F: 68

Mobile lab #: TV-4

Moisture Determination

		Run1			Run 2			Run 3		
	Contents	Initial	Final	Net	Initial	Final	Net	Initial	Final	Net
Knockout										
Impinger 1	5%/10%	719.8	854.1	134.3	744.7	931.5	186.8	713.0	854.9	141.9
Impinger 2	5%/10%	724.9	827.1	102.2	724.1	813.1	89.0	730.2	838.8	108.6
Impinger 3	empty	652.8	680.2	27.4	623.3	637.1	13.8	653.9	683.9	30.0
Impinger 4	$KMnO_4$	654.4	664.6	10.2	794.9	803.0	8.1	653.1	668.3	15.2
Impinger 5	$KMnO_4$	736.6	739.4	2.8	788.6	790.7	2.1	735.8	739.5	3.7
Impinger 6										
Impinger 7										
Impinger 8										
Silica Gel	Silica	943.9	951.0	7.1	916.2	931.0	14.8	940.0	~~956.5~~ 956.5	16.5
Line Rinse										
Train Net Gain (Vlc)				284.0			314.6			315.9

Nozzle Measurements (Difference between any two measurements must not be more than 0.004 in (0.1 mm))

Nozzle 1 diameters	0.189	D1	0.188	D2	0.189	D3	0.189	Average
Nozzle 2 diameters	0.189	D1	0.190	D2	0.190	D3	0.190	Average
Nozzle 3 diameters	0.189	D1	0.188	D2	0.189	D3	0.189	Average

Nozzle Material ☐ quartz ☑ glass ☐ steel ☐ titanium ☐ inconel ☐ other _____

Probe Type ☑ heated ☐ unheated ☐ air-cooled ☐ water-cooled ☐ other _____

Probe Liner ☐ quartz ☑ glass ☐ steel ☐ Teflon ☐ other _____

Filter Information

Front Half: ☑ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other _____

Filter Number: Run 1: N/A Run 2: N/A Run 3: N/A Run _____

Back Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other _____

Reagent Information

Type	Lot Number
DI	338738
10% H_2SO_4	421111
0.1N HNO_3	248.17.2 / 611600
8N HCl	S21288
$KMnO_4$	201216-2C
5% HNO_3/10% H_2O_2	248.17.1

Sample Observations

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓

Checked by: PB Team Leader: BB

001AS-QMS-FM-226

Appendix A.4
Hexavalent Chromium Data Sheets

MONTROSE AIR QUALITY SERVICES

Chronic Unit 2

~~EPA~~ Method ~~0061~~ Field Datasheet (Isokinetic)

Page 1 of 1

Project Information

Date 3/9/22 Project # PROS-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 1 Operator PB

Sampling Conditions

Static Pressure, in. H_2O -1.1 Ambient Temp, °F 43

Barometric Pressure, in. Hg 29.84 Ref. Barometer ID NOAA

Wind Speed / Direction 5/E Precipitation (Y) N, type Rain

Probe / Filter Temp Range, °F 248 ± 25

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack		
Probe	Set	
Filter Box		
Filter Exit	Final	
Meter outlet		
Impinger Exit	Run	
Other		

Ref. Thermometer ID

Continuity Check ☐ Continuity w/ Proper Polarity

Notes: Aspirator Pump #2

Sampling Equipment IDs

Meterbox ID MB24

Umbilical ID PDX-50-3

Nozzle ID 6-930

Pitot / Probe ID 118-NP-4

Manometer ID MB24

Sensitivity .01

Calibration

Meterbox Y 1.0201

Meterbox ΔH@, in. H_2O 1.6081

Nozzle diameter, Dn, in. .188

Pitot coefficient, Cp .84

Manometer zero and level ☑ yes

K-Factor .7, .65

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 4	☐ @	☑ @ 5
Pitot (-), pass @ in. H_2O	☑ @ 5	☐ @	☑ @ 5
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	.001 @ 8	@	.001 @ 9

Intermediate leak check volume, ft^3 / /

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	Pump Vacuum, in. Hg
1	0	940	906.350	2.1	1.47	1.5	276	254			65		68	5
2	10		913.70	1.9	1.33	1.3	~~282~~ 274	241			64		68	4
3	20		919.95	2.1	1.47	1.5	276	245			62		68	5
4	30		926.83	1.8	1.26	1.3	274	253			60		69	5
5	40		933.48	1.6	1.12	1.1	274	241			60		72	4
6	50	1040	939.81	1.6	1.12	1.1	274	235			58		74	4
1	60	1053	945.843	1.8	1.26	1.3	274	256			57		71	4
2	70		953.12	1.9	1.33	1.3	274	233			60		70	4
3	80		959.11	2.0	1.3	1.3	273	237			62		69	4
4	90		965.19	2.2	1.43	1.4	273	232			62		68	4.5
5	100		972.31	2.0	1.3	1.3	274	246			64		69	4.5
6	110		979.20	1.7	1.10	1.1	272	245			65		70	4
Final	120	1053	984.612											
Averages														

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PB Team Leader PB

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pH check at port change 9

Chronic Unit 2

MONTROSE AIR QUALITY SERVICES

EPA Method 0061 / Field Datasheet (Isokinetic)

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Project Information

Date 3/9/22 Project # PROJ-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 2 Operator RB

Sampling Conditions

Static Pressure, in. H_2O -1.1 Ambient Temp, °F 51

Barometric Pressure, in. Hg 29.84 Ref. Barometer ID NOAA

Wind Speed / Direction 9/N Precipitation, Y / (N) type —

Probe / Filter Temp Range, °F 248 ± 25

Sampling Equipment IDs

Meterbox ID MB24

Umbilical ID PDX-50-3

Nozzle ID S-926

Pitot / Probe ID 4-44

Manometer ID MB24

Sensitivity .01

Calibration

Meterbox Y 1.0201

Meterbox ΔH@, in. H_2O 1.6081

Nozzle diameter, Dn, in. .488

Pitot coefficient, Cp .84

Manometer zero and level ☑ yes

K-Factor .65, .7

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5	☐ @	☑ @ 5
Pitot (-), pass @ in. H_2O	☑ @ 6	☐ @	☑ @ 5
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	.01 @ 9	2.00 @ 8	.01 @ 8

Intermediate leak check volume, ft^3 1055.95 - 1056.58

ALT 011

	TC ID:	Ambient °F	Ref. °F
Stack	4-14	56	56
Probe	4-45	CC	56 52.1
Filter Box			
Filter Exit	FINAL		
Meter outlet			
Impinger Exit	RUN1		
Other			

Ref. Thermometer ID 210187011

Continuity Check ☑ Continuity w/ Proper Polarity

Notes: Aspirator pump #3

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	Pump Vacuum, in. Hg
1	0	1350	986.172	1.8	1.17	1.2	273	263			58		74	4.5
2	10		992.24	2.0	1.3	1.3	273	260			58		74	5
3	20		999.45	2.2	1.43	1.4	273	251			60		75	6
4	30		1005.30	2.4	1.56	1.6	272	246			63		76	6
5	40		1012.53	2.0	1.3	1.3	272	238			62		78	6
6	50	1450	1019.28	1.9	1.24	1.2	272	235			62		78	6
~~FINAL~~ 1	60	~~1455~~ 1455	1025.715	1.8	1.17	1.2	272	248			60		78	6
2	70		1032.14	1.9	1.24	1.2	272	250			61		78	6
3	80		1039.03	2.1	1.37	1.4	273	245			61		77	6
4	90		1045.45	2.3	1.61	1.6	273	248			60		76	6
5	100	1545	1052.81	2.0	1.40	1.4	273	247			59		76	6
6	110	~~1602~~ 1602	1059.70	1.8	1.26	1.3	271	238			62		75	5
FINAL	120	~~1555~~ 1612	1065.748											
Averages														

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By RB Team Leader RB

001AS-QMS-FM-225

Pit check at Port change 9

Swap silica impinger at 1545

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Chronic Unit 2

MONTROSE AIR QUALITY SERVICES

EPA Method 0061 Field Datasheet (Isokinetic)

Page 1 of 1

Project Information

Date 3/9/22 Project # PROJ-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 3 Operator PB

Sampling Conditions

Static Pressure, in. H_2O -1.0 Ambient Temp, °F 51

Barometric Pressure, in. Hg 29.84 Ref. Barometer ID NOAA

Wind Speed / Direction VBAN Precipitation, Y / N type —

Probe / Filter Temp Range, °F 248 ± 25

ALT 011	TC ID:	Ambient °F	Ref. °F
Stack	118-NP-4	57	56.1
Probe	118-NP-4	57	56.1
Filter Box	—		
Filter Exit	—		
Meter outlet	MB24	58	56.1
Impinger Exit	GS-2	56	56.1
Other			

Ref. Thermometer ID 210187011

Continuity Check ☑ Continuity w/ Proper Polarity

Notes: Aspirator pump #2

Sampling Equipment IDs

Meterbox ID MB24

Umbilical ID DDX-50-3

Nozzle ID G-930

Pitot / Probe ID 118-NP-4

Manometer ID MB24

Sensitivity .01

Calibration

Meterbox Y 1.0201

Meterbox ΔH@, in. H_2O 1.6087

Nozzle diameter, Dn, in. .188

Pitot coefficient, Cp .84

Manometer zero and level ☑ yes

K-Factor .71

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5	☐ @	☑ @ 5
Pitot (-), pass @ in. H_2O	☑ @ 4	☐ @	☑ @ 5
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	.001 @ 10	0.001 @ 7	.001 @ 8

Intermediate leak check volume, ft^3 135.747-136551

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet		Pump Vacuum, in. Hg
1	0	1730	65.826	1.8	1.76	1.3	274	259			65		68		3
2	10		72.19	2.0	1.40	1.4	273	238			~~66~~ 54		66		3
3	20		78.71	2.2	1.54	1.5	275	238			60		68		3
4	30		85.35	2.3	1.61	1.6	275	236			62		69		4
5	40		92.42	2.1	1.47	1.5	276	235			63		70		4
6	50		99.30	1.8	1.26	1.3	273	239			65		70		3
1	60	1830 / 1835	105.955	1.8	1.26	1.3	275	250			57		70		3
2	70		112.36	2.1	1.47	1.5	275	245			56		69		3
3	80		119.27	2.4	1.68	1.7	274	241			59		69		4
4	90	1917 / 1927	126.71	2.2	1.54	1.5	274	240			62		70		4
5	100		133.70	2.1	1.47	1.5	275	238			63		72		4
6	110		140.67	1.8	1.26	1.3	273	235			66		70		4
Final	120	1945	147.113												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PP Team Leader PP

001AS-QMS-FM-225

pH checked at port change 9 Paused at 1917 to swap silica

Method 0061

MONTROSE AIR QUALITY SERVICES

Sample Recovery & Calibration Check Datasheet

Project Information

Date 3.9.2022 Project # PR05-010935

Customer / Facility COVANTA MARION

Unit ID / Sample Location STACK 2 (South) Chronic

Run # 1-3 Operator PB

Equipment Identification

Ref. Thermometer NOAA

Hygrometer /

Field Balance 624

Check Weights 10641

Calipers 0093615

Balance Audit (Field balance must be within 0.5g of check weight mass)

Date	3.8.22	3.9.22	
Standard mass, g	500.0	500.0	
Field balance mass, g	499.9	499.9	

Ambient Conditions (Mobile Lab)

Relative humidity, % /

Temperature, °F 68

Mobile lab # TU-4

Moisture Determination

0.1 N $NaHCO_3$

	Contents	pH 9.0 pre Rinse Run1 Post Run Initial	Final	Net	pH 8.5 pre Rinse Run 2 Post Run Initial	Final	Net	pH 8.5 pre Rinse Run 3 Post Run Initial	Final	Net
Knockout										
Impinger 1	140mL	140	140	0	140	110	-30	140	160	20
Impinger 2	80mL	80	140	60	80	130	50	80	140	60
Impinger 3	80mL	80	160	80	80	140	60	80	160	80
Impinger 4	empty	0	60	60	0	110	110	0	120	120
Impinger 5										
Impinger 6										
Impinger 7							2.7			
Impinger 8	Silica (g)				1018.2	1020.9	~~1026.4~~	1021.5	1026.4	4.9
Silica Gel	Silica (g)	880.1	938.1	58.0	940.3	1002.1	61.8	915.5	947.0	31.5
Line Rinse										
Train Net Gain (Vlc)				258.0			254.5			316.4

Nozzle Measurements (Difference between any two measurements must not be more than 0.004 in (0.1 mm))

Nozzle 1 diameters	0.188	D1	0.188	D2	0.188	D3	0.188	Average
Nozzle 2 diameters	0.187	D1	0.188	D2	0.188	D3	0.188	Average
Nozzle 3 diameters	0.188	D1	0.188	D2	0.188	D3	0.188	Average

Nozzle Material ☐ quartz ☑ glass ☐ steel ☐ titanium ☐ inconel ☐ other

Probe Type ☑ heated ☐ unheated ☐ air-cooled ☐ water-cooled ☐ other

Probe Liner ☐ quartz ☑ glass ☐ steel ☐ Teflon ☐ other

Filter Information

Front Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☑ other 0.45 micro Acetate filter for post Run filtration

Filter Number: Run 1: N/A Run 2: N/A Run 3: Run

Back Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Reagent Information

Type	Lot Number
DI	338738
0.1N $NaHCO_3$	226-87-6
1.0N $NaHCO_3$	226-87-7
Celulose Acetate Filter	00526306

Sample Observations

Volume pre Filtration	Volume Post filtration + DI Rinse
Run 1 500 mL	Run 1 713.6
Run 2 490 mL	Run 2 700.0 mL
Run 3 580 mL	Run 3 750.0

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓

Checked by: RD Team Leader: RD

001AS-QMS-FM-226

Appendix A.5
PCDD/F & PCB Data Sheets

MONTROSE AIR QUALITY SERVICES

EPA Method 23 Field Datasheet (Isokinetic)

Project Information

Date 3/10/22 Project # PROJ-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 1 Operator AG

Sampling Conditions

Static Pressure, in. H_2O -0.95 Ambient Temp, °F 50

Barometric Pressure, in. Hg 30.05 Ref. Barometer ID NOAA

Wind Speed / Direction 3 NE Precipitation, Y (N) type None

Probe / Filter Temp Range, °F 248 ± 25

Sampling Equipment IDs

Meterbox ID MB32

Umbilical ID PDX-30-1

Nozzle ID G-314

Pitot / Probe ID 6-6

Manometer ID MB32

Sensitivity 0.01

Calibration

Meterbox Y 0.9940

Meterbox ΔH@, in. H_2O 1.668

Nozzle diameter, Dn, in. 0.173

Pitot coefficient, Cp 0.84

Manometer zero and level ☑ yes

K-Factor 0.50/0.55

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 4.0	☐ @	☑ @ 5.0
Pitot (-), pass @ in. H_2O	☑ @ 4.5	☐ @	☑ @ 4.0
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.001 @ 9	@	0.001 @ 8
Intermediate leak check volume, ft^3	/	/	/

ALT 011

	TC ID:	Ambient °F	Ref. °F
Stack			
Probe			
Filter Box		See Final Run	
Filter Exit			
Meter outlet			
Impinger Exit			
Other			

Ref. Thermometer ID

Continuity Check ☐ Continuity w/ Proper Polarity

Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	XAD	Pump Vacuum, in. Hg
1	0	1343	117.477	1.8	0.90	0.90	272	232	245	261	50		87	45	3.0
2	20		128.18	1.7	0.85	0.85	272	232	213	256	48		90	43	3.0
3	40		138.63	1.9	0.95	0.95	273	232	206	260	49		86	45	3.0
4	60		149.54	2.2	1.1	1.1	273	233	235	262	50		81	46	3.5
5	80		161.22	1.7	0.85	0.85	274	232	197	250	49		77	46	3.0
6	100	1521 / 1551	171.57	1.5	0.75	0.75	273	233	135	242	49		77	45	3.0
1	120	1613 / 1618	181.258	1.8	0.90	0.90	271	234	238	241	50		75	48	3.5
2	140		191.86	1.8	0.90	0.90	272	233	240	258	53		77	57	4.0
3	160		202.50	2.0	~~1.0~~ 1.1	~~1.0~~ 1.1	273	232	225	261	53		78	57	4.0
4	180		214.15	2.1	1.155	1.2	272	232	207	254	55		77	60	4.0
5	200		226.23	2.2	1.21	1.2	271	233	224	246	54		77	52	4.0
6	220		238.32	1.9	1.045	1.0	270	232	240	248	52		79	55	4.0
	240	1818	249.444												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PB Team Leader PB

MONTROSE AIR QUALITY SERVICES

EPA Method 23 Field Datasheet (Isokinetic)

Project Information

Date 3/11/22 Project # PROJ-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 south

Run # 2 Operator AG

Sampling Conditions

Static Pressure, in. H_2O <1.2 Ambient Temp, °F 36

Barometric Pressure, in. Hg 30.03 Ref. Barometer ID NOAA

Wind Speed / Direction 1/5 Precipitation, Y / N, type None

Probe / Filter Temp Range, °F 248±25

ALT 011	TC ID:	Ambient °F	Ref. °F
Stack			
Probe			
Filter Box		See Final Run	
Filter Exit	5469 (57)		56.1
Meter outlet			
Impinger Exit			
Other XAD Exit 5465		57	56.1

Ref. Thermometer ID 210187011

Continuity Check ☑ Continuity w/ Proper Polarity

Notes:

Sampling Equipment IDs

Meterbox ID MB32

Umbilical ID PDX-30-1

Nozzle ID G-315

Pitot / Probe ID 6-1

Manometer ID MB32

Sensitivity 0.01

Calibration

Meterbox Y 0.9940

Meterbox ΔH@, in. H_2O 1.6681

Nozzle diameter, Dn, in. 0.188

Pitot coefficient, Cp 0.84

Manometer zero and level ☑ yes

K-Factor 0.70/0.75

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 4.0	☐ @	☑ @ 5.0
Pitot (-), pass @ in. H_2O	☑ @ 4.5	☐ @	☑ @ 1.0
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.001 @ 8	@	0.001 @ 10
Intermediate leak check volume, ft^3		/	/

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	XAD	Pump Vacuum, in. Hg
1	0	0835	251.185	1.7	1.19	1.2	272	241	245	260	43		71	46	3.0
2	20		263.09	1.9	1.33	1.3	273	233	228	267	47		70	51	4.0
3	40		275.61	2.1	1.47	1.5	274	231	203	249	47		73	55	4.5
4	60		288.80	1.8	1.26	1.3	274	235	215	253	45		76	56	4.0
5	80		301.57	1.6	1.12	1.1	275	233	222	250	47		80	60	3.5
6	100		313.33	1.5	1.05	1.1	274	233	231	248	47		83	52	3.5
1	120	1035/1040	325.049	1.6	1.12	1.1	274	233	243	245	50		91	54	4.0
2	140		336.67	1.9	1.33	1.3	274	234	220	263	48		94	60	4.0
3	160		349.43	2.2	1.65	1.7	275	233	203	250	49		98	59	4.5
4	180		364.05	1.9	1.425	1.4	275	233	198	248	48		99	61	4.0
5	200		377.68	1.8	1.35	1.4	275	232	206	253	45		98	57	4.0
6	220		390.86	1.8	1.35	1.4	273	232	221	250	47		96	62	4.0
	240	1240	404.098												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PD Team Leader BB

001AS-QMS-FM-225

MONTROSE AIR QUALITY SERVICES

EPA Method 23 Field Datasheet (Isokinetic)

Page 1 of 1

Project Information
Date 3/11/22 Project # PROJ-010935
Customer/Facility Coventa
Unit ID/Sample Location Stack #2 South
Run # 3 Operator AG

Sampling Conditions
Static Pressure, in. H_2O -1.2 Ambient Temp, °F 55
Barometric Pressure, in. Hg 30.03 Ref. Barometer ID NOAA
Wind Speed / Direction 4 / S Precipitation, Y / (N) type None
Probe / Filter Temp Range, °F 248±25

Sampling Equipment IDs
Meterbox ID MB32
Umbilical ID PDX-30-1
Nozzle ID G-314
Pitot / Probe ID 6-6
Manometer ID MB32
Sensitivity 0.01

Calibration
Meterbox Y 0.9940
Meterbox ΔH@, in. H_2O 1.6681
Nozzle diameter, Dn, in. *AG 0.188 0.173
Pitot coefficient, Cp 0.84 0.173
Manometer zero and level ☑ yes
K-Factor 0.55

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 4.0	☐ @	☑ @ 4.5
Pitot (-), pass @ in. H_2O	☑ @ 4.5	☐ @	☑ @ 4.5
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.001 @ 9	@	0.001 @ 7

Intermediate leak check volume, ft^3 / /

ALT 011 TC ID:

	TC ID:	Ambient °F	Ref. °F
Stack	6-1/6-6	56	56.1
Probe	6-1/6-6	56	56.1
Filter Box	PDX-05-2	58	56.1
Filter Exit	2673	58	56.1
Meter outlet	MB32	58	56.1
Impinger Exit	GN-2	58	56.1
Other	XAD Inlet 546	56	56.1

Ref. Thermometer ID 210187011
Continuity Check ☑ Continuity w/ Proper Polarity
Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	XAD	Pump Vacuum, in. Hg
1	0	1342	405.627	1.7	0.935	0.94	273	233	247	250	55		93	47	3.0
2	20		416.91	2.0	1.1	1.1	273	233	223	249	57		96	48	4.0
3	40		428.74	2.1	1.155	1.2	274	233	213	250	56		100	48	4.0
4	60		440.99	1.8	0.99	0.99	274	233	221	253	58		104	50	4.0
5	80		452.52	1.7	0.935	0.94	275	234	234	251	59		107	52	4.0
6	100		463.66	1.6	0.88	0.88	273	232	212	251	61		108	57	4.0
1	120	~~1542~~ 1547	474.549	1.8	0.99	0.99	273	233	234	242	59		107	55	4.0
2	140		485.92	2.1	1.155	1.2	274	232	238	243	58		106	54	4.0
3	160		498.26	2.1	1.155	1.2	275	233	227	247	63		109	60	4.0
4	180		510.60	1.9	1.045	1.0	274	233	238	260	58		110	51	4.5
5	200		522.11	1.7	0.935	0.94	273	234	205	247	52		108	47	4.0
6	220		533.30	1.7	0.935	0.935	272	234	213	249	51		107	44	4.0
	240	1747	544.455												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By RB Team Leader RB

EPA 23

MONTROSE AIR QUALITY SERVICES

Sample Recovery & Calibration Check Datasheet

Page 1 of 1

Project Information

Date 3.9.2022 Project # PROJ-010935

Customer / Facility COVANTA MARION

Unit ID / Sample Location Unit 1 Chronic

Run # 1-3 Operator PB

Equipment Identification

Ref. Thermometer NOAA

Hygrometer 1

Field Balance 624

Check Weights 10641

Calipers 0093615

Balance Audit (Field balance must be within 0.5g of check weight mass)

Date	3.9.2022	3.10.22	3.11.22
Standard mass, g	500.0	500.0	500.0
Field balance mass, g	499.9	499.9	499.9

Ambient Conditions (Mobile Lab)

Relative humidity, %

Temperature, °F 68

Mobile lab # TV-4

Moisture Determination

	Contents	Run1 Initial	Run1 Final	Run1 Net	Run 2 Initial	Run 2 Final	Run 2 Net	Run 3 Initial	Run 3 Final	Run 3 Net
Knockout	KO	353.5	800.4	446.9	492.2	993.9	501.7	355.0	898.5	543.5
Impinger 1	100mL DI	715.5	714.2	-1.3	757.0	768.1	11.1	721.3	722.0	0.7
Impinger 2	100mL DI	747.3	746.9	-0.4	755.9	755.4	-0.5	748.1	748.2	0.1
Impinger 3	empty	655.8	655.1	-0.7	615.3	612.9	-2.4	658.1	655.0	-3.1
Impinger 4	[illegible]									
Impinger 5	XAD	335.5	344.5	9.0	320.8	328.2	7.4	337.4	347.1	9.7
Impinger 6										
Impinger 7										
Impinger 8										
Silica Gel	Silica	887.4	913.3	25.9	970.8	991.5	20.7	930.5	960.2	29.7
Line Rinse										
Train Net Gain (Vlc)				479.4			538.0			580.6

Nozzle Measurements (Difference between any two measurements must not be more than 0.004 in (0.1 mm))

Nozzle 1 diameters	0.173	D1	0.174	D2	0.173	D3	0.173	Average
Nozzle 2 diameters	0.188	D1	0.189	D2	0.188	D3	0.189	Average
Nozzle 3 diameters	0.173	D1	0.174	D2	0.173	D3	0.173	Average

Nozzle Material ☐ quartz ☑ glass ☐ steel ☐ titanium ☐ inconel ☐ other

Probe Type ☑ heated ☐ unheated ☐ air-cooled ☐ water-cooled ☐ other

Probe Liner ☐ quartz ☑ glass ☐ steel ☐ Teflon ☐ other

Filter Information

Front Half: ☑ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Filter Number: Run 1: N/A Run 2: N/A Run 3: N/A Run :

Back Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other NA

Reagent Information

Type	Lot Number
DI	338738
Acetone	EC906-US
Toluene	P30E725

Sample Observations

Run 1 XAD — Run 3

193772-1 — 193772-2

2203006 — 2203006

Run 2 — Field Blank

193772-2

2203006

QA/QC Check: Completeness ____ Legibility ____ Accuracy ____ Specifications ____

Checked by:_____ Team Leader:_____

001AS-QMS-FM-226

Appendix A.6
PAH Data Sheets

MONTROSE AIR QUALITY SERVICES

Carb Method 429 Field Datasheet (Isokinetic)

Page 1 of 1

Project Information

Date 3/10/22 Project # PROJ-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 1 Operator PB

Sampling Conditions

Static Pressure, in. H_2O -.95 Ambient Temp, °F 45

Barometric Pressure, in. Hg 30.05 Ref. Barometer ID NOAA

Wind Speed / Direction 4 / NE Precipitation, Y / N, type —

Probe / Filter Temp Range, °F 248 ± 25

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack	See	
Probe		
Filter Box	Final	
Filter Exit		
Meter outlet	Run	
Impinger Exit		
Other		

Ref. Thermometer ID

Continuity Check ☐ Continuity w/ Proper Polarity

Notes:

Sampling Equipment IDs

Meterbox ID MB24

Umbilical ID PDA-50-3

Nozzle ID 6-907

Pitot / Probe ID 017-NP-6

Manometer ID MB24

Sensitivity .01

Calibration

Meterbox Y 1.0201

Meterbox ΔH@, in. H_2O 1.6081

Nozzle diameter, Dn, in. .178

Pitot coefficient, Cp .84

Manometer zero and level ☑ yes

K-Factor .54

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 6	☐ @	☑ @ 5
Pitot (-), pass @ in. H_2O	☑ @ 6	☐ @	☑ @ 7
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	.02 @ 12	@	.001 @ 10

Intermediate leak check volume, ft^3 / /

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	XAD	Pump Vacuum, in. Hg
1	0	1343	150.685	1.8	.977	.97	275	249	251		54		84	55	2
2	20		162.16	1.7	.948	.92	274	255	256		51		83	44	2
3	40		173.40	1.9	1.02	1.0	273	256	255		60		86	48	2
4	60	1521	184.99	2.1	1.13	1.1	274	256	256		54		91	43	3
5	80	1541	197.31	2.3	1.24	1.2	273	256	254		54		97	44	3
6	100	1602	210.09	1.8	.972	.97	274	255	255		62		101	47	2
1	120	1622	221.822	1.8	.972	.97	272	241	242		58		103	46	2
2	140	1640	233.73	1.9	1.02	1.0	273	256	255		56		107	49	3
3	160	1659	245.76	2.0	1.08	1.1	273	256	255		54		109	49	3
4	180		258.36	2.2	1.18	1.2	274	255	255		56		109	51	3
5	200		270.63	1.9	1.02	1.0	272	255	256		55		110	54	3
6	220		282.41	1.8	.972	.97	272	255	255		60		109	60	3
Final	240	1718	294.650												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PB Team Leader PB

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Pause at 1521 due to plant upset

MONTROSE AIR QUALITY SERVICES

CARB Method 429 Field Datasheet (Isokinetic)

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Project Information

Date 2/16/22 Project # PRO)-010935

Customer/Facility Covanta

Unit ID/Sample Location Stack #2 South

Run # 2 Operator RB

Sampling Conditions

Static Pressure, in. H_2O -1.2 Ambient Temp, °F 36

Barometric Pressure, in. Hg 30.03 Ref. Barometer ID NOAA

Wind Speed / Direction 1/S Precipitation, Y (N) type —

Probe / Filter Temp Range, °F 248 ± 25

Sampling Equipment IDs

Meterbox ID MB24

Umbilical ID PDX-50-3

Nozzle ID G-927

Pitot / Probe ID #17-NP-04

Manometer ID MB24

Sensitivity .01

Calibration

Meterbox Y 1.0201

Meterbox ΔH@, in. H_2O 1.6081

Nozzle diameter, Dn, in. .184

Pitot coefficient, Cp .84

Manometer zero and level ☑ yes

K-Factor .65

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5.5	☐ @	☑ @ 5
Pitot (-), pass @ in. H_2O	☑ @ 4.5	☐ @	☑ @ 5
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	.001 @ 11	@	.001 @ 10

Intermediate leak check volume, ft^3 / /

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack 117-NP-4		
Probe 117-NP-4		
Filter Box PDX-05-1		
Filter Exit —	—	—
Meter outlet MB24		
Impinger Exit I-44		
Other		

Ref. Thermometer ID

Continuity Check ☐ Continuity w/ Proper Polarity

Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	KAD	Pump Vacuum, in. Hg
1	0	835	299.195	1.7	1.11	1.1	272	268	255		47		86	40	2
2	20		311.20	1.9	1.23	1.2	271	254	255		51		89	44	2
3	40		324.42	2.1	1.37	1.4	270	255	256		51		95	46	2
4	60		337.73	2.0	1.30	1.3	272	255	256		53		101	46	2
5	80		351.45	1.8	1.17	1.2	270	255	255		53		105	43	2
6	100	1035	364.34	1.6	1.04	1.0	271	255	255		51		108	46	2
1	120	1040	376.334	1.8	1.17	1.2	271	255	255		60		110	53	2
2	140		389.17	2.0	1.30	1.3	270	255	255		66		111	57	2
3	160		402.75	2.2	1.43	1.4	272	255	255		55		112	47	2
4	180		417.02	2.2	1.43	1.4	272	254	256		60		114	[illegible]2	2
5	200		431.42	2.1	1.37	1.4	271	256	255		58		117	52	2
6	220		445.22	1.8	1.17	1.2	272	256	256		57		118	49	2
Final	240	1240	458.464												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By RB Team Leader RB

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MONTROSE AIR QUALITY SERVICES

Carb Method 429 Field Datasheet (Isokinetic)

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Project Information
Date 3/11/22 Project # PRO-010935
Customer/Facility Covanta
Unit ID/Sample Location Stack #2 South
Run # 3 Operator PB

Sampling Conditions
Static Pressure, in. H_2O -1.1 Ambient Temp, °F 56
Barometric Pressure, in. Hg 30.03 Ref. Barometer ID NOAA
Wind Speed / Direction 4/5 Precipitation, Y (N) type —
Probe / Filter Temp Range, °F 248 ± 25

Sampling Equipment IDs
Meterbox ID MB24
Umbilical ID PDX-50-3
Nozzle ID G92.6
Pitot / Probe ID HB-NP-4
Manometer ID MB24
Sensitivity .01

Calibration
Meterbox Y 1.0201
Meterbox ΔH@, in. H_2O 1.6081
Nozzle diameter, Dn, in. .188
Pitot coefficient, Cp .84
Manometer zero and level ☐ yes
K-Factor .73

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5	☐ @	☑ @ 4
Pitot (-), pass @ in. H_2O	☑ @ 6	☐ @	☑ @ 4
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	.001 @ 9	@	.001 @ 8
Intermediate leak check volume, ft^3	/	/	/

ALT 011 TC ID:

	Ambient °F	Ref. °F
Stack HB-NP-4	56	56.1
Probe HB-NP-4	56	56.1
Filter Box PDX-05-1	57	56.1
Filter Exit 5454	56	56.1
Meter outlet MB24	57	56.1
Impinger Exit 1-44	56	56.1
Other		

Ref. Thermometer ID 210187011
Continuity Check ☑ Continuity w/ Proper Polarity
Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	KAD	Pump Vacuum, in. Hg
1	0	1342	461.026	1.7	1.24	1.2	273	263	264		62		116	52	2
2	20		473.61	1.9	1.39	1.4	273	255	256		64		116	42	2
3	40		487.46	2.1	1.53	1.5	273	255	254		61		119	40	2
4	60		496.71	2.3	1.60	1.6	274	255	255		62		122	40	2
5	80		516.91	1.9	1.39	1.4	274	255	254		65		125	45	2
6	100		531.36	1.8	1.31	1.3	274	255	255		58		114	39	2
1	120	1542 / 1541	544.128	1.8	1.31	1.3	274	256	256		60		119	40	2
2	140		557.50	2.0	1.46	1.5	275	256	255		59		116	43	3
3	160		571.88	2.2	1.60	1.6	276	255	255		57		105	44	3
4	180		586.56	2.3	1.68	1.7	276	255	256		51		98	38	4
5	200		601.59	2.1	1.53	1.5	275	254	256		48		100	38	4
6	220		616.07	1.8	1.31	1.3	274	256	255		52		103	39	3
Final	240	1747	629.386												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PB Team Leader PB

001AS-QMS-FM-225

CARB 429

MONTROSE AIR QUALITY SERVICES

Sample Recovery & Calibration Check Datasheet

Project Information

Date 3.9.2022 Project # PROJ-010935

Customer / Facility COVANTA MARION

Unit ID / Sample Location Unit 2 Chronic

Run # 1-3 Operator PB

Equipment Identification

Ref. Thermometer NOAA

Hygrometer /

Field Balance 624

Check Weights 10641

Calipers 0093615

Balance Audit (Field balance must be within 0.5g of check weight mass)

Date	3.9.22	3.10.22	3.11.22
Standard mass, g	500.0	500.0	500.0
Field balance mass, g	500.0	499.9	499.9

Ambient Conditions (Mobile Lab)

Relative humidity, % /

Temperature, °F 68

Mobile lab # TV-4

Moisture Determination

	Contents	Run1 Initial	Run1 Final	Run1 Net	Run 2 Initial	Run 2 Final	Run 2 Net	Run 3 Initial	Run 3 Final	Run 3 Net
Knockout	~~KO~~	319.1								
Impinger 1	XAD	~~263.8~~	343.8	24.7	258.0	266.9	8.9	324.2	334.3	10.1
Impinger 2	KO	361.6	827.5	465.9	349.6	859.2	509.6	363.6	1017.8	654.2
Impinger 3	carb/bicarb	~~641.9~~ 740.3	738.8	-1.5	737.8	732.9	-4.9	741.1	739.0	-2.1
Impinger 4	carb/bicarb	758.4	756.5	7.1	708.7	703.5	-5.2	759.2	755.6	-3.6
Impinger 5	Empty	614.3	615.4	1.1	646.6	644.6	-2.0	616.6	617.1	1.5
Impinger 6										
Impinger 7										
Impinger 8										
Silica Gel	S.G.	945.9	972.4	26.5	895.9	923.1	27.8	923.8	948.4	24.6
Line Rinse										
Train Net Gain (Vlc)				523.8			534.2			684.7

Nozzle Measurements (Difference between any two measurements must not be more than 0.004 in (0.1 mm))

Nozzle 1 diameters	0.178	D1	0.177	D2	0.177	D3	0.177	Average
Nozzle 2 diameters	0.184	D1	0.183	D2	0.184	D3	0.184	Average
Nozzle 3 diameters	0.186	D1	0.187	D2	0.188	D3	0.187	Average

Nozzle Material ☐ quartz ☑ glass ☐ steel ☐ titanium ☐ inconel ☐ other

Probe Type ☑ heated ☐ unheated ☐ air-cooled ☐ water-cooled ☐ other

Probe Liner ☐ quartz ☑ glass ☐ steel ☐ Teflon ☐ other

Filter Information

Front Half: ☑ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Filter Number: Run 1: N/A Run 2: N/A Run 3: N/A Run :

Back Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Reagent Information

Type	Lot Number
Acetone	EC906-US
HexANE	21040650
MeCl2	EC119-US

Sample Observations

Run 1

Run 2

22A0403

2203007

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓

Checked by: PB Team Leader: PB

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Appendix A.7
Chlorobenzene & Chlorophenol Data Sheets

MONTROSE AIR QUALITY SERVICES

EPA Method 23A. Field Datasheet (Isokinetic)

Page 1 of 1

Project Information
Date 3/10/22 Project # PROJ-010935.
Customer/Facility COVANTA.
Unit ID/Sample Location 1 Unit Chrmz
Run # 1. Operator SW

Sampling Conditions
Static Pressure, in. H_2O -1.8. Ambient Temp, °F 41f.
Barometric Pressure, in. Hg 30.05 Ref. Barometer ID NOAA
Wind Speed / Direction N 3mph Precipitation, Y / N, type —
Probe / Filter Temp Range, °F 248 ± 25.

Sampling Equipment IDs
Meterbox ID MB31.
Umbilical ID PDX-307.
Nozzle ID G-304
Pitot / Probe ID 169-N-P6
Manometer ID MB31.
Sensitivity

Calibration
Meterbox Y 0.9902.
Meterbox ΔH@, in. H_2O 1.8162.
Nozzle diameter, Dn, in. .163
Pitot coefficient, Cp 0.84.
Manometer zero and level ☑ yes
K-Factor .5/.45

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5"	☐ @	☑ @ 5"
Pitot (-), pass @ in. H_2O	☑ @ 4"	☐ @	☑ @ 5".
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.005 @ 13".	@	0.009 @ 13"
Intermediate leak check volume, ft^3	/	/	/

ALT 011

TC ID:	Ambient °F	Ref. °F
Stack		
Probe	SE E	
Filter Box	Final	
Filter Exit	Run	
Meter outlet		
Impinger Exit		
Other		

Ref. Thermometer ID
Continuity Check ☐ Continuity w/ Proper Polarity
Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	XAD	Pump Vacuum, in. Hg
1	0	1330.	218.814.	1.9	0.95	0.95.	227.	250.	252		57.		73.	57.	4.
2	20		229.75.	1.8	0.90	0.90.	225.	252	253		54.		71.	59.	6.
3	40	240.60	~~235.00~~.	2.0	1.0	1.0.	225.	252.	251.		57.		72.	64.	6.
4	60	SGW 5/10	251.85.	1.9	0.95	0.95.	224.	252	252		58.		74.	63.	6.
5	80		262.90	1.7.	0.85	0.85.	228	249	250		62.		85.	64.	6.
6	100	1530.	273.45.	1.5	0.75	0.75.	227.	250	252		55.		89.	64.	6.
1	120	1628	283.363.	1.8	0.90	0.90	228.	252	250		52.		88.	55.	6.
2	140		294.15.	2.0	1.0	1.0.	230	250	253		54.		86.	54.	7.
3	160		305.61	2.1	1.05	1.05.	228	250	250		58		90	53	7
4	180		317.13	1.9.	0.85.	0.85	229	251	254		63		93	55	7.
5	200		327.70	1.7.	0.76	0.76	229	252	254		56		96	55	7.
6.	220		337.70	1.6.	~~0.80~~	~~0.80~~.	229.	252	253.		53.		95.	53.	7.
	240.	1828.	347.381		0.72	0.72									
					SGW										
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PD Team Leader PB

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MONTROSE AIR QUALITY SERVICES

EPA Method 0023A. Field Datasheet (Isokinetic)

Project Information
Date 3/11/22 Project # PROJ-010935.
Customer/Facility COVANTA.
Unit ID/Sample Location 1 Unit 1
Run # 2. Operator SW.

Sampling Conditions
Static Pressure, in. H_2O -1.0. Ambient Temp, °F 54f.
Barometric Pressure, in. Hg 30.03. Ref. Barometer ID
Wind Speed / Direction 5 4MPH. Precipitation, Y / N, type —
Probe / Filter Temp Range, °F 248±25.

Sampling Equipment IDs
Meterbox ID MB31
Umbilical ID PDX-20-7
Nozzle ID G-309
Pitot / Probe ID S-22
Manometer ID MB-31
Sensitivity 0.01

Calibration
Meterbox Y 0.9902.
Meterbox ΔH@, in. H_2O 1.8162.
Nozzle diameter, Dn, in. 0.168.
Pitot coefficient, Cp 0.84.
Manometer zero and level ☑ yes
K-Factor 0.55/0.50

Equipment Checks

	Pre	Mid	Post
Pitot (+), pass @ in. H_2O	☑ @ 5"	☐ @	☑ @ 5"
Pitot (-), pass @ in. H_2O	☐ @ 5"	☐ @	☑ @ 4
Pitot visual inspection	☑ pass	☐ pass	☑ pass
Nozzle visual inspection	☑ pass	☐ pass	☑ pass
Meter, cfm @ in. Hg	0.012 @ 14"	@	0.013 @ 13"
Intermediate leak check volume, ft^3	/	/	/

ALT 011

	TC ID:	Ambient °F	Ref. °F
Stack	S-22	56	56.1
Probe	S-22	56	56.1
Filter Box	OS-51	57	56.1
Filter Exit	27		
Meter outlet	MB-31	57	56.1
Impinger Exit	I-45	56	56.1
Other	XAD 2724	55	56.1

Ref. Thermometer ID 210187011
Continuity Check ☑ Continuity w/ Proper Polarity
Notes:

Traverse Point #	Elapsed Time	Clock Time 24hr	DGM Reading, Vm, ft^3	Velocity Head, ΔP in H_2O	Orifice Pressure Differential, ΔH Target	Orifice Pressure Differential, ΔH Actual	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F Box	Filter Temp, °F Exit	Impinger Exit Temp, °F	Dry Gas Meter Temperature, °F Inlet	Dry Gas Meter Temperature, °F Outlet	XAD.	Pump Vacuum, in. Hg
1	0	1005.	351.337	1.7.	0.94	0.94.	234	250	253.		54.		63.	59.	5.
2	10	1032	362.20.	1.7	0.94	0.94.	233.	250	253.		52.		63.	59.	7.
3	40	1127	373.10.	1.9.	1.0	1.0.	237.	251	252		53.		62.	61.	7.
4	60		384.40	1.9.	1.0	1.0.	234.	251	253.		52.		72.	59.	7.
5	80		395.65.	1.8	0.99	0.99.	232	250	252		55.		78.	63.	7.
6	100	1246.	407.00.	1.5.	0.83	0.83.	233.	250.	253		64.		82.	65.	7.
1	120	1810	417.355	1.6.	0.88	0.88.	233.	250.	252.		62.		82.	63.	7.
2	140	1325	428.00.	1.9.	1.0	1.0.	234.	250	253		57.		82.	64.	7.
3	160		439.35.	1.8	0.99	0.99.	236.	251	253.		63.		85.	64.	7.
4	180	1440.	450.75.	2.0	1.0	1.0	238.	250	253		58		86.	65.	7.
5	200	1500	462.20.	1.7.	0.85	0.85.	239.	250	251		57.		90.	65.	7.
6.	220		472.70.	1.5.	0.75	0.75.	240.	249.	251.		59.		90.	66.	7.
	240	1546.	482.627.												
Averages															

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Checked By PD Team Leader PD

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MONTROSE AIR QUALITY SERVICES

Sample Recovery & Calibration Check Datasheet

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Project Information

Date: 3.9.2022 Project #: PROJ-010935

Customer / Facility: Covanta Marion

Unit ID / Sample Location: Unit 2 Chronic

Run #: 3.9.2022 Operator: PB DB

Equipment Identification

Ref. Thermometer: NOAA

Hygrometer: /

Field Balance: 624

Check Weights: 10641

Calipers: 0093615

Balance Audit (Field balance must be within 0.5g of check weight mass)

Date	3.9.2022	3.10.22	3.11.22
Standard mass, g	500.0	500.0	500.0
Field balance mass, g	499.9	499.9	499.9

Ambient Conditions (Mobile Lab)

Relative humidity, %: /

Temperature, °F: 68

Mobile lab #: TV-4

Moisture Determination

		Run1			Run 2			Run 3		
	Contents	Initial	Final	Net	Initial	Final	Net	Initial	Final	Net
Knockout	KO	361.1	740.0	378.9	362.6	776.8	414.2	361.5		
Impinger 1	100mL	739.9	741.2	1.3	739.8	740.8	1.0	738.3		
Impinger 2	100mL	600.8	598.8	-2.0	756.2	755.4	-0.8	606.7		
Impinger 3	empty	604.7	605.8	1.1	633.1	634.7	1.6	607.2		
Impinger 4										
Impinger 5	XAD	286.8	303.0	16.2	292.3	310.1	17.8	315.8		
Impinger 6										
Impinger 7										
Impinger 8										
Silica Gel	Silica	845.6	915.7	70.1	842.5	871.9	29.4	902.9		
Line Rinse										
Train Net Gain (Vlc)				465.6			463.2			

Nozzle Measurements (Difference between any two measurements must not be more than 0.004 in (0.1 mm))

Nozzle 1 diameters	0.163	D1	0.164	D2	0.163	D3	0.163	Average
Nozzle 2 diameters	0.168	D1	0.169	D2	0.168	D3	0.168	Average
Nozzle 3 diameters		D1		D2		D3		Average

Nozzle Material ☐ quartz ☑ glass ☐ steel ☐ titanium ☐ inconel ☐ other

Probe Type ☑ heated ☐ unheated ☐ air-cooled ☐ water-cooled ☐ other

Probe Liner ☐ quartz ☑ glass ☐ steel ☐ Teflon ☐ other

Filter Information

Front Half: ☑ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Filter Number: Run 1: N/A Run 2: N/A Run 3: N/A Run :

Back Half: ☐ quartz fiber ☐ glass fiber ☐ Teflon ☐ Teflon/quartz ☐ other

Reagent Information

Type	Lot Number
DI	338738
Toluene	P30E725
MeCl2	EC119-US
Acetone	EC906-US

Sample Observations

Run 1 Feild BLANK

0222-816-00C 0222-816-00F

Run 2

0222-816-00E

~~Run 3~~

0222-816-00D

QA/QC Check: Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓

Checked by: DB Team Leader: DB

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Appendix A.8
Instrumental Test Method Data

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Run 1 Average Results - Unit 2 Chronic Run 1

09:40:00 - 11:53:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 9 2022	09:41:00	11.83	7.477						
Mar 9 2022	09:42:00	11.93	7.398						
Mar 9 2022	09:43:00	11.97	7.363						
Mar 9 2022	09:44:00	12.26	7.121						
Mar 9 2022	09:45:00	11.78	7.520						
Mar 9 2022	09:46:00	11.45	7.787						
Mar 9 2022	09:47:00	11.73	7.558						
Mar 9 2022	09:48:00	12.19	7.191						
Mar 9 2022	09:49:00	12.20	7.170						
Mar 9 2022	09:50:00	11.92	7.418						
Mar 9 2022	09:51:00	11.80	7.562						
Mar 9 2022	09:52:00	11.81	7.556						
Mar 9 2022	09:53:00	12.31	7.173						
Mar 9 2022	09:54:00	12.48	7.052						
Mar 9 2022	09:55:00	12.57	7.008						
Mar 9 2022	09:56:00	12.78	6.850						
Mar 9 2022	09:57:00	12.32	7.248						
Mar 9 2022	09:58:00	12.37	7.223						
Mar 9 2022	09:59:00	12.03	7.512						
Mar 9 2022	10:00:00	11.63	7.871						
End of port 1 point 1									
Mar 9 2022	10:01:00	11.92	7.616						
Mar 9 2022	10:02:00	12.35	7.258						
Mar 9 2022	10:03:00	12.58	7.073						
Mar 9 2022	10:04:00	12.51	7.150						
Mar 9 2022	10:05:00	11.62	7.938						
Mar 9 2022	10:06:00	12.01	7.571						
Mar 9 2022	10:07:00	12.98	6.762						
Mar 9 2022	10:08:00	13.05	6.720						
Mar 9 2022	10:09:00	12.89	6.883						
Mar 9 2022	10:10:00	12.54	7.179						
Mar 9 2022	10:11:00	12.63	7.097						
Mar 9 2022	10:12:00	13.07	6.699						
Mar 9 2022	10:13:00	12.80	6.944						
Mar 9 2022	10:14:00	12.73	7.017						
Mar 9 2022	10:15:00	12.20	7.450						
Mar 9 2022	10:16:00	11.42	8.067						
Mar 9 2022	10:17:00	11.53	7.957						
Mar 9 2022	10:18:00	11.72	7.820						
Mar 9 2022	10:19:00	11.88	7.687						
Mar 9 2022	10:20:00	11.94	7.661						
End of port 1 point 2									
Mar 9 2022	10:21:00	12.12	7.496						
Mar 9 2022	10:22:00	12.07	7.530						
Mar 9 2022	10:23:00	11.80	7.792						
Mar 9 2022	10:24:00	11.49	8.045						
Mar 9 2022	10:25:00	11.80	7.777						

Mar 9 2022	10:26:00	11.68	7.871						
Mar 9 2022	10:27:00	11.89	7.696						
Mar 9 2022	10:28:00	11.70	7.852						
Mar 9 2022	10:29:00	11.79	7.755						
Mar 9 2022	10:30:00	12.10	7.487						
Mar 9 2022	10:31:00	11.73	7.812						
Mar 9 2022	10:32:00	11.56	7.947						
Mar 9 2022	10:33:00	11.66	7.838						
Mar 9 2022	10:34:00	12.34	7.267						
Mar 9 2022	10:35:00	12.05	7.524						
Mar 9 2022	10:36:00	11.91	7.657						
Mar 9 2022	10:37:00	12.11	7.492						
Mar 9 2022	10:38:00	12.32	7.339						
Mar 9 2022	10:39:00	11.85	7.737						
Mar 9 2022	10:40:00	12.11	7.511						
End of port 1 point 3									
Mar 9 2022	10:54:00	11.41	8.001						
Mar 9 2022	10:55:00	11.48	7.939						
Mar 9 2022	10:56:00	11.64	7.816						
Mar 9 2022	10:57:00	11.19	8.166						
Mar 9 2022	10:58:00	10.40	8.775						
Mar 9 2022	10:59:00	10.63	8.560						
Mar 9 2022	11:00:00	11.30	7.987						
Mar 9 2022	11:01:00	11.89	7.500						
Mar 9 2022	11:02:00	11.93	7.461						
Mar 9 2022	11:03:00	11.30	8.005						
Mar 9 2022	11:04:00	10.88	8.355						
Mar 9 2022	11:05:00	11.17	8.096						
Mar 9 2022	11:06:00	11.74	7.613						
Mar 9 2022	11:07:00	11.53	7.800						
Mar 9 2022	11:08:00	10.68	8.450						
Mar 9 2022	11:09:00	11.04	8.131						
Mar 9 2022	11:10:00	11.57	7.686						
Mar 9 2022	11:11:00	11.58	7.692						
Mar 9 2022	11:12:00	11.12	8.046						
Mar 9 2022	11:13:00	11.29	7.877						
End of port 2 point 1									
Mar 9 2022	11:14:00	11.69	7.513						
Mar 9 2022	11:15:00	12.20	7.085						
Mar 9 2022	11:16:00	11.88	7.355						
Mar 9 2022	11:17:00	11.84	7.377						
Mar 9 2022	11:18:00	11.61	7.557						
Mar 9 2022	11:19:00	11.64	7.570						
Mar 9 2022	11:20:00	11.45	7.722						
Mar 9 2022	11:21:00	11.66	7.527						
Mar 9 2022	11:22:00	11.80	7.418						
Mar 9 2022	11:23:00	12.06	7.219						
Mar 9 2022	11:24:00	12.30	7.051						
Mar 9 2022	11:25:00	12.18	7.151						
Mar 9 2022	11:26:00	11.90	7.395						
Mar 9 2022	11:27:00	11.89	7.379						
Mar 9 2022	11:28:00	11.91	7.359						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Mar 9 2022	11:29:00	11.62	7.590						
Mar 9 2022	11:30:00	11.48	7.669						
Mar 9 2022	11:31:00	11.72	7.465						
Mar 9 2022	11:32:00	11.89	7.342						
Mar 9 2022	11:33:00	11.84	7.401						
End of port 2 point 2									
Mar 9 2022	11:34:00	11.79	7.425						
Mar 9 2022	11:35:00	11.40	7.760						
Mar 9 2022	11:36:00	11.31	7.809						
Mar 9 2022	11:37:00	11.55	7.613						
Mar 9 2022	11:38:00	11.80	7.426						
Mar 9 2022	11:39:00	12.12	7.167						
Mar 9 2022	11:40:00	12.08	7.208						
Mar 9 2022	11:41:00	12.13	7.174						
Mar 9 2022	11:42:00	12.10	7.195						
Mar 9 2022	11:43:00	11.42	7.721						
Mar 9 2022	11:44:00	10.99	8.045						
Mar 9 2022	11:45:00	11.06	7.962						
Mar 9 2022	11:46:00	11.66	7.479						
Mar 9 2022	11:47:00	11.90	7.286						
Mar 9 2022	11:48:00	11.65	7.518						
Mar 9 2022	11:49:00	11.31	7.781						
Mar 9 2022	11:50:00	10.92	8.054						
Mar 9 2022	11:51:00	11.09	7.901						
Mar 9 2022	11:52:00	11.72	7.391						
Mar 9 2022	11:53:00	12.35	6.897						
End of port 2 point 3									

	Average:	11.84	7.550						
	Max:	13.07	8.775						
	Min:	10.40	6.699						

Stratification Results

Port	**Point**	O2-741	CO2-695						
1	1	12.09	7.343						
1	2	12.33	7.321						
1	3	11.89	7.686						
2	1	11.29	7.991						
2	2	11.86	7.382						
2	3	11.62	7.540						
	Strat diff:	0.483	0.447						
	Strat %:	4.699	5.928						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Run 1 Post run bias - Unit 2 Chronic Run 1

09:40:00 - 11:53:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	11.84	7.550						
	Max:	13.07	8.775						
	Min:	10.40	6.699						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:								
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

Initial Bias Data									
	Zero reading:	0.013	0.086						
	Span reading:	10.000	9.617						
Zero % bias:	**<5.0**	0.048	0.446						
Span % bias:	**<5.0**	-0.825	-1.156						

Final Bias Data									
	Zero reading:	0.033	0.258						
	Span reading:	10.06	9.869						
Zero % bias:	**<5.0**	0.135	1.205						
Span % bias:	**<5.0**	-0.564	-0.044						
Zero % drift:	**<3.0**	0.087	0.759						
Span % drift:	**<3.0**	0.261	1.112						

Bias Corrected Averages									
	Cor Avg:	12.03	7.649						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 2~~ Average Results - Unit 1 Run 1 Chronic

13:15:00 - 13:18:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 9 2022	13:16:00	12.51	6.802						
Mar 9 2022	13:17:00	12.46	6.820						
Mar 9 2022	13:18:00	12.47	6.826						

	Average:	12.48	6.816						
	Max:	12.51	6.826						
	Min:	12.46	6.802						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 2~~ Post run bias - Unit 1 Run 1 Chronic

13:15:00 - 13:18:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	12.48	6.816						
	Max:	12.51	6.826						
	Min:	12.46	6.802						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:								
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

Initial Bias Data									
	Zero reading:	0.033	0.258						
	Span reading:	10.06	9.869						
Zero % bias:	**<5.0**	0.135	1.205						
Span % bias:	**<5.0**	-0.564	-0.044						

Final Bias Data									
	Zero reading:	0.065	0.210						
	Span reading:	9.976	9.709						
Zero % bias:	**<5.0**	0.273	0.993						
Span % bias:	**<5.0**	-0.929	-0.750						
Zero % drift:	**<3.0**	0.138	0.212						
Span % drift:	**<3.0**	0.365	0.706						

Bias Corrected Averages									
	Cor Avg:	12.71	6.835						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

~~Run 3~~ Average Results - Unit 2 Run 2 Chronic

13:51:00 - 15:55:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 9 2022	13:52:00	11.96	7.157						
Mar 9 2022	13:53:00	11.73	7.345						
Mar 9 2022	13:54:00	11.70	7.401						
Mar 9 2022	13:55:00	11.55	7.519						
Mar 9 2022	13:56:00	11.37	7.680						
Mar 9 2022	13:57:00	11.70	7.410						
Mar 9 2022	13:58:00	12.11	7.050						
Mar 9 2022	13:59:00	12.67	6.612						
Mar 9 2022	14:00:00	12.12	7.081						
Mar 9 2022	14:01:00	11.89	7.258						
Mar 9 2022	14:02:00	11.78	7.341						
Mar 9 2022	14:03:00	11.42	7.611						
Mar 9 2022	14:04:00	10.88	7.988						
Mar 9 2022	14:05:00	11.54	7.438						
Mar 9 2022	14:06:00	12.00	7.077						
Mar 9 2022	14:07:00	11.82	7.253						
Mar 9 2022	14:08:00	11.73	7.363						
Mar 9 2022	14:09:00	11.79	7.334						
Mar 9 2022	14:10:00	12.07	7.106						
Mar 9 2022	14:11:00	11.56	7.539						
End of port 1 point 1									
Mar 9 2022	14:12:00	11.39	7.631						
Mar 9 2022	14:13:00	11.73	7.349						
Mar 9 2022	14:14:00	11.71	7.374						
Mar 9 2022	14:15:00	11.77	7.335						
Mar 9 2022	14:16:00	11.72	7.355						
Mar 9 2022	14:17:00	11.85	7.258						
Mar 9 2022	14:18:00	12.24	6.966						
Mar 9 2022	14:19:00	12.11	7.070						
Mar 9 2022	14:20:00	12.31	6.921						
Mar 9 2022	14:21:00	12.37	6.887						
Mar 9 2022	14:22:00	11.96	7.199						
Mar 9 2022	14:23:00	11.48	7.567						
Mar 9 2022	14:24:00	11.33	7.695						
Mar 9 2022	14:25:00	11.11	7.851						
Mar 9 2022	14:26:00	10.85	8.022						
Mar 9 2022	14:27:00	10.62	8.165						
Mar 9 2022	14:28:00	10.93	7.896						
Mar 9 2022	14:29:00	11.44	7.488						
Mar 9 2022	14:30:00	11.88	7.144						
Mar 9 2022	14:31:00	11.45	7.499						
End of port 1 point 2									
Mar 9 2022	14:32:00	11.73	7.309						
Mar 9 2022	14:33:00	11.87	7.212						
Mar 9 2022	14:34:00	11.71	7.335						
Mar 9 2022	14:35:00	11.58	7.437						
Mar 9 2022	14:36:00	11.39	7.589						

Mar 9 2022	14:37:00	11.22	7.731						
Mar 9 2022	14:38:00	11.23	7.742						
Mar 9 2022	14:39:00	11.19	7.795						
Mar 9 2022	14:40:00	11.54	7.521						
Mar 9 2022	14:41:00	11.65	7.449						
Mar 9 2022	14:42:00	11.34	7.701						
Mar 9 2022	14:43:00	11.18	7.855						
Mar 9 2022	14:44:00	10.96	8.021						
Mar 9 2022	14:45:00	10.38	8.460						
Mar 9 2022	14:46:00	10.01	8.745						
Mar 9 2022	14:47:00	9.828	8.853						
Mar 9 2022	14:48:00	10.17	8.566						
Mar 9 2022	14:49:00	10.76	8.099						
Mar 9 2022	14:50:00	11.37	7.612						
Mar 9 2022	14:51:00	11.43	7.595						
End of port 1 point 3									
Mar 9 2022	14:56:00	11.51	7.556						
Mar 9 2022	14:57:00	11.47	7.596						
Mar 9 2022	14:58:00	11.25	7.758						
Mar 9 2022	14:59:00	11.31	7.680						
Mar 9 2022	15:00:00	11.64	7.420						
Mar 9 2022	15:01:00	11.73	7.342						
Mar 9 2022	15:02:00	11.55	7.517						
Mar 9 2022	15:03:00	11.43	7.631						
Mar 9 2022	15:04:00	11.35	7.708						
Mar 9 2022	15:05:00	11.38	7.653						
Mar 9 2022	15:06:00	11.57	7.481						
Mar 9 2022	15:07:00	11.37	7.652						
Mar 9 2022	15:08:00	11.35	7.671						
Mar 9 2022	15:09:00	11.70	7.414						
Mar 9 2022	15:10:00	11.87	7.308						
Mar 9 2022	15:11:00	11.71	7.437						
Mar 9 2022	15:12:00	11.81	7.363						
Mar 9 2022	15:13:00	11.58	7.531						
Mar 9 2022	15:14:00	11.68	7.462						
Mar 9 2022	15:15:00	11.87	7.322						
End of port 2 point 1									
Mar 9 2022	15:16:00	11.71	7.478						
Mar 9 2022	15:17:00	11.77	7.431						
Mar 9 2022	15:18:00	11.96	7.279						
Mar 9 2022	15:19:00	11.14	7.941						
Mar 9 2022	15:20:00	10.99	8.063						
Mar 9 2022	15:21:00	11.14	7.947						
Mar 9 2022	15:22:00	10.68	8.322						
Mar 9 2022	15:23:00	10.17	8.727						
Mar 9 2022	15:24:00	9.655	9.132						
Mar 9 2022	15:25:00	9.758	9.034						
Mar 9 2022	15:26:00	10.64	8.300						
Mar 9 2022	15:27:00	11.14	7.898						
Mar 9 2022	15:28:00	10.93	8.091						
Mar 9 2022	15:29:00	11.09	7.962						
Mar 9 2022	15:30:00	11.22	7.857						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Mar 9 2022	15:31:00	10.82	8.176						
Mar 9 2022	15:32:00	10.55	8.372						
Mar 9 2022	15:33:00	10.76	8.203						
Mar 9 2022	15:34:00	10.92	8.093						
Mar 9 2022	15:35:00	10.71	8.247						
End of port 2 point 2									
Mar 9 2022	15:36:00	10.82	8.163						
Mar 9 2022	15:37:00	11.16	7.908						
Mar 9 2022	15:38:00	11.14	7.927						
Mar 9 2022	15:39:00	11.25	7.837						
Mar 9 2022	15:40:00	11.25	7.826						
Mar 9 2022	15:41:00	11.27	7.800						
Mar 9 2022	15:42:00	11.00	7.994						
Mar 9 2022	15:43:00	11.15	7.872						
Mar 9 2022	15:44:00	11.02	7.981						
Mar 9 2022	15:45:00	10.95	8.034						
Mar 9 2022	15:46:00	11.03	7.953						
Mar 9 2022	15:47:00	10.85	8.067						
Mar 9 2022	15:48:00	10.94	8.003						
Mar 9 2022	15:49:00	10.62	8.235						
Mar 9 2022	15:50:00	10.88	8.016						
Mar 9 2022	15:51:00	10.83	8.090						
Mar 9 2022	15:52:00	11.02	7.935						
Mar 9 2022	15:53:00	10.96	7.965						
Mar 9 2022	15:54:00	11.19	7.789						
Mar 9 2022	15:55:00	11.40	7.635						
End of port 2 point 3									

	Average:	11.33	7.700						
	Max:	12.67	9.132						
	Min:	9.655	6.612						

Stratification Results

Port	**Point**	O2-741	CO2-695						
1	1	11.73	7.365						
1	2	11.61	7.434						
1	3	11.11	7.845						
2	1	11.55	7.534						
2	2	10.86	8.151						
2	3	11.05	7.934						
	Strat diff:	0.412	0.441						
	Strat %:	4.049	5.713						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

~~Run 3~~ Post run bias - Unit 2 Run 2 Chronic

13:51:00 - 15:55:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	11.33	7.700						
	Max:	12.67	9.132						
	Min:	9.655	6.612						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:								
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

Initial Bias Data									
	Zero reading:	0.065	0.210						
	Span reading:	9.976	9.709						
Zero % bias:	**<5.0**	0.273	0.993						
Span % bias:	**<5.0**	-0.929	-0.750						

Final Bias Data									
	Zero reading:	0.009	0.214						
	Span reading:	9.991	9.743						
Zero % bias:	**<5.0**	0.030	1.011						
Span % bias:	**<5.0**	-0.864	-0.600						
Zero % drift:	**<3.0**	0.243	0.018						
Span % drift:	**<3.0**	0.065	0.150						

Bias Corrected Averages									
	Cor Avg:	11.57	7.810						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 4~~ Average Results - Unit 1 Run 2 Chronic 5/26A Bags

16:55:00 - 16:58:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 9 2022	16:56:00	11.75	7.192						
Mar 9 2022	16:57:00	11.74	7.198						
Mar 9 2022	16:58:00	11.75	7.199						

	Average:	11.75	7.196						
	Max:	11.75	7.199						
	Min:	11.74	7.192						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 4~~ Post run bias - Unit 1 Run 2 Chronic 5/26A Bags

16:55:00 - 16:58:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	11.75	7.196						
	Max:	11.75	7.199						
	Min:	11.74	7.192						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:								
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

Initial Bias Data									
	Zero reading:	0.009	0.214						
	Span reading:	9.991	9.743						
Zero % bias:	**<5.0**	0.030	1.011						
Span % bias:	**<5.0**	-0.864	-0.600						

Final Bias Data									
	Zero reading:	0.015	0.224						
	Span reading:	10.02	9.687						
Zero % bias:	**<5.0**	0.056	1.055						
Span % bias:	**<5.0**	-0.738	-0.847						
Zero % drift:	**<3.0**	0.026	0.044						
Span % drift:	**<3.0**	0.126	0.247						

Bias Corrected Averages									
	Cor Avg:	11.97	7.291						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

~~Run 5~~ Average Results - Unit 2 Run 3 Chronic

17:31:00 - 19:35:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 9 2022	17:32:00	11.14	7.950						
Mar 9 2022	17:33:00	10.92	8.118						
Mar 9 2022	17:34:00	11.13	7.926						
Mar 9 2022	17:35:00	10.74	8.228						
Mar 9 2022	17:36:00	9.768	9.020						
Mar 9 2022	17:37:00	9.246	9.427						
Mar 9 2022	17:38:00	9.619	9.088						
Mar 9 2022	17:39:00	9.836	8.878						
Mar 9 2022	17:40:00	10.39	8.413						
Mar 9 2022	17:41:00	10.61	8.235						
Mar 9 2022	17:42:00	10.85	8.075						
Mar 9 2022	17:43:00	11.25	7.756						
Mar 9 2022	17:44:00	11.22	7.795						
Mar 9 2022	17:45:00	11.43	7.635						
Mar 9 2022	17:46:00	11.49	7.605						
Mar 9 2022	17:47:00	11.04	7.968						
Mar 9 2022	17:48:00	11.00	8.004						
Mar 9 2022	17:49:00	11.26	7.805						
Mar 9 2022	17:50:00	11.42	7.689						
Mar 9 2022	17:51:00	11.04	7.972						
End of port 1 point 1									
Mar 9 2022	17:52:00	11.16	7.872						
Mar 9 2022	17:53:00	11.24	7.811						
Mar 9 2022	17:54:00	11.09	7.921						
Mar 9 2022	17:55:00	10.89	8.068						
Mar 9 2022	17:56:00	11.21	7.808						
Mar 9 2022	17:57:00	11.75	7.397						
Mar 9 2022	17:58:00	11.85	7.367						
Mar 9 2022	17:59:00	11.60	7.592						
Mar 9 2022	18:00:00	11.22	7.910						
Mar 9 2022	18:01:00	11.38	7.768						
Mar 9 2022	18:02:00	11.53	7.638						
Mar 9 2022	18:03:00	11.37	7.768						
Mar 9 2022	18:04:00	11.28	7.831						
Mar 9 2022	18:05:00	11.22	7.880						
Mar 9 2022	18:06:00	11.32	7.801						
Mar 9 2022	18:07:00	10.92	8.149						
Mar 9 2022	18:08:00	10.72	8.303						
Mar 9 2022	18:09:00	10.55	8.405						
Mar 9 2022	18:10:00	10.61	8.320						
Mar 9 2022	18:11:00	11.27	7.774						
End of port 1 point 2									
Mar 9 2022	18:12:00	11.41	7.675						
Mar 9 2022	18:13:00	10.95	8.041						
Mar 9 2022	18:14:00	11.30	7.772						
Mar 9 2022	18:15:00	11.78	7.409						
Mar 9 2022	18:16:00	11.63	7.513						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Mar 9 2022	18:17:00	11.72	7.443						
Mar 9 2022	18:18:00	12.00	7.209						
Mar 9 2022	18:19:00	11.89	7.307						
Mar 9 2022	18:20:00	11.91	7.294						
Mar 9 2022	18:21:00	11.81	7.353						
Mar 9 2022	18:22:00	12.02	7.208						
Mar 9 2022	18:23:00	11.80	7.381						
Mar 9 2022	18:24:00	12.33	6.948						
Mar 9 2022	18:25:00	12.41	6.880						
Mar 9 2022	18:26:00	12.40	6.900						
Mar 9 2022	18:27:00	12.40	6.916						
Mar 9 2022	18:28:00	12.12	7.114						
Mar 9 2022	18:29:00	11.90	7.306						
Mar 9 2022	18:30:00	11.82	7.367						
Mar 9 2022	18:31:00	12.09	7.141						
End of port 1 point 3									
Mar 9 2022	18:36:00	11.89	7.300						
Mar 9 2022	18:37:00	11.62	7.492						
Mar 9 2022	18:38:00	11.59	7.482						
Mar 9 2022	18:39:00	11.84	7.286						
Mar 9 2022	18:40:00	11.57	7.509						
Mar 9 2022	18:41:00	11.77	7.330						
Mar 9 2022	18:42:00	12.61	6.677						
Mar 9 2022	18:43:00	12.72	6.618						
Mar 9 2022	18:44:00	12.36	6.878						
Mar 9 2022	18:45:00	12.32	6.901						
Mar 9 2022	18:46:00	12.23	6.974						
Mar 9 2022	18:47:00	11.73	7.369						
Mar 9 2022	18:48:00	11.07	7.859						
Mar 9 2022	18:49:00	11.38	7.581						
Mar 9 2022	18:50:00	11.88	7.191						
Mar 9 2022	18:51:00	12.04	7.062						
Mar 9 2022	18:52:00	12.55	6.664						
Mar 9 2022	18:53:00	12.63	6.625						
Mar 9 2022	18:54:00	12.35	6.856						
Mar 9 2022	18:55:00	12.10	7.048						
End of port 2 point 1									
Mar 9 2022	18:56:00	11.77	7.303						
Mar 9 2022	18:57:00	11.69	7.388						
Mar 9 2022	18:58:00	11.92	7.210						
Mar 9 2022	18:59:00	12.46	6.774						
Mar 9 2022	19:00:00	12.57	6.718						
Mar 9 2022	19:01:00	12.37	6.904						
Mar 9 2022	19:02:00	12.43	6.876						
Mar 9 2022	19:03:00	12.53	6.799						
Mar 9 2022	19:04:00	12.61	6.728						
Mar 9 2022	19:05:00	12.59	6.727						
Mar 9 2022	19:06:00	12.41	6.870						
Mar 9 2022	19:07:00	12.20	7.015						
Mar 9 2022	19:08:00	11.59	7.469						
Mar 9 2022	19:09:00	10.97	7.923						
Mar 9 2022	19:10:00	11.17	7.772						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Mar 9 2022	19:11:00	11.73	7.355						
Mar 9 2022	19:12:00	12.34	6.882						
Mar 9 2022	19:13:00	12.33	6.916						
Mar 9 2022	19:14:00	12.11	7.085						
Mar 9 2022	19:15:00	11.81	7.326						
End of port 2 point 2									
Mar 9 2022	19:16:00	12.27	6.979						
Mar 9 2022	19:17:00	12.57	6.752						
Mar 9 2022	19:18:00	12.30	6.998						
Mar 9 2022	19:19:00	11.91	7.325						
Mar 9 2022	19:20:00	11.59	7.568						
Mar 9 2022	19:21:00	11.46	7.686						
Mar 9 2022	19:22:00	11.29	7.811						
Mar 9 2022	19:23:00	11.51	7.620						
Mar 9 2022	19:24:00	12.01	7.226						
Mar 9 2022	19:25:00	12.14	7.127						
Mar 9 2022	19:26:00	12.12	7.171						
Mar 9 2022	19:27:00	12.02	7.242						
Mar 9 2022	19:28:00	12.16	7.153						
Mar 9 2022	19:29:00	12.24	7.088						
Mar 9 2022	19:30:00	12.13	7.185						
Mar 9 2022	19:31:00	12.19	7.125						
Mar 9 2022	19:32:00	12.76	6.664						
Mar 9 2022	19:33:00	12.93	6.538						
Mar 9 2022	19:34:00	13.02	6.483						
Mar 9 2022	19:35:00	12.82	6.672						
End of port 2 point 3									

	Average:	11.69	7.453						
	Max:	13.02	9.427						
	Min:	9.246	6.483						

Stratification Results

Port	**Point**	O2-741	CO2-695						
1	1	10.75	8.187						
1	2	11.22	7.858						
1	3	11.90	7.297						
2	1	12.01	7.135						
2	2	12.07	7.113						
2	3	12.22	7.091						
	Strat diff:	0.525	0.740						
	Strat %:	8.080	9.939						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

~~Run 5~~ Post run bias - Unit 2 Run 3 Chronic

17:31:00 - 19:35:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	11.69	7.453						
	Max:	13.02	9.427						
	Min:	9.246	6.483						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:								
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

Initial Bias Data									
	Zero reading:	0.015	0.224						
	Span reading:	10.02	9.687						
Zero % bias:	**<5.0**	0.056	1.055						
Span % bias:	**<5.0**	-0.738	-0.847						

Final Bias Data									
	Zero reading:	0.031	0.239						
	Span reading:	10.10	9.904						
Zero % bias:	**<5.0**	0.126	1.121						
Span % bias:	**<5.0**	-0.391	0.110						
Zero % drift:	**<3.0**	0.070	0.066						
Span % drift:	**<3.0**	0.347	0.957						

Bias Corrected Averages									
	Cor Avg:	11.84	7.493						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 6~~ Average Results - Unit 1 Run 3 5/26A Bag
20:04:00 - 20:07:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 9 2022	20:05:00	12.03	7.227						
Mar 9 2022	20:06:00	12.04	7.231						
Mar 9 2022	20:07:00	12.04	7.235						

	Average:	12.04	7.231						
	Max:	12.04	7.235						
	Min:	12.03	7.227						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 6~~ Post run bias - Unit 1 Run 3 5/26A Bag
20:04:00 - 20:07:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	12.04	7.231						
	Max:	12.04	7.235						
	Min:	12.03	7.227						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:								
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

Initial Bias Data									
	Zero reading:	0.031	0.239						
	Span reading:	10.10	9.904						
Zero % bias:	**<5.0**	0.126	1.121						
Span % bias:	**<5.0**	-0.391	0.110						

Final Bias Data									
	Zero reading:	0.001	0.112						
	Span reading:	10.11	9.912						
Zero % bias:	**<5.0**	-0.004	0.561						
Span % bias:	**<5.0**	-0.347	0.146						
Zero % drift:	**<3.0**	0.130	0.561						
Span % drift:	**<3.0**	0.044	0.036						

Bias Corrected Averages									
	Cor Avg:	12.14	7.194						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Run 1 Average Results - Unit 2 Chronic Run 1

13:43:00 - 18:18:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 10 2022	13:44:00	11.17	7.598						
Mar 10 2022	13:45:00	11.02	7.721						
Mar 10 2022	13:46:00	10.73	7.949						
Mar 10 2022	13:47:00	10.66	8.015						
Mar 10 2022	13:48:00	10.83	7.869						
Mar 10 2022	13:49:00	10.99	7.723						
Mar 10 2022	13:50:00	11.02	7.685						
Mar 10 2022	13:51:00	11.21	7.530						
Mar 10 2022	13:52:00	10.94	7.743						
Mar 10 2022	13:53:00	10.50	8.086						
Mar 10 2022	13:54:00	10.22	8.299						
Mar 10 2022	13:55:00	10.34	8.194						
Mar 10 2022	13:56:00	10.38	8.169						
Mar 10 2022	13:57:00	10.63	7.963						
Mar 10 2022	13:58:00	10.63	7.965						
Mar 10 2022	13:59:00	10.75	7.876						
Mar 10 2022	14:00:00	10.74	7.890						
Mar 10 2022	14:01:00	11.16	7.556						
Mar 10 2022	14:02:00	11.33	7.438						
Mar 10 2022	14:03:00	11.28	7.467						
End of port 1 point 1									
Mar 10 2022	14:04:00	11.64	7.183						
Mar 10 2022	14:05:00	11.03	7.683						
Mar 10 2022	14:06:00	11.31	7.477						
Mar 10 2022	14:07:00	10.99	7.748						
Mar 10 2022	14:08:00	11.04	7.696						
Mar 10 2022	14:09:00	11.47	7.355						
Mar 10 2022	14:10:00	11.53	7.336						
Mar 10 2022	14:11:00	11.42	7.431						
Mar 10 2022	14:12:00	11.33	7.502						
Mar 10 2022	14:13:00	11.17	7.647						
Mar 10 2022	14:14:00	11.28	7.563						
Mar 10 2022	14:15:00	11.62	7.304						
Mar 10 2022	14:16:00	11.81	7.149						
Mar 10 2022	14:17:00	11.99	7.008						
Mar 10 2022	14:18:00	11.92	7.068						
Mar 10 2022	14:19:00	11.96	7.065						
Mar 10 2022	14:20:00	11.81	7.187						
Mar 10 2022	14:21:00	11.83	7.182						
Mar 10 2022	14:22:00	11.54	7.408						
Mar 10 2022	14:23:00	11.68	7.275						
End of port 1 point 2									
Mar 10 2022	14:24:00	11.72	7.223						
Mar 10 2022	14:25:00	11.60	7.323						
Mar 10 2022	14:26:00	11.48	7.417						
Mar 10 2022	14:27:00	11.51	7.382						
Mar 10 2022	14:28:00	11.43	7.434						

Mar 10 2022	14:29:00	11.31	7.507						
Mar 10 2022	14:30:00	10.94	7.786						
Mar 10 2022	14:31:00	10.88	7.838						
Mar 10 2022	14:32:00	10.53	8.122						
Mar 10 2022	14:33:00	10.16	8.417						
Mar 10 2022	14:34:00	10.27	8.332						
Mar 10 2022	14:35:00	10.78	7.929						
Mar 10 2022	14:36:00	10.87	7.845						
Mar 10 2022	14:37:00	11.03	7.727						
Mar 10 2022	14:38:00	11.25	7.545						
Mar 10 2022	14:39:00	11.16	7.636						
Mar 10 2022	14:40:00	10.68	8.043						
Mar 10 2022	14:41:00	10.46	8.200						
Mar 10 2022	14:42:00	11.00	7.764						
Mar 10 2022	14:43:00	10.97	7.782						
End of port 1 point 3									
Mar 10 2022	14:44:00	10.92	7.823						
Mar 10 2022	14:45:00	10.80	7.907						
Mar 10 2022	14:46:00	10.83	7.900						
Mar 10 2022	14:47:00	10.90	7.862						
Mar 10 2022	14:48:00	10.43	8.241						
Mar 10 2022	14:49:00	11.17	7.659						
Mar 10 2022	14:50:00	11.85	7.121						
Mar 10 2022	14:51:00	12.01	7.013						
Mar 10 2022	14:52:00	11.29	7.575						
Mar 10 2022	14:53:00	11.03	7.791						
Mar 10 2022	14:54:00	10.99	7.832						
Mar 10 2022	14:55:00	11.01	7.820						
Mar 10 2022	14:56:00	11.07	7.750						
Mar 10 2022	14:57:00	11.94	7.059						
Mar 10 2022	14:58:00	12.32	6.789						
Mar 10 2022	14:59:00	11.96	7.076						
Mar 10 2022	15:00:00	11.73	7.288						
Mar 10 2022	15:01:00	11.40	7.559						
Mar 10 2022	15:02:00	11.00	7.890						
Mar 10 2022	15:03:00	11.03	7.876						
End of port 1 point 4									
Mar 10 2022	15:04:00	11.76	7.274						
Mar 10 2022	15:05:00	12.45	6.720						
Mar 10 2022	15:06:00	12.56	6.626						
Mar 10 2022	15:07:00	12.59	6.597						
Mar 10 2022	15:08:00	12.73	6.483						
Mar 10 2022	15:09:00	12.93	6.336						
Mar 10 2022	15:10:00	12.98	6.286						
Mar 10 2022	15:11:00	13.03	6.243						
Mar 10 2022	15:12:00	13.15	6.125						
Mar 10 2022	15:13:00	13.46	5.870						
Mar 10 2022	15:14:00	13.46	5.870						
Mar 10 2022	15:15:00	13.29	6.003						
Mar 10 2022	15:16:00	12.69	6.475						
Mar 10 2022	15:17:00	12.97	6.229						
Mar 10 2022	15:18:00	13.09	6.124						

Mar 10 2022	15:19:00	13.34	5.929						
Mar 10 2022	15:20:00	13.80	5.569						
Mar 10 2022	15:21:00	13.48	5.812						
Mar 10 2022	15:51:22	12.67	6.447						
Mar 10 2022	15:52:22	11.76	7.123						
End of port 1 point 5									
Mar 10 2022	15:53:22	12.38	6.642						
Mar 10 2022	15:54:22	12.67	6.434						
Mar 10 2022	15:55:22	12.28	6.735						
Mar 10 2022	15:56:22	11.74	7.169						
Mar 10 2022	15:57:22	11.38	7.464						
Mar 10 2022	15:58:22	11.27	7.562						
Mar 10 2022	15:59:22	11.55	7.340						
Mar 10 2022	16:00:22	11.86	7.139						
Mar 10 2022	16:01:22	11.84	7.158						
Mar 10 2022	16:02:22	11.91	7.127						
Mar 10 2022	16:03:22	11.41	7.513						
Mar 10 2022	16:04:22	11.20	7.679						
Mar 10 2022	16:05:22	10.98	7.840						
Mar 10 2022	16:06:22	11.14	7.712						
Mar 10 2022	16:07:22	11.14	7.720						
Mar 10 2022	16:08:22	11.07	7.807						
Mar 10 2022	16:09:22	11.45	7.507						
Mar 10 2022	16:10:22	11.22	7.697						
Mar 10 2022	16:11:22	11.08	7.822						
Mar 10 2022	16:12:22	11.24	7.706						
End of port 1 point 6									
Mar 10 2022	16:19:00	10.86	8.043						
Mar 10 2022	16:20:00	11.01	7.915						
Mar 10 2022	16:21:00	11.41	7.573						
Mar 10 2022	16:22:00	11.29	7.659						
Mar 10 2022	16:23:00	11.41	7.562						
Mar 10 2022	16:24:00	11.59	7.432						
Mar 10 2022	16:25:00	11.00	7.948						
Mar 10 2022	16:26:00	11.43	7.585						
Mar 10 2022	16:27:00	11.54	7.474						
Mar 10 2022	16:28:00	11.99	7.078						
Mar 10 2022	16:29:00	12.42	6.736						
Mar 10 2022	16:30:00	12.45	6.734						
Mar 10 2022	16:31:00	11.98	7.102						
Mar 10 2022	16:32:00	11.73	7.297						
Mar 10 2022	16:33:00	11.71	7.295						
Mar 10 2022	16:34:00	11.32	7.583						
Mar 10 2022	16:35:00	11.29	7.578						
Mar 10 2022	16:36:00	11.66	7.305						
Mar 10 2022	16:37:00	11.69	7.298						
Mar 10 2022	16:38:00	11.35	7.552						
End of port 2 point 1									
Mar 10 2022	16:39:00	10.72	8.043						
Mar 10 2022	16:40:00	10.12	8.520						
Mar 10 2022	16:41:00	10.20	8.437						
Mar 10 2022	16:42:00	10.36	8.276						

Mar 10 2022	16:43:00	11.02	7.739						
Mar 10 2022	16:44:01	11.41	7.442						
Mar 10 2022	16:45:00	11.17	7.660						
Mar 10 2022	16:46:00	11.13	7.716						
Mar 10 2022	16:47:00	10.84	7.928						
Mar 10 2022	16:48:00	10.83	7.945						
Mar 10 2022	16:49:00	10.93	7.874						
Mar 10 2022	16:50:00	10.90	7.891						
Mar 10 2022	16:51:00	10.81	7.947						
Mar 10 2022	16:52:00	10.77	7.957						
Mar 10 2022	16:53:00	10.84	7.913						
Mar 10 2022	16:54:00	10.75	8.021						
Mar 10 2022	16:55:00	10.89	7.922						
Mar 10 2022	16:56:00	11.35	7.559						
Mar 10 2022	16:57:00	11.42	7.498						
Mar 10 2022	16:58:00	11.59	7.370						
End of port 2 point 2									
Mar 10 2022	16:59:00	11.52	7.430						
Mar 10 2022	17:00:00	11.30	7.598						
Mar 10 2022	17:01:00	10.97	7.847						
Mar 10 2022	17:02:00	11.29	7.611						
Mar 10 2022	17:03:00	11.35	7.581						
Mar 10 2022	17:04:00	11.21	7.679						
Mar 10 2022	17:05:00	10.71	8.097						
Mar 10 2022	17:06:00	10.69	8.137						
Mar 10 2022	17:07:00	10.84	7.996						
Mar 10 2022	17:08:00	11.12	7.787						
Mar 10 2022	17:09:00	10.82	8.020						
Mar 10 2022	17:10:00	10.81	8.034						
Mar 10 2022	17:11:00	10.92	7.958						
Mar 10 2022	17:12:00	11.12	7.806						
Mar 10 2022	17:13:00	11.15	7.777						
Mar 10 2022	17:14:00	11.28	7.675						
Mar 10 2022	17:15:00	11.33	7.652						
Mar 10 2022	17:16:00	11.04	7.898						
Mar 10 2022	17:17:00	10.86	8.039						
Mar 10 2022	17:18:00	10.35	8.452						
End of port 2 point 3									
Mar 10 2022	17:19:00	10.38	8.406						
Mar 10 2022	17:20:00	10.71	8.122						
Mar 10 2022	17:21:00	11.25	7.671						
Mar 10 2022	17:22:00	11.68	7.341						
Mar 10 2022	17:23:03	11.61	7.401						
Mar 10 2022	17:24:00	11.18	7.736						
Mar 10 2022	17:25:03	11.53	7.456						
Mar 10 2022	17:26:12	10.85	8.010						
Mar 10 2022	17:27:05	10.72	8.095						
Mar 10 2022	17:28:00	11.07	7.810						
Mar 10 2022	17:29:01	11.73	7.273						
Mar 10 2022	17:30:00	11.55	7.428						
Mar 10 2022	17:31:04	10.86	7.981						
Mar 10 2022	17:32:04	10.73	8.042						

Mar 10 2022	17:33:00	11.02	7.800						
Mar 10 2022	17:34:00	11.30	7.578						
Mar 10 2022	17:35:00	11.63	7.311						
Mar 10 2022	17:36:00	11.76	7.227						
Mar 10 2022	17:37:00	11.69	7.307						
Mar 10 2022	17:38:00	11.44	7.501						
End of port 2 point 4									
Mar 10 2022	17:39:00	11.46	7.482						
Mar 10 2022	17:40:00	11.20	7.689						
Mar 10 2022	17:41:00	10.47	8.283						
Mar 10 2022	17:42:00	10.09	8.588						
Mar 10 2022	17:43:00	10.53	8.230						
Mar 10 2022	17:44:00	11.15	7.714						
Mar 10 2022	17:45:00	11.94	7.092						
Mar 10 2022	17:46:00	12.00	7.041						
Mar 10 2022	17:47:00	12.26	6.839						
Mar 10 2022	17:48:00	12.57	6.591						
Mar 10 2022	17:49:00	12.14	6.898						
Mar 10 2022	17:50:00	11.92	7.084						
Mar 10 2022	17:51:00	11.46	7.437						
Mar 10 2022	17:52:00	11.19	7.637						
Mar 10 2022	17:53:00	11.10	7.650						
Mar 10 2022	17:54:00	11.34	7.446						
Mar 10 2022	17:55:00	11.31	7.487						
Mar 10 2022	17:56:00	11.70	7.209						
Mar 10 2022	17:57:00	11.96	7.027						
Mar 10 2022	17:58:00	12.05	6.964						
End of port 2 point 5									
Mar 10 2022	17:59:00	12.16	6.873						
Mar 10 2022	18:00:00	11.68	7.218						
Mar 10 2022	18:01:00	11.39	7.428						
Mar 10 2022	18:02:00	11.17	7.609						
Mar 10 2022	18:03:00	10.92	7.838						
Mar 10 2022	18:04:00	10.10	8.491						
Mar 10 2022	18:05:00	9.966	8.588						
Mar 10 2022	18:06:00	9.944	8.591						
Mar 10 2022	18:07:00	10.27	8.307						
Mar 10 2022	18:08:00	10.70	7.960						
Mar 10 2022	18:09:00	11.04	7.709						
Mar 10 2022	18:10:00	11.48	7.370						
Mar 10 2022	18:11:00	11.18	7.623						
Mar 10 2022	18:12:00	10.78	7.933						
Mar 10 2022	18:13:00	10.35	8.266						
Mar 10 2022	18:14:00	10.77	7.928						
Mar 10 2022	18:15:00	11.47	7.355						
Mar 10 2022	18:16:00	11.74	7.159						
Mar 10 2022	18:17:00	10.95	7.784						
Mar 10 2022	18:18:00	10.74	7.928						
End of port 2 point 6									

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

	Average:	11.35	7.526						
	Max:	13.80	8.591						
	Min:	9.944	5.569						

Stratification Results

Port	**Point**	O2-741	CO2-695						
1	1	10.83	7.830						
1	2	11.57	7.330						
1	3	10.98	7.773						
1	4	11.32	7.568						
1	5	12.91	6.304						
1	6	11.52	7.408						
2	1	11.57	7.422						
2	2	10.93	7.862						
2	3	11.01	7.875						
2	4	11.24	7.669						
2	5	11.52	7.394						
2	6	10.89	7.835						
	Strat diff:	1.553	0.353						
	Strat %:	4.645	4.686						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Run 1 Post run bias - Unit 2 Chronic Run 1

13:43:00 - 18:18:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	11.35	7.526						
	Max:	13.80	8.591						
	Min:	9.944	5.569						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.011	0.007						
	Low reading:								
	Mid reading:	10.18	9.846						
	High reading:	23.04	22.66						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.048	0.031						
Mid %Err:	**<2.0**	-0.043	-0.340						
High %Err:	**<2.0**	0.000	0.000						

Initial Bias Data									
	Zero reading:	0.087	0.114						
	Span reading:	10.04	9.644						
Zero % bias:	**<5.0**	0.330	0.472						
Span % bias:	**<5.0**	-0.608	-0.891						

Final Bias Data									
	Zero reading:	0.000	0.145						
	Span reading:	9.966	9.561						
Zero % bias:	**<5.0**	-0.048	0.609						
Span % bias:	**<5.0**	-0.929	-1.258						
Zero % drift:	**<3.0**	0.378	0.137						
Span % drift:	**<3.0**	0.321	0.367						

Bias Corrected Averages									
	Cor Avg:	11.57	7.748						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 2~~ Average Results - Unit 1 Chronic 0023A Bags

18:34:00 - 18:37:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 10 2022	18:35:00	12.65	6.450						
Mar 10 2022	18:36:00	12.65	6.466						
Mar 10 2022	18:37:00	12.65	6.478						

	Average:	12.65	6.465						
	Max:	12.65	6.478						
	Min:	12.65	6.450						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 2~~ Post run bias - Unit 1 Chronic 0023A Bags

18:34:00 - 18:37:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	12.65	6.465						
	Max:	12.65	6.478						
	Min:	12.65	6.450						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.011	0.007						
	Low reading:								
	Mid reading:	10.18	9.846						
	High reading:	23.04	22.66						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.048	0.031						
Mid %Err:	**<2.0**	-0.043	-0.340						
High %Err:	**<2.0**	0.000	0.000						

Initial Bias Data									
	Zero reading:	0.000	0.145						
	Span reading:	9.966	9.561						
Zero % bias:	**<5.0**	-0.048	0.609						
Span % bias:	**<5.0**	-0.929	-1.258						

Final Bias Data									
	Zero reading:	-0.009	0.093						
	Span reading:	9.991	9.591						
Zero % bias:	**<5.0**	-0.087	0.380						
Span % bias:	**<5.0**	-0.820	-1.125						
Zero % drift:	**<3.0**	0.039	0.229						
Span % drift:	**<3.0**	0.109	0.133						

Bias Corrected Averages									
	Cor Avg:	12.92	6.659						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

~~Run 1~~ Average Results - Run 2 Unit 2 Chronic

08:46:01 - 12:47:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 11 2022	08:47:01	11.66	7.419						
Mar 11 2022	08:48:01	11.11	7.856						
Mar 11 2022	08:49:00	10.72	8.192						
Mar 11 2022	08:50:00	10.47	8.382						
Mar 11 2022	08:51:00	10.51	8.340						
Mar 11 2022	08:52:00	10.96	7.964						
Mar 11 2022	08:53:00	11.39	7.609						
Mar 11 2022	08:54:00	11.51	7.522						
Mar 11 2022	08:55:00	11.08	7.859						
Mar 11 2022	08:56:00	11.19	7.775						
Mar 11 2022	08:57:00	11.39	7.603						
Mar 11 2022	08:58:00	11.75	7.333						
Mar 11 2022	08:59:00	11.65	7.421						
Mar 11 2022	09:00:00	11.57	7.463						
Mar 11 2022	09:01:00	11.83	7.270						
Mar 11 2022	09:02:00	11.56	7.510						
Mar 11 2022	09:03:00	11.70	7.412						
Mar 11 2022	09:04:00	11.53	7.558						
Mar 11 2022	09:05:00	11.22	7.798						
Mar 11 2022	09:06:01	10.99	7.985						
End of port 1 point 1									
Mar 11 2022	09:07:00	11.21	7.776						
Mar 11 2022	09:08:00	11.56	7.503						
Mar 11 2022	09:09:00	11.39	7.665						
Mar 11 2022	09:10:00	11.45	7.621						
Mar 11 2022	09:11:00	11.07	7.924						
Mar 11 2022	09:12:00	11.09	7.914						
Mar 11 2022	09:13:00	10.81	8.142						
Mar 11 2022	09:14:00	10.94	8.041						
Mar 11 2022	09:15:00	10.89	8.057						
Mar 11 2022	09:16:00	10.90	8.039						
Mar 11 2022	09:17:00	10.81	8.112						
Mar 11 2022	09:18:00	11.09	7.888						
Mar 11 2022	09:19:00	11.25	7.787						
Mar 11 2022	09:20:00	10.89	8.060						
Mar 11 2022	09:21:00	10.78	8.106						
Mar 11 2022	09:22:00	10.56	8.280						
Mar 11 2022	09:23:00	10.55	8.269						
Mar 11 2022	09:24:00	10.73	8.116						
Mar 11 2022	09:25:00	10.99	7.930						
Mar 11 2022	09:26:00	10.92	7.983						
End of port 1 point 2									
Mar 11 2022	09:27:01	10.84	8.036						
Mar 11 2022	09:28:01	11.00	7.869						
Mar 11 2022	09:29:01	11.54	7.467						
Mar 11 2022	09:30:01	11.81	7.288						
Mar 11 2022	09:31:01	11.75	7.353						

Mar 11 2022	09:32:01	11.77	7.342						
Mar 11 2022	09:33:01	11.79	7.316						
Mar 11 2022	09:34:01	11.39	7.645						
Mar 11 2022	09:35:01	11.20	7.794						
Mar 11 2022	09:36:01	11.45	7.586						
Mar 11 2022	09:37:01	11.11	7.836						
Mar 11 2022	09:38:01	11.20	7.751						
Mar 11 2022	09:39:01	11.10	7.831						
Mar 11 2022	09:40:01	10.68	8.151						
Mar 11 2022	09:41:01	11.00	7.857						
Mar 11 2022	09:42:01	11.36	7.582						
Mar 11 2022	09:43:00	11.12	7.787						
Mar 11 2022	09:44:00	11.14	7.783						
Mar 11 2022	09:45:01	11.27	7.674						
Mar 11 2022	09:46:00	11.21	7.760						
End of port 1 point 3									
Mar 11 2022	09:47:00	10.97	7.970						
Mar 11 2022	09:48:00	10.96	7.982						
Mar 11 2022	09:49:00	10.84	8.078						
Mar 11 2022	09:50:00	11.07	7.882						
Mar 11 2022	09:51:00	11.05	7.883						
Mar 11 2022	09:52:00	11.51	7.519						
Mar 11 2022	09:53:00	11.56	7.501						
Mar 11 2022	09:54:00	10.89	8.072						
Mar 11 2022	09:55:00	10.69	8.222						
Mar 11 2022	09:56:00	11.20	7.780						
Mar 11 2022	09:57:00	11.67	7.418						
Mar 11 2022	09:58:00	10.99	7.982						
Mar 11 2022	09:59:00	10.84	8.081						
Mar 11 2022	10:00:00	11.51	7.540						
Mar 11 2022	10:01:00	11.60	7.487						
Mar 11 2022	10:02:00	10.98	7.983						
Mar 11 2022	10:03:00	11.44	7.583						
Mar 11 2022	10:04:00	12.13	7.034						
Mar 11 2022	10:05:00	11.61	7.454						
Mar 11 2022	10:06:00	11.50	7.538						
End of port 1 point 4									
Mar 11 2022	10:07:00	11.84	7.281						
Mar 11 2022	10:08:00	11.71	7.422						
Mar 11 2022	10:09:00	11.11	7.917						
Mar 11 2022	10:10:00	10.76	8.185						
Mar 11 2022	10:11:00	11.25	7.759						
Mar 11 2022	10:12:00	11.73	7.347						
Mar 11 2022	10:13:00	12.27	6.900						
Mar 11 2022	10:14:00	12.51	6.708						
Mar 11 2022	10:15:00	12.28	6.908						
Mar 11 2022	10:16:00	12.00	7.146						
Mar 11 2022	10:17:00	11.36	7.687						
Mar 11 2022	10:18:00	11.14	7.870						
Mar 11 2022	10:19:00	11.14	7.851						
Mar 11 2022	10:20:00	11.59	7.476						
Mar 11 2022	10:21:00	12.03	7.115						

Mar 11 2022	10:22:00	11.61	7.481						
Mar 11 2022	10:23:00	11.15	7.859						
Mar 11 2022	10:24:00	11.01	7.988						
Mar 11 2022	10:25:00	11.23	7.807						
Mar 11 2022	10:26:00	11.02	7.952						
End of port 1 point 5									
Mar 11 2022	10:27:00	11.26	7.695						
Mar 11 2022	10:28:00	11.67	7.315						
Mar 11 2022	10:29:00	11.62	7.331						
Mar 11 2022	10:30:00	11.62	7.347						
Mar 11 2022	10:31:00	11.73	7.263						
Mar 11 2022	10:32:01	11.64	7.350						
Mar 11 2022	10:33:01	11.59	7.380						
Mar 11 2022	10:34:01	11.83	7.191						
Mar 11 2022	10:35:01	11.54	7.423						
Mar 11 2022	10:36:01	11.56	7.393						
Mar 11 2022	10:37:01	11.62	7.391						
Mar 11 2022	10:38:01	11.29	7.685						
Mar 11 2022	10:39:01	10.86	7.996						
Mar 11 2022	10:40:01	10.87	7.980						
Mar 11 2022	10:41:01	11.48	7.476						
Mar 11 2022	10:42:01	11.86	7.177						
Mar 11 2022	10:43:01	11.66	7.351						
Mar 11 2022	10:44:01	11.41	7.535						
Mar 11 2022	10:45:01	10.79	8.019						
Mar 11 2022	10:46:01	10.49	8.260						
End of port 1 point 6									
Mar 11 2022	10:48:01	10.88	7.881						
Mar 11 2022	10:49:00	11.61	7.290						
Mar 11 2022	10:50:01	11.76	7.177						
Mar 11 2022	10:51:00	10.89	7.840						
Mar 11 2022	10:52:01	10.75	7.932						
Mar 11 2022	10:53:00	10.99	7.738						
Mar 11 2022	10:54:01	11.15	7.588						
Mar 11 2022	10:55:01	10.87	7.794						
Mar 11 2022	10:56:00	10.83	7.819						
Mar 11 2022	10:57:01	11.18	7.529						
Mar 11 2022	10:58:01	11.17	7.516						
Mar 11 2022	10:59:00	10.94	7.697						
Mar 11 2022	11:00:01	10.82	7.790						
Mar 11 2022	11:01:00	10.98	7.674						
Mar 11 2022	11:02:01	10.81	7.807						
Mar 11 2022	11:03:00	11.23	7.443						
Mar 11 2022	11:04:00	11.28	7.424						
Mar 11 2022	11:05:00	11.16	7.525						
Mar 11 2022	11:06:00	10.98	7.686						
Mar 11 2022	11:07:00	10.87	7.779						
End of port 2 point 1									
Mar 11 2022	11:08:00	10.80	7.860						
Mar 11 2022	11:09:00	10.47	8.165						
Mar 11 2022	11:10:00	10.38	8.213						
Mar 11 2022	11:11:00	10.79	7.859						

Mar 11 2022	11:12:00	11.03	7.674						
Mar 11 2022	11:13:00	11.14	7.610						
Mar 11 2022	11:14:01	10.43	8.217						
Mar 11 2022	11:15:00	10.78	7.925						
Mar 11 2022	11:16:00	11.26	7.541						
Mar 11 2022	11:17:00	11.18	7.621						
Mar 11 2022	11:18:01	11.51	7.360						
Mar 11 2022	11:19:00	11.66	7.238						
Mar 11 2022	11:20:00	11.33	7.499						
Mar 11 2022	11:21:00	11.45	7.405						
Mar 11 2022	11:22:00	11.50	7.385						
Mar 11 2022	11:23:00	11.45	7.421						
Mar 11 2022	11:24:01	11.73	7.204						
Mar 11 2022	11:25:01	11.42	7.460						
Mar 11 2022	11:26:01	11.38	7.450						
Mar 11 2022	11:27:00	11.12	7.634						
End of port 2 point 2									
Mar 11 2022	11:28:00	11.33	7.440						
Mar 11 2022	11:29:01	11.02	7.658						
Mar 11 2022	11:30:01	11.02	7.641						
Mar 11 2022	11:31:00	10.88	7.742						
Mar 11 2022	11:32:00	10.81	7.774						
Mar 11 2022	11:33:00	11.18	7.466						
Mar 11 2022	11:34:00	11.72	7.039						
Mar 11 2022	11:35:01	11.64	7.108						
Mar 11 2022	11:36:01	11.27	7.407						
Mar 11 2022	11:37:01	10.79	7.799						
Mar 11 2022	11:38:01	10.72	7.867						
Mar 11 2022	11:39:01	10.86	7.769						
Mar 11 2022	11:40:01	11.39	7.322						
Mar 11 2022	11:41:01	11.89	6.908						
Mar 11 2022	11:42:01	11.50	7.225						
Mar 11 2022	11:43:01	11.20	7.446						
Mar 11 2022	11:44:01	10.95	7.658						
Mar 11 2022	11:45:01	11.20	7.460						
Mar 11 2022	11:46:01	11.14	7.497						
Mar 11 2022	11:47:01	11.05	7.587						
End of port 2 point 3									
Mar 11 2022	11:48:01	10.69	7.813						
Mar 11 2022	11:49:01	11.20	7.370						
Mar 11 2022	11:50:00	11.77	6.934						
Mar 11 2022	11:51:00	11.61	7.077						
Mar 11 2022	11:52:00	11.57	7.113						
Mar 11 2022	11:53:00	11.42	7.230						
Mar 11 2022	11:54:00	11.11	7.463						
Mar 11 2022	11:55:00	10.65	7.846						
Mar 11 2022	11:56:00	11.13	7.445						
Mar 11 2022	11:57:00	12.03	6.735						
Mar 11 2022	11:58:00	12.23	6.606						
Mar 11 2022	11:59:00	11.80	6.967						
Mar 11 2022	12:00:00	11.61	7.134						
Mar 11 2022	12:01:00	11.43	7.251						

Mar 11 2022	12:02:00	11.67	7.064						
Mar 11 2022	12:03:00	11.74	7.004						
Mar 11 2022	12:04:01	11.50	7.188						
Mar 11 2022	12:05:00	11.75	7.002						
Mar 11 2022	12:06:00	11.97	6.862						
Mar 11 2022	12:07:00	11.88	6.963						
End of port 2 point 4									
Mar 11 2022	12:08:00	11.71	7.088						
Mar 11 2022	12:09:00	11.89	6.891						
Mar 11 2022	12:10:00	12.08	6.777						
Mar 11 2022	12:11:00	11.92	6.920						
Mar 11 2022	12:12:00	11.53	7.220						
Mar 11 2022	12:13:00	11.50	7.261						
Mar 11 2022	12:14:00	11.65	7.172						
Mar 11 2022	12:15:01	11.46	7.327						
Mar 11 2022	12:16:01	11.65	7.183						
Mar 11 2022	12:17:00	11.93	6.958						
Mar 11 2022	12:18:01	12.18	6.765						
Mar 11 2022	12:19:01	12.25	6.695						
Mar 11 2022	12:20:01	12.55	6.455						
Mar 11 2022	12:21:01	12.57	6.436						
Mar 11 2022	12:22:01	12.01	6.876						
Mar 11 2022	12:23:00	12.01	6.876						
Mar 11 2022	12:24:01	11.95	6.909						
Mar 11 2022	12:25:01	12.09	6.780						
Mar 11 2022	12:26:01	11.13	7.562						
Mar 11 2022	12:27:00	10.97	7.711						
End of port 2 point 5									
Mar 11 2022	12:28:01	10.42	8.169						
Mar 11 2022	12:29:00	10.14	8.385						
Mar 11 2022	12:30:01	9.960	8.507						
Mar 11 2022	12:31:01	10.23	8.265						
Mar 11 2022	12:32:00	10.89	7.736						
Mar 11 2022	12:33:01	10.94	7.699						
Mar 11 2022	12:34:00	10.63	7.979						
Mar 11 2022	12:35:00	10.60	8.013						
Mar 11 2022	12:36:00	10.47	8.129						
Mar 11 2022	12:37:01	10.68	7.939						
Mar 11 2022	12:38:01	10.95	7.724						
Mar 11 2022	12:39:00	11.43	7.333						
Mar 11 2022	12:40:00	10.94	7.745						
Mar 11 2022	12:41:01	10.60	8.024						
Mar 11 2022	12:42:01	10.25	8.314						
Mar 11 2022	12:43:00	10.75	7.896						
Mar 11 2022	12:44:00	11.50	7.278						
Mar 11 2022	12:45:00	11.56	7.236						
Mar 11 2022	12:46:01	11.19	7.535						
Mar 11 2022	12:47:00	11.05	7.670						
End of port 2 point 6									

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

	Average:	11.28	7.581						
	Max:	12.57	8.507						
	Min:	9.960	6.436						

Stratification Results

Port	**Point**	O2-741	CO2-695						
1	1	11.29	7.716						
1	2	10.98	7.973						
1	3	11.30	7.676						
1	4	11.26	7.745						
1	5	11.52	7.543						
1	6	11.41	7.535						
2	1	11.06	7.641						
2	2	11.15	7.633						
2	3	11.17	7.496						
2	4	11.56	7.132						
2	5	11.83	7.014						
2	6	10.77	7.870						
	Strat diff:	0.555	0.392						
	Strat %:	4.922	7.481						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

~~Run 1~~ Post run bias - Run 2 Unit 2 Chronic

08:46:01 - 12:47:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	11.28	7.581						
	Max:	12.57	8.507						
	Min:	9.960	6.436						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.026						
	Low reading:								
	Mid reading:	10.20	9.834						
	High reading:	23.04	22.67						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.115						
Mid %Err:	**<2.0**	0.043	-0.393						
High %Err:	**<2.0**	0.000	0.044						

Initial Bias Data									
	Zero reading:	0.018	0.061						
	Span reading:	10.14	9.786						
Zero % bias:	**<5.0**	0.069	0.384						
Span % bias:	**<5.0**	-0.260	-0.212						

Final Bias Data									
	Zero reading:	-0.006	0.063						
	Span reading:	9.820	9.223						
Zero % bias:	**<5.0**	-0.035	0.393						
Span % bias:	**<5.0**	-1.649	-2.696						
Zero % drift:	**<3.0**	0.104	0.009						
Span % drift:	**<3.0**	1.389	2.484						

Bias Corrected Averages									
	Cor Avg:	11.52	7.902						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

~~Run 2~~ Average Results - Unit 2 Run 3

13:43:00 - 17:47:01

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 11 2022	13:44:00	11.48	6.944						
Mar 11 2022	13:45:00	11.33	7.062						
Mar 11 2022	13:46:01	11.33	7.060						
Mar 11 2022	13:47:01	11.20	7.162						
Mar 11 2022	13:48:01	10.51	7.713						
Mar 11 2022	13:49:01	10.08	8.017						
Mar 11 2022	13:50:01	10.000	8.078						
Mar 11 2022	13:51:01	10.47	7.728						
Mar 11 2022	13:52:01	11.22	7.133						
Mar 11 2022	13:53:01	10.85	7.443						
Mar 11 2022	13:54:01	10.93	7.395						
Mar 11 2022	13:55:01	10.81	7.492						
Mar 11 2022	13:56:01	11.19	7.189						
Mar 11 2022	13:57:01	11.10	7.268						
Mar 11 2022	13:58:01	11.23	7.172						
Mar 11 2022	13:59:01	11.42	7.017						
Mar 11 2022	14:00:01	11.61	6.873						
Mar 11 2022	14:01:01	11.26	7.133						
Mar 11 2022	14:02:00	11.12	7.218						
Mar 11 2022	14:03:01	11.05	7.267						
End of port 1 point 1									
Mar 11 2022	14:04:01	10.76	7.494						
Mar 11 2022	14:05:01	10.67	7.572						
Mar 11 2022	14:06:01	10.37	7.798						
Mar 11 2022	14:07:01	9.859	8.153						
Mar 11 2022	14:08:01	9.868	8.115						
Mar 11 2022	14:09:01	10.14	7.899						
Mar 11 2022	14:10:01	10.61	7.529						
Mar 11 2022	14:11:01	10.93	7.279						
Mar 11 2022	14:12:01	10.88	7.339						
Mar 11 2022	14:13:00	10.59	7.578						
Mar 11 2022	14:14:00	10.76	7.437						
Mar 11 2022	14:15:00	10.56	7.556						
Mar 11 2022	14:16:00	10.12	7.866						
Mar 11 2022	14:17:00	10.07	7.897						
Mar 11 2022	14:18:00	10.16	7.821						
Mar 11 2022	14:19:00	10.41	7.624						
Mar 11 2022	14:20:00	10.72	7.397						
Mar 11 2022	14:21:00	11.00	7.194						
Mar 11 2022	14:22:00	10.86	7.310						
Mar 11 2022	14:23:00	10.69	7.443						
End of port 1 point 2									
Mar 11 2022	14:24:01	10.49	7.578						
Mar 11 2022	14:25:01	10.83	7.304						
Mar 11 2022	14:26:01	11.23	7.004						
Mar 11 2022	14:27:01	11.31	6.966						
Mar 11 2022	14:28:01	11.30	6.970						

Mar 11 2022	14:29:01	11.37	6.945						
Mar 11 2022	14:30:00	11.15	7.104						
Mar 11 2022	14:31:00	10.88	7.309						
Mar 11 2022	14:32:00	11.01	7.198						
Mar 11 2022	14:33:00	11.22	7.015						
Mar 11 2022	14:34:00	11.47	6.812						
Mar 11 2022	14:35:00	11.50	6.811						
Mar 11 2022	14:36:01	11.54	6.785						
Mar 11 2022	14:37:01	11.88	6.520						
Mar 11 2022	14:38:01	11.87	6.547						
Mar 11 2022	14:39:01	11.63	6.719						
Mar 11 2022	14:40:01	11.33	6.939						
Mar 11 2022	14:41:01	11.31	6.940						
Mar 11 2022	14:42:00	11.52	6.782						
Mar 11 2022	14:43:00	11.62	6.708						
End of port 1 point 3									
Mar 11 2022	14:44:01	11.73	6.627						
Mar 11 2022	14:45:00	11.42	6.846						
Mar 11 2022	14:46:01	11.41	6.846						
Mar 11 2022	14:47:00	11.37	6.864						
Mar 11 2022	14:48:00	11.43	6.814						
Mar 11 2022	14:49:00	10.81	7.251						
Mar 11 2022	14:50:00	9.983	7.869						
Mar 11 2022	14:51:00	9.902	7.940						
Mar 11 2022	14:52:00	9.893	7.952						
Mar 11 2022	14:53:00	9.969	7.909						
Mar 11 2022	14:54:00	10.22	7.717						
Mar 11 2022	14:55:00	10.48	7.544						
Mar 11 2022	14:56:01	10.57	7.504						
Mar 11 2022	14:57:00	10.62	7.472						
Mar 11 2022	14:58:00	10.66	7.450						
Mar 11 2022	14:59:01	10.82	7.330						
Mar 11 2022	15:00:00	10.79	7.368						
Mar 11 2022	15:01:00	10.58	7.524						
Mar 11 2022	15:02:01	10.57	7.538						
Mar 11 2022	15:03:01	10.32	7.716						
End of port 1 point 4									
Mar 11 2022	15:04:01	10.62	7.513						
Mar 11 2022	15:05:01	10.63	7.524						
Mar 11 2022	15:06:01	11.02	7.226						
Mar 11 2022	15:07:00	11.07	7.197						
Mar 11 2022	15:08:00	10.85	7.357						
Mar 11 2022	15:09:00	10.70	7.469						
Mar 11 2022	15:10:01	10.62	7.512						
Mar 11 2022	15:11:00	10.79	7.384						
Mar 11 2022	15:12:00	10.68	7.478						
Mar 11 2022	15:13:01	10.47	7.652						
Mar 11 2022	15:14:00	10.24	7.853						
Mar 11 2022	15:15:00	10.19	7.900						
Mar 11 2022	15:16:00	10.45	7.723						
Mar 11 2022	15:17:00	10.35	7.795						
Mar 11 2022	15:18:00	10.53	7.660						

Mar 11 2022	15:19:01	10.33	7.807						
Mar 11 2022	15:20:00	10.21	7.909						
Mar 11 2022	15:21:00	10.45	7.746						
Mar 11 2022	15:22:00	10.62	7.624						
Mar 11 2022	15:23:00	10.19	7.965						
End of port 1 point 5									
Mar 11 2022	15:24:00	9.800	8.256						
Mar 11 2022	15:25:01	9.941	8.149						
Mar 11 2022	15:26:00	10.03	8.091						
Mar 11 2022	15:27:00	10.19	7.973						
Mar 11 2022	15:28:01	10.22	7.961						
Mar 11 2022	15:29:00	10.37	7.837						
Mar 11 2022	15:30:00	9.653	8.406						
Mar 11 2022	15:31:00	9.330	8.661						
Mar 11 2022	15:32:00	8.941	8.939						
Mar 11 2022	15:33:01	8.550	9.201						
Mar 11 2022	15:34:01	8.844	8.934						
Mar 11 2022	15:35:00	10.01	8.027						
Mar 11 2022	15:36:00	9.629	8.333						
Mar 11 2022	15:37:01	9.633	8.358						
Mar 11 2022	15:38:01	9.843	8.201						
Mar 11 2022	15:39:01	9.988	8.100						
Mar 11 2022	15:40:00	10.10	8.017						
Mar 11 2022	15:41:00	10.14	7.984						
Mar 11 2022	15:42:01	10.06	8.057						
Mar 11 2022	15:43:00	9.962	8.124						
End of port 1 point 6									
Mar 11 2022	15:48:01	9.553	8.474						
Mar 11 2022	15:49:00	9.724	8.353						
Mar 11 2022	15:50:00	9.668	8.388						
Mar 11 2022	15:51:00	9.512	8.505						
Mar 11 2022	15:52:00	9.097	8.812						
Mar 11 2022	15:53:01	8.944	8.907						
Mar 11 2022	15:54:00	9.103	8.785						
Mar 11 2022	15:55:01	8.830	8.970						
Mar 11 2022	15:56:01	9.128	8.717						
Mar 11 2022	15:57:01	9.001	8.793						
Mar 11 2022	15:58:01	8.894	8.869						
Mar 11 2022	15:59:00	8.409	9.253						
Mar 11 2022	16:00:00	8.590	9.115						
Mar 11 2022	16:01:00	9.194	8.638						
Mar 11 2022	16:02:00	9.870	8.118						
Mar 11 2022	16:03:00	10.04	7.996						
Mar 11 2022	16:04:00	10.16	7.921						
Mar 11 2022	16:05:00	10.24	7.862						
Mar 11 2022	16:06:00	10.45	7.696						
Mar 11 2022	16:07:00	10.75	7.477						
End of port 2 point 1									
Mar 11 2022	16:08:01	10.56	7.625						
Mar 11 2022	16:09:00	9.958	8.100						
Mar 11 2022	16:10:00	9.614	8.389						
Mar 11 2022	16:11:00	9.741	8.278						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Mar 11 2022	16:12:00	10.11	7.993						
Mar 11 2022	16:13:00	10.01	8.076						
Mar 11 2022	16:14:00	9.858	8.191						
Mar 11 2022	16:15:00	9.729	8.284						
Mar 11 2022	16:16:00	9.765	8.245						
Mar 11 2022	16:17:00	10.17	7.942						
Mar 11 2022	16:18:01	10.18	7.941						
Mar 11 2022	16:19:00	10.62	7.591						
Mar 11 2022	16:20:01	10.40	7.756						
Mar 11 2022	16:21:01	10.30	7.840						
Mar 11 2022	16:22:01	9.898	8.160						
Mar 11 2022	16:23:00	9.353	8.559						
Mar 11 2022	16:24:00	9.367	8.549						
Mar 11 2022	16:25:00	9.366	8.536						
Mar 11 2022	16:26:01	9.180	8.660						
Mar 11 2022	16:27:01	9.225	8.620						
End of port 2 point 2									
Mar 11 2022	16:28:00	9.545	8.380						
Mar 11 2022	16:29:00	9.581	8.352						
Mar 11 2022	16:30:00	9.961	8.065						
Mar 11 2022	16:31:01	9.872	8.134						
Mar 11 2022	16:32:00	9.620	8.360						
Mar 11 2022	16:33:00	9.505	8.451						
Mar 11 2022	16:34:01	9.772	8.243						
Mar 11 2022	16:35:01	9.796	8.210						
Mar 11 2022	16:36:00	9.769	8.218						
Mar 11 2022	16:37:01	9.511	8.423						
Mar 11 2022	16:38:00	9.306	8.585						
Mar 11 2022	16:39:00	9.108	8.738						
Mar 11 2022	16:40:00	9.198	8.655						
Mar 11 2022	16:41:00	9.677	8.291						
Mar 11 2022	16:42:01	10.24	7.870						
Mar 11 2022	16:43:00	9.900	8.140						
Mar 11 2022	16:44:00	9.854	8.180						
Mar 11 2022	16:45:00	9.610	8.371						
Mar 11 2022	16:46:00	9.414	8.532						
Mar 11 2022	16:47:00	9.192	8.708						
End of port 2 point 3									
Mar 11 2022	16:48:00	9.321	8.601						
Mar 11 2022	16:49:00	9.474	8.472						
Mar 11 2022	16:50:01	9.458	8.487						
Mar 11 2022	16:51:00	8.912	8.922						
Mar 11 2022	16:52:00	8.857	8.977						
Mar 11 2022	16:53:01	9.474	8.522						
Mar 11 2022	16:54:01	8.902	8.958						
Mar 11 2022	16:55:00	8.470	9.246						
Mar 11 2022	16:56:00	8.598	9.130						
Mar 11 2022	16:57:01	8.932	8.879						
Mar 11 2022	16:58:01	9.272	8.632						
Mar 11 2022	16:59:01	8.832	8.988						
Mar 11 2022	17:00:00	8.326	9.401						
Mar 11 2022	17:01:01	8.610	9.170						

Mar 11 2022	17:02:01	9.119	8.776						
Mar 11 2022	17:03:01	9.128	8.789						
Mar 11 2022	17:04:00	8.892	8.972						
Mar 11 2022	17:05:00	8.928	8.936						
Mar 11 2022	17:06:00	8.883	8.969						
Mar 11 2022	17:07:01	8.964	8.921						
End of port 2 point 4									
Mar 11 2022	17:08:01	9.167	8.777						
Mar 11 2022	17:09:00	9.163	8.788						
Mar 11 2022	17:10:00	9.493	8.533						
Mar 11 2022	17:11:01	9.496	8.544						
Mar 11 2022	17:12:00	9.527	8.530						
Mar 11 2022	17:13:00	9.595	8.480						
Mar 11 2022	17:14:00	9.819	8.296						
Mar 11 2022	17:15:00	10.50	7.762						
Mar 11 2022	17:16:00	10.70	7.626						
Mar 11 2022	17:17:00	9.855	8.273						
Mar 11 2022	17:18:00	9.263	8.729						
Mar 11 2022	17:19:00	9.483	8.561						
Mar 11 2022	17:20:00	9.593	8.490						
Mar 11 2022	17:21:01	9.624	8.480						
Mar 11 2022	17:22:00	9.864	8.301						
Mar 11 2022	17:23:01	9.804	8.352						
Mar 11 2022	17:24:01	9.720	8.426						
Mar 11 2022	17:25:00	9.742	8.409						
Mar 11 2022	17:26:01	9.612	8.505						
Mar 11 2022	17:27:00	10.09	8.131						
End of port 2 point 5									
Mar 11 2022	17:28:01	10.31	7.962						
Mar 11 2022	17:29:00	10.18	8.067						
Mar 11 2022	17:30:01	10.03	8.185						
Mar 11 2022	17:31:00	10.03	8.198						
Mar 11 2022	17:32:00	9.775	8.397						
Mar 11 2022	17:33:00	9.588	8.543						
Mar 11 2022	17:34:00	9.538	8.599						
Mar 11 2022	17:35:00	9.531	8.602						
Mar 11 2022	17:36:01	9.652	8.506						
Mar 11 2022	17:37:00	9.740	8.425						
Mar 11 2022	17:38:01	10.27	7.988						
Mar 11 2022	17:39:00	10.37	7.917						
Mar 11 2022	17:40:00	9.918	8.270						
Mar 11 2022	17:41:00	9.388	8.673						
Mar 11 2022	17:42:01	9.417	8.635						
Mar 11 2022	17:43:00	9.639	8.468						
Mar 11 2022	17:44:00	9.810	8.331						
Mar 11 2022	17:45:00	10.09	8.107						
Mar 11 2022	17:46:00	10.30	7.942						
Mar 11 2022	17:47:01	10.22	8.010						
End of port 2 point 6									

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

	Average:	10.11	7.979						
	Max:	11.88	9.401						
	Min:	8.326	6.520						

Stratification Results

Port	**Point**	O2-741	CO2-695						
1	1	10.97	7.345						
1	2	10.50	7.619						
1	3	11.37	6.912						
1	4	10.64	7.430						
1	5	10.53	7.628						
1	6	9.760	8.281						
2	1	9.504	8.444						
2	2	9.870	8.165						
2	3	9.622	8.347						
2	4	8.957	8.895						
2	5	9.765	8.357						
2	6	9.897	8.287						
	Strat diff:	1.255	0.919						
	Strat %:	8.448	7.909						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

~~Run 2~~ Post run bias - Unit 2 Run 3

13:43:00 - 17:47:01

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	10.11	7.979						
	Max:	11.88	9.401						
	Min:	8.326	6.520						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.026						
	Low reading:								
	Mid reading:	10.20	9.834						
	High reading:	23.04	22.67						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.115						
Mid %Err:	**<2.0**	0.043	-0.393						
High %Err:	**<2.0**	0.000	0.044						

Initial Bias Data									
	Zero reading:	-0.006	0.063						
	Span reading:	9.820	9.223						
Zero % bias:	**<5.0**	-0.035	0.393						
Span % bias:	**<5.0**	-1.649	-2.696						

Final Bias Data									
	Zero reading:	0.045	0.121						
	Span reading:	9.860	9.054						
Zero % bias:	**<5.0**	0.187	0.649						
Span % bias:	**<5.0**	-1.476	-3.442						
Zero % drift:	**<3.0**	0.222	0.256						
Span % drift:	**<3.0**	0.173	0.746						

Bias Corrected Averages									
	Cor Avg:	10.47	8.651						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1 Bags
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 3~~ Average Results - Unit 1 Run 2 Bags 0023A

17:58:00 - 18:01:00

	Name:	O2-741	CO2-695						
	Make/Model:								
Mar 11 2022	17:59:01	11.02	6.939						
Mar 11 2022	18:00:00	11.03	6.942						
Mar 11 2022	18:01:00	11.03	6.940						

	Average:	11.03	6.940						
	Max:	11.03	6.942						
	Min:	11.02	6.939						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 1 Bags
Run Length: 3	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: False	Ports: N/A	Points per port: N/A	DAQ Device: DT9806(00)

~~Run 3~~ Post run bias - Unit 1 Run 2 Bags 0023A
17:58:00 - 18:01:00

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Run summary data									
	Raw Avg:	11.03	6.940						
	Max:	11.03	6.942						
	Min:	11.02	6.939						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.026						
	Low reading:								
	Mid reading:	10.20	9.834						
	High reading:	23.04	22.67						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.115						
Mid %Err:	**<2.0**	0.043	-0.393						
High %Err:	**<2.0**	0.000	0.044						

Initial Bias Data									
	Zero reading:	0.045	0.121						
	Span reading:	9.860	9.054						
Zero % bias:	**<5.0**	0.187	0.649						
Span % bias:	**<5.0**	-1.476	-3.442						

Final Bias Data									
	Zero reading:	0.023	0.026						
	Span reading:	9.847	9.050						
Zero % bias:	**<5.0**	0.091	0.230						
Span % bias:	**<5.0**	-1.532	-3.460						
Zero % drift:	**<3.0**	0.096	0.420						
Span % drift:	**<3.0**	0.056	0.018						

Bias Corrected Averages									
	Cor Avg:	11.41	7.589						

Appendix A.9
Halogens & Halides Calculations/Results

SOURCE TEST DATA SUMMARY

Hydrogen Chloride by EPA Method 26A

Client				Covanta - Marion
Unit / Location				Unit 1 (North)
A (stack area), ft^2				12.566
T_{ref} (reference temperature), °F				68
Steam Production, Mlb/hr	68.3	68.6	66.5	
Test number	1-26A	2-26A	3-26A	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Start / Stop time	1003-1208	1350-1555	1730-1945	--
Meter box number	MB31	MB31	MB31	--
C_p (pitot coefficient), dimensionless	0.84	0.84	0.84	0.84
Y (meter calibration factor), dimensionless	0.9902	0.9902	0.9902	0.9902
Θ (sample time), min	120	120	120	120
Nozzle diameter, in	0.188	0.188	0.188	0.188
P_{bar} (barometric pressure), in Hg	29.84	29.84	29.84	29.84
V_m (meter box volume), acf	83.343	82.282	82.625	82.750
V_{lc} (impinger liquid), gm	280.2	287.3	291.9	286.5
T_m (meter temperature), °F	84.3	91.3	82.5	86.0
ΔH (meter pressure), in. H_2O	1.533	1.475	1.508	1.506
ΔP (velocity head), in. H_2O	1.8802	1.8371	1.8804	1.8659
P_g (static pressure), in. H_2O	-1.50	-1.30	-1.20	-1.33
T_s (stack temperature), °F	233.9	234.3	234.5	234.3
$\%O_2$ (oxygen stack gas), % volume dry	12.71	11.97	12.14	12.27
$\%CO_2$ (carbon dioxide stack gas), % volume dry	6.84	7.29	7.19	7.11
LAB RESULTS				
Impingers 1 & 2 (Sulfuric Acid Absorbing Solution)				
m_{12} (mass of HCl), µg	16,260	16,113	18,230	16,868
$V_{s,12}$ (Sample volume) ml	475	455	495	--
Impingers 3 & 4 (Sodium Hydroxide Absorbing Solution)				
m_{34} (mass of Cl_2), µg	<280	<255	<290	<268
$V_{s,34}$ (Sample volume) ml	280	255	290	--
1a $V_{m(std)}$ (standard sample volume), dscf	80.150	78.113	79.711	79.325
1b $V_{w(std)}$ (water vapor volume), scf	13.211	13.546	13.763	13.507
1c B_{ws} (moisture fraction), non-dimensional	0.1415	0.1478	0.1472	0.1455
B_{ws} (moisture fraction saturated), non-dimensional	NA	NA	NA	NA
B_{ws} (moisture fraction applicable), non-dimensional	0.1415	0.1478	0.1472	0.1455
1d M_d (stack gas molecular weight), dry	29.602	29.645	29.637	29.628
1e M_s (stack gas molecular weight), wet	27.960	27.924	27.923	27.936
1f P_s (absolute stack pressure), in Hg	29.730	29.744	29.752	29.742
1g V_s (stack gas velocity), ft/sec	89.968	88.991	90.037	89.665
1h Q (stack flow rate), acf/min	67,834	67,098	67,886	67,606
1i Q_{sw} (stack flow rate), wscf/min	51,287	50,724	51,321	51,111
1j Q_{sd} (stack flow rate), dscf/min	44,029	43,228	43,764	43,674
I (isokinetic ratio), %	98.9	98.2	98.9	98.7
Hydrogen Chloride (HCl) Emissions				
mg/sample as HCl	16.3	16.1	18.2	16.9
mg/dscm as HCl	7.16	7.28	8.08	7.51
ppmvd as HCl	4.72	4.80	5.32	4.95
ppmvd @ 7% O_2 as HCl	8.02	7.47	8.45	7.98
lb/hr as HCl	1.18	1.18	1.32	1.23
lb/1000 lb steam as HCl	0.0173	0.0172	0.0199	0.0181
Chlorine (Cl_2) Emissions				
mg/sample as Cl_2	<0.280	<0.255	<0.290	<0.268
mg/dscm as Cl_2	<0.123	<0.115	<0.128	<0.119
ppmvd as Cl_2	<0.0418	<0.0391	<0.0436	<0.0405
ppmvd @ 7% O_2 as Cl_2	<0.0710	<0.0608	<0.0691	<0.0659
lb/hr as Cl_2	<0.0203	<0.0186	<0.0210	<0.0195
lb/1000 lb steam as Cl_2	<2.98E-04	<2.72E-04	<3.16E-04	<2.85E-04

SOURCE TEST DATA SUMMARY

Hydrogen Fluoride by EPA Method 26A

Client				Covanta - Marion
Unit / Location				Unit 1 (North)
A (stack area), ft^2				12.566
T_{ref} (reference temperature), °F				68
Steam Production, Mlb/hr	68.3	68.6	66.5	
Test number	1-26A	2-26A	3-26A	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Start / Stop time	1003-1208	1350-1555	1730-1945	--
Meter box number	MB31	MB31	MB31	--
C_p (pitot coefficient), dimensionless	0.84	0.84	0.84	0.84
Y (meter calibration factor), dimensionless	0.9902	0.9902	0.990	0.9902
Θ (sample time), min	120	120	120	120
Nozzle diameter, in	0.188	0.188	0.188	0.188
P_{bar} (barometric pressure), in Hg	29.84	29.84	29.84	29.84
V_m (meter box volume), acf	83.343	82.282	82.625	82.750
V_{lc} (impinger liquid), gm	280.2	287.3	291.9	286.5
T_m (meter temperature), °F	84.3	91.3	82.5	86.0
ΔH (meter pressure), in. H_2O	1.533	1.475	1.508	1.506
ΔP (velocity head), in. H_2O	1.8802	1.8371	1.8804	1.8659
P_g (static pressure), in. H_2O	-1.50	-1.30	-1.20	-1.33
T_s (stack temperature), °F	233.9	234.3	234.5	234.3
$\%O_2$ (oxygen stack gas), % volume dry	12.71	11.97	12.14	12.27
$\%CO_2$ (carbon dioxide stack gas), % volume dry	6.84	7.29	7.19	7.11
LAB RESULTS				
Impingers 1 & 2 (Sulfuric Acid Absorbing Solution)				
m_{12} (mass of HF), µg	<25.0	<23.9	<26.0	<25.0
$V_{s,12}$ (Sample volume) ml	475	455	495	--
1a $V_{m(std)}$ (standard sample volume), dscf	80.150	78.113	79.711	79.325
1b $V_{w(std)}$ (water vapor volume), scf	13.211	13.546	13.763	13.507
1c B_{ws} (moisture fraction), non-dimensional	0.1415	0.1478	0.1472	0.1455
B_{ws} (moisture fraction saturated), non-dimensional	NA	NA	NA	NA
B_{ws} (moisture fraction applicable), non-dimensional	0.1415	0.1478	0.1472	0.1455
1d M_d (stack gas molecular weight), dry	29.602	29.645	29.637	29.628
1e M_s (stack gas molecular weight), wet	27.960	27.924	27.923	27.936
1f P_s (absolute stack pressure), in Hg	29.730	29.744	29.752	29.742
1g V_s (stack gas velocity), ft/sec	89.968	88.991	90.037	89.665
1h Q (stack flow rate), acf/min	67,834	67,098	67,886	67,606
1i Q_{sw} (stack flow rate), wscf/min	51,287	50,724	51,321	51,111
1j Q_{sd} (stack flow rate), dscf/min	44,029	43,228	43,764	43,674
I (isokinetic ratio), %	98.9	98.2	98.9	98.7
Hydrogen Fluoride (HF) Emissions				
mg/sample as HF	<0.0250	<0.0239	<0.0260	<0.0250
mg/dscm as HF	<0.0110	<0.0108	<0.0115	<0.0111
ppmvd as HF	<0.0132	<0.0130	<0.0138	<0.0133
ppmvd @ 7% O_2 as HF	<0.0225	<0.0202	<0.0220	<0.0215
lb/hr as HF	<1.81E-03	<1.75E-03	<1.89E-03	<1.82E-03
lb/1000 lb steam as HF	<2.66E-05	<2.55E-05	<2.84E-05	<2.68E-05

SOURCE TEST DATA SUMMARY

Hydrogen Bromide & Bromine by EPA Method 26A

Client				Covanta - Marion
Unit / Location				Unit 1 (North)
A (stack area), ft^2				12.566
T_{ref} (reference temperature), °F				68
Steam Production, Mlb/hr	68.3	68.6	66.5	
Test number	1-26A	2-26A	3-26A	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Start / Stop time	1003-1208	1350-1555	1730-1945	--
Meter box number	MB31	MB31	MB31	--
C_p (pitot coefficient), dimensionless	0.84	0.84	0.84	0.84
Y (meter calibration factor), dimensionless	0.9902	0.9902	0.9902	0.9902
Θ (sample time), min	120	120	120	120.00
Nozzle diameter, in	0.188	0.188	0.188	0.188
P_{bar} (barometric pressure), in Hg	29.84	29.84	29.84	29.84
V_m (meter box volume), acf	83.343	82.282	82.625	82.750
V_{lc} (impinger liquid), gm	280.2	287.3	291.9	286.5
T_m (meter temperature), °F	84.3	91.3	82.5	86.0
ΔH (meter pressure), in. H_2O	1.533	1.475	1.508	1.506
ΔP (velocity head), in. H_2O	1.8802	1.8371	1.8804	1.8659
P_g (static pressure), in. H_2O	-1.50	-1.30	-1.20	-1.33
T_s (stack temperature), °F	233.9	234.3	234.5	234.3
$\%O_2$ (oxygen stack gas), % volume dry	12.71	11.97	12.14	12.27
$\%CO_2$ (carbon dioxide stack gas), % volume dry	6.84	7.29	7.19	7.11
LAB RESULTS				
Impingers 1 & 2 (Sulfuric Acid Absorbing Solution)				
m_{12} (mass of HBr), µg	399	420	352	390
$V_{s,12}$ (Sample volume) ml	475	455	495	--
Impingers 3 & 4 (Sodium Hydroxide Absorbing Solution)				
m_{34} (mass of Br_2), µg	<280	<255	<290	<275
$V_{s,34}$ (Sample volume) ml	280	255	290	--
1a $V_{m(std)}$ (standard sample volume), dscf	80.150	78.113	79.711	79.325
1b $V_{w(std)}$ (water vapor volume), scf	13.211	13.546	13.763	13.507
1c B_{ws} (moisture fraction), non-dimensional	0.1415	0.1478	0.1472	0.1455
B_{ws} (moisture fraction saturated), non-dimensional	NA	NA	NA	NA
B_{ws} (moisture fraction applicable), non-dimensional	0.1415	0.1478	0.1472	0.1455
1d M_d (stack gas molecular weight), dry	29.602	29.645	29.637	29.628
1e M_s (stack gas molecular weight), wet	27.960	27.924	27.923	27.936
1f P_s (absolute stack pressure), in Hg	29.730	29.744	29.752	29.742
1g V_s (stack gas velocity), ft/sec	89.968	88.991	90.037	89.665
1h Q (stack flow rate), acf/min	67,834	67,098	67,886	67,606
1i Q_{sw} (stack flow rate), wscf/min	51,287	50,724	51,321	51,111
1j Q_{sd} (stack flow rate), dscf/min	44,029	43,228	43,764	43,674
I (isokinetic ratio), %	98.9	98.2	98.9	98.7
Hydrogen Bromide (HBr) Emissions				
mg/sample as HBr	0.399	0.420	0.352	0.390
mg/dscm as HBr	0.176	0.190	0.156	0.174
ppmvd as HBr	0.0522	0.0564	0.0463	0.0517
ppmvd @ 7% O_2 as HBr	0.0886	0.0878	0.0735	0.0833
lb/hr as HBr	0.0290	0.0307	0.0255	0.0284
lb/1000 lb steam as HBr	4.24E-04	4.48E-04	3.84E-04	4.19E-04
Bromine (Br_2) Emissions				
mg/sample as Br_2	<0.280	<0.255	<0.290	<0.275
mg/dscm as Br_2	<0.123	<0.115	<0.128	<0.122
ppmvd as Br_2	<0.0186	<0.0173	<0.0193	<0.0184
ppmvd @ 7% O_2 as Br_2	<0.0315	<0.0270	<0.0307	<0.0297
lb/hr as Br_2	<0.0203	<0.0186	<0.0210	<0.0200
lb/1000 lb steam as Br_2	<2.98E-04	<2.72E-04	<3.16E-04	<2.95E-04

Appendix A.10
Metals Calculations/Results

SOURCE TEST DATA SUMMARY

Method				EPA 29
Project No				010935
Client				Covanta
Unit / Location				Unit 2
Duct area, ft^2				12.566
Reference temperature, °F				68
Test number	Run 1	Run 2	Run 3	Average
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
Meter Box Number	MB32	MB32	MB32	--
Meter Calibration (Y_d)	0.994	0.994	0.994	--
Sample Time, minutes	120	120	120	--
Pitot Coefficient	0.84	0.84	0.84	--
Nozzle Diameter, inches	0.189	0.190	0.189	--
Steam rate, 1000lb/hr	67.6	68.4	68.5	68.2
Barometric pressure, in Hg	29.84	29.84	29.84	29.84
Meter box volume, acf	77.052	77.404	76.267	76.908
Impinger liquid volume, ml	289.0	314.6	315.9	306.5
Meter temperature, °F	58.3	56.8	52.1	55.8
Meter pressure, (Delta H) iwg	1.442	1.417	1.400	1.419
Velocity head, (Delta P) iwg	1.8384	1.8619	1.8391	1.846
Static pressure, iwg	-1.10	-1.10	-1.10	-1.10
Stack temperature, °F	272.7	273.3	273.1	273.0
O_2, % volume dry	12.03	11.57	11.84	11.81
CO_2, % volume dry	7.65	7.81	7.49	7.65
1a Standard sample volume, dscf	78.086	78.665	78.226	78.326
1b Water vapor volume, scf	13.626	14.833	14.895	14.451
Moisture fraction, nondimensional	0.1486	0.1586	0.1600	0.1557
Moisture fraction saturated, nondimensional	NA	NA	NA	NA
1c Moisture fraction applicable, nondimensional	0.1486	0.1586	0.1600	0.1557
1d Stack gas molecular weight, dry	29.705	29.712	29.672	29.697
1e Stack gas molecular weight, wet	27.966	27.854	27.805	27.875
1f Absolute stack pressure, in Hg	29.759	29.759	29.759	29.759
1g Stack gas velocity, ft/sec	91.357	92.166	91.664	91.729
1h Stack flow rate, acfm	68,881	69,491	69,113	69,162
1i Stack flow rate, wscfm	49,373	49,765	49,510	49,549
1j Stack flow rate, dscfm	42,037	41,870	41,591	41,833
Isokinetic ratio, %	99.84	99.93	101.09	100.29

LAB DATA SUMMARY

Method	EPA 29
Project No	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.566
Reference temperature, °F	68

Test number	1-MDL	2-MDL	3-MDL	**Reagent Blank**	Run 1	Run 2	Run 3	Average
Date	Method Detection Limits			3/8/22	3/9/22	3/9/22	3/9/22	--
Start / Stop time	(MDL)			--	0940-1153	1350-1555	1730-1935	--
				Flag Result	Flag Result	Flag Result	Flag Result	Flag Result
Aluminum (Al), µg	25.0	25.0	25.0	ADL 92.9	ADL 164	ADL 129	ADL 127	ADL 140
Antimony (Sb), µg	0.250	0.250	0.250	ND 0.250	ADL 3.18	ADL 9.10	ADL 9.70	ADL 7.33
Arsenic (As), µg	0.350	0.350	0.350	ND 0.348	ADL 0.445	ADL 0.745	ADL 0.520	ADL 0.570
Barium (Ba), µg	0.455	0.455	0.455	ADL 4.25	ADL 6.46	ADL 6.52	ADL 6.42	ADL 6.47
Beryllium (Be), µg	0.0500	0.0500	0.0500	ND 0.0500	ND 0.0500	ND 0.0500	ND 0.0500	ND 0.0500
Cadmium (Cd), µg	0.0500	0.0500	0.0500	ADL 0.751	ADL 1.02	ADL 2.33	ADL 2.90	ADL 2.08
Chromium (Cr), µg	0.270	0.270	0.270	ADL 1.35	ADL 2.82	ADL 4.72	ADL 3.86	ADL 3.80
Cobalt (Co), µg	0.180	0.180	0.180	ND 0.179	ADL 0.294	ADL 0.227	ADL 0.310	ADL 0.277
Copper (Cu), µg	0.515	0.515	0.515	ADL 2.35	ADL 2.45	ADL 6.15	ADL 6.03	ADL 4.88
Iron (Fe), µg	10.0	10.0	10.0	ADL 20.900	ADL 189	ADL 249	ADL 282	ADL 240
Lead (Pb), µg	0.0600	0.0600	0.0600	ADL 0.481	ADL 3.06	ADL 10.90	ADL 11.00	ADL 8.32
Manganese (Mn), µg	0.100	0.100	0.100	ADL 0.978	ADL 4.02	ADL 4.31	ADL 4.46	ADL 4.26
Mercury (Hg)								
Front Half, µg	0.0250	0.0250	0.0250	ADL 0.0290	ADL 0.119	ADL 0.188	ADL 0.204	ADL 0.170
Impingers (HNO_3/H_2O_2), µg	0.0250	0.0250	0.0250	ADL 0.523	ADL 1.57	ADL 1.50	ADL 1.47	ADL 1.513
Impinger (Empty), µg	0.0300	0.0300	0.0335	ND 0.0495	ADL 0.0587	ND 0.0300	ND 0.0335	DLL 0.04073
Impingers ($H_2SO_4/KMnO_4$), µg	0.0940	0.103	0.0932	ND 0.0222	ND 0.0940	ND 0.103	ND 0.0932	ND 0.10
HCl Rinse, µg	0.0682	0.0682	0.0682	ND 0.0682	ADL 0.186	ADL 0.114	ADL 0.182	ADL 0.161
Total Mercury (Hg), µg	**0.242**	**0.251**	**0.245**	DLL **0.692**	DLL **2.028**	DLL **1.935**	DLL **1.983**	DLL **1.982**
Molybdenum (Mo), µg	2.50	2.50	2.50	ADL 11.6	ADL 11.4	ADL 11.6	ADL 11.7	ADL 11.6
Nickel (Ni), µg	0.650	0.650	0.650	ADL 2.99	ADL 3.50	ADL 4.97	ADL 4.03	ADL 4.17
Phosphorus (P), µg	2.50	2.50	2.50	ND 2.50	ADL 9.72	ADL 28.0	ADL 12.6	ADL 16.8
Potassium (K), µg	25.0	25.0	25.0	ADL 51.9	ADL 157	ADL 372	ADL 358	ADL 296
Selenium (Se), µg	0.480	0.480	0.480	ADL 0.522	ADL 0.487	ND 0.478	ADL 0.743	DLL 0.569
Silver (Ag), µg	0.0500	0.0500	0.0500	ND 0.0500	ADL 0.185	ADL 0.210	ADL 0.143	ADL 0.179
Thallium (Tl), µg	0.200	0.200	0.200	ND 0.202	ND 0.202	ND 0.202	ND 0.202	ND 0.202
Vanadium (V), µg	5.00	5.00	5.00	ND 5.00	ND 5.00	ND 5.00	ND 5.00	ND 5.00
Zinc (Zn), µg	3.73	3.73	3.73	ND 3.73	ADL 45.0	ADL 157	ADL 151	ADL 118

Flags: ND - The result was measured below the RL and could not be approximated by the lab.
ADL - The result was detected in the fraction.
DLL - The result was detected in some fractions that contribute to this calculation, but not all.

BLANK CORRECTION SUMMARY

Method	EPA 29
Project No	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, (ft^2)	12.57
Reference temperature, °F	68.00
Filter size, mm	90

Test number	Run 1	Run 2	Run 3	Average
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
Aluminum (Al), Mfh, µg	**164.00**	**129.00**	**127.00**	**140.00**
Aluminum (Al), Mmdl, µg	25.000	25.000	25.000	25.000
Aluminum (Al), Mfhb exceeds A, µg	Yes	Yes	Yes	
Aluminum (Al), I. "A", µg	13.8	13.8	13.8	13.8
Aluminum (Al), II.a Mfhb, µg (detected)	92.90	92.90	92.90	92.90
Aluminum (Al), II.b 5% of Mfh, µg	8.20	6.45	6.35	7.00
Aluminum (Al), II final - lesser of II(a) or II(b), µg	8.20	6.45	6.35	7.00
Aluminum (Al), Greater of I or II, µg	13.80	13.80	13.80	13.80
Aluminum (Al), Mfhb - final, µg	13.80	13.80	13.80	13.80
Aluminum (Al), Mfh - Mfhb, µg	150.20	115.20	113.20	126.20
Aluminum (Al), Mfh, blank corrected final, µg	**150.195**	**115.195**	**113.195**	**126.195**
Antimony (Sb), µg	**3.18**	**9.10**	**9.70**	**7.33**
Antimony (Sb), Mmdl, µg	0.250	0.250	0.250	0.250
Antimony (Sb), Mfhb exceeds A, µg	No	No	No	
Antimony (Sb), I. "A", µg	13.8	13.8	13.8	13.8
Antimony (Sb), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Antimony (Sb), II.b 5% of Mfh, µg	0.16	0.46	0.49	0.37
Antimony (Sb), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Antimony (Sb), Greater of I or II, µg	13.80	13.80	13.80	13.80
Antimony (Sb), Mfhb - final, µg	0.00	0.00	0.00	0.00
Antimony (Sb), Mfh - Mfhb, µg	3.18	9.10	9.70	7.33
Antimony (Sb), Mfh, blank corrected final, µg	**3.180**	**9.100**	**9.700**	**7.327**

Arsenic (As), µg	**0.45**	**0.75**	**0.52**	**0.57**
Arsenic (As), Mmdl, µg	0.350	0.350	0.350	0.350
Arsenic (As), Mfhb exceeds A, µg	No	No	No	
Arsenic (As), I. "A", µg	13.8	13.8	13.8	13.8
Arsenic (As), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Arsenic (As), II.b 5% of Mfh, µg	0.02	0.04	0.03	0.03
Arsenic (As), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Arsenic (As), Greater of I or II, µg	13.80	13.80	13.80	13.80
Arsenic (As), Mfhb - final, µg	0.00	0.00	0.00	0.00
Arsenic (As), Mfh - Mfhb, µg	0.45	0.75	0.52	0.57
Arsenic (As), Mfh, blank corrected final, µg	**0.445**	**0.745**	**0.520**	**0.570**
Barium (Ba), µg	**6.46**	**6.52**	**6.42**	**6.47**
Barium (Ba), Mmdl, µg	0.455	0.455	0.455	0.455
Barium (Ba), Mfhb exceeds A, µg	No	No	No	
Barium (Ba), I. "A", µg	13.8	13.8	13.8	13.8
Barium (Ba), II.a Mfhb, µg (detected)	4.25	4.25	4.25	4.25
Barium (Ba), II.b 5% of Mfh, µg	0.32	0.33	0.32	0.32
Barium (Ba), II final - lesser of II(a) or II(b), µg	0.32	0.33	0.32	0.32
Barium (Ba), Greater of I or II, µg	13.80	13.80	13.80	13.80
Barium (Ba), Mfhb - final, µg	4.25	4.25	4.25	4.25
Barium (Ba), Mfh - Mfhb, µg	2.21	2.27	2.17	2.22
Barium (Ba), Mfh, blank corrected final, µg	**2.210**	**2.270**	**2.170**	**2.217**
Beryllium (Be), µg	**0.05**	**0.05**	**0.05**	**0.05**
Beryllium (Be), Mmdl, µg	0.050	0.050	0.050	0.050
Beryllium (Be), Mfhb exceeds A, µg	No	No	No	
Beryllium (Be), I. "A", µg	13.8	13.8	13.8	13.8
Beryllium (Be), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Beryllium (Be), II.b 5% of Mfh, µg	0.00	0.00	0.00	0.00
Beryllium (Be), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Beryllium (Be), Greater of I or II, µg	13.80	13.80	13.80	13.80
Beryllium (Be), Mfhb - final, µg	0.00	0.00	0.00	0.00
Beryllium (Be), Mfh - Mfhb, µg	0.05	0.05	0.05	0.05
Beryllium (Be), Mfh, blank corrected final, µg	**0.050**	**0.050**	**0.050**	**0.050**
Cadmium (Cd), µg	**1.02**	**2.33**	**2.90**	**2.08**
Cadmium (Cd), Mmdl, µg	0.050	0.050	0.050	0.050
Cadmium (Cd), Mfhb exceeds A, µg	No	No	No	
Cadmium (Cd), I. "A", µg	13.8	13.8	13.8	13.8
Cadmium (Cd), II.a Mfhb, µg (detected)	0.75	0.75	0.75	0.75
Cadmium (Cd), II.b 5% of Mfh, µg	0.05	0.12	0.15	0.10
Cadmium (Cd), II final - lesser of II(a) or II(b), µg	0.05	0.12	0.15	0.10
Cadmium (Cd), Greater of I or II, µg	13.80	13.80	13.80	13.80
Cadmium (Cd), Mfhb - final, µg	0.75	0.75	0.75	0.75
Cadmium (Cd), Mfh - Mfhb, µg	0.27	1.58	2.15	1.33
Cadmium (Cd), Mfh, blank corrected final, µg	**0.269**	**1.579**	**2.149**	**1.332**
Chromium (Cr), µg	**2.82**	**4.72**	**3.86**	**3.80**
Chromium (Cr), Mmdl, µg	0.270	0.270	0.270	0.270
Chromium (Cr), Mfhb exceeds A, µg	No	No	No	
Chromium (Cr), I. "A", µg	13.8	13.8	13.8	13.8
Chromium (Cr), II.a Mfhb, µg (detected)	1.35	1.35	1.35	1.35
Chromium (Cr), II.b 5% of Mfh, µg	0.14	0.24	0.19	0.19
Chromium (Cr), II final - lesser of II(a) or II(b), µg	0.14	0.24	0.19	0.19
Chromium (Cr), Greater of I or II, µg	13.80	13.80	13.80	13.80
Chromium (Cr), Mfhb - final, µg	1.35	1.35	1.35	1.35
Chromium (Cr), Mfh - Mfhb, µg	1.47	3.37	2.51	2.45
Chromium (Cr), Mfh, blank corrected final, µg	**1.470**	**3.370**	**2.510**	**2.450**
Cobalt (Co), µg	**0.29**	**0.23**	**0.31**	**0.28**
Cobalt (Co), Mmdl, µg	0.180	0.180	0.180	0.180
Cobalt (Co), Mfhb exceeds A, µg	No	No	No	
Cobalt (Co), I. "A", µg	13.8	13.8	13.8	13.8
Cobalt (Co), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Cobalt (Co), II.b 5% of Mfh, µg	0.01	0.01	0.02	0.01
Cobalt (Co), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Cobalt (Co), Greater of I or II, µg	13.80	13.80	13.80	13.80
Cobalt (Co), Mfhb - final, µg	0.00	0.00	0.00	0.00
Cobalt (Co), Mfh - Mfhb, µg	0.29	0.23	0.31	0.28
Cobalt (Co), Mfh, blank corrected final, µg	**0.294**	**0.227**	**0.310**	**0.277**
Copper (Cu), µg	**2.45**	**6.15**	**6.03**	**4.88**
Copper (Cu), Mmdl, µg	0.515	0.515	0.515	0.515
Copper (Cu), Mfhb exceeds A, µg	No	No	No	
Copper (Cu), I. "A", µg	13.8	13.8	13.8	13.8
Copper (Cu), II.a Mfhb, µg (detected)	2.35	2.35	2.35	2.35
Copper (Cu), II.b 5% of Mfh, µg	0.12	0.31	0.30	0.24
Copper (Cu), II final - lesser of II(a) or II(b), µg	0.12	0.31	0.30	0.24
Copper (Cu), Greater of I or II, µg	13.80	13.80	13.80	13.80
Copper (Cu), Mfhb - final, µg	2.35	2.35	2.35	2.35
Copper (Cu), Mfh - Mfhb, µg	0.10	3.80	3.68	2.53
Copper (Cu), Mfh, blank corrected final, µg	**0.515**	**3.800**	**3.680**	**2.665**

Iron (Fe), µg	**189.00**	**249.00**	**282.00**	**240.00**
Iron (Fe), Mmdl, µg	10.000	10.000	10.000	10.000
Iron (Fe), Mfhb exceeds A, µg	Yes	Yes	Yes	
Iron (Fe), I. "A", µg	13.8	13.8	13.8	13.8
Iron (Fe), II.a Mfhb, µg (detected)	20.90	20.90	20.90	20.90
Iron (Fe), II.b 5% of Mfh, µg	9.45	12.45	14.10	12.00
Iron (Fe), II final - lesser of II(a) or II(b), µg	9.45	12.45	14.10	12.00
Iron (Fe), Greater of I or II, µg	13.80	13.80	14.10	13.90
Iron (Fe), Mfhb - final, µg	13.80	13.80	14.10	13.90
Iron (Fe), Mfh - Mfhb, µg	175.20	235.20	267.90	226.10
Iron (Fe), Mfh, blank corrected final, µg	**175.195**	**235.195**	**267.900**	**226.097**
Lead (Pb), µg	**3.06**	**10.90**	**11.00**	**8.32**
Lead (Pb), Mmdl, µg	0.060	0.060	0.060	0.060
Lead (Pb), Mfhb exceeds A, µg	No	No	No	
Lead (Pb), I. "A", µg	13.8	13.8	13.8	13.8
Lead (Pb), II.a Mfhb, µg (detected)	0.48	0.48	0.48	0.48
Lead (Pb), II.b 5% of Mfh, µg	0.15	0.55	0.55	0.42
Lead (Pb), II final - lesser of II(a) or II(b), µg	0.15	0.48	0.48	0.37
Lead (Pb), Greater of I or II, µg	13.80	13.80	13.80	13.80
Lead (Pb), Mfhb - final, µg	0.48	0.48	0.48	0.48
Lead (Pb), Mfh - Mfhb, µg	2.58	10.42	10.52	7.84
Lead (Pb), Mfh, blank corrected final, µg	**2.579**	**10.419**	**10.519**	**7.839**
Manganese (Mn), µg	**4.02**	**4.31**	**4.46**	**4.26**
Manganese (Mn), Mmdl, µg	0.100	0.100	0.100	0.100
Manganese (Mn), Mfhb exceeds A, µg	No	No	No	
Manganese (Mn), I. "A", µg	13.8	13.8	13.8	13.8
Manganese (Mn), II.a Mfhb, µg (detected)	0.98	0.98	0.98	0.98
Manganese (Mn), II.b 5% of Mfh, µg	0.20	0.22	0.22	0.21
Manganese (Mn), II final - lesser of II(a) or II(b), µg	0.20	0.22	0.22	0.21
Manganese (Mn), Greater of I or II, µg	13.80	13.80	13.80	13.80
Manganese (Mn), Mfhb - final, µg	0.98	0.98	0.98	0.98
Manganese (Mn), Mfh - Mfhb, µg	3.04	3.33	3.48	3.29
Manganese (Mn), Mfh, blank corrected final, µg	**3.042**	**3.332**	**3.482**	**3.285**
Mercury (Hg), front half, µg	**0.12**	**0.19**	**0.20**	**0.17**
Mercury (Hg), back half, µg	**1.91**	**1.75**	**1.78**	**1.81**
Mercury (Hg) - FH, Mmdl, µg	0.025	0.025	0.025	0.025
Mercury (Hg) - BH, Mmdl, µg	0.217	0.226	0.220	0.221
Mercury (Hg), (Hgfhb + Hgbhb) exceeds 0.6 µg	No	No	No	
Mercury (Hg), I. 0.60, µg	0.6	0.6	0.6	0.6
Mercury (Hg), II.a.1 Hgfhb, µg (detected)	0.03	0.03	0.03	0.03
Mercury (Hg), II.a.2 Hgbhb, µg (detected)	0.52	0.52	0.52	0.52
Mercury (Hg), II.a (Hgfhb + Hgbhb), µg (detected)	0.55	0.55	0.55	0.55
Mercury (Hg), II.b 5% of (Hgfh+Hgbh), µg	0.10	0.10	0.10	0.10
Mercury (Hg), II final - lesser of II(a) or II(b), µg	0.10	0.10	0.10	0.10
Mercury (Hg), Greater of I or II, µg	0.60	0.60	0.60	0.60
Mercury (Hg), (Hgfhb + Hgbhb) - final, µg	0.55	0.55	0.55	0.55
Mercury (Hg), (Hgfh - Hgfhb) + (Hgbh - Hgbhb), µg	1.48	1.38	1.43	1.43
Mercury (Hg), total, blank corrected final, µg	**1.476**	**1.383**	**1.431**	**1.430**
Molybdenum (Mo), µg	**11.40**	**11.60**	**11.70**	**11.57**
Molybdenum (Mo), Mmdl, µg	2.500	2.500	2.500	2.500
Molybdenum (Mo), Mfhb exceeds A, µg	No	No	No	
Molybdenum (Mo), I. "A", µg	13.8	13.8	13.8	13.8
Molybdenum (Mo), II.a Mfhb, µg (detected)	11.60	11.60	11.60	11.60
Molybdenum (Mo), II.b 5% of Mfh, µg	0.57	0.58	0.59	0.58
Molybdenum (Mo), II final - lesser of II(a) or II(b), µg	0.57	0.58	0.59	0.58
Molybdenum (Mo), Greater of I or II, µg	13.80	13.80	13.80	13.80
Molybdenum (Mo), Mfhb - final, µg	11.60	11.60	11.60	11.60
Molybdenum (Mo), Mfh - Mfhb, µg	-0.20	0.00	0.10	-0.03
Molybdenum (Mo), Mfh, blank corrected final, µg	**2.500**	**2.500**	**2.500**	**2.500**
Nickel (Ni), µg	**3.50**	**4.97**	**4.03**	**4.17**
Nickel (Ni), Mmdl, µg	0.650	0.650	0.650	0.650
Nickel (Ni), Mfhb exceeds A, µg	No	No	No	
Nickel (Ni), I. "A", µg	13.8	13.8	13.8	13.8
Nickel (Ni), II.a Mfhb, µg (detected)	2.99	2.99	2.99	2.99
Nickel (Ni), II.b 5% of Mfh, µg	0.18	0.25	0.20	0.21
Nickel (Ni), II final - lesser of II(a) or II(b), µg	0.18	0.25	0.20	0.21
Nickel (Ni), Greater of I or II, µg	13.80	13.80	13.80	13.80
Nickel (Ni), Mfhb - final, µg	2.99	2.99	2.99	2.99
Nickel (Ni), Mfh - Mfhb, µg	0.51	1.98	1.04	1.18
Nickel (Ni), Mfh, blank corrected final, µg	**0.650**	**1.980**	**1.040**	**1.223**
Phosphorus (P), µg	**9.72**	**28.00**	**12.60**	**16.77**
Phosphorus (P), Mmdl, µg	2.500	2.500	2.500	2.500
Phosphorus (P), Mfhb exceeds A, µg	No	No	No	
Phosphorus (P), I. "A", µg	13.8	13.8	13.8	13.8
Phosphorus (P), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Phosphorus (P), II.b 5% of Mfh, µg	0.49	1.40	0.63	0.84
Phosphorus (P), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Phosphorus (P), Greater of I or II, µg	13.80	13.80	13.80	13.80
Phosphorus (P), Mfhb - final, µg	0.00	0.00	0.00	0.00
Phosphorus (P), Mfh - Mfhb, µg	9.72	28.00	12.60	16.77
Phosphorus (P), Mfh, blank corrected final, µg	**9.720**	**28.000**	**12.600**	**16.773**

Potassium (K), µg	**157.00**	**372.00**	**358.00**	**295.67**
Potassium (K), Mmdl, µg	25.000	25.000	25.000	25.000
Potassium (K), Mfhb exceeds A, µg	Yes	Yes	Yes	
Potassium (K), I. "A", µg	13.8	13.8	13.8	13.8
Potassium (K), II.a Mfhb, µg (detected)	51.90	51.90	51.90	51.90
Potassium (K), II.b 5% of Mfh, µg	7.85	18.60	17.90	14.78
Potassium (K), II final - lesser of II(a) or II(b), µg	7.85	18.60	17.90	14.78
Potassium (K), Greater of I or II, µg	13.80	18.60	17.90	16.77
Potassium (K), Mfhb - final, µg	13.80	18.60	17.90	16.77
Potassium (K), Mfh - Mfhb, µg	143.20	353.40	340.10	278.90
Potassium (K), Mfh, blank corrected final, µg	**143.195**	**353.400**	**340.100**	**278.898**
Selenium (Se), µg	**0.49**	**0.48**	**0.74**	**0.57**
Selenium (Se), Mmdl, µg	0.480	0.480	0.480	0.480
Selenium (Se), Mfhb exceeds A, µg	No	No	No	
Selenium (Se), I. "A", µg	13.8	13.8	13.8	13.8
Selenium (Se), II.a Mfhb, µg (detected)	0.52	0.52	0.52	0.52
Selenium (Se), II.b 5% of Mfh, µg	0.02	0.02	0.04	0.03
Selenium (Se), II final - lesser of II(a) or II(b), µg	0.02	0.02	0.04	0.03
Selenium (Se), Greater of I or II, µg	13.80	13.80	13.80	13.80
Selenium (Se), Mfhb - final, µg	0.52	0.52	0.52	0.52
Selenium (Se), Mfh - Mfhb, µg	-0.04	-0.04	0.22	0.05
Selenium (Se), Mfh, blank corrected final, µg	**0.480**	**0.480**	**0.480**	**0.480**
Silver (Ag), µg	**0.19**	**0.21**	**0.14**	**0.18**
Silver (Ag), Mmdl, µg	0.050	0.050	0.050	0.050
Silver (Ag), Mfhb exceeds A, µg	No	No	No	
Silver (Ag), I. "A", µg	13.8	13.8	13.8	13.8
Silver (Ag), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Silver (Ag), II.b 5% of Mfh, µg	0.01	0.01	0.01	0.01
Silver (Ag), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Silver (Ag), Greater of I or II, µg	13.80	13.80	13.80	13.80
Silver (Ag), Mfhb - final, µg	0.00	0.00	0.00	0.00
Silver (Ag), Mfh - Mfhb, µg	0.19	0.21	0.14	0.18
Silver (Ag), Mfh, blank corrected final, µg	**0.185**	**0.210**	**0.143**	**0.179**
Thallium (Tl), µg	**0.20**	**0.20**	**0.20**	**0.20**
Thallium (Tl), Mmdl, µg	0.200	0.200	0.200	0.200
Thallium (Tl), Mfhb exceeds A, µg	No	No	No	
Thallium (Tl), I. "A", µg	13.8	13.8	13.8	13.8
Thallium (Tl), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Thallium (Tl), II.b 5% of Mfh, µg	0.01	0.01	0.01	0.01
Thallium (Tl), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Thallium (Tl), Greater of I or II, µg	13.80	13.80	13.80	13.80
Thallium (Tl), Mfhb - final, µg	0.00	0.00	0.00	0.00
Thallium (Tl), Mfh - Mfhb, µg	0.20	0.20	0.20	0.20
Thallium (Tl), Mfh, blank corrected final, µg	**0.202**	**0.202**	**0.202**	**0.202**
Vanadium (V), µg	**5.00**	**5.00**	**5.00**	**5.00**
Vanadium (V), Mmdl, µg	5.000	5.000	5.000	5.000
Vanadium (V), Mfhb exceeds A, µg	No	No	No	
Vanadium (V), I. "A", µg	13.8	13.8	13.8	13.8
Vanadium (V), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Vanadium (V), II.b 5% of Mfh, µg	0.25	0.25	0.25	0.25
Vanadium (V), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Vanadium (V), Greater of I or II, µg	13.80	13.80	13.80	13.80
Vanadium (V), Mfhb - final, µg	0.00	0.00	0.00	0.00
Vanadium (V), Mfh - Mfhb, µg	5.00	5.00	5.00	5.00
Vanadium (V), Mfh, blank corrected final, µg	**5.000**	**5.000**	**5.000**	**5.000**
Zinc (Zn), µg	**45.00**	**157.00**	**151.00**	**117.67**
Zinc (Zn), Mmdl, µg	3.725	3.725	3.725	3.725
Zinc (Zn), Mfhb exceeds A, µg	No	No	No	
Zinc (Zn), I. "A", µg	13.8	13.8	13.8	13.8
Zinc (Zn), II.a Mfhb, µg (detected)	0.00	0.00	0.00	0.00
Zinc (Zn), II.b 5% of Mfh, µg	2.25	7.85	7.55	5.88
Zinc (Zn), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Zinc (Zn), Greater of I or II, µg	13.80	13.80	13.80	13.80
Zinc (Zn), Mfhb - final, µg	0.00	0.00	0.00	0.00
Zinc (Zn), Mfh - Mfhb, µg	45.00	157.00	151.00	117.67
Zinc (Zn), Mfh, blank corrected final, µg	**45.000**	**157.000**	**151.000**	**117.667**

RESULTS SUMMARY

Method	EPA 29
Project No.	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.566
Reference temperature, °F	68

	Run 1	Run 2	Run 3	Average
Test number				
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
O_2, % volume dry	12.03	11.57	11.84	11.81
CO_2, % volume dry	7.65	7.81	7.49	7.65
Stack Temperature, °F	272.7	273.3	273.1	273.0
Moisture Content, % by volume	14.86	15.86	16.00	15.57
Stack Flow Rate, dscfm	42,037	41,870	41,591	41,833
Standard Sample Volume, dscf	78.086	78.665	78.226	78.326

Aluminum (Al)								
mg/dscm	ADL	6.79E-02	ADL	5.17E-02	ADL	5.11E-02	ADL	5.69E-02
mg/dscm @ 7% O_2	ADL	1.06E-01	ADL	7.70E-02	ADL	7.84E-02	ADL	8.73E-02
lb/hr	ADL	0.011	ADL	0.0081	ADL	0.0080	ADL	0.0089
lb/1000 lb steam	ADL	1.58E-04	ADL	1.18E-04	ADL	1.16E-04	ADL	1.31E-04
Antimony (Sb)								
mg/dscm	ADL	1.44E-03	ADL	4.08E-03	ADL	4.38E-03	ADL	3.30E-03
mg/dscm @ 7% O_2	ADL	2.25E-03	ADL	6.09E-03	ADL	6.72E-03	ADL	5.02E-03
lb/hr	ADL	2.26E-04	ADL	6.40E-04	ADL	6.82E-04	ADL	5.16E-04
lb/1000 lb steam	ADL	3.35E-06	ADL	9.36E-06	ADL	9.95E-06	ADL	7.55E-06
Arsenic (As)								
mg/dscm	ADL	2.01E-04	ADL	3.34E-04	ADL	2.35E-04	ADL	2.57E-04
mg/dscm @ 7% O_2	ADL	3.15E-04	ADL	4.98E-04	ADL	3.60E-04	ADL	3.91E-04
lb/hr	ADL	3.17E-05	ADL	5.24E-05	ADL	3.65E-05	ADL	4.02E-05
lb/1000 lb steam	ADL	4.68E-07	ADL	7.66E-07	ADL	5.33E-07	ADL	5.89E-07
Barium (Ba)								
mg/dscm	ADL	9.99E-04	ADL	1.02E-03	ADL	9.80E-04	ADL	9.99E-04
mg/dscm @ 7% O_2	ADL	1.57E-03	ADL	1.52E-03	ADL	1.50E-03	ADL	1.53E-03
lb/hr	ADL	1.57E-04	ADL	1.60E-04	ADL	1.52E-04	ADL	1.56E-04
lb/1000 lb steam	ADL	2.33E-06	ADL	2.33E-06	ADL	2.23E-06	ADL	2.30E-06
Beryllium (Be)								
mg/dscm	ND	2.26E-05	ND	2.24E-05	ND	2.26E-05	ND	2.25E-05
mg/dscm @ 7% O_2	ND	3.54E-05	ND	3.34E-05	ND	3.46E-05	ND	3.45E-05
lb/hr	ND	3.56E-06	ND	3.52E-06	ND	3.51E-06	ND	3.53E-06
lb/1000 lb steam	ND	5.26E-08	ND	5.14E-08	ND	5.13E-08	ND	5.18E-08
Cadmium (Cd)								
mg/dscm	ADL	1.22E-04	ADL	7.09E-04	ADL	9.70E-04	ADL	6.00E-04
mg/dscm @ 7% O_2	ADL	1.91E-04	ADL	1.06E-03	ADL	1.49E-03	ADL	9.12E-04
lb/hr	ADL	1.91E-05	ADL	1.11E-04	ADL	1.51E-04	ADL	9.37E-05
lb/1000 lb steam	ADL	2.83E-07	ADL	1.62E-06	ADL	2.20E-06	ADL	1.37E-06
Chromium (Cr)								
mg/dscm	ADL	6.65E-04	ADL	1.51E-03	ADL	1.13E-03	ADL	1.10E-03
mg/dscm @ 7% O_2	ADL	1.04E-03	ADL	2.25E-03	ADL	1.74E-03	ADL	1.68E-03
lb/hr	ADL	1.05E-04	ADL	2.37E-04	ADL	1.76E-04	ADL	1.73E-04
lb/1000 lb steam	ADL	1.55E-06	ADL	3.47E-06	ADL	2.57E-06	ADL	2.53E-06
Cobalt (Co)								
mg/dscm	ADL	1.33E-04	ADL	1.02E-04	ADL	1.40E-04	ADL	1.25E-04
mg/dscm @ 7% O_2	ADL	2.08E-04	ADL	1.52E-04	ADL	2.15E-04	ADL	1.92E-04
lb/hr	ADL	2.09E-05	ADL	1.60E-05	ADL	2.18E-05	ADL	1.96E-05
lb/1000 lb steam	ADL	3.09E-07	ADL	2.33E-07	ADL	3.18E-07	ADL	2.87E-07
Copper (Cu)								
mg/dscm	ADL	2.33E-04	ADL	1.71E-03	ADL	1.66E-03	ADL	1.20E-03
mg/dscm @ 7% O_2	ADL	3.65E-04	ADL	2.54E-03	ADL	2.55E-03	ADL	1.82E-03
lb/hr	ADL	3.66E-05	ADL	2.67E-04	ADL	2.59E-04	ADL	1.88E-04
lb/1000 lb steam	ADL	5.42E-07	ADL	3.91E-06	ADL	3.77E-06	ADL	2.74E-06
Iron (Fe)								
mg/dscm	ADL	7.92E-02	ADL	1.06E-01	ADL	1.21E-01	ADL	1.02E-01
mg/dscm @ 7% O_2	ADL	1.24E-01	ADL	1.57E-01	ADL	1.86E-01	ADL	1.56E-01
lb/hr	ADL	1.25E-02	ADL	1.65E-02	ADL	1.88E-02	ADL	1.59E-02
lb/1000 lb steam	ADL	1.84E-04	ADL	2.42E-04	ADL	2.75E-04	ADL	2.34E-04
Lead (Pb)								
mg/dscm	ADL	1.17E-03	ADL	4.68E-03	ADL	4.75E-03	ADL	3.53E-03
mg/dscm @ 7% O_2	ADL	1.83E-03	ADL	6.97E-03	ADL	7.28E-03	ADL	5.36E-03
lb/hr	ADL	1.83E-04	ADL	7.33E-04	ADL	7.39E-04	ADL	5.52E-04
lb/1000 lb steam	ADL	2.71E-06	ADL	1.07E-05	ADL	1.08E-05	ADL	8.07E-06
Manganese (Mn)								
mg/dscm	ADL	1.38E-03	ADL	1.50E-03	ADL	1.57E-03	ADL	1.48E-03
mg/dscm @ 7% O_2	ADL	2.16E-03	ADL	2.23E-03	ADL	2.41E-03	ADL	2.27E-03
lb/hr	ADL	2.16E-04	ADL	2.34E-04	ADL	2.45E-04	ADL	2.32E-04
lb/1000 lb steam	ADL	3.20E-06	ADL	3.43E-06	ADL	3.57E-06	ADL	3.40E-06

RESULTS SUMMARY

Method	EPA 29
Project No.	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.566
Reference temperature, °F	68

	Run 1	Run 2	Run 3	Average
Test number				
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
O_2, % volume dry	12.03	11.57	11.84	11.81
CO_2, % volume dry	7.65	7.81	7.49	7.65
Stack Temperature, °F	272.7	273.3	273.1	273.0
Moisture Content, % by volume	14.86	15.86	16.00	15.57
Stack Flow Rate, dscfm	42,037	41,870	41,591	41,833
Standard Sample Volume, dscf	78.086	78.665	78.226	78.326
Mercury (Hg)				
mg/dscm	DLL 6.67E-04	DLL 6.21E-04	DLL 6.46E-04	DLL 6.45E-04
mg/dscm @ 7% O_2	DLL 1.05E-03	DLL 9.25E-04	DLL 9.91E-04	DLL 9.87E-04
lb/hr	DLL 1.05E-04	DLL 9.73E-05	DLL 1.01E-04	DLL 1.01E-04
lb/1000 lb steam	DLL 1.55E-06	DLL 1.42E-06	DLL 1.47E-06	DLL 1.48E-06
Molybdenum (Mo)				
mg/dscm	ADL 1.13E-03	ADL 1.12E-03	ADL 1.13E-03	ADL 1.13E-03
mg/dscm @ 7% O_2	ADL 1.77E-03	ADL 1.67E-03	ADL 1.73E-03	ADL 1.72E-03
lb/hr	ADL 1.78E-04	ADL 1.76E-04	ADL 1.76E-04	ADL 1.76E-04
lb/1000 lb steam	ADL 2.63E-06	ADL 2.57E-06	ADL 2.56E-06	ADL 2.59E-06
Nickel (Ni)				
mg/dscm	ADL 2.94E-04	ADL 8.89E-04	ADL 4.69E-04	ADL 5.51E-04
mg/dscm @ 7% O_2	ADL 4.61E-04	ADL 1.32E-03	ADL 7.20E-04	ADL 8.35E-04
lb/hr	ADL 4.62E-05	ADL 1.39E-04	ADL 7.31E-05	ADL 8.62E-05
lb/1000 lb steam	ADL 6.84E-07	ADL 2.04E-06	ADL 1.07E-06	ADL 1.26E-06
Phosphorus (P)				
mg/dscm	ADL 4.40E-03	ADL 1.26E-02	ADL 5.69E-03	ADL 7.55E-03
mg/dscm @ 7% O_2	ADL 6.89E-03	ADL 1.87E-02	ADL 8.73E-03	ADL 1.14E-02
lb/hr	ADL 6.92E-04	ADL 1.97E-03	ADL 8.85E-04	ADL 1.18E-03
lb/1000 lb steam	ADL 1.02E-05	ADL 2.88E-05	ADL 1.29E-05	ADL 1.73E-05
Potassium (K)				
mg/dscm	ADL 6.48E-02	ADL 1.59E-01	ADL 1.54E-01	ADL 1.26E-01
mg/dscm @ 7% O_2	ADL 1.01E-01	ADL 2.36E-01	ADL 2.36E-01	ADL 1.91E-01
lb/hr	ADL 1.02E-02	ADL 2.49E-02	ADL 2.39E-02	ADL 1.96E-02
lb/1000 lb steam	ADL 1.51E-04	ADL 3.63E-04	ADL 3.49E-04	ADL 2.88E-04
Selenium (Se)				
mg/dscm	ADL 2.17E-04	ND 2.15E-04	ADL 2.17E-04	DLL 2.16E-04
mg/dscm @ 7% O_2	ADL 3.40E-04	ND 3.21E-04	ADL 3.32E-04	DLL 3.31E-04
lb/hr	ADL 3.42E-05	ND 3.38E-05	ADL 3.37E-05	DLL 3.39E-05
lb/1000 lb steam	ADL 5.05E-07	ND 4.94E-07	ADL 4.92E-07	DLL 4.97E-07
Silver (Ag)				
mg/dscm	ADL 8.37E-05	ADL 9.43E-05	ADL 6.45E-05	ADL 8.08E-05
mg/dscm @ 7% O_2	ADL 1.31E-04	ADL 1.40E-04	ADL 9.90E-05	ADL 1.24E-04
lb/hr	ADL 1.32E-05	ADL 1.48E-05	ADL 1.00E-05	ADL 1.27E-05
lb/1000 lb steam	ADL 1.95E-07	ADL 2.16E-07	ADL 1.47E-07	ADL 1.86E-07
Thallium (Tl)				
mg/dscm	ND 9.13E-05	ND 9.07E-05	ND 9.12E-05	ND 9.11E-05
mg/dscm @ 7% O_2	ND 1.43E-04	ND 1.35E-04	ND 1.40E-04	ND 1.39E-04
lb/hr	ND 1.44E-05	ND 1.42E-05	ND 1.42E-05	ND 1.43E-05
lb/1000 lb steam	ND 2.13E-07	ND 2.08E-07	ND 2.07E-07	ND 2.09E-07
Vanadium (V)				
mg/dscm	ND 2.26E-03	ND 2.24E-03	ND 2.26E-03	ND 2.25E-03
mg/dscm @ 7% O_2	ND 3.54E-03	ND 3.34E-03	ND 3.46E-03	ND 3.45E-03
lb/hr	ND 3.56E-04	ND 3.52E-04	ND 3.51E-04	ND 3.53E-04
lb/1000 lb steam	ND 5.26E-06	ND 5.14E-06	ND 5.13E-06	ND 5.18E-06
Zinc (Zn)				
mg/dscm	ADL 2.03E-02	ADL 7.05E-02	ADL 6.82E-02	ADL 5.30E-02
mg/dscm @ 7% O_2	ADL 3.19E-02	ADL 1.05E-01	ADL 1.05E-01	ADL 8.05E-02
lb/hr	ADL 3.20E-03	ADL 1.10E-02	ADL 1.06E-02	ADL 8.29E-03
lb/1000 lb steam	ADL 4.74E-05	ADL 1.61E-04	ADL 1.55E-04	ADL 1.21E-04

LAB DATA SUMMARY

Method	EPA 29
Project No	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.566
Reference temperature, °F	68.0

Test number	1-MDL	2-MDL	3-MDL	**Reagent Blank**		Run 1		Run 2		Run 3		Average	
Date	Method Detection Limits			--		3/9/22		3/9/22		3/9/22		--	
Start / Stop time	(MDL)			--		0940-1153		1350-1555		1730-1935		--	
				Flag	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**
Aluminum (Al), µg	5.51	5.51	5.51	ND	5.76	ADL	12.8	ADL	7.91	ND	5.51	DLL	8.74
Antimony (Sb), µg	0.0548	0.0548	0.0548	ND	0.0576	ADL	2.25	ND	0.0548	ADL	0.0648	DLL	0.790
Arsenic (As), µg	0.0550	0.0548	0.0551	ND	0.0576	ADL	0.116	ND	0.0548	ND	0.0551	DLL	0.0753
Barium (Ba), µg	0.0220	0.0220	0.0220	ND	0.0230	ADL	0.840	ADL	0.260	ADL	0.254	ADL	0.451
Beryllium (Be), µg	0.0110	0.0110	0.0110	ND	0.0115	ND	0.0110	ND	0.0110	ND	0.0110	ND	0.0110
Cadmium (Cd), µg	0.0110	0.0110	0.0110	ND	0.0115	ADL	0.645	ND	0.0110	ND	0.0110	DLL	0.222
Chromium (Cr), µg	0.0847	0.0847	0.0847	ND	0.0887	ADL	0.903	ADL	0.490	ADL	0.333	ADL	0.575
Cobalt (Co), µg	0.0110	0.0110	0.0110	ND	0.0115	ADL	0.0523	ADL	0.0205	ADL	0.0122	ADL	0.0283
Copper (Cu), µg	0.0550	0.0550	0.0550	ND	0.0576	ADL	3.56	ADL	0.436	ADL	0.271	ADL	1.422
Iron (Fe), µg	2.20	2.20	2.20	ND	2.30	ADL	58.6	ADL	13.4	ADL	8.30	ADL	26.8
Lead (Pb), µg	0.0110	0.0110	0.0110	ND	0.0115	ADL	3.16	ADL	0.177	ND	0.0908	DLL	1.14
Manganese (Mn), µg	0.0220	0.0220	0.0220	ADL	0.0743	ADL	1.46	ADL	0.577	ADL	0.207	ADL	0.748
Molybdenum (Mo), µg	0.552	0.548	0.551	ADL	0.576	ND	0.552	ND	0.548	ND	0.551	ND	0.550
Nickel (Ni), µg	0.0616	0.0616	0.0616	ND	0.0649	ADL	0.986	ADL	0.415	ADL	0.208	ADL	0.536
Phosphorus (P), µg	0.550	0.550	0.550	ADL	1.03	ADL	4.95	ADL	2.71	ADL	1.67	ADL	3.11
Potassium (K), µg	5.51	5.51	5.51	ND	5.76	ADL	133	ADL	12.6	ND	5.51	DLL	50.4
Selenium (Se), µg	0.144	0.144	0.144	ND	0.151	ADL	0.523	ADL	0.301	ADL	0.235	ADL	0.353
Silver (Ag), µg	0.0110	0.0110	0.0110	ND	0.0115	ADL	0.103	ND	0.0110	ADL	0.137	DLL	0.0837
Thallium (Tl), µg	0.0110	0.0110	0.0110	ND	0.0115	ADL	0.0140	ND	0.0110	ND	0.0110	DLL	0.0120
Vanadium (V), µg	1.10	1.10	1.10	ND	1.15	ND	1.10	ND	1.10	ND	1.10	ND	1.10
Zinc (Zn), µg	0.220	0.220	0.220	ADL	0.319	ADL	67.7	ADL	3.84	ADL	1.91	ADL	24.5

Flags: ND - The result was measured below the RL and could not be approximated by the lab.
ADL - The result was detected in the fraction.
DLL - The result was detected in some fractions that contribute to this calculation, but not all.

BLANK CORRECTION SUMMARY

Method	EPA 29
Project No	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.57
Reference temperature, °F	68.00

Test number	Run 1	Run 2	Run 3	Average
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
Aluminum (Al), Mbh, µg	**12.80**	**7.91**	**5.51**	**8.74**
Aluminum (Al), Mmdl, µg	5.512	5.512	5.512	5.512
Aluminum (Al), If Mbhb exceeds 1, µg	No	No	No	
Aluminum (Al), I. 1 µg	1	1	1	1
Aluminum (Al), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Aluminum (Al), II.b 5% of Mbh, µg	0.64	0.40	0.28	0.44
Aluminum (Al), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Aluminum (Al), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Aluminum (Al), Mbhb - final, µg	0.00	0.00	0.00	0.00
Aluminum (Al), Mbh - Mfhb, µg	12.80	7.91	5.51	8.74
Aluminum (Al), Mbh, blank corrected final, µg	**12.80**	**7.91**	**5.51**	**8.74**
Antimony (Sb), µg	**2.25**	**0.05**	**0.06**	**0.79**
Antimony (Sb), Mmdl, µg	0.055	0.055	0.055	0.055
Antimony (Sb), If Mbhb exceeds 1, µg	No	No	No	
Antimony (Sb), I. 1 µg	1	1	1	1
Antimony (Sb), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Antimony (Sb), II.b 5% of Mbh, µg	0.11	0.00	0.00	0.04
Antimony (Sb), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Antimony (Sb), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Antimony (Sb), Mbhb - final, µg	0.00	0.00	0.00	0.00
Antimony (Sb), Mbh - Mfhb, µg	2.25	0.05	0.06	0.79
Antimony (Sb), Mbh, blank corrected final, µg	**2.25**	**0.05**	**0.06**	**0.79**

Arsenic (As), µg	**0.12**	**0.05**	**0.06**	**0.08**
Arsenic (As), Mmdl, µg	0.055	0.055	0.055	0.055
Arsenic (As), If Mbhb exceeds 1, µg	No	No	No	
Arsenic (As), I. 1 µg	1	1	1	1
Arsenic (As), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Arsenic (As), II.b 5% of Mbh, µg	0.01	0.00	0.00	0.00
Arsenic (As), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Arsenic (As), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Arsenic (As), Mbhb - final, µg	0.00	0.00	0.00	0.00
Arsenic (As), Mbh - Mfhb, µg	0.12	0.05	0.06	0.08
Arsenic (As), Mbh, blank corrected final, µg	**0.12**	**0.05**	**0.06**	**0.08**
Barium (Ba), µg	**0.84**	**0.26**	**0.25**	**0.45**
Barium (Ba), Mmdl, µg	0.022	0.022	0.022	0.022
Barium (Ba), If Mbhb exceeds 1, µg	No	No	No	
Barium (Ba), I. 1 µg	1	1	1	1
Barium (Ba), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Barium (Ba), II.b 5% of Mbh, µg	0.04	0.01	0.01	0.02
Barium (Ba), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Barium (Ba), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Barium (Ba), Mbhb - final, µg	0.00	0.00	0.00	0.00
Barium (Ba), Mbh - Mfhb, µg	0.84	0.26	0.25	0.45
Barium (Ba), Mbh, blank corrected final, µg	**0.84**	**0.26**	**0.25**	**0.45**
Beryllium (Be), µg	**0.01**	**0.01**	**0.01**	**0.01**
Beryllium (Be), Mmdl, µg	0.011	0.011	0.011	0.011
Beryllium (Be), If Mbhb exceeds 1, µg	No	No	No	
Beryllium (Be), I. 1 µg	1	1	1	1
Beryllium (Be), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Beryllium (Be), II.b 5% of Mbh, µg	0.00	0.00	0.00	0.00
Beryllium (Be), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Beryllium (Be), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Beryllium (Be), Mbhb - final, µg	0.00	0.00	0.00	0.00
Beryllium (Be), Mbh - Mfhb, µg	0.01	0.01	0.01	0.01
Beryllium (Be), Mbh, blank corrected final, µg	**0.01**	**0.01**	**0.01**	**0.01**
Cadmium (Cd), µg	**0.65**	**0.01**	**0.01**	**0.22**
Cadmium (Cd), Mmdl, µg	0.011	0.011	0.011	0.011
Cadmium (Cd), If Mbhb exceeds 1, µg	No	No	No	
Cadmium (Cd), I. 1 µg	1	1	1	1
Cadmium (Cd), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Cadmium (Cd), II.b 5% of Mbh, µg	0.03	0.00	0.00	0.01
Cadmium (Cd), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Cadmium (Cd), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Cadmium (Cd), Mbhb - final, µg	0.00	0.00	0.00	0.00
Cadmium (Cd), Mbh - Mfhb, µg	0.65	0.01	0.01	0.22
Cadmium (Cd), Mbh, blank corrected final, µg	**0.65**	**0.01**	**0.01**	**0.22**
Chromium (Cr), µg	**0.90**	**0.49**	**0.33**	**0.58**
Chromium (Cr), Mmdl, µg	0.085	0.085	0.085	0.085
Chromium (Cr), If Mbhb exceeds 1, µg	No	No	No	
Chromium (Cr), I. 1 µg	1	1	1	1
Chromium (Cr), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Chromium (Cr), II.b 5% of Mbh, µg	0.05	0.02	0.02	0.03
Chromium (Cr), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Chromium (Cr), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Chromium (Cr), Mbhb - final, µg	0.00	0.00	0.00	0.00
Chromium (Cr), Mbh - Mfhb, µg	0.90	0.49	0.33	0.58
Chromium (Cr), Mbh, blank corrected final, µg	**0.90**	**0.49**	**0.33**	**0.58**
Cobalt (Co), µg	**0.05**	**0.02**	**0.01**	**0.03**
Cobalt (Co), Mmdl, µg	0.011	0.011	0.011	0.011
Cobalt (Co), If Mbhb exceeds 1, µg	No	No	No	
Cobalt (Co), I. 1 µg	1	1	1	1
Cobalt (Co), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Cobalt (Co), II.b 5% of Mbh, µg	0.00	0.00	0.00	0.00
Cobalt (Co), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Cobalt (Co), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Cobalt (Co), Mbhb - final, µg	0.00	0.00	0.00	0.00
Cobalt (Co), Mbh - Mfhb, µg	0.05	0.02	0.01	0.03
Cobalt (Co), Mbh, blank corrected final, µg	**0.05**	**0.02**	**0.01**	**0.03**
Copper (Cu), µg	**3.56**	**0.44**	**0.27**	**1.42**
Copper (Cu), Mmdl, µg	0.055	0.055	0.055	0.055
Copper (Cu), If Mbhb exceeds 1, µg	No	No	No	
Copper (Cu), I. 1 µg	1	1	1	1
Copper (Cu), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Copper (Cu), II.b 5% of Mbh, µg	0.18	0.02	0.01	0.07
Copper (Cu), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Copper (Cu), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Copper (Cu), Mbhb - final, µg	0.00	0.00	0.00	0.00
Copper (Cu), Mbh - Mfhb, µg	3.56	0.44	0.27	1.42
Copper (Cu), Mbh, blank corrected final, µg	**3.56**	**0.44**	**0.27**	**1.42**

Iron (Fe), µg	**58.60**	**13.40**	**8.30**	**26.77**
Iron (Fe), Mmdl, µg	2.200	2.200	2.200	2.200
Iron (Fe), If Mbhb exceeds 1, µg	No	No	No	
Iron (Fe), I. 1 µg	1	1	1	1
Iron (Fe), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Iron (Fe), II.b 5% of Mbh, µg	2.93	0.67	0.42	1.34
Iron (Fe), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Iron (Fe), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Iron (Fe), Mbhb - final, µg	0.00	0.00	0.00	0.00
Iron (Fe), Mbh - Mfhb, µg	58.60	13.40	8.30	26.77
Iron (Fe), Mbh, blank corrected final, µg	**58.60**	**13.40**	**8.30**	**26.77**
Lead (Pb), µg	**3.16**	**0.18**	**0.09**	**1.14**
Lead (Pb), Mmdl, µg	0.011	0.011	0.011	0.011
Lead (Pb), If Mbhb exceeds 1, µg	No	No	No	
Lead (Pb), I. 1 µg	1	1	1	1
Lead (Pb), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Lead (Pb), II.b 5% of Mbh, µg	0.16	0.01	0.00	0.06
Lead (Pb), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Lead (Pb), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Lead (Pb), Mbhb - final, µg	0.00	0.00	0.00	0.00
Lead (Pb), Mbh - Mfhb, µg	3.16	0.18	0.09	1.14
Lead (Pb), Mbh, blank corrected final, µg	**3.16**	**0.18**	**0.09**	**1.14**
Manganese (Mn), µg	**1.46**	**0.58**	**0.21**	**0.75**
Manganese (Mn), Mmdl, µg	0.022	0.022	0.022	0.022
Manganese (Mn), If Mbhb exceeds 1, µg	No	No	No	
Manganese (Mn), I. 1 µg	1	1	1	1
Manganese (Mn), II.a Mbhb, µg (detected)	0.07	0.07	0.07	0.07
Manganese (Mn), II.b 5% of Mbh, µg	0.07	0.03	0.01	0.04
Manganese (Mn), II final - lesser of II(a) or II(b), µg	0.07	0.03	0.01	0.04
Manganese (Mn), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Manganese (Mn), Mbhb - final, µg	0.07	0.07	0.07	0.07
Manganese (Mn), Mbh - Mfhb, µg	1.39	0.50	0.13	0.67
Manganese (Mn), Mbh, blank corrected final, µg	**1.39**	**0.50**	**0.13**	**0.67**
Molybdenum (Mo), µg	**0.55**	**0.55**	**0.55**	**0.55**
Molybdenum (Mo), Mmdl, µg	0.552	0.548	0.551	0.551
Molybdenum (Mo), If Mbhb exceeds 1, µg	No	No	No	
Molybdenum (Mo), I. 1 µg	1	1	1	1
Molybdenum (Mo), II.a Mbhb, µg (detected)	0.58	0.58	0.58	0.58
Molybdenum (Mo), II.b 5% of Mbh, µg	0.03	0.03	0.03	0.03
Molybdenum (Mo), II final - lesser of II(a) or II(b), µg	0.03	0.03	0.03	0.03
Molybdenum (Mo), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Molybdenum (Mo), Mbhb - final, µg	0.58	0.58	0.58	0.58
Molybdenum (Mo), Mbh - Mfhb, µg	-0.02	-0.03	-0.02	-0.03
Molybdenum (Mo), Mbh, blank corrected final, µg	**0.55**	**0.55**	**0.55**	**0.55**
Nickel (Ni), µg	**0.99**	**0.42**	**0.21**	**0.54**
Nickel (Ni), Mmdl, µg	0.062	0.062	0.062	0.062
Nickel (Ni), If Mbhb exceeds 1, µg	No	No	No	
Nickel (Ni), I. 1 µg	1	1	1	1
Nickel (Ni), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Nickel (Ni), II.b 5% of Mbh, µg	0.05	0.02	0.01	0.03
Nickel (Ni), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Nickel (Ni), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Nickel (Ni), Mbhb - final, µg	0.00	0.00	0.00	0.00
Nickel (Ni), Mbh - Mfhb, µg	0.99	0.42	0.21	0.54
Nickel (Ni), Mbh, blank corrected final, µg	**0.99**	**0.42**	**0.21**	**0.54**
Phosphorus (P), µg	**4.95**	**2.71**	**1.67**	**3.11**
Phosphorus (P), Mmdl, µg	0.550	0.550	0.550	0.550
Phosphorus (P), If Mbhb exceeds 1, µg	Yes	Yes	Yes	
Phosphorus (P), I. 1 µg	1	1	1	1
Phosphorus (P), II.a Mbhb, µg (detected)	1.03	1.03	1.03	1.03
Phosphorus (P), II.b 5% of Mbh, µg	0.25	0.14	0.08	0.16
Phosphorus (P), II final - lesser of II(a) or II(b), µg	0.25	0.14	0.08	0.16
Phosphorus (P), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Phosphorus (P), Mbhb - final, µg	1.00	1.00	1.00	1.00
Phosphorus (P), Mbh - Mfhb, µg	3.95	1.71	0.67	2.11
Phosphorus (P), Mbh, blank corrected final, µg	**3.95**	**1.71**	**0.67**	**2.11**
Potassium (K), µg	**133.00**	**12.60**	**5.51**	**50.37**
Potassium (K), Mmdl, µg	5.512	5.512	5.512	5.512
Potassium (K), If Mbhb exceeds 1, µg	No	No	No	
Potassium (K), I. 1 µg	1	1	1	1
Potassium (K), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Potassium (K), II.b 5% of Mbh, µg	6.65	0.63	0.28	2.52
Potassium (K), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Potassium (K), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Potassium (K), Mbhb - final, µg	0.00	0.00	0.00	0.00
Potassium (K), Mbh - Mfhb, µg	133.00	12.60	5.51	50.37
Potassium (K), Mbh, blank corrected final, µg	**133.00**	**12.60**	**5.51**	**50.37**

Selenium (Se), µg	**0.52**	**0.30**	**0.24**	**0.35**
Selenium (Se), Mmdl, µg	0.144	0.144	0.144	0.144
Selenium (Se), If Mbhb exceeds 1, µg	No	No	No	
Selenium (Se), I. 1 µg	1	1	1	1
Selenium (Se), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Selenium (Se), II.b 5% of Mbh, µg	0.03	0.02	0.01	0.02
Selenium (Se), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Selenium (Se), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Selenium (Se), Mbhb - final, µg	0.00	0.00	0.00	0.00
Selenium (Se), Mbh - Mfhb, µg	0.52	0.30	0.24	0.35
Selenium (Se), Mbh, blank corrected final, µg	**0.52**	**0.30**	**0.24**	**0.35**
Silver (Ag), µg	**0.10**	**0.01**	**0.14**	**0.08**
Silver (Ag), Mmdl, µg	0.011	0.011	0.011	0.011
Silver (Ag), If Mbhb exceeds 1, µg	No	No	No	
Silver (Ag), I. 1 µg	1	1	1	1
Silver (Ag), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Silver (Ag), II.b 5% of Mbh, µg	0.01	0.00	0.01	0.00
Silver (Ag), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Silver (Ag), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Silver (Ag), Mbhb - final, µg	0.00	0.00	0.00	0.00
Silver (Ag), Mbh - Mfhb, µg	0.10	0.01	0.14	0.08
Silver (Ag), Mbh, blank corrected final, µg	**0.10**	**0.01**	**0.14**	**0.08**
Thallium (Tl), µg	**0.01**	**0.01**	**0.01**	**0.01**
Thallium (Tl), Mmdl, µg	0.011	0.011	0.011	0.011
Thallium (Tl), If Mbhb exceeds 1, µg	No	No	No	
Thallium (Tl), I. 1 µg	1	1	1	1
Thallium (Tl), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Thallium (Tl), II.b 5% of Mbh, µg	0.00	0.00	0.00	0.00
Thallium (Tl), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Thallium (Tl), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Thallium (Tl), Mbhb - final, µg	0.00	0.00	0.00	0.00
Thallium (Tl), Mbh - Mfhb, µg	0.01	0.01	0.01	0.01
Thallium (Tl), Mbh, blank corrected final, µg	**0.01**	**0.01**	**0.01**	**0.01**
Vanadium (V), µg	**1.10**	**1.10**	**1.10**	**1.10**
Vanadium (V), Mmdl, µg	1.104	1.096	1.103	1.101
Vanadium (V), If Mbhb exceeds 1, µg	No	No	No	
Vanadium (V), I. 1 µg	1	1	1	1
Vanadium (V), II.a Mbhb, µg (detected)	0.00	0.00	0.00	0.00
Vanadium (V), II.b 5% of Mbh, µg	0.06	0.06	0.06	0.06
Vanadium (V), II final - lesser of II(a) or II(b), µg	0.00	0.00	0.00	0.00
Vanadium (V), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Vanadium (V), Mbhb - final, µg	0.00	0.00	0.00	0.00
Vanadium (V), Mbh - Mfhb, µg	1.10	1.10	1.10	1.10
Vanadium (V), Mbh, blank corrected final, µg	**1.10**	**1.10**	**1.10**	**1.10**
Zinc (Zn), µg	**67.70**	**3.84**	**1.91**	**24.48**
Zinc (Zn), Mmdl, µg	0.220	0.220	0.220	0.220
Zinc (Zn), If Mbhb exceeds 1, µg	No	No	No	
Zinc (Zn), I. 1 µg	1	1	1	1
Zinc (Zn), II.a Mbhb, µg (detected)	0.32	0.32	0.32	0.32
Zinc (Zn), II.b 5% of Mbh, µg	3.39	0.19	0.10	1.22
Zinc (Zn), II final - lesser of II(a) or II(b), µg	0.32	0.19	0.10	0.20
Zinc (Zn), Mbhb - greater of I or II, µg	**1.00**	**1.00**	**1.00**	**1.00**
Zinc (Zn), Mbhb - final, µg	0.32	0.32	0.32	0.32
Zinc (Zn), Mbh - Mfhb, µg	67.38	3.52	1.59	24.16
Zinc (Zn), Mbh, blank corrected final, µg	**67.38**	**3.52**	**1.59**	**24.16**

RESULTS SUMMARY

Method	EPA 29
Project No.	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	0.000
Reference temperature, °F	68

	Run 1	Run 2	Run 3	Average
Test number				
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
O_2, % volume dry	12.03	11.57	11.84	11.81
CO_2, % volume dry	7.65	7.81	7.49	7.65
Stack Temperature, °F	272.7	273.3	273.1	273.0
Moisture Content, % by volume	14.86	15.86	16.00	15.57
Stack Flow Rate, dscfm	42,037	41,870	41,591	41,833
Standard Sample Volume, dscf	78.086	78.665	78.226	78.326

Aluminum (Al)								
mg/dscm	ADL	5.79E-03	ADL	3.55E-03	ND	2.49E-03	DLL	3.94E-03
mg/dscm @ 7% O_2	ADL	9.07E-03	ADL	5.29E-03	ND	3.82E-03	DLL	6.06E-03
lb/hr	ADL	9.11E-04	ADL	5.56E-04	ND	3.87E-04	DLL	6.18E-04
lb/1000 lb steam	ADL	1.35E-05	ADL	8.13E-06	ND	5.65E-06	DLL	9.09E-06
Antimony (Sb)								
mg/dscm	ADL	1.02E-03	ND	2.46E-05	ADL	2.92E-05	DLL	3.57E-04
mg/dscm @ 7% O_2	ADL	1.59E-03	ND	3.66E-05	ADL	4.49E-05	DLL	5.59E-04
lb/hr	ADL	1.60E-04	ND	3.85E-06	ADL	4.55E-06	DLL	5.62E-05
lb/1000 lb steam	ADL	2.37E-06	ND	5.64E-08	ADL	6.65E-08	DLL	8.30E-07
Arsenic (As)								
mg/dscm	ADL	5.25E-05	ND	2.46E-05	ND	2.49E-05	DLL	3.40E-05
mg/dscm @ 7% O_2	ADL	8.22E-05	ND	3.66E-05	ND	3.82E-05	DLL	5.23E-05
lb/hr	ADL	8.25E-06	ND	3.85E-06	ND	3.87E-06	DLL	5.33E-06
lb/1000 lb steam	ADL	1.22E-07	ND	5.64E-08	ND	5.65E-08	DLL	7.83E-08
Barium (Ba)								
mg/dscm	ADL	3.80E-04	ADL	1.17E-04	ADL	1.15E-04	ADL	2.04E-04
mg/dscm @ 7% O_2	ADL	5.95E-04	ADL	1.74E-04	ADL	1.76E-04	ADL	3.15E-04
lb/hr	ADL	5.98E-05	ADL	1.83E-05	ADL	1.78E-05	ADL	3.20E-05
lb/1000 lb steam	ADL	8.84E-07	ADL	2.67E-07	ADL	2.61E-07	ADL	4.71E-07
Beryllium (Be)								
mg/dscm	ND	4.97E-06	ND	4.94E-06	ND	4.97E-06	ND	4.96E-06
mg/dscm @ 7% O_2	ND	7.79E-06	ND	7.36E-06	ND	7.62E-06	ND	7.59E-06
lb/hr	ND	7.83E-07	ND	7.74E-07	ND	7.73E-07	ND	7.76E-07
lb/1000 lb steam	ND	1.16E-08	ND	1.13E-08	ND	1.13E-08	ND	1.14E-08
Cadmium (Cd)								
mg/dscm	ADL	2.92E-04	ND	4.94E-06	ND	4.97E-06	DLL	1.01E-04
mg/dscm @ 7% O_2	ADL	4.57E-04	ND	7.36E-06	ND	7.62E-06	DLL	1.57E-04
lb/hr	ADL	4.59E-05	ND	7.74E-07	ND	7.73E-07	DLL	1.58E-05
lb/1000 lb steam	ADL	6.79E-07	ND	1.13E-08	ND	1.13E-08	DLL	2.34E-07
Chromium (Cr)								
mg/dscm	ADL	4.08E-04	ADL	2.20E-04	ADL	1.50E-04	ADL	2.60E-04
mg/dscm @ 7% O_2	ADL	6.40E-04	ADL	3.28E-04	ADL	2.31E-04	ADL	3.99E-04
lb/hr	ADL	6.42E-05	ADL	3.45E-05	ADL	2.34E-05	ADL	4.07E-05
lb/1000 lb steam	ADL	9.50E-07	ADL	5.04E-07	ADL	3.42E-07	ADL	5.99E-07
Cobalt (Co)								
mg/dscm	ADL	2.36E-05	ADL	9.20E-06	ADL	5.51E-06	ADL	1.28E-05
mg/dscm @ 7% O_2	ADL	3.71E-05	ADL	1.37E-05	ADL	8.45E-06	ADL	1.97E-05
lb/hr	ADL	3.72E-06	ADL	1.44E-06	ADL	8.57E-07	ADL	2.01E-06
lb/1000 lb steam	ADL	5.50E-08	ADL	2.11E-08	ADL	1.25E-08	ADL	2.95E-08
Copper (Cu)								
mg/dscm	ADL	1.61E-03	ADL	1.96E-04	ADL	1.22E-04	ADL	6.43E-04
mg/dscm @ 7% O_2	ADL	2.52E-03	ADL	2.92E-04	ADL	1.88E-04	ADL	1.00E-03
lb/hr	ADL	2.53E-04	ADL	3.07E-05	ADL	1.90E-05	ADL	1.01E-04
lb/1000 lb steam	ADL	3.75E-06	ADL	4.48E-07	ADL	2.78E-07	ADL	1.49E-06
Iron (Fe)								
mg/dscm	ADL	2.65E-02	ADL	6.01E-03	ADL	3.75E-03	ADL	1.21E-02
mg/dscm @ 7% O_2	ADL	4.15E-02	ADL	8.96E-03	ADL	5.75E-03	ADL	1.87E-02
lb/hr	ADL	4.17E-03	ADL	9.43E-04	ADL	5.83E-04	ADL	1.90E-03
lb/1000 lb steam	ADL	6.17E-05	ADL	1.38E-05	ADL	8.51E-06	ADL	2.80E-05
Lead (Pb)								
mg/dscm	ADL	1.43E-03	ADL	7.94E-05	ND	4.10E-05	DLL	5.16E-04
mg/dscm @ 7% O_2	ADL	2.24E-03	ADL	1.18E-04	ND	6.29E-05	DLL	8.07E-04
lb/hr	ADL	2.25E-04	ADL	1.25E-05	ND	6.38E-06	DLL	8.12E-05
lb/1000 lb steam	ADL	3.33E-06	ADL	1.82E-07	ND	9.31E-08	DLL	1.20E-06
Manganese (Mn)								
mg/dscm	ADL	6.27E-04	ADL	2.26E-04	ADL	5.99E-05	ADL	3.04E-04
mg/dscm @ 7% O_2	ADL	9.82E-04	ADL	3.36E-04	ADL	9.19E-05	ADL	4.70E-04
lb/hr	ADL	9.86E-05	ADL	3.54E-05	ADL	9.32E-06	ADL	4.78E-05
lb/1000 lb steam	ADL	1.46E-06	ADL	5.17E-07	ADL	1.36E-07	ADL	7.04E-07

RESULTS SUMMARY

Method	EPA 29
Project No.	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	0.000
Reference temperature, °F	68

	Run 1	Run 2	Run 3	Average
Test number				
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
O_2, % volume dry	12.03	11.57	11.84	11.81
CO_2, % volume dry	7.65	7.81	7.49	7.65
Stack Temperature, °F	272.7	273.3	273.1	273.0
Moisture Content, % by volume	14.86	15.86	16.00	15.57
Stack Flow Rate, dscfm	42,037	41,870	41,591	41,833
Standard Sample Volume, dscf	78.086	78.665	78.226	78.326

Molybdenum (Mo)								
mg/dscm	ND	2.50E-04	ND	2.46E-04	ND	2.49E-04	ND	2.48E-04
mg/dscm @ 7% O_2	ND	3.91E-04	ND	3.67E-04	ND	3.82E-04	ND	3.80E-04
lb/hr	ND	3.93E-05	ND	3.86E-05	ND	3.87E-05	ND	3.89E-05
lb/1000 lb steam	ND	5.81E-07	ND	5.64E-07	ND	5.65E-07	ND	5.70E-07
Nickel (Ni)								
mg/dscm	ADL	4.46E-04	ADL	1.86E-04	ADL	9.39E-05	ADL	2.42E-04
mg/dscm @ 7% O_2	ADL	6.99E-04	ADL	2.78E-04	ADL	1.44E-04	ADL	3.73E-04
lb/hr	ADL	7.02E-05	ADL	2.92E-05	ADL	1.46E-05	ADL	3.80E-05
lb/1000 lb steam	ADL	1.04E-06	ADL	4.27E-07	ADL	2.13E-07	ADL	5.59E-07
Phosphorus (P)								
mg/dscm	ADL	1.79E-03	ADL	7.68E-04	ADL	3.02E-04	ADL	9.52E-04
mg/dscm @ 7% O_2	ADL	2.80E-03	ADL	1.14E-03	ADL	4.64E-04	ADL	1.47E-03
lb/hr	ADL	2.81E-04	ADL	1.20E-04	ADL	4.71E-05	ADL	1.49E-04
lb/1000 lb steam	ADL	4.16E-06	ADL	1.76E-06	ADL	6.87E-07	ADL	2.20E-06
Potassium (K)								
mg/dscm	ADL	6.01E-02	ADL	5.66E-03	ND	2.49E-03	DLL	2.28E-02
mg/dscm @ 7% O_2	ADL	9.42E-02	ADL	8.43E-03	ND	3.82E-03	DLL	3.55E-02
lb/hr	ADL	9.46E-03	ADL	8.86E-04	ND	3.87E-04	DLL	3.58E-03
lb/1000 lb steam	ADL	1.40E-04	ADL	1.30E-05	ND	5.65E-06	DLL	5.29E-05
Selenium (Se)								
mg/dscm	ADL	2.36E-04	ADL	1.35E-04	ADL	1.06E-04	ADL	1.59E-04
mg/dscm @ 7% O_2	ADL	3.71E-04	ADL	2.01E-04	ADL	1.63E-04	ADL	2.45E-04
lb/hr	ADL	3.72E-05	ADL	2.12E-05	ADL	1.65E-05	ADL	2.50E-05
lb/1000 lb steam	ADL	5.50E-07	ADL	3.10E-07	ADL	2.41E-07	ADL	3.67E-07
Silver (Ag)								
mg/dscm	ADL	4.66E-05	ND	4.94E-06	ADL	6.18E-05	DLL	3.78E-05
mg/dscm @ 7% O_2	ADL	7.30E-05	ND	7.36E-06	ADL	9.49E-05	DLL	5.84E-05
lb/hr	ADL	7.33E-06	ND	7.74E-07	ADL	9.63E-06	DLL	5.91E-06
lb/1000 lb steam	ADL	1.08E-07	ND	1.13E-08	ADL	1.41E-07	DLL	8.67E-08
Thallium (Tl)								
mg/dscm	ADL	6.33E-06	ND	4.94E-06	ND	4.97E-06	DLL	5.41E-06
mg/dscm @ 7% O_2	ADL	9.92E-06	ND	7.36E-06	ND	7.62E-06	DLL	8.30E-06
lb/hr	ADL	9.96E-07	ND	7.74E-07	ND	7.73E-07	DLL	8.48E-07
lb/1000 lb steam	ADL	1.47E-08	ND	1.13E-08	ND	1.13E-08	DLL	1.24E-08
Vanadium (V)								
mg/dscm	ND	4.99E-04	ND	4.94E-04	ND	4.98E-04	ND	4.97E-04
mg/dscm @ 7% O_2	ND	7.83E-04	ND	7.36E-04	ND	7.64E-04	ND	7.61E-04
lb/hr	ND	7.86E-05	ND	7.74E-05	ND	7.75E-05	ND	7.78E-05
lb/1000 lb steam	ND	1.16E-06	ND	1.13E-06	ND	1.13E-06	ND	1.14E-06
Zinc (Zn)								
mg/dscm	ADL	3.05E-02	ADL	1.58E-03	ADL	7.18E-04	ADL	1.09E-02
mg/dscm @ 7% O_2	ADL	4.77E-02	ADL	2.35E-03	ADL	1.10E-03	ADL	1.71E-02
lb/hr	ADL	4.79E-03	ADL	2.48E-04	ADL	1.12E-04	ADL	1.72E-03
lb/1000 lb steam	ADL	7.09E-05	ADL	3.62E-06	ADL	1.63E-06	ADL	2.54E-05

LAB DATA SUMMARY

Method	EPA 29
Project No.	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.566
Reference temperature, °F	68

Test number	Run 1	Run 2	Run 3	Average
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--

Aluminum (Al) fh blank corrected, µg	ADL	150.20	ADL	115.20	ADL	113.20	ADL	126.20
Aluminum (Al) bh blank corrected, µg	ADL	12.80	ADL	7.91	ND	5.51	DLL	8.74
Aluminum (Al) total, µg	ADL	163.00	ADL	123.11	DLL	118.71	DLL	134.94
Antimony (Sb), fh blank corrected, µg	ADL	3.18	ADL	9.10	ADL	9.70	ADL	7.33
Antimony (Sb) bh blank corrected, µg	ADL	2.25	ND	0.05	ADL	0.06	DLL	0.79
Antimony (Sb) total, µg	ADL	5.43	DLL	9.15	ADL	9.76	DLL	8.12
Arsenic (As), fh blank corrected, µg	ADL	0.45	ADL	0.75	ADL	0.52	ADL	0.57
Arsenic (As) bh blank corrected, µg	ADL	0.12	ND	0.05	ND	0.06	DLL	0.08
Arsenic (As) total, µg	ADL	0.56	DLL	0.80	DLL	0.58	DLL	0.65
Barium (Ba), fh blank corrected, µg	ADL	2.21	ADL	2.27	ADL	2.17	ADL	2.22
Barium (Ba) bh blank corrected, µg	ADL	0.84	ADL	0.26	ADL	0.25	ADL	0.45
Barium (Ba) total, µg	ADL	3.05	ADL	2.53	ADL	2.42	ADL	2.67
Beryllium (Be), fh blank corrected, µg	ND	0.05	ND	0.05	ND	0.05	ND	0.05
Beryllium (Be) bh blank corrected, µg	ND	0.01	ND	0.01	ND	0.01	ND	0.01
Beryllium (Be) total, µg	ND	0.06	ND	0.06	ND	0.06	ND	0.06
Cadmium (Cd), fh blank corrected, µg	ADL	0.27	ADL	1.58	ADL	2.15	ADL	1.33
Cadmium (Cd) bh blank corrected, µg	ADL	0.65	ND	0.01	ND	0.01	DLL	0.22
Cadmium (Cd) total, µg	ADL	0.91	DLL	1.59	DLL	2.16	DLL	1.55
Chromium (Cr), fh blank corrected, µg	ADL	1.47	ADL	3.37	ADL	2.51	ADL	2.45
Chromium (Cr) bh blank corrected, µg	ADL	0.90	ADL	0.49	ADL	0.33	ADL	0.58
Chromium (Cr) total, µg	ADL	2.37	ADL	3.86	ADL	2.84	ADL	3.03
Cobalt (Co), fh blank corrected, µg	ADL	0.29	ADL	0.23	ADL	0.31	ADL	0.28
Cobalt (Co) bh blank corrected, µg	ADL	0.05	ADL	0.02	ADL	0.01	ADL	0.03
Cobalt (Co) total, µg	ADL	0.35	ADL	0.25	ADL	0.32	ADL	0.31
Copper (Cu), fh blank corrected, µg	ADL	0.52	ADL	3.80	ADL	3.68	ADL	2.67
Copper (Cu) bh blank corrected, µg	ADL	3.56	ADL	0.44	ADL	0.27	ADL	1.42
Copper (Cu) total, µg	ADL	4.08	ADL	4.24	ADL	3.95	ADL	4.09
Iron (Fe), fh blank corrected, µg	ADL	175.20	ADL	235.20	ADL	267.90	ADL	226.10
Iron (Fe) bh blank corrected, µg	ADL	58.60	ADL	13.40	ADL	8.30	ADL	26.77
Iron (Fe) total, µg	ADL	233.80	ADL	248.60	ADL	276.20	ADL	252.86
Lead (Pb), fh blank corrected, µg	ADL	2.58	ADL	10.42	ADL	10.52	ADL	7.84
Lead (Pb) bh blank corrected, µg	ADL	3.16	ADL	0.18	ND	0.09	DLL	1.14
Lead (Pb) total, µg	ADL	5.74	ADL	10.60	DLL	10.61	DLL	8.98
Manganese (Mn), fh blank corrected, µg	ADL	3.04	ADL	3.33	ADL	3.48	ADL	3.29
Manganese (Mn) bh blank corrected, µg	ADL	1.39	ADL	0.50	ADL	0.13	ADL	0.67
Manganese (Mn) total, µg	ADL	4.43	ADL	3.83	ADL	3.61	ADL	3.96
Mercury (Hg), total blank corrected, µg	DLL	1.48	DLL	1.38	DLL	1.43	DLL	1.43
Molybdenum (Mo), fh blank corrected, µg	ADL	2.50	ADL	2.50	ADL	2.50	ADL	2.50
Molybdenum (Mo) bh blank corrected, µg	ND	0.55	ND	0.55	ND	0.55	ND	0.55
Molybdenum (Mo) total, µg	DLL	3.05	DLL	3.05	DLL	3.05	DLL	3.05

Nickel (Ni), fh blank corrected, µg	ADL	0.65	ADL	1.98	ADL	1.04	ADL	1.22
Nickel (Ni) bh blank corrected, µg	ADL	0.99	ADL	0.42	ADL	0.21	ADL	0.54
Nickel (Ni) total, µg	ADL	1.64	ADL	2.40	ADL	1.25	ADL	1.76
Phosphorus (P), fh blank corrected, µg	ADL	9.72	ADL	28.00	ADL	12.60	ADL	16.77
Phosphorus (P) bh blank corrected, µg	ADL	3.95	ADL	1.71	ADL	0.67	ADL	2.11
Phosphorus (P) total, µg	ADL	13.67	ADL	29.71	ADL	13.27	ADL	18.88
Potassium (K), fh blank corrected, µg	ADL	143.20	ADL	353.40	ADL	340.10	ADL	278.90
Potassium (K) bh blank corrected, µg	ADL	133.00	ADL	12.60	ND	5.51	DLL	50.37
Potassium (K) total, µg	ADL	276.20	ADL	366.00	DLL	345.61	DLL	329.27
Selenium (Se), fh blank corrected, µg	ADL	0.48	ND	0.48	ADL	0.48	DLL	0.48
Selenium (Se) bh blank corrected, µg	ADL	0.52	ADL	0.30	ADL	0.24	ADL	0.35
Selenium (Se) total, µg	ADL	1.00	DLL	0.78	ADL	0.72	DLL	0.83
Silver (Ag), fh blank corrected, µg	ADL	0.19	ADL	0.21	ADL	0.14	ADL	0.18
Silver (Ag) bh blank corrected, µg	ADL	0.10	ND	0.01	ADL	0.14	DLL	0.08
Silver (Ag) total, µg	ADL	0.29	DLL	0.22	ADL	0.28	DLL	0.26
Thallium (Tl), fh blank corrected, µg	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Thallium (Tl) bh blank corrected, µg	ADL	0.01	ND	0.01	ND	0.01	DLL	0.01
Thallium (Tl) total, µg	DLL	0.22	ND	0.21	ND	0.21	DLL	0.21
Vanadium (V), fh blank corrected, µg	ND	5.00	ND	5.00	ND	5.00	ND	5.00
Vanadium (V) bh blank corrected, µg	ND	1.10	ND	1.10	ND	1.10	ND	1.10
Vanadium (V) total, µg	ND	6.10	ND	6.10	ND	6.10	ND	6.10
Zinc (Zn), fh blank corrected, µg	ADL	45.00	ADL	157.00	ADL	151.00	ADL	117.67
Zinc (Zn) bh blank corrected, µg	ADL	67.38	ADL	3.52	ADL	1.59	ADL	24.16
Zinc (Zn) total, µg	ADL	112.38	ADL	160.52	ADL	152.59	ADL	141.83

RESULTS SUMMARY

Method	EPA 29
Project No.	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.566
Reference temperature, °F	68

Test number	Run 1	Run 2	Run 3	Average
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
O_2, % volume dry	12.03	11.57	11.84	11.81
CO_2, % volume dry	7.65	7.81	7.49	7.65
Stack Temperature, °F	272.7	273.3	273.1	273.0
Moisture Content, % by volume	14.86	15.86	16.00	15.57
Stack Flow Rate, dscfm	42,037	41,870	41,591	41,833
Standard Sample Volume, dscf	78.086	78.665	78.226	78.326

	Run 1		Run 2		Run 3		Average	
Aluminum (Al)								
mg/dscm	ADL	7.37E-02	ADL	5.53E-02	DLL	5.36E-02	DLL	6.08E-02
mg/dscm @ 7% O_2	ADL	1.16E-01	ADL	8.23E-02	DLL	8.22E-02	DLL	9.33E-02
lb/hr	ADL	1.16E-02	ADL	8.66E-03	DLL	8.34E-03	DLL	9.53E-03
lb/1000 lb steam	ADL	1.72E-04	ADL	1.27E-04	DLL	1.22E-04	DLL	1.40E-04
Antimony (Sb)								
mg/dscm	ADL	2.46E-03	DLL	4.11E-03	ADL	4.41E-03	DLL	3.66E-03
mg/dscm @ 7% O_2	ADL	3.85E-03	DLL	6.12E-03	ADL	6.76E-03	DLL	5.58E-03
lb/hr	ADL	3.86E-04	DLL	6.44E-04	ADL	6.86E-04	DLL	5.72E-04
lb/1000 lb steam	ADL	5.71E-06	DLL	9.41E-06	ADL	1.00E-05	DLL	8.38E-06
Arsenic (As)								
mg/dscm	ADL	2.54E-04	DLL	3.59E-04	DLL	2.60E-04	DLL	2.91E-04
mg/dscm @ 7% O_2	ADL	3.98E-04	DLL	5.35E-04	DLL	3.98E-04	DLL	4.44E-04
lb/hr	ADL	3.99E-05	DLL	5.63E-05	DLL	4.04E-05	DLL	4.55E-05
lb/1000 lb steam	ADL	5.90E-07	DLL	8.22E-07	DLL	5.90E-07	DLL	6.68E-07
Barium (Ba)								
mg/dscm	ADL	1.38E-03	ADL	1.14E-03	ADL	1.09E-03	ADL	1.20E-03
mg/dscm @ 7% O_2	ADL	2.16E-03	ADL	1.69E-03	ADL	1.68E-03	ADL	1.84E-03
lb/hr	ADL	2.17E-04	ADL	1.78E-04	ADL	1.70E-04	ADL	1.88E-04
lb/1000 lb steam	ADL	3.21E-06	ADL	2.60E-06	ADL	2.49E-06	ADL	2.77E-06
Beryllium (Be)								
mg/dscm	ND	2.76E-05	ND	2.74E-05	ND	2.75E-05	ND	2.75E-05
mg/dscm @ 7% O_2	ND	4.32E-05	ND	4.08E-05	ND	4.22E-05	ND	4.21E-05
lb/hr	ND	4.34E-06	ND	4.29E-06	ND	4.29E-06	ND	4.31E-06
lb/1000 lb steam	ND	6.42E-08	ND	6.27E-08	ND	6.26E-08	ND	6.32E-08
Cadmium (Cd)								
mg/dscm	ADL	4.13E-04	DLL	7.14E-04	DLL	9.75E-04	DLL	7.01E-04
mg/dscm @ 7% O_2	ADL	6.48E-04	DLL	1.06E-03	DLL	1.50E-03	DLL	1.07E-03
lb/hr	ADL	6.50E-05	DLL	1.12E-04	DLL	1.52E-04	DLL	1.10E-04
lb/1000 lb steam	ADL	9.62E-07	DLL	1.64E-06	DLL	2.22E-06	DLL	1.60E-06
Chromium (Cr)								
mg/dscm	ADL	1.07E-03	ADL	1.73E-03	ADL	1.28E-03	ADL	1.36E-03
mg/dscm @ 7% O_2	ADL	1.68E-03	ADL	2.58E-03	ADL	1.97E-03	ADL	2.08E-03
lb/hr	ADL	1.69E-04	ADL	2.72E-04	ADL	2.00E-04	ADL	2.13E-04
lb/1000 lb steam	ADL	2.50E-06	ADL	3.97E-06	ADL	2.92E-06	ADL	3.13E-06
Cobalt (Co)								
mg/dscm	ADL	1.57E-04	ADL	1.11E-04	ADL	1.45E-04	ADL	1.38E-04
mg/dscm @ 7% O_2	ADL	2.45E-04	ADL	1.66E-04	ADL	2.23E-04	ADL	2.11E-04
lb/hr	ADL	2.46E-05	ADL	1.74E-05	ADL	2.26E-05	ADL	2.16E-05
lb/1000 lb steam	ADL	3.64E-07	ADL	2.55E-07	ADL	3.31E-07	ADL	3.17E-07
Copper (Cu)								
mg/dscm	ADL	1.84E-03	ADL	1.90E-03	ADL	1.78E-03	ADL	1.84E-03
mg/dscm @ 7% O_2	ADL	2.89E-03	ADL	2.83E-03	ADL	2.74E-03	ADL	2.82E-03
lb/hr	ADL	2.90E-04	ADL	2.98E-04	ADL	2.78E-04	ADL	2.89E-04
lb/1000 lb steam	ADL	4.29E-06	ADL	4.36E-06	ADL	4.05E-06	ADL	4.23E-06
Iron (Fe)								
mg/dscm	ADL	1.06E-01	ADL	1.12E-01	ADL	1.25E-01	ADL	1.14E-01
mg/dscm @ 7% O_2	ADL	1.66E-01	ADL	1.66E-01	ADL	1.91E-01	ADL	1.74E-01
lb/hr	ADL	1.66E-02	ADL	1.75E-02	ADL	1.94E-02	ADL	1.78E-02
lb/1000 lb steam	ADL	2.46E-04	ADL	2.56E-04	ADL	2.83E-04	ADL	2.62E-04
Lead (Pb)								
mg/dscm	ADL	2.60E-03	ADL	4.76E-03	DLL	4.79E-03	DLL	4.05E-03
mg/dscm @ 7% O_2	ADL	4.07E-03	ADL	7.09E-03	DLL	7.35E-03	DLL	6.17E-03
lb/hr	ADL	4.08E-04	ADL	7.45E-04	DLL	7.46E-04	DLL	6.33E-04
lb/1000 lb steam	ADL	6.04E-06	ADL	1.09E-05	DLL	1.09E-05	DLL	9.27E-06
Manganese (Mn)								
mg/dscm	ADL	2.00E-03	ADL	1.72E-03	ADL	1.63E-03	ADL	1.79E-03
mg/dscm @ 7% O_2	ADL	3.14E-03	ADL	2.56E-03	ADL	2.50E-03	ADL	2.74E-03
lb/hr	ADL	3.15E-04	ADL	2.70E-04	ADL	2.54E-04	ADL	2.80E-04
lb/1000 lb steam	ADL	4.66E-06	ADL	3.94E-06	ADL	3.71E-06	ADL	4.10E-06

RESULTS SUMMARY

Method	EPA 29
Project No.	010935
Client	Covanta
Unit / Location	Unit 2
Duct area, ft^2	12.566
Reference temperature, °F	68

Test number	Run 1	Run 2	Run 3	Average
Date	3/9/22	3/9/22	3/9/22	--
Start / Stop time	0940-1153	1350-1555	1730-1935	--
O_2, % volume dry	12.03	11.57	11.84	11.81
CO_2, % volume dry	7.65	7.81	7.49	7.65
Stack Temperature, °F	272.7	273.3	273.1	273.0
Moisture Content, % by volume	14.86	15.86	16.00	15.57
Stack Flow Rate, dscfm	42,037	41,870	41,591	41,833
Standard Sample Volume, dscf	78.086	78.665	78.226	78.326

Mercury (Hg)								
mg/dscm	DLL	6.67E-04	DLL	6.21E-04	DLL	6.46E-04	DLL	6.45E-04
mg/dscm @ 7% O_2	DLL	1.05E-03	DLL	9.25E-04	DLL	9.91E-04	DLL	9.87E-04
lb/hr	DLL	1.05E-04	DLL	9.73E-05	DLL	1.01E-04	DLL	1.01E-04
lb/1000 lb steam	DLL	1.55E-06	DLL	1.42E-06	DLL	1.47E-06	DLL	1.48E-06
Molybdenum (Mo)								
mg/dscm	DLL	1.38E-03	DLL	1.37E-03	DLL	1.38E-03	DLL	1.38E-03
mg/dscm @ 7% O_2	DLL	2.16E-03	DLL	2.04E-03	DLL	2.11E-03	DLL	2.10E-03
lb/hr	DLL	2.17E-04	DLL	2.14E-04	DLL	2.14E-04	DLL	2.15E-04
lb/1000 lb steam	DLL	3.21E-06	DLL	3.13E-06	DLL	3.13E-06	DLL	3.16E-06
Nickel (Ni)								
mg/dscm	ADL	7.40E-04	ADL	1.08E-03	ADL	5.63E-04	ADL	7.93E-04
mg/dscm @ 7% O_2	ADL	1.16E-03	ADL	1.60E-03	ADL	8.64E-04	ADL	1.21E-03
lb/hr	ADL	1.16E-04	ADL	1.68E-04	ADL	8.77E-05	ADL	1.24E-04
lb/1000 lb steam	ADL	1.72E-06	ADL	2.46E-06	ADL	1.28E-06	ADL	1.82E-06
Phosphorus (P)								
mg/dscm	ADL	6.18E-03	ADL	1.33E-02	ADL	5.99E-03	ADL	8.50E-03
mg/dscm @ 7% O_2	ADL	9.69E-03	ADL	1.99E-02	ADL	9.19E-03	ADL	1.29E-02
lb/hr	ADL	9.73E-04	ADL	2.09E-03	ADL	9.32E-04	ADL	1.33E-03
lb/1000 lb steam	ADL	1.44E-05	ADL	3.06E-05	ADL	1.36E-05	ADL	1.95E-05
Potassium (K)								
mg/dscm	ADL	1.25E-01	ADL	1.64E-01	DLL	1.56E-01	DLL	1.48E-01
mg/dscm @ 7% O_2	ADL	1.96E-01	ADL	2.45E-01	DLL	2.39E-01	DLL	2.27E-01
lb/hr	ADL	1.97E-02	ADL	2.57E-02	DLL	2.43E-02	DLL	2.32E-02
lb/1000 lb steam	ADL	2.91E-04	ADL	3.76E-04	DLL	3.55E-04	DLL	3.41E-04
Selenium (Se)								
mg/dscm	ADL	4.54E-04	DLL	3.51E-04	ADL	3.23E-04	DLL	3.76E-04
mg/dscm @ 7% O_2	ADL	7.11E-04	DLL	5.22E-04	ADL	4.95E-04	DLL	5.76E-04
lb/hr	ADL	7.14E-05	DLL	5.49E-05	ADL	5.02E-05	DLL	5.88E-05
lb/1000 lb steam	ADL	1.06E-06	DLL	8.03E-07	ADL	7.33E-07	DLL	8.64E-07
Silver (Ag)								
mg/dscm	ADL	1.30E-04	DLL	9.92E-05	ADL	1.26E-04	DLL	1.19E-04
mg/dscm @ 7% O_2	ADL	2.04E-04	DLL	1.48E-04	ADL	1.94E-04	DLL	1.82E-04
lb/hr	ADL	2.05E-05	DLL	1.55E-05	ADL	1.97E-05	DLL	1.86E-05
lb/1000 lb steam	ADL	3.03E-07	DLL	2.27E-07	ADL	2.87E-07	DLL	2.73E-07
Thallium (Tl)								
mg/dscm	DLL	9.77E-05	ND	9.56E-05	ND	9.61E-05	DLL	9.65E-05
mg/dscm @ 7% O_2	DLL	1.53E-04	ND	1.42E-04	ND	1.48E-04	DLL	1.48E-04
lb/hr	DLL	1.54E-05	ND	1.50E-05	ND	1.50E-05	DLL	1.51E-05
lb/1000 lb steam	DLL	2.27E-07	ND	2.19E-07	ND	2.18E-07	DLL	2.22E-07
Vanadium (V)								
mg/dscm	ND	2.76E-03	ND	2.74E-03	ND	2.75E-03	ND	2.75E-03
mg/dscm @ 7% O_2	ND	4.33E-03	ND	4.08E-03	ND	4.23E-03	ND	4.21E-03
lb/hr	ND	4.34E-04	ND	4.29E-04	ND	4.29E-04	ND	4.31E-04
lb/1000 lb steam	ND	6.42E-06	ND	6.27E-06	ND	6.26E-06	ND	6.32E-06
Zinc (Zn)								
mg/dscm	ADL	5.08E-02	ADL	7.21E-02	ADL	6.89E-02	ADL	6.39E-02
mg/dscm @ 7% O_2	ADL	7.96E-02	ADL	1.07E-01	ADL	1.06E-01	ADL	9.76E-02
lb/hr	ADL	8.00E-03	ADL	1.13E-02	ADL	1.07E-02	ADL	1.00E-02
lb/1000 lb steam	ADL	1.18E-04	ADL	1.65E-04	ADL	1.57E-04	ADL	1.47E-04

Appendix A.11
Hexavalent Chromium Calculations/Results

SOURCE TEST DATA SUMMARY

Client				Covanta
Unit / Location				Unit 2
A (stack area), ft^2				12.566
T_{ref} (reference temperature), °F				68
Steam rate, 1000 lb/hr	67.6	68.1	68.6	
Test number	1	2	3	Average
Date	3/9/2022	3/9/2022	3/9/2022	--
Start / Stop time	0940-1153	1350-1612	1730-1945	--
Meter box number	MB24	MB24	MB24	--
C_p (pitot coefficient), dimensionless	0.84	0.84	0.84	0.84
Y (meter calibration factor), dimensionless	1.0201	1.0201	1.0201	1.0201
Θ (sample time), min	120	120	120	120
Nozzle diameter, in	0.188	0.188	0.188	0.188
P_{bar} (barometric pressure), in Hg	29.84	29.84	29.84	29.84
V_m (meter box volume), acf	78.262	79.576	81.287	79.708
V_{lc} (impinger liquid volume), ml	258.0	254.5	316.4	276.3
T_m (meter temperature), °F	69.7	76.3	69.3	71.7
ΔH (meter pressure), in. H_2O	1.292	1.342	1.450	1.361
ΔP (velocity head), in. H2O	1.8869	2.0123	2.0450	1.9814
P_g (static pressure), in. Hg	-1.10	-1.10	-1.00	-1.07
T_s (stack temperature), °F	274.0	272.4	274.3	273.6
$\%O_2$ (oxygen stack gas), % volume dry	12.03	11.57	11.84	11.81
$\%CO_2$ (carbon dioxide stack gas), % volume dry	7.65	7.81	7.49	7.65
m_{Cr6} (hexavalent chromium - impinger catch), µg	2.18	2.79	0.39	1.79
1a $V_{m(std)}$ (standard sample volume), dscf	79.624	79.976	82.799	80.800
1b $V_{w(std)}$ (water vapor volume), scf	12.165	12.000	14.918	13.028
1c B_{ws} (moisture fraction), non-dimensional	0.1325	0.1305	0.1527	0.1386
1d MW_{dry} (stack gas molecular weight), dry	29.705	29.712	29.672	29.697
1e MW_{wet} (stack gas molecular weight), wet	28.154	28.184	27.890	28.076
1f P_s (absolute stack pressure), in Hg	29.759	29.759	29.766	29.762
1g V_s (stack gas velocity), ft/sec	92.178	95.036	96.424	94.546
1h Q (stack flow rate), acfm	69,500	71,656	72,702	71,286
1i Q_{ws} (stack flow rate), wscfm	49,726	51,379	52,006	51,037
1j Q_{ds} (stack flow rate), dscfm	43,136	44,676	44,066	43,959
1k I (isokinetic ratio), %	100.30	97.27	102.09	99.89
3a Hexavalent chromium concentration, µg/dscm	0.967	1.232	0.165	0.788
3b Hexavalent chromium concentration, ppm volume dry	4.47E-04	5.70E-04	7.66E-05	3.65E-04
Hexavalent chromium concentration, ppmvd @ 7% O_2	7.01E-04	8.49E-04	1.17E-04	5.56E-04
3c Hexavalent chromium mass emissions, lb/hr	1.56E-04	2.06E-04	2.73E-05	1.30E-04
Hexavalent chromium mass emissions, lb/1000 lb steam	2.31E-06	3.03E-06	3.98E-07	1.91E-06

Appendix A.12
PCDD/F & PCB Calculations/Results

SOURCE TEST DATA SUMMARY
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans (PCDD/PCDF)

Client	Covanta
Unit / Location	Unit 2
Stack area, square feet	12.566
Regulation District	Oregon DEQ
Reference temperature, °F	68
Reference pressure, psi	14.7

	Test number	Field Blank	1-PCDD	2-PCDD	3-PCDD	Average
	Date	--	3/10/2022	3/11/2022	3/11/2022	--
	Start / Stop time	--	1343-1818	0835-1240	1342-1747	--
	SAMPLE TRAIN DATA					
	Meter box number/ID	--	MB32	MB32	MB32	--
	Nozzle diameter, inches	--	0.173	0.188	0.173	0.178
	Sample time, minutes	--	240.0	240.0	240.0	240.0
	Pitot coefficient	--	0.84	0.84	0.84	0.84
	Meter calibration, Yd	--	0.9940	0.9940	0.9940	0.9940
	Barometric pressure, in Hg	--	30.05	30.03	30.03	30.04
	Meter box volume, acf	--	131.967	147.913	138.628	139.503
	Impinger liquid mass, g	--	479.4	538.0	580.6	532.7
	Meter temperature, °F	--	80.1	85.8	104.6	90.1
	Meter pressure, (Delta H) iwg	--	0.975	1.317	1.027	1.106
	Velocity head, (Delta P) iwg	--	1.878	1.811	1.846	1.845
	Static pressure, iwg	--	-0.95	-1.20	-1.20	-1.12
	Stack temperature, °F	--	272.2	274.0	273.6	273.3
	ANALYZER DATA					
	O_2, % volume dry	--	11.57	11.52	10.47	11.19
	CO_2, % volume dry	--	7.75	7.90	8.65	8.10
	VOLUMETRIC FLOW RATE					
1a	Standard sample volume, dscf	--	129.024	143.137	129.585	133.915
1b	Water vapor volume, scf	--	22.604	25.367	27.375	25.115
	B_{ws} (moisture fraction), non-dimensional	--	0.1491	0.1505	0.1744	0.1580
	B_{ws} (moisture fraction saturated), non-dimensional	--	NA	NA	NA	NA
1c	B_{ws} (moisture fraction applicable), non-dimensional	--	0.1491	0.1505	0.1744	0.1580
1d	Stack gas molecular weight, dry	--	29.702	29.725	29.803	29.744
1e	Stack gas molecular weight, wet	--	27.958	27.960	27.744	27.887
1f	Absolute stack pressure, in Hg	--	29.980	29.942	29.942	29.955
1g	Stack gas velocity, ft/sec	--	91.972	90.501	91.684	91.386
1h	Q (stack flow rate), acf/min	--	69,345	68,236	69,128	68,903
1i	Q_{sw} (stack flow rate), wscf/min	--	50,109	49,121	49,792	49,674
1j	Q_{sd} (stack flow rate, based on pitot), dscf/min	--	42,639	41,726	41,108	41,824
	Isokinetic Ratio (%)	--	97.1	93.2	101.1	97.1

	LAB RESULTS										
	2378-Cl4-Dibenzo-p-dioxin, pg	ND	3.29	ND	3.61	ND	4.74	ND	3.78	ND	4.04
	12378-Cl5-Dibenzo-p-dioxin, pg	ND	4.13	ND	3.76	ND	6.62	ND	6.78	ND	5.72
	123478-Cl6-Dibenzo-p-dioxin, pg	ND	4.59	EMPC	3.64	EMPC	6.25	ND	9.01	DLL	6.30
	123678-Cl6-Dibenzo-p-dioxin, pg	ND	4.46		12.9		14.6		16.4		14.63
	123789-Cl6-Dibenzo-p-dioxin, pg	ND	4.52	EMPC	6.07		11.2	ND	8.88	DLL	8.72
	1234678-Cl7-Dibenzo-p-dioxin, pg	ND	6.61		84.9		103		98.7		95.53
	12346789-Cl8-Dibenzo-p-dioxin, pg	ND	15.5		126		135		111		124.00
	2378-Cl4-Dibenzofuran, pg	ND	1.87		17.2		9.60	EMPC	8.63	DLL	11.81
	12378-Cl5-Dibenzofuran, pg	ND	2.10	EMPC	9.83	EMPC	13.1		16.2	DLL	13.04
	23478-Cl5-Dibenzofuran, pg	ND	1.89		19.1		21.6		18.2		19.63
	123478-Cl6-Dibenzofuran, pg	ND	1.68	EMPC	13.0		17.4		16.0	DLL	15.47
	123678-Cl6-Dibenzofuran, pg	ND	1.64		17.6		18.6		19.0		18.40
	234678-Cl6-Dibenzofuran, pg	ND	1.76		14.8	EMPC	9.71		17.7	DLL	14.07
	123789-Cl6-Dibenzofuran, pg	ND	2.02	ND	5.97		5.00	ND	5.09	DLL	5.35
	1234678-Cl7-Dibenzofuran, pg	ND	3.60		49.0		56.2		51.0		52.07
	1234789-Cl7-Dibenzofuran, pg	ND	4.48		8.24	EMPC	6.24		8.87	DLL	7.78
	12346789-Cl8-Dibenzofuran, pg	ND	3.31		15.9	EMPC	23.3		16.7	DLL	18.63
	Total Cl4-Dibenzo-p-dioxins, pg	ND	3.29	EMPC	100	EMPC	65.7		65.8	DLL	77.17
	Total Cl5-Dibenzo-p-dioxins, pg	ND	4.13		67.1		88.6		57.3		71.00
	Total Cl6-Dibenzo-p-dioxins, pg	ND	4.59		198		244		266		236.00
	Total Cl7-Dibenzo-p-dioxins, pg	ND	6.61		166		198		184		182.67
	Total Cl4-Dibenzofurans, pg	ND	1.87		183		254		173		203.33
	Total Cl5-Dibenzofurans, pg	ND	2.10		115		183		213		170.33
	Total Cl6-Dibenzofurans, pg	ND	2.02		145		159		164		156.00
	Total Cl7-Dibenzofurans, pg	ND	4.48		93.0		71.8		59.9		74.90

EMISSIONS (EMPC = EMPC, ND = MDL)

2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), ng/m^3	ND	8.68E-04	ND	9.88E-04	ND	1.17E-03	ND	1.03E-03	ND	1.06E-03
2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), ng/m^3 @ 7% O_2	ND	1.24E-03	ND	1.47E-03	ND	1.73E-03	ND	1.37E-03	ND	1.53E-03
2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), ng/m^3 @ 12% CO_2	ND	1.29E-03	ND	1.53E-03	ND	1.78E-03	ND	1.43E-03	ND	1.58E-03
2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), lb/hr	ND	1.36E-10	ND	1.58E-10	ND	1.83E-10	ND	1.58E-10	ND	1.66E-10
2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), ng/m^3 WHO-2005	ND	8.68E-04	ND	9.88E-04	ND	1.17E-03	ND	1.03E-03	ND	1.06E-03
2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), ng/m^3 @ 7% O_2 WHO-2005	ND	1.24E-03	ND	1.47E-03	ND	1.73E-03	ND	1.37E-03	ND	1.53E-03
2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), ng/m^3 @ 12% CO_2 WHO-2005	ND	1.29E-03	ND	1.53E-03	ND	1.78E-03	ND	1.43E-03	ND	1.58E-03
2378-Cl4-Dibenzo-p-dioxin(2378 TCDD), lb/hr WHO-2005	ND	1.36E-10	ND	1.58E-10	ND	1.83E-10	ND	1.58E-10	ND	1.66E-10
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), ng/m^3	ND	1.09E-03	ND	1.03E-03	ND	1.63E-03	ND	1.85E-03	ND	1.50E-03
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), ng/m^3 @ 7% O_2	ND	1.56E-03	ND	1.53E-03	ND	2.42E-03	ND	2.46E-03	ND	2.14E-03
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), ng/m^3 @ 12% CO_2	ND	1.61E-03	ND	1.59E-03	ND	2.48E-03	ND	2.56E-03	ND	2.21E-03
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), lb/hr	ND	1.70E-10	ND	1.64E-10	ND	2.55E-10	ND	2.84E-10	ND	2.35E-10
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), ng/m^3 WHO-2005	ND	1.09E-03	ND	1.03E-03	ND	1.63E-03	ND	1.85E-03	ND	1.50E-03
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), ng/m^3 @ 7% O_2 WHO-2005	ND	1.56E-03	ND	1.53E-03	ND	2.42E-03	ND	2.46E-03	ND	2.14E-03
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), ng/m^3 @ 12% CO_2 WHO-200	ND	1.61E-03	ND	1.59E-03	ND	2.48E-03	ND	2.56E-03	ND	2.21E-03
12378-Cl5-Dibenzo-p-dioxin(12378 PeCDD), lb/hr O_2 WHO-2005	ND	1.70E-10	ND	1.64E-10	ND	2.55E-10	ND	2.84E-10	ND	2.35E-10
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), ng/m^3	ND	1.21E-03	EMPC	9.96E-04	EMPC	1.54E-03	ND	2.46E-03	DLL	1.66E-03
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), ng/m^3 @ 7% O_2	ND	1.73E-03	EMPC	1.48E-03	EMPC	2.29E-03	ND	3.27E-03	DLL	2.35E-03
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), ng/m^3 @ 12% CO_2	ND	1.79E-03	EMPC	1.54E-03	EMPC	2.34E-03	ND	3.41E-03	DLL	2.43E-03
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), lb/hr	ND	1.89E-10	EMPC	1.59E-10	EMPC	2.41E-10	ND	3.78E-10	DLL	2.59E-10
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), ng/m^3 WHO-2005	ND	1.21E-04	EMPC	9.96E-05	EMPC	1.54E-04	ND	2.46E-04	DLL	1.66E-04
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), ng/m^3 @ 7% O_2 WHO-200	ND	1.73E-04	EMPC	1.48E-04	EMPC	2.29E-04	ND	3.27E-04	DLL	2.35E-04
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), ng/m^3 @ 12% CO_2 WHO-2	ND	1.79E-04	EMPC	1.54E-04	EMPC	2.34E-04	ND	3.41E-04	DLL	2.43E-04
123478-Cl6-Dibenzo-p-dioxin(123478 HxCDD), lb/hr WHO-2005	ND	1.89E-11	EMPC	1.59E-11	EMPC	2.41E-11	ND	3.78E-11	DLL	2.59E-11
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), ng/m^3	ND	1.18E-03		3.53E-03		3.60E-03		4.47E-03		3.87E-03
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), ng/m^3 @ 7% O_2	ND	1.68E-03		5.26E-03		5.34E-03		5.96E-03		5.52E-03
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), ng/m^3 @ 12% CO_2	ND	1.74E-03		5.47E-03		5.47E-03		6.20E-03		5.71E-03
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), lb/hr	ND	1.84E-10		5.63E-10		5.62E-10		6.88E-10		6.04E-10
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), ng/m^3 WHO-2005	ND	1.18E-04		3.53E-04		3.60E-04		4.47E-04		3.87E-04
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), ng/m^3 @ 7% O_2 WHO-200	ND	1.68E-04		5.26E-04		5.34E-04		5.96E-04		5.52E-04
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), ng/m^3 @ 12% CO_2 WHO-2	ND	1.74E-04		5.47E-04		5.47E-04		6.20E-04		5.71E-04
123678-Cl6-Dibenzo-p-dioxin(123678 HxCDD), lb/hr WHO-2005	ND	1.84E-11		5.63E-11		5.62E-11		6.88E-11		6.04E-11
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), ng/m^3	ND	1.19E-03	EMPC	1.66E-03		2.76E-03	ND	2.42E-03	DLL	2.28E-03
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), ng/m^3 @ 7% O_2	ND	1.71E-03	EMPC	2.48E-03		4.09E-03	ND	3.23E-03	DLL	3.27E-03
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), ng/m^3 @ 12% CO_2	ND	1.77E-03	EMPC	2.57E-03		4.20E-03	ND	3.36E-03	DLL	3.38E-03
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), lb/hr	ND	1.87E-10	EMPC	2.65E-10		4.31E-10	ND	3.72E-10	DLL	3.56E-10
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), ng/m^3 WHO-2005	ND	1.19E-04	EMPC	1.66E-04		2.76E-04	ND	2.42E-04	DLL	2.28E-04
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), ng/m^3 @ 7% O_2 WHO-200	ND	1.71E-04	EMPC	2.48E-04		4.09E-04	ND	3.23E-04	DLL	3.27E-04
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), ng/m^3 @ 12% CO_2 WHO-2	ND	1.77E-04	EMPC	2.57E-04		4.20E-04	ND	3.36E-04	DLL	3.38E-04
123789-Cl6-Dibenzo-p-dioxin(123789 HxCDD), lb/hr WHO-2005	ND	1.87E-11	EMPC	2.65E-11		4.31E-11	ND	3.72E-11	DLL	3.56E-11
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), ng/m^3	ND	1.74E-03		2.32E-02		2.54E-02		2.69E-02		2.52E-02
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), ng/m^3 @ 7% O_2	ND	2.49E-03		3.46E-02		3.77E-02		3.58E-02		3.60E-02
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), ng/m^3 @ 12% CO_2	ND	2.58E-03		3.60E-02		3.86E-02		3.73E-02		3.73E-02
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), lb/hr	ND	2.73E-10		3.71E-09		3.97E-09		4.14E-09		3.94E-09
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), ng/m^3 WHO-2005	ND	1.74E-05		2.32E-04		2.54E-04		2.69E-04		2.52E-04
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), ng/m^3 @ 7% O_2 WHO-2	ND	2.49E-05		3.46E-04		3.77E-04		3.58E-04		3.60E-04
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), ng/m^3 @ 12% CO_2 WH(	ND	2.58E-05		3.60E-04		3.86E-04		3.73E-04		3.73E-04
1234678-Cl7-Dibenzo-p-dioxin(1234678 HpCDD), lb/hr WHO-2005	ND	2.73E-12		3.71E-11		3.97E-11		4.14E-11		3.94E-11
12346789-Cl8-Dibenzo-p-dioxin(OCDD), ng/m^3	ND	4.09E-03		3.45E-02		3.33E-02		3.02E-02		3.27E-02
12346789-Cl8-Dibenzo-p-dioxin(OCDD), ng/m^3 @ 7% O_2	ND	5.85E-03		5.14E-02		4.94E-02		4.03E-02		4.70E-02
12346789-Cl8-Dibenzo-p-dioxin(OCDD), ng/m^3 @ 12% CO_2	ND	6.06E-03		5.34E-02		5.06E-02		4.20E-02		4.87E-02
12346789-Cl8-Dibenzo-p-dioxin(OCDD), lb/hr	ND	6.40E-10		5.50E-09		5.20E-09		4.65E-09		5.12E-09
12346789-Cl8-Dibenzo-p-dioxin(OCDD), ng/m^3 WHO-2005	ND	1.23E-06		1.03E-05		9.99E-06		9.07E-06		9.80E-06
12346789-Cl8-Dibenzo-p-dioxin(OCDD), ng/m^3 @ 7% O_2 WHO-2005	ND	1.75E-06		1.54E-05		1.48E-05		1.21E-05		1.41E-05
12346789-Cl8-Dibenzo-p-dioxin(OCDD), ng/m^3 @ 12% CO_2 WHO-2005	ND	1.82E-06		1.60E-05		1.52E-05		1.26E-05		1.46E-05
12346789-Cl8-Dibenzo-p-dioxin(OCDD), lb/hr WHO-2005	ND	1.92E-13		1.65E-12		1.56E-12		1.40E-12		1.54E-12
2378-Cl4-Dibenzofuran(2378 TCDF), ng/m^3	ND	4.93E-04		4.71E-03		2.37E-03	EMPC	2.35E-03	DLL	3.14E-03
2378-Cl4-Dibenzofuran(2378 TCDF), ng/m^3 @ 7% O_2	ND	7.06E-04		7.01E-03		3.51E-03	EMPC	3.13E-03	DLL	4.55E-03
2378-Cl4-Dibenzofuran(2378 TCDF), ng/m^3 @ 12% CO_2	ND	7.31E-04		7.29E-03		3.60E-03	EMPC	3.26E-03	DLL	4.72E-03
2378-Cl4-Dibenzofuran(2378 TCDF), lb/hr	ND	7.72E-11		7.51E-10		3.70E-10	EMPC	3.62E-10	DLL	4.94E-10
2378-C14-Dibenzofuran(2378 TCDF), ng/m^3 WHO-2005	ND	4.93E-05		4.71E-04		2.37E-04	EMPC	2.35E-04	DLL	3.14E-04
2378-Cl4-Dibenzofuran(2378 TCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	7.06E-05		7.01E-04		3.51E-04	EMPC	3.13E-04	DLL	4.55E-04
2378-Cl4-Dibenzofuran(2378 TCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	7.31E-05		7.29E-04		3.60E-04	EMPC	3.26E-04	DLL	4.72E-04
2378-Cl4-Dibenzofuran(2378 TCDF), lb/hr WHO-2005	ND	7.72E-12		7.51E-11		3.70E-11	EMPC	3.62E-11	DLL	4.94E-11
12378-Cl5-Dibenzofuran(12378 PeCDF), ng/m^3	ND	5.54E-04	EMPC	2.69E-03	EMPC	3.23E-03		4.41E-03	DLL	3.45E-03
12378-Cl5-Dibenzofuran(12378 PeCDF), ng/m^3 @ 7% O_2	ND	7.92E-04	EMPC	4.01E-03	EMPC	4.79E-03		5.88E-03	DLL	4.89E-03
12378-Cl5-Dibenzofuran(12378 PeCDF), ng/m^3 @ 12% CO_2	ND	8.20E-04	EMPC	4.17E-03	EMPC	4.91E-03		6.12E-03	DLL	5.07E-03
12378-Cl5-Dibenzofuran(12378 PeCDF), lb/hr	ND	8.67E-11	EMPC	4.29E-10	EMPC	5.05E-10		6.79E-10	DLL	5.38E-10
12378-Cl5-Dibenzofuran(12378 PeCDF), ng/m^3 WHO-2005	ND	1.66E-05	EMPC	8.07E-05	EMPC	9.70E-05		1.32E-04	DLL	1.03E-04
12378-Cl5-Dibenzofuran(12378 PeCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	2.38E-05	EMPC	1.20E-04	EMPC	1.44E-04		1.77E-04	DLL	1.47E-04
12378-Cl5-Dibenzofuran(12378 PeCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	8.20E-04	EMPC	4.17E-03	EMPC	4.91E-03		6.12E-03	DLL	5.07E-03
12378-Cl5-Dibenzofuran(12378 PeCDF), lb/hr WHO-2005	ND	8.67E-11	EMPC	4.29E-10	EMPC	5.05E-10		6.79E-10	DLL	5.38E-10

23478-Cl5-Dibenzofuran(23478 PeCDF), ng/m^3	ND	4.98E-04		5.23E-03		5.33E-03		4.96E-03		5.17E-03
23478-Cl5-Dibenzofuran(23478 PeCDF), ng/m^3 @ 7% O_2	ND	7.13E-04		7.79E-03		7.90E-03		6.61E-03		7.43E-03
23478-Cl5-Dibenzofuran(23478 PeCDF), ng/m^3 @ 12% CO_2	ND	7.38E-04		8.10E-03		8.09E-03		6.88E-03		7.69E-03
23478-Cl5-Dibenzofuran(23478 PeCDF), lb/hr	ND	7.80E-11		8.34E-10		8.32E-10		7.63E-10		8.10E-10
23478-Cl5-Dibenzofuran(23478 PeCDF), ng/m^3 WHO-2005	ND	1.50E-04		1.57E-03		1.60E-03		1.49E-03		1.55E-03
23478-Cl5-Dibenzofuran(23478 PeCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	2.14E-04		2.34E-03		2.37E-03		1.98E-03		2.23E-03
23478-Cl5-Dibenzofuran(23478 PeCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	2.22E-04		2.43E-03		2.43E-03		2.06E-03		2.31E-03
23478-Cl5-Dibenzofuran(23478 PeCDF), lb/hr WHO-2005	ND	2.34E-11		2.50E-10		2.50E-10		2.29E-10		2.43E-10
123478-Cl6-Dibenzofuran(123478 HxCDF), ng/m^3	ND	4.43E-04	EMPC	3.56E-03		4.29E-03		4.36E-03	DLL	4.07E-03
123478-Cl6-Dibenzofuran(123478 HxCDF), ng/m^3 @ 7% O_2	ND	6.34E-04	EMPC	5.30E-03		6.36E-03		5.81E-03	DLL	5.82E-03
123478-Cl6-Dibenzofuran(123478 HxCDF), ng/m^3 @ 12% CO_2	ND	6.56E-04	EMPC	5.51E-03		6.52E-03		6.05E-03	DLL	6.03E-03
123478-Cl6-Dibenzofuran(123478 HxCDF), lb/hr	ND	6.93E-11	EMPC	5.68E-10		6.70E-10		6.71E-10	DLL	6.36E-10
123478-Cl6-Dibenzofuran(123478 HxCDF), ng/m^3 WHO-2005	ND	4.43E-05	EMPC	3.56E-04		4.29E-04		4.36E-04	DLL	4.07E-04
123478-Cl6-Dibenzofuran(123478 HxCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	6.34E-05	EMPC	5.30E-04		6.36E-04		5.81E-04	DLL	5.82E-04
123478-Cl6-Dibenzofuran(123478 HxCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	6.56E-05	EMPC	5.51E-04		6.52E-04		6.05E-04	DLL	6.03E-04
123478-Cl6-Dibenzofuran(123478 HxCDF), lb/hr WHO-2005	ND	6.93E-12	EMPC	5.68E-11		6.70E-11		6.71E-11	DLL	6.36E-11
123678-Cl6-Dibenzofuran(123678 HxCDF), ng/m^3	ND	4.32E-04		4.82E-03		4.59E-03		5.18E-03		4.86E-03
123678-Cl6-Dibenzofuran(123678 HxCDF), ng/m^3 @ 7% O_2	ND	6.19E-04		7.18E-03		6.80E-03		6.90E-03		6.96E-03
123678-Cl6-Dibenzofuran(123678 HxCDF), ng/m^3 @ 12% CO_2	ND	6.41E-04		7.46E-03		6.97E-03		7.18E-03		7.20E-03
123678-Cl6-Dibenzofuran(123678 HxCDF), lb/hr	ND	6.77E-11		7.69E-10		7.17E-10		7.97E-10		7.61E-10
123678-Cl6-Dibenzofuran(123678 HxCDF), ng/m^3 WHO-2005	ND	4.32E-05		4.82E-04		4.59E-04		5.18E-04		4.86E-04
123678-Cl6-Dibenzofuran(123678 HxCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	6.19E-05		7.18E-04		6.80E-04		6.90E-04		6.96E-04
123678-Cl6-Dibenzofuran(123678 HxCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	6.41E-05		7.46E-04		6.97E-04		7.18E-04		7.20E-04
123678-Cl6-Dibenzofuran(123678 HxCDF), lb/hr WHO-2005	ND	6.77E-12		7.69E-11		7.17E-11		7.97E-11		7.61E-11
234678-Cl6-Dibenzofuran(234678 HxCDF), ng/m^3	ND	4.64E-04		4.05E-03	EMPC	2.40E-03		4.82E-03	DLL	3.76E-03
234678-Cl6-Dibenzofuran(234678 HxCDF), ng/m^3 @ 7% O_2	ND	6.64E-04		6.04E-03	EMPC	3.55E-03		6.43E-03	DLL	5.34E-03
234678-Cl6-Dibenzofuran(234678 HxCDF), ng/m^3 @ 12% CO_2	ND	6.88E-04		6.27E-03	EMPC	3.64E-03		6.69E-03	DLL	5.53E-03
234678-Cl6-Dibenzofuran(234678 HxCDF), lb/hr	ND	7.26E-11		6.46E-10	EMPC	3.74E-10		7.42E-10	DLL	5.88E-10
234678-Cl6-Dibenzofuran(234678 HxCDF), ng/m^3 WHO-2005	ND	4.64E-05		4.05E-04	EMPC	2.40E-04		4.82E-04	DLL	3.76E-04
234678-Cl6-Dibenzofuran(234678 HxCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	6.64E-05		6.04E-04	EMPC	3.55E-04		6.43E-04	DLL	5.34E-04
234678-Cl6-Dibenzofuran(234678 HxCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	6.88E-05		6.27E-04	EMPC	3.64E-04		6.69E-04	DLL	5.53E-04
234678-Cl6-Dibenzofuran(234678 HxCDF), lb/hr WHO-2005	ND	7.26E-12		6.46E-11	EMPC	3.74E-11		7.42E-11	DLL	5.88E-11
123789-Cl6-Dibenzofuran(123789 HxCDF), ng/m^3	ND	5.33E-04	ND	1.63E-03		1.23E-03	ND	1.39E-03	DLL	1.42E-03
123789-Cl6-Dibenzofuran(123789 HxCDF), ng/m^3 @ 7% O_2	ND	7.62E-04	ND	2.43E-03		1.83E-03	ND	1.85E-03	DLL	2.04E-03
123789-Cl6-Dibenzofuran(123789 HxCDF), ng/m^3 @ 12% CO_{12}	ND	7.89E-04	ND	2.53E-03		1.87E-03	ND	1.92E-03	DLL	2.11E-03
123789-Cl6-Dibenzofuran(123789 HxCDF), lb/hr	ND	8.34E-11	ND	2.61E-10		1.93E-10	ND	2.13E-10	DLL	2.22E-10
123789-Cl6-Dibenzofuran(123789 HxCDF), ng/m^3 WHO-2005	ND	5.33E-05	ND	1.63E-04		1.23E-04	ND	1.39E-04	DLL	1.42E-04
123789-Cl6-Dibenzofuran(123789 HxCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	7.62E-05	ND	2.43E-04		1.83E-04	ND	1.85E-04	DLL	2.04E-04
123789-Cl6-Dibenzofuran(123789 HxCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	7.89E-05	ND	2.53E-04		1.87E-04	ND	1.92E-04	DLL	2.11E-04
123789-Cl6-Dibenzofuran(123789 HxCDF), lb/hr WHO-2005	ND	8.34E-12	ND	2.61E-11		1.93E-11	ND	2.13E-11	DLL	2.22E-11
1234678-Cl7-Dibenzofuran(1234678 HpCDF), ng/m^3	ND	9.49E-04		1.34E-02		1.39E-02		1.39E-02		1.37E-02
1234678-Cl7-Dibenzofuran(1234678 HpCDF), ng/m^3 @ 7% O_2	ND	1.36E-03		2.00E-02		2.05E-02		1.85E-02		1.97E-02
1234678-Cl7-Dibenzofuran(1234678 HpCDF), ng/m @ 12 CO	ND	1.41E-03		2.08E-02		2.11E-02		1.93E-02		2.04E-02
1234678-Cl7-Dibenzofuran(1234678 HpCDF),lb/hr	ND	1.49E-10		2.14E-09		2.17E-09		2.14E-09		2.15E-09
1234678-Cl7-Dibenzofuran(1234678 HpCDF), ng/m^3 WHO-2005	ND	9.49E-06		1.34E-04		1.39E-04		1.39E-04		1.37E-04
1234678-Cl7-Dibenzofuran(1234678 HpCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	1.36E-05		2.00E-04		2.05E-04		1.85E-04		1.97E-04
1234678-Cl7-Dibenzofuran(1234678 HpCDF), ng/m^3 @ 12% CO_2 WHO-2(	ND	1.41E-05		2.08E-04		2.11E-04		1.93E-04		2.04E-04
1234678-Cl7-Dibenzofuran(1234678 HpCDF), lb/hr WHO-2005	ND	1.49E-12		2.14E-11		2.17E-11		2.14E-11		2.15E-11
1234789-Cl7-Dibenzofuran(1234789 HpCDF), ng/m^3	ND	1.18E-03		2.26E-03	EMPC	1.54E-03		2.42E-03	DLL	2.07E-03
1234789-Cl7-Dibenzofuran(1234789 HpCDF), ng/m^3 @ 7% O_2	ND	1.69E-03		3.36E-03	EMPC	2.28E-03		3.22E-03	DLL	2.95E-03
1234789-Cl7-Dibenzofuran(1234789 HpCDF), ng/m^3 @ 12% CO_2	ND	1.75E-03		3.49E-03	EMPC	2.34E-03		3.35E-03	DLL	3.06E-03
1234789-Cl7-Dibenzofuran(1234789 HpCDF), lb/hr	ND	1.85E-10		3.60E-10	EMPC	2.40E-10		3.72E-10	DLL	3.24E-10
1234789-Cl7-Dibenzofuran(1234789 HpCDF), ng/m^3 WHO-2005	ND	1.18E-05		2.26E-05	EMPC	1.54E-05		2.42E-05	DLL	2.07E-05
1234789-Cl7-Dibenzofuran(1234789 HpCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	1.69E-05		3.36E-05	EMPC	2.28E-05		3.22E-05	DLL	2.95E-05
1234789-Cl7-Dibenzofuran(1234789 HpCDF), ng/m^3 @ 12% CO_2 WHO-2(	ND	1.75E-05		3.49E-05	EMPC	2.34E-05		3.35E-05	DLL	3.06E-05
1234789-Cl7-Dibenzofuran(1234789 HpCDF), lb/hr WHO-2005	ND	1.85E-12		3.60E-12	EMPC	2.40E-12		3.72E-12	DLL	3.24E-12
12346789-Cl8-Dibenzofuran(OCDF), ng/m^3	ND	8.73E-04		4.35E-03	EMPC	5.75E-03		4.55E-03	DLL	4.88E-03
12346789-Cl8-Dibenzofuran(OCDF), ng/m^3 @ 7% O_2	ND	1.25E-03		6.48E-03	EMPC	8.52E-03		6.07E-03	DLL	7.02E-03
12346789-Cl8-Dibenzofuran(OCDF), ng/m @ 12% CO	ND	1.29E-03		6.74E-03	EMPC	8.73E-03		6.31E-03	DLL	7.26E-03
12346789-Cl8-Dibenzofuran(OCDF), lb/hr	ND	1.37E-10		6.94E-10	EMPC	8.98E-10		7.00E-10	DLL	7.64E-10
12346789-Cl8-Dibenzofuran(OCDF), ng/m^3 WHO-2005	ND	2.62E-07		1.31E-06	EMPC	1.72E-06		1.37E-06	DLL	1.47E-06
12346789-Cl8-Dibenzofuran(OCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	3.75E-07		1.95E-06	EMPC	2.56E-06		1.82E-06	DLL	2.11E-06
12346789-Cl8-Dibenzofuran(OCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	3.88E-07		2.02E-06	EMPC	2.62E-06		1.89E-06	DLL	2.18E-06
12346789-Cl8-Dibenzofuran(OCDF), lb/hr WHO-2005	ND	4.10E-14		2.08E-13	EMPC	2.69E-13		2.10E-13	DLL	2.29E-13
Total Cl4-Dibenzo-p-dioxins(TCDD), ng/m^3	ND	8.68E-04	EMPC	2.74E-02	EMPC	1.62E-02		1.79E-02	DLL	2.05E-02
Total Cl4-Dibenzo-p-dioxins(TCDD), ng/m^3 @ 7% O_2	ND	1.24E-03	EMPC	4.08E-02	EMPC	2.40E-02		2.39E-02	DLL	2.96E-02
Total Cl4-Dibenzo-p-dioxins(TCDD), ng/m^3 @ 12% CO_2	ND	1.29E-03	EMPC	4.24E-02	EMPC	2.46E-02		2.49E-02	DLL	3.06E-02
Total Cl4-Dibenzo-p-dioxins(TCDD), lb/hr	ND	1.36E-10	EMPC	4.37E-09	EMPC	2.53E-09		2.76E-09	DLL	3.22E-09
Total Cl4-Dibenzo-p-dioxins(TCDD), ng/m^3 WHO-2005	ND	8.68E-04	EMPC	9.88E-04	EMPC	1.17E-03		1.03E-03	DLL	1.06E-03
Total Cl4-Dibenzo-p-dioxins(TCDD), ng/m^3 @ 7% O_2 WHO-2005	ND	1.24E-03	EMPC	1.47E-03	EMPC	1.73E-03		1.37E-03	DLL	1.53E-03
Total Cl4-Dibenzo-p-dioxins(TCDD), ng/m^3 @ 12% CO_2 WHO-2005	ND	1.29E-03	EMPC	1.53E-03	EMPC	1.78E-03		1.43E-03	DLL	1.58E-03
Total Cl4-Dibenzo-p-dioxins(TCDD), lb/hr WHO-2005	ND	1.36E-10	EMPC	1.58E-10	EMPC	1.83E-10		1.58E-10	DLL	1.66E-10

Total Cl5-Dibenzo-p-dioxins(PeCDD), ng/m^3	ND	1.09E-03	1.84E-02	2.19E-02	1.56E-02	1.86E-02
Total Cl5-Dibenzo-p-dioxins(PeCDD), ng/m^3 @ 7% O_2	ND	1.56E-03	2.74E-02	3.24E-02	2.08E-02	2.69E-02
Total Cl5-Dibenzo-p-dioxins(PeCDD), ng/m^3 @ 12 CO_2	ND	1.61E-03	2.84E-02	3.32E-02	2.17E-02	2.78E-02
Total Cl5-Dibenzo-p-dioxins(PeCDD), lb/hr	ND	1.70E-10	2.93E-09	3.41E-09	2.40E-09	2.92E-09
Total Cl5-Dibenzo-p-dioxins(PeCDD), ng/m^3 WHO-2005	ND	1.09E-03	1.03E-03	1.63E-03	1.85E-03	1.50E-03
Total Cl5-Dibenzo-p-dioxins(PeCDD), ng/m^3 @ 7% O_2 WHO-2005	ND	1.56E-03	1.53E-03	2.42E-03	2.46E-03	2.14E-03
Total Cl5-Dibenzo-p-dioxins(PeCDD), ng/m^3 @ 12% CO_2 WHO-2005	ND	1.61E-03	1.59E-03	2.48E-03	2.56E-03	2.21E-03
Total Cl5-Dibenzo-p-dioxins(PeCDD), lb/hr WHO-2005	ND	1.70E-10	1.64E-10	2.55E-10	2.84E-10	2.35E-10
Total Cl6-Dibenzo-p-dioxins(HxCDD), ng/m^3	ND	1.21E-03	5.42E-02	6.02E-02	7.25E-02	6.23E-02
Total Cl6-Dibenzo-p-dioxins(HxCDD), ng/m^3 @ 7% O_2	ND	1.73E-03	8.07E-02	8.92E-02	9.66E-02	8.89E-02
Total Cl6-Dibenzo-p-dioxins(HxCDD), ng/m^3 @ 12 CO_2	ND	1.79E-03	8.39E-02	9.14E-02	1.01E-01	9.20E-02
Total Cl6-Dibenzo-p-dioxins(HxCDD), lb/hr	ND	1.89E-10	8.65E-09	9.40E-09	1.12E-08	9.73E-09
Total Cl6-Dibenzo-p-dioxins(HxCDD), ng/m^3 WHO-2005	ND	3.58E-04	6.19E-04	7.91E-04	9.34E-04	7.81E-04
Total Cl6-Dibenzo-p-dioxins(HxCDD), ng/m^3 @ 7% O_2 WHO-2005	ND	5.12E-04	9.22E-04	1.17E-03	1.25E-03	1.11E-03
Total Cl6-Dibenzo-p-dioxins(HxCDD), ng/m^3 @ 12% CO_2 WHO-2005	ND	5.30E-04	9.58E-04	1.20E-03	1.30E-03	1.15E-03
Total Cl6-Dibenzo-p-dioxins(HxCDD), lb/hr WHO-2005	ND	5.60E-11	9.87E-11	1.23E-10	1.44E-10	1.22E-10
Total Cl7-Dibenzo-p-dioxins(HpCDD), ng/m^3	ND	1.74E-03	4.54E-02	4.89E-02	5.01E-02	4.81E-02
Total Cl7-Dibenzo-p-dioxins(HpCDD), ng/m^3 @ 7% O_2	ND	2.49E-03	6.77E-02	7.24E-02	6.68E-02	6.90E-02
Total Cl7-Dibenzo-p-dioxins(HxCDD), ng/m^3 @ 12 CO_2	ND	2.58E-03	7.04E-02	7.42E-02	6.96E-02	7.14E-02
Total Cl7-Dibenzo-p-dioxins(HxCDD), lb/hr	ND	2.73E-10	7.25E-09	7.63E-09	7.71E-09	7.53E-09
Total Cl7-Dibenzo-p-dioxins(HxCDD), ng/m^3 WHO-2005	ND	1.74E-05	2.32E-04	2.54E-04	2.69E-04	2.52E-04
Total Cl7-Dibenzo-p-dioxins(HxCDD), ng/m^3 @ 7% O_2 WHO-2005	ND	2.49E-05	3.46E-04	3.77E-04	3.58E-04	3.60E-04
Total Cl7-Dibenzo-p-dioxins(HxCDD), ng/m^3 @ 12% CO_2 WHO-2005	ND	1.82E-06	1.60E-05	1.52E-05	1.26E-05	1.46E-05
Total Cl7-Dibenzo-p-dioxins(HxCDD), lb/hr WHO-2005	ND	1.92E-13	1.65E-12	1.56E-12	1.40E-12	1.54E-12
Total Cl4-Dibenzofurans(TCDF), ng/m^3	ND	4.93E-04	5.01E-02	6.27E-02	4.71E-02	5.33E-02
Total Cl4-Dibenzofurans(TCDF), ng/m^3 @ 7% O_2	ND	7.06E-04	7.46E-02	9.29E-02	6.28E-02	7.68E-02
Total Cl4-Dibenzofurans(TCDF), ng/m^3 @ 12 CO_2	ND	7.31E-04	7.76E-02	9.52E-02	6.54E-02	7.94E-02
Total Cl4-Dibenzofurans(TCDF), lb/hr	ND	7.72E-11	7.99E-09	9.79E-09	7.25E-09	8.34E-09
Total Cl4-Dibenzofurans(TCDF), ng/m^3 WHO-2005	ND	4.93E-05	4.71E-04	2.37E-04	2.35E-04	3.14E-04
Total Cl4-Dibenzofurans(TCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	7.06E-05	7.01E-04	3.51E-04	3.13E-04	4.55E-04
Total Cl4-Dibenzofurans(TCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	7.31E-05	7.29E-04	3.60E-04	3.26E-04	4.72E-04
Total Cl4-Dibenzofurans(TCDF), lb/hr WHO-2005	ND	7.72E-12	7.51E-11	3.70E-11	3.62E-11	4.94E-11
Total Cl5-Dibenzofurans(PeCDF), ng/m^3	ND	5.54E-04	3.15E-02	4.51E-02	5.80E-02	4.49E-02
Total Cl5-Dibenzofurans(PeCDF), ng/m^3 @ 7% O_2	ND	7.92E-04	4.69E-02	6.69E-02	7.74E-02	6.37E-02
Total Cl5-Dibenzofurans(PeCDF), ng/m^3 @ 12 CO_2	ND	8.20E-04	4.87E-02	6.86E-02	8.05E-02	6.59E-02
Total Cl5-Dibenzofurans(PeCDF), lb/hr	ND	8.67E-11	5.02E-09	7.05E-09	8.93E-09	7.00E-09
Total Cl5-Dibenzofurans(PeCDF), ng/m^3 WHO-2005	ND	1.66E-04	1.65E-03	1.70E-03	1.62E-03	1.66E-03
Total Cl5-Dibenzofurans(PeCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	2.38E-04	2.46E-03	2.51E-03	2.16E-03	2.38E-03
Total Cl5-Dibenzofurans(PeCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	2.46E-04	2.55E-03	2.58E-03	2.25E-03	2.46E-03
Total Cl5-Dibenzofurans(PeCDF), lb/hr WHO-2005	ND	2.60E-11	2.63E-10	2.65E-10	2.49E-10	2.59E-10
Total Cl6-Dibenzofurans(HxCDF), ng/m^3	ND	5.33E-04	3.97E-02	3.92E-02	4.47E-02	4.12E-02
Total Cl6-Dibenzofurans(HxCDF), ng/m^3 @ 7% O_2	ND	7.62E-04	5.91E-02	5.81E-02	5.96E-02	5.89E-02
Total Cl6-Dibenzofurans(HxCDF), ng/m^3 @ 12 CO_2	ND	7.89E-04	6.15E-02	5.96E-02	6.20E-02	6.10E-02
Total Cl6-Dibenzofurans(HxCDF), lb/hr	ND	8.34E-11	6.33E-09	6.13E-09	6.88E-09	6.44E-09
Total Cl6-Dibenzofurans(HxCDF), ng/m^3 WHO-2005	ND	1.87E-04	1.41E-03	1.25E-03	1.57E-03	1.41E-03
Total Cl6-Dibenzofurans(HxCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	2.68E-04	2.09E-03	1.85E-03	2.10E-03	2.02E-03
Total Cl6-Dibenzofurans(HxCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	2.77E-04	2.18E-03	1.90E-03	2.18E-03	2.09E-03
Total Cl6-Dibenzofurans(HxCDF), lb/hr WHO-2005	ND	2.93E-11	2.24E-10	1.95E-10	2.42E-10	2.21E-10
Total Cl7-Dibenzofurans(HpCDF), ng/m^3	ND	1.18E-03	2.55E-02	1.77E-02	1.63E-02	1.98E-02
Total Cl7-Dibenzofurans(HpCDF), ng/m^3 @ 7% O_2	ND	1.69E-03	3.79E-02	2.63E-02	2.18E-02	2.86E-02
Total Cl7-Dibenzofurans(HpCDF), ng/m^3 @ 12 CO_2	ND	1.75E-03	3.94E-02	2.69E-02	2.26E-02	2.97E-02
Total Cl7-Dibenzofurans(HpCDF), lb/hr	ND	1.85E-10	4.06E-09	2.77E-09	2.51E-09	3.11E-09
Total Cl7-Dibenzofurans(HpCDF), ng/m^3 WHO-2005	ND	2.13E-05	1.57E-04	1.54E-04	1.63E-04	1.58E-04
Total Cl7-Dibenzofurans(HpCDF), ng/m^3 @ 7% O_2 WHO-2005	ND	3.05E-05	2.33E-04	2.28E-04	2.17E-04	2.26E-04
Total Cl7-Dibenzofurans(HpCDF), ng/m^3 @ 12% CO_2 WHO-2005	ND	3.88E-07	2.02E-06	2.62E-06	1.89E-06	2.18E-06
Total Cl7-Dibenzofurans(HpCDF), lb/hr WHO-2005	ND	4.10E-14	2.08E-13	2.69E-13	2.10E-13	2.29E-13

Total PCDD: (EMPC = EMPC, ND = 1/2 MDL)										
Total PCDD, ng/m^3	DLL	2.46E-03	DLL	1.45E-01	DLL	1.47E-01	DLL	1.56E-01	DLL	1.50E-01
Total PCDD, ng/m^3 @ 7% O_2	DLL	3.51E-03	DLL	2.17E-01	DLL	2.18E-01	DLL	2.08E-01	DLL	2.14E-01
Total PCDD, ng/m^3 @ 12% CO_2	DLL	3.64E-03	DLL	2.25E-01	DLL	2.23E-01	DLL	2.17E-01	DLL	2.22E-01
Total PCDD, lb/hr	DLL	3.84E-10	DLL	2.32E-08	DLL	2.30E-08	DLL	2.40E-08	DLL	2.34E-08
Total PCDD, ng/m^3 WHO-2005	DLL	1.17E-03	DLL	1.87E-03	DLL	2.46E-03	DLL	2.41E-03	DLL	2.24E-03
Total PCDD, ng/m^3 @ 7% O_2 WHO-2005	DLL	1.67E-03	DLL	2.79E-03	DLL	3.64E-03	DLL	3.21E-03	DLL	3.21E-03
Total PCDD, ng/m^3 @ 12% CO_2 WHO-2005	DLL	1.73E-03	DLL	2.90E-03	DLL	3.73E-03	DLL	3.34E-03	DLL	3.32E-03
Total PCDD, lb/hr WHO-2005	DLL	1.83E-10	DLL	2.98E-10	DLL	3.84E-10	DLL	3.70E-10	DLL	3.51E-10
Total PCDF: (EMPC = EMPC, ND = 1/2 MDL)										
Total PCDF, ng/m^3	DLL	1.38E-03	DLL	1.47E-01	DLL	1.65E-01	DLL	1.66E-01	DLL	1.59E-01
Total PCDF, ng/m^3 @ 7% O_2	DLL	1.98E-03	DLL	2.19E-01	DLL	2.44E-01	DLL	2.22E-01	DLL	2.28E-01
Total PCDF, ng/m^3 @ 12% CO_2	DLL	2.05E-03	DLL	2.27E-01	DLL	2.50E-01	DLL	2.31E-01	DLL	2.36E-01
Total PCDF, lb/hr	DLL	2.16E-10	DLL	2.34E-08	DLL	2.57E-08	DLL	2.56E-08	DLL	2.49E-08
Total PCDF, ng/m^3 WHO-2005	DLL	2.12E-04	DLL	3.60E-03	DLL	3.34E-03	DLL	3.53E-03	DLL	3.49E-03
Total PCDF, ng/m^3 @ 7% O_2 WHO-2005	DLL	3.04E-04	DLL	5.37E-03	DLL	4.95E-03	DLL	4.70E-03	DLL	5.00E-03
Total PCDF, ng/m^3 @ 12% CO_2 WHO-2005	DLL	3.14E-04	DLL	5.58E-03	DLL	5.07E-03	DLL	4.89E-03	DLL	5.18E-03
Total PCDF, lb/hr WHO-2005	DLL	3.09E-13	DLL	3.49E-11	DLL	3.81E-11	DLL	3.41E-11	DLL	3.57E-11
Total PCDD/PCDF: (EMPC = EMPC, ND = 1/2 MDL)										
Total PCDD/PCDF, ng/m^3	DLL	3.84E-03	DLL	2.92E-01	DLL	3.12E-01	DLL	3.22E-01	DLL	3.09E-01
Total PCDD/PCDF, ng/m^3 @ 7% O_2	DLL	5.49E-03	DLL	4.35E-01	DLL	4.62E-01	DLL	4.30E-01	DLL	4.42E-01
Total PCDD/PCDF, ng/m^3 @ 12% CO_2	DLL	5.68E-03	DLL	4.52E-01	DLL	4.74E-01	DLL	4.47E-01	DLL	4.58E-01
Total PCDD/PCDF, lb/hr	DLL	6.00E-10	DLL	4.66E-08	DLL	4.87E-08	DLL	4.96E-08	DLL	4.83E-08
Total PCDD/PCDF, ng/m^3 WHO-2005	DLL	1.38E-03	DLL	5.47E-03	DLL	5.80E-03	DLL	5.93E-03	DLL	5.73E-03
Total PCDD/PCDF, ng/m^3 @ 7% O_2 WHO-2005	DLL	1.97E-03	DLL	8.15E-03	DLL	8.59E-03	DLL	7.91E-03	DLL	8.22E-03
Total PCDD/PCDF, ng/m^3 @ 12% CO_2 WHO-2005	DLL	2.04E-03	DLL	8.48E-03	DLL	8.80E-03	DLL	8.23E-03	DLL	8.50E-03
Total PCDD/PCDF, lb/hr WHO-2005	DLL	1.83E-10	DLL	3.33E-10	DLL	4.22E-10	DLL	4.04E-10	DLL	3.86E-10

SOURCE TEST DATA SUMMARY
Polychlorinated Biphenyl (PCB)

Client	Covanta
Unit / Location	Unit 2
A (stack area), ft^2	12.56637061
T_{ref} (reference temperature), °F	68

	Test number	Field Blank	Run 1	Run 2	Run 3	Average
	Date	--	3/10/2022	3/11/2022	3/11/2022	--
	Start / Stop time	--	1343-1818	0835-1240	1342-1747	--
1j	Q_{ds} (stack flow rate), dscfm	41,824	42,639	41,726	41,108	41,824

	Total		Field Blank		Run 1		Run 2		Run 3		Average
1	PCB-5/8 [2,4'-DiCB], pg	ND	3.95E+01		1.22E+03		3.62E+03		3.39E+02		1.73E+03
2	PCB-18 [2,2',5-TrCB], pg	ND	2.20E+01		8.35E+02		2.52E+03		2.17E+02		1.19E+03
3	PCB-28 [2,4,4'-TrCB], pg	ND	1.20E+01		6.61E+02		9.26E+02		1.59E+02		5.82E+02
4	PCB-44 [2,2',3,5'-TeCB], pg	ND	1.09E+01		3.70E+02		3.82E+02	EMPC	9.99E+01	DLL	2.84E+02
5	PCB-52/69 [2,2',5,5'-TeCB], pg	EMPC	2.29E+01		3.55E+02		4.42E+02		1.27E+02		3.08E+02
6	PCB-66/76 [2,3',4,4'-TeCB], pg	ND	6.80E+00		1.81E+02		1.84E+02		8.39E+01		1.50E+02
7	PCB-77 [3,3',4,4'-TeCB], pg	ND	8.00E+00		4.57E+01		8.00E+01	EMPC	2.65E+01	DLL	5.07E+01
8	PCB-81 [3,4,4',5-TeCB], pg	ND	8.14E+00	ND	8.95E+00	ND	8.14E+00	ND	9.08E+00	ND	8.72E+00
9	PCB-90/101 [2,2',4,5,5'-PeCB], pg	ND	7.64E+00		3.08E+02		2.37E+02		9.52E+01		2.13E+02
10	PCB-105 [2,3,3',4,4'-PeCB], pg	ND	8.48E+00		1.10E+02		5.68E+01		3.42E+01		6.70E+01
11	PCB-106/118 [2,3',4,4',5-PeCB], pg	EMPC	9.21E+00		2.33E+02		1.60E+02		7.23E+01		1.55E+02
12	PCB-114 [2,3,4,4',5-PeCB], pg	ND	7.91E+00	ND	2.36E+01	ND	1.41E+01	ND	8.16E+00	ND	1.53E+01
13	PCB-123 [2',3,4,4',5-PeCB], pg	ND	5.95E+00	ND	1.15E+01	ND	9.50E+00	ND	7.04E+00	ND	9.35E+00
14	PCB-126 [3,3',4,4',5-PeCB], pg	ND	8.42E+00	ND	2.38E+01	ND	1.40E+01	ND	8.18E+00	ND	1.53E+01
15	PCB-128/162 [2,2',3,3',4,4'-HxCB], pg	ND	7.07E+00		4.88E+01		2.94E+01	EMPC	2.05E+01	DLL	3.29E+01
16	PCB-138/163/164 [2,2',3,4,4',5'-HxCB], pg		1.52E+01		2.16E+02		1.14E+02		7.62E+01		1.35E+02
17	PCB-153 [2,2',4,4',5,5'-HxCB], pg	ND	5.89E+00	EMPC	1.83E+02	EMPC	8.20E+01		6.22E+01	DLL	1.09E+02
18	PCB-156 [2,3,3',4,4',5-HxCB], pg	ND	5.53E+00	ND	1.02E+01		1.55E+01	ND	7.53E+00	DLL	1.11E+01
19	PCB-157 [2,3,3',4,4',5'-HxCB], pg	ND	6.49E+00	ND	1.16E+01	ND	6.94E+00	ND	8.11E+00	ND	8.88E+00
20	PCB-167 [2,3',4,4',5,5'-HxCB], pg	ND	5.73E+00	ND	1.06E+01	ND	6.23E+00	ND	7.88E+00	ND	8.24E+00
21	PCB-169 [3,3',4,4',5,5'-HxCB], pg	ND	5.89E+00	ND	1.12E+01	ND	6.38E+00	ND	7.79E+00	ND	8.46E+00
22	PCB-170 [2,2',3,3',4,4',5-HpCB], pg	ND	7.26E+00	ND	1.99E+01	EMPC	8.51E+01	ND	9.47E+00	ND	3.82E+01
23	PCB-180 [2,2',3,4,4',5,5'-HpCB], pg	ND	6.71E+00		6.20E+01	EMPC	2.95E+01		4.31E+01	DLL	4.49E+01
24	PCB-182/187 [2,2',3,4',5,5',6-HpCB], pg	ND	5.52E+00		5.56E+01	EMPC	2.19E+01	EMPC	1.93E+01	DLL	3.23E+01
25	PCB-189 [2,3,3',4,4',5,5'-HpCB], pg	ND	4.49E+00	ND	1.54E+01	ND	7.23E+00	ND	5.95E+00	ND	9.53E+00
26	PCB-195 [2,2',3,3',4,4',5,6-OcCB], pg	ND	4.26E+00	ND	2.84E+01	ND	1.85E+01	ND	1.38E+01	ND	2.02E+01
27	PCB-206 [2,2',3,3',4,4',5,5',6-NoCB], pg	ND	2.02E+00	EMPC	9.52E+01		7.49E+01		8.98E+01	DLL	8.66E+01
28	PCB-209 [2,2',3,3',4,4',5,5',6,6'-DeCB], pg	ND	2.90E+00		2.07E+02		1.80E+02		2.14E+02		2.00E+02
	Total monoCB, pg	ND	7.46E+00		1.22E+03		1.99E+03		1.07E+03		1.43E+03
	Total diCB, pg	ND	5.06E+01		3.81E+03		8.71E+03		7.58E+02		4.43E+03
	Total triCB, pg	ND	2.35E+01		4.25E+03		8.70E+03		6.20E+02		4.52E+03
	Total tetraCB, pg	EMPC	2.29E+01		2.54E+03		3.16E+03		5.02E+02		2.07E+03
	Total pentaCB, pg	EMPC	2.37E+01		1.44E+03		6.52E+02		4.49E+02		8.47E+02
	Total hexaCB, pg		1.53E+01		5.61E+02		3.80E+02		1.67E+02		3.69E+02
	Total heptaCB, pg	ND	8.18E+00		1.82E+02		2.75E+01		5.16E+01		8.70E+01
	Total octaCB, pg	ND	4.74E+00		2.88E+01		5.73E+01		8.01E+01		5.54E+01
	Total nonaCB, pg	ND	2.02E+00	ND	9.52E+01		7.49E+01		9.25E+01	DLL	8.75E+01
	DecaCB, pg	ND	2.90E+00	EMPC	2.07E+02		1.80E+02		2.14E+02	DLL	2.00E+02
	Total PCB, pg	0.00	1.53E+01		1.42E+04		2.39E+04		4.00E+03		1.40E+04

1	PCB-5/8 [2,4'-DiCB], ng/sampling train		1.22E+00		3.62E+00		3.39E-01		1.73E+00
	PCB-5/8 [2,4'-DiCB], ng/dscm		3.34E-01		8.93E-01		9.24E-02		4.40E-01
	PCB-5/8 [2,4'-DiCB], lb/hr		5.33E-08		1.39E-07		1.42E-08		6.90E-08
2	PCB-18 [2,2',5-TrCB], ng/sampling train		8.35E-01		2.52E+00		2.17E-01		1.19E+00
	PCB-18 [2,2',5-TrCB], ng/dscm		2.29E-01		6.22E-01		5.91E-02		3.03E-01
	PCB-18 [2,2',5-TrCB], lb/hr		3.65E-08		9.71E-08		9.10E-09		4.76E-08
3	PCB-28 [2,4,4'-TrCB], ng/sampling train		6.61E-01		9.26E-01		1.59E-01		5.82E-01
	PCB-28 [2,4,4'-TrCB], ng/dscm		1.81E-01		2.28E-01		4.33E-02		1.51E-01
	PCB-28 [2,4,4'-TrCB], lb/hr		2.89E-08		3.57E-08		6.67E-09		2.37E-08
4	PCB-44 [2,2',3,5'-TeCB], ng/sampling train		3.70E-01		3.82E-01	EMPC	9.99E-02	DLL	2.84E-01
	PCB-44 [2,2',3,5'-TeCB], ng/dscm		1.01E-01		9.42E-02	EMPC	2.72E-02	DLL	7.42E-02
	PCB-44 [2,2',3,5'-TeCB], lb/hr		1.62E-08		1.47E-08	EMPC	4.19E-09	DLL	1.17E-08
5	PCB-52/69 [2,2',5,5'-TeCB], ng/sampling train		3.55E-01		4.42E-01		1.27E-01		3.08E-01
	PCB-52/69 [2,2',5,5'-TeCB], ng/dscm		9.72E-02		1.09E-01		3.46E-02		8.03E-02
	PCB-52/69 [2,2',5,5'-TeCB], lb/hr		1.55E-08		1.70E-08		5.32E-09		1.26E-08
6	PCB-66/76 [2,3',4,4'-TeCB], ng/sampling train		1.81E-01		1.84E-01		8.39E-02		1.50E-01
	PCB-66/76 [2,3',4,4'-TeCB], ng/dscm		4.95E-02		4.54E-02		2.29E-02		3.93E-02
	PCB-66/76 [2,3',4,4'-TeCB], lb/hr		7.91E-09		7.09E-09		3.52E-09		6.17E-09
7	PCB-77 [3,3',4,4'-TeCB], ng/sampling train		4.57E-02		8.00E-02	EMPC	2.65E-02	DLL	5.07E-02
	PCB-77 [3,3',4,4'-TeCB], ng/dscm		1.25E-02		1.97E-02	EMPC	7.22E-03	DLL	1.32E-02
	PCB-77 [3,3',4,4'-TeCB], lb/hr		2.00E-09		3.08E-09	EMPC	1.11E-09	DLL	2.06E-09
8	PCB-81 [3,4,4',5-TeCB], ng/sampling train	ND	8.95E-03	ND	8.14E-03	ND	9.08E-03	ND	8.72E-03
	PCB-81 [3,4,4',5-TeCB], ng/dscm	ND	2.45E-03	ND	2.01E-03	ND	2.47E-03	ND	2.31E-03
	PCB-81 [3,4,4',5-TeCB], lb/hr	ND	3.91E-10	ND	3.14E-10	ND	3.81E-10	ND	3.62E-10
9	PCB-90/101 [2,2',4,5,5'-PeCB], ng/sampling train		3.08E-01		2.37E-01		9.52E-02		2.13E-01
	PCB-90/101 [2,2',4,5,5'-PeCB], ng/dscm		8.43E-02		5.85E-02		2.59E-02		5.62E-02
	PCB-90/101 [2,2',4,5,5'-PeCB], lb/hr		1.35E-08		9.13E-09		3.99E-09		8.86E-09
10	PCB-105 [2,3,3',4,4'-PeCB], ng/sampling train		1.10E-01		5.68E-02		3.42E-02		6.70E-02
	PCB-105 [2,3,3',4,4'-PeCB], ng/dscm		3.01E-02		1.40E-02		9.32E-03		1.78E-02
	PCB-105 [2,3,3',4,4'-PeCB], lb/hr		4.80E-09		2.19E-09		1.43E-09		2.81E-09
11	PCB-106/118 [2,3',4,4',5-PeCB], ng/sampling train		2.33E-01		1.60E-01		7.23E-02		1.55E-01
	PCB-106/118 [2,3',4,4',5-PeCB], ng/dscm		6.38E-02		3.95E-02		1.97E-02		4.10E-02
	PCB-106/118 [2,3',4,4',5-PeCB], lb/hr		1.02E-08		6.16E-09		3.03E-09		6.46E-09
12	PCB-114 [2,3,4,4',5-PeCB], ng/sampling train	ND	2.36E-02	ND	1.41E-02	ND	8.16E-03	ND	1.53E-02
	PCB-114 [2,3,4,4',5-PeCB], ng/dscm	ND	6.46E-03	ND	3.48E-03	ND	2.22E-03	ND	4.05E-03
	PCB-114 [2,3,4,4',5-PeCB], lb/hr	ND	1.03E-09	ND	5.43E-10	ND	3.42E-10	ND	6.39E-10
13	PCB-123 [2',3,4,4',5-PeCB], ng/sampling train	ND	1.15E-02	ND	9.50E-03	ND	7.04E-03	ND	9.35E-03
	PCB-123 [2',3,4,4',5-PeCB], ng/dscm	ND	3.15E-03	ND	2.34E-03	ND	1.92E-03	ND	2.47E-03
	PCB-123 [2',3,4,4',5-PeCB], lb/hr	ND	5.02E-10	ND	3.66E-10	ND	2.95E-10	ND	3.88E-10

14	PCB-126 [3,3',4,4',5-PeCB], ng/sampling train	ND	2.38E-02	ND	1.40E-02	ND	8.18E-03	ND	1.53E-02
	PCB-126 [3,3',4,4',5-PeCB], ng/dscm	ND	6.51E-03	ND	3.45E-03	ND	2.23E-03	ND	4.07E-03
	PCB-126 [3,3',4,4',5-PeCB], lb/hr	ND	1.04E-09	ND	5.39E-10	ND	3.43E-10	ND	6.41E-10
15	PCB-128/162 [2,2',3,3',4,4'-HxCB], ng/sampling train		4.88E-02		2.94E-02	EMPC	2.05E-02	DLL	3.29E-02
	PCB-128/162 [2,2',3,3',4,4'-HxCB], ng/dscm		1.34E-02		7.25E-03	EMPC	5.59E-03	DLL	8.73E-03
	PCB-128/162 [2,2',3,3',4,4'-HxCB], lb/hr		2.13E-09		1.13E-09	EMPC	8.59E-10	DLL	1.37E-09
16	PCB-138/163/164 [2,2',3,4,4',5'-HxCB], ng/sampling train		2.16E-01		1.14E-01		7.62E-02		1.35E-01
	PCB-138/163/164 [2,2',3,4,4',5'-HxCB], ng/dscm		5.91E-02		2.81E-02		2.08E-02		3.60E-02
	PCB-138/163/164 [2,2',3,4,4',5'-HxCB], lb/hr		9.43E-09		4.39E-09		3.19E-09		5.67E-09
17	PCB-153 [2,2',4,4',5,5'-HxCB], ng/sampling train	EMPC	1.83E-01	EMPC	8.20E-02		6.22E-02	DLL	1.09E-01
	PCB-153 [2,2',4,4',5,5'-HxCB], ng/dscm	EMPC	5.01E-02	EMPC	2.02E-02		1.69E-02	DLL	2.91E-02
	PCB-153 [2,2',4,4',5,5'-HxCB], lb/hr	EMPC	7.99E-09	EMPC	3.16E-09		2.61E-09	DLL	4.59E-09
18	PCB-156 [2,3,3',4,4',5-HxCB], ng/sampling train	ND	1.02E-02		1.55E-02	ND	7.53E-03	DLL	1.11E-02
	PCB-156 [2,3,3',4,4',5-HxCB], ng/dscm	ND	2.79E-03		3.82E-03	ND	2.05E-03	DLL	2.89E-03
	PCB-156 [2,3,3',4,4',5-HxCB], lb/hr	ND	4.45E-10		5.97E-10	ND	3.16E-10	DLL	4.53E-10
19	PCB-157 [2,3,3',4,4',5'-HxCB], ng/sampling train	ND	1.16E-02	ND	6.94E-03	ND	8.11E-03	ND	8.88E-03
	PCB-157 [2,3,3',4,4',5'-HxCB], ng/dscm	ND	3.17E-03	ND	1.71E-03	ND	2.21E-03	ND	2.37E-03
	PCB-157 [2,3,3',4,4',5'-HxCB], lb/hr	ND	5.07E-10	ND	2.67E-10	ND	3.40E-10	ND	3.71E-10
20	PCB-167 [2,3',4,4',5,5'-HxCB], ng/sampling train	ND	1.06E-02	ND	6.23E-03	ND	7.88E-03	ND	8.24E-03
	PCB-167 [2,3',4,4',5,5'-HxCB], ng/dscm	ND	2.90E-03	ND	1.54E-03	ND	2.15E-03	ND	2.19E-03
	PCB-167 [2,3',4,4',5,5'-HxCB], lb/hr	ND	4.63E-10	ND	2.40E-10	ND	3.30E-10	ND	3.44E-10
21	PCB-169 [3,3',4,4',5,5'-HxCB], ng/sampling train	ND	1.12E-02	ND	6.38E-03	ND	7.79E-03	ND	8.46E-03
	PCB-169 [3,3',4,4',5,5'-HxCB], ng/dscm	ND	3.07E-03	ND	1.57E-03	ND	2.12E-03	ND	2.25E-03
	PCB-169 [3,3',4,4',5,5'-HxCB], lb/hr	ND	4.89E-10	ND	2.46E-10	ND	3.27E-10	ND	3.54E-10
22	PCB-170 [2,2',3,3',4,4',5-HpCB], ng/sampling train	ND	1.99E-02	EMPC	8.51E-02	ND	9.47E-03	ND	3.82E-02
	PCB-170 [2,2',3,3',4,4',5-HpCB], ng/dscm	ND	5.45E-03	EMPC	2.10E-02	ND	2.58E-03	ND	9.67E-03
	PCB-170 [2,2',3,3',4,4',5-HpCB], lb/hr	ND	8.69E-10	EMPC	3.28E-09	ND	3.97E-10	ND	1.51E-09
23	PCB-180 [2,2',3,4,4',5,5'-HpCB], ng/sampling train		6.20E-02	EMPC	2.95E-02		4.31E-02	DLL	4.49E-02
	PCB-180 [2,2',3,4,4',5,5'-HpCB], ng/dscm		1.70E-02	EMPC	7.28E-03		1.17E-02	DLL	1.20E-02
	PCB-180 [2,2',3,4,4',5,5'-HpCB], lb/hr		2.71E-09	EMPC	1.14E-09		1.81E-09	DLL	1.88E-09
24	PCB-182/187 [2,2',3,4',5,5',6-HpCB], ng/sampling train		5.56E-02	EMPC	2.19E-02	EMPC	1.93E-02	DLL	3.23E-02
	PCB-182/187 [2,2',3,4',5,5',6-HpCB], ng/dscm		1.52E-02	EMPC	5.40E-03	EMPC	5.26E-03	DLL	8.63E-03
	PCB-182/187 [2,2',3,4',5,5',6-HpCB], lb/hr		2.43E-09	EMPC	8.44E-10	EMPC	8.09E-10	DLL	1.36E-09
25	PCB-189 [2,3,3',4,4',5,5'-HpCB], µg, ng/sampling train	ND	1.54E-02	ND	7.23E-03	ND	5.95E-03	ND	9.53E-03
	PCB-189 [2,3,3',4,4',5,5'-HpCB], µg, ng/dscm	ND	4.21E-03	ND	1.78E-03	ND	1.62E-03	ND	2.54E-03
	PCB-189 [2,3,3',4,4',5,5'-HpCB], µg, lb/hr	ND	6.73E-10	ND	2.79E-10	ND	2.49E-10	ND	4.00E-10
26	PCB-195 [2,2',3,3',4,4',5,6-OcCB], ng/sampling train	ND	2.84E-02	ND	1.85E-02	ND	1.38E-02	ND	2.02E-02
	PCB-195 [2,2',3,3',4,4',5,6-OcCB], ng/dscm	ND	7.77E-03	ND	4.56E-03	ND	3.76E-03	ND	5.37E-03
	PCB-195 [2,2',3,3',4,4',5,6-OcCB], lb/hr	ND	1.24E-09	ND	7.13E-10	ND	5.79E-10	ND	8.44E-10
27	PCB-206 [2,2',3,3',4,4',5,5',6-NoCB], ng/sampling train	EMPC	9.52E-02		7.49E-02		8.98E-02	DLL	8.66E-02
	PCB-206 [2,2',3,3',4,4',5,5',6-NoCB], ng/dscm	EMPC	2.61E-02		1.85E-02		2.45E-02	DLL	2.30E-02
	PCB-206 [2,2',3,3',4,4',5,5',6-NoCB], lb/hr	EMPC	4.16E-09		2.89E-09		3.76E-09	DLL	3.60E-09
28	PCB-209 [2,2',3,3',4,4',5,5',6,6'-DeCB], ng/sampling train		2.07E-01		1.80E-01		2.14E-01		2.00E-01
	PCB-209 [2,2',3,3',4,4',5,5',6,6'-DeCB], ng/dscm		5.66E-02		4.44E-02		5.83E-02		5.31E-02
	PCB-209 [2,2',3,3',4,4',5,5',6,6'-DeCB], lb/hr		9.04E-09		6.93E-09		8.97E-09		8.32E-09
	Total monoCB, ng/sampling train		1.22E+00		1.99E+00		1.07E+00		1.43E+00
	Total monoCB, ng/dscm		3.34E-01		4.91E-01		2.92E-01		3.72E-01
	Total monoCB, lb/hr		5.33E-08		7.67E-08		4.49E-08		5.83E-08
	Total diCB, ng/sampling train		3.81E+00		8.71E+00		7.58E-01		4.43E+00
	Total diCB, ng/dscm		1.04E+00		2.15E+00		2.07E-01		1.13E+00
	Total diCB, lb/hr		1.66E-07		3.36E-07		3.18E-08		1.78E-07
	Total triCB, ng/sampling train		4.25E+00		8.70E+00		6.20E-01		4.52E+00
	Total triCB, ng/dscm		1.16E+00		2.15E+00		1.69E-01		1.16E+00
	Total triCB, lb/hr		1.86E-07		3.35E-07		2.60E-08		1.82E-07
	Total tetraCB, ng/sampling train		2.54E+00		3.16E+00		5.02E-01		2.07E+00
	Total tetraCB, ng/dscm		6.95E-01		7.80E-01		1.37E-01		5.37E-01
	Total tetraCB, lb/hr		1.11E-07		1.22E-07		2.10E-08		8.46E-08
	Total pentaCB, ng/sampling train		1.44E+00		6.52E-01		4.49E-01		8.47E-01
	Total pentaCB, ng/dscm		3.94E-01		1.61E-01		1.22E-01		2.26E-01
	Total pentaCB, lb/hr		6.29E-08		2.51E-08		1.88E-08		3.56E-08
	Total hexaCB, ng/sampling train		5.61E-01		3.80E-01		1.67E-01		3.69E-01
	Total hexaCB, ng/dscm		1.54E-01		9.37E-02		4.55E-02		9.76E-02
	Total hexaCB, lb/hr		2.45E-08		1.46E-08		7.00E-09		1.54E-08
	Total heptaCB, ng/sampling train		1.82E-01		2.75E-02		5.16E-02		8.70E-02
	Total heptaCB, ng/dscm		4.98E-02		6.78E-03		1.41E-02		2.36E-02
	Total heptaCB, lb/hr		7.95E-09		1.06E-09		2.16E-09		3.72E-09
	Total octaCB, ng/sampling train		2.88E-02		5.73E-02		8.01E-02		5.54E-02
	Total octaCB, ng/dscm		7.88E-03		1.41E-02		2.18E-02		1.46E-02
	Total octaCB, lb/hr		1.26E-09		2.21E-09		3.36E-09		2.27E-09
	Total nonaCB, ng/sampling train	ND	9.52E-02		7.49E-02		9.25E-02	DLL	8.75E-02
	Total nonaCB, ng/dscm	ND	2.61E-02		1.85E-02		2.52E-02	DLL	2.32E-02
	Total nonaCB, lb/hr	ND	4.16E-09		2.89E-09		3.88E-09	DLL	3.64E-09
	DecaCB, ng/sampling train	EMPC	2.07E-01		1.80E-01		2.14E-01	DLL	2.00E-01
	DecaCB, ng/dscm	EMPC	5.66E-02		4.44E-02		5.83E-02	DLL	5.31E-02
	DecaCB, lb/hr	EMPC	9.04E-09		6.93E-09		8.97E-09	DLL	8.32E-09
	Total PCB, ng/sampling train		1.42E+01		2.39E+01		4.00E+00		1.40E+01
	Total PCB, ng/dscm		3.89E+00		5.90E+00		1.09E+00		3.62E+00
	Total PCB, lb/hr		6.20E-07		9.21E-07		1.68E-07		5.70E-07

Appendix A.13
PAH Calculations/Results

SOURCE TEST DATA SUMMARY
Polycyclic Aromatic Hydrocarbons (PAH)

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7	Anthracene, ng/sampling train	<	20.0	<	20.0	<	20.0		23.1	<	20.0	*	21.0
	Anthracene, ng/dscm	<	4.69	<	4.69	<	5.06		5.34	<	4.43	*	4.94
	Anthracene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53		7.91	<	5.90	*	7.12
	Anthracene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83		8.11	<	6.14	*	7.36
	Anthracene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07		8.68E-07	<	7.08E-07	*	7.98E-07
8	Fluoranthene, ng/sampling train	<	20.0		73.0		25.2		123.0		25.8		58.0
	Fluoranthene, ng/dscm	<	4.69		17.12		6.37		28.44		5.71		13.51
	Fluoranthene, ng/dscm @ 7% O2	<	6.71		24.49		9.49		42.14		7.62		19.75
	Fluoranthene, ng/dscm @ 12% CO2	<	6.95		25.36		9.87		43.19		7.93		20.33
	Fluoranthene, lb/hr	<	7.57E-07		2.76E-06		1.03E-06		4.62E-06		9.14E-07		2.19E-06
9	Pyrene, ng/sampling train	<	20.0		134.0	<	20.0		121.0		24.7	*	55.2
	Pyrene, ng/dscm	<	4.69		31.42	<	5.06		27.98		5.47	*	12.83
	Pyrene, ng/dscm @ 7% O2	<	6.71		44.96	<	7.53		41.46		7.29	*	18.76
	Pyrene, ng/dscm @ 12% CO2	<	6.95		46.54	<	7.83		42.48		7.59	*	19.30
	Pyrene, lb/hr	<	7.57E-07		5.07E-06	<	8.17E-07		4.55E-06		8.75E-07	*	2.08E-06
10	Benz(a)anthracene, ng/sampling train	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0
	Benz(a)anthracene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Benz(a)anthracene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Benz(a)anthracene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Benz(a)anthracene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
11	Chrysene, ng/sampling train	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0
	Chrysene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Chrysene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Chrysene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Chrysene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
12	Benzo(b)fluoranthene, ng/sampling train	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0
	Benzo(b)fluoranthene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Benzo(b)fluoranthene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Benzo(b)fluoranthene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Benzo(b)fluoranthene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
13	Benzo(k)fluoranthene, ng/sampling train	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0
	Benzo(k)fluoranthene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Benzo(k)fluoranthene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Benzo(k)fluoranthene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Benzo(k)fluoranthene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
14	Benzo(e)pyrene, ng/sampling train	<	20.0		29.2	<	20.0		49.5	<	20.0	*	29.8
	Benzo(e)pyrene, ng/dscm	<	4.69		6.85	<	5.06		11.44	<	4.43	*	6.98
	Benzo(e)pyrene, ng/dscm @ 7% O2	<	6.71		9.80	<	7.53		16.96	<	5.90	*	10.13
	Benzo(e)pyrene, ng/dscm @ 12% CO2	<	6.95		10.14	<	7.83		17.38	<	6.14	*	10.45
	Benzo(e)pyrene, lb/hr	<	7.57E-07		1.10E-06	<	8.17E-07		1.86E-06	<	7.08E-07	*	1.13E-06
15	Benzo(a)pyrene, ng/sampling train	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0
	Benzo(a)pyrene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Benzo(a)pyrene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Benzo(a)pyrene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Benzo(a)pyrene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
16	Perylene, ng/sampling train	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0
	Perylene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Perylene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Perylene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Perylene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
17	Indeno(1,2,3-cd)pyrene, ng/sampling train	<	20.0	<	20.00	<	20.0	<	20.0	<	20.0	<	20.0
	Indeno(1,2,3-cd)pyrene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Indeno(1,2,3-cd)pyrene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Indeno(1,2,3-cd)pyrene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Indeno(1,2,3-cd)pyrene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
18	Dibenzo(a,h)anthracene, ng/sampling train	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0	<	20.0
	Dibenzo(a,h)anthracene, ng/dscm	<	4.69	<	4.69	<	5.06	<	4.62	<	4.43	<	4.70
	Dibenzo(a,h)anthracene, ng/dscm @ 7% O2	<	6.71	<	6.71	<	7.53	<	6.85	<	5.90	<	6.76
	Dibenzo(a,h)anthracene, ng/dscm @ 12% CO2	<	6.95	<	6.95	<	7.83	<	7.02	<	6.14	<	7.00
	Dibenzo(a,h)anthracene, lb/hr	<	7.57E-07	<	7.57E-07	<	8.17E-07	<	7.52E-07	<	7.08E-07	<	7.59E-07
19	Benzo(g,h,i)perylene, ng/sampling train	<	20.0		74.4	<	20.0		78.8		43.1	*	47.3
	Benzo(g,h,i)perylene, ng/dscm	<	4.69		17.44	<	5.06		18.22		9.55	*	10.94
	Benzo(g,h,i)perylene, ng/dscm @ 7% O2	<	6.71		24.96	<	7.53		27.00		12.72	*	15.75
	Benzo(g,h,i)perylene, ng/dscm @ 12% CO2	<	6.95		25.84	<	7.83		27.67		13.24	*	16.25
	Benzo(g,h,i)perylene, lb/hr	<	7.57E-07		2.81E-06	<	8.17E-07		2.96E-06		1.53E-06	*	1.77E-06

Appendix A.14
Chlorobenzene & Chlorophenol Calculations/Results

SOURCE TEST DATA SUMMARY
Chlorobenzene and Chlorophenol

Client	Covanta
Unit / Location	Unit 1
A (stack area), ft^2	12.566
T_{ref} (reference temperature), °F	68

	Field Blank	Run 1	Run 2	Average
Test number	--	1	2	--
Date	--	3/10/2022	3/11/2022	--
Start / Stop time	--	1330-1828	1005-1546	--
Meter box number	--	MB31	MB31	--
C_p (pitot coefficient), dimensionless	--	0.84	0.84	0.84
Y (meter calibration factor), dimensionless	--	0.9902	0.9902	0.990
Θ (sample time), min	--	240	240	240.00
Nozzle diameter, in	--	0.163	0.168	0.166
P_{bar} (barometric pressure), in Hg	--	30.05	30.03	30.04
V_m (meter box volume), acf	--	128.567	131.290	129.929
V_{lc} (impinger liquid volume), ml	--	465.6	463.2	464.4
T_m (meter temperature), °F	--	84.3	78.3	81.3
ΔH (meter pressure), in. H_2O	--	0.890	0.931	0.910
ΔP (velocity head), in. H_2O	--	1.8210	1.7465	1.7838
P_g (static pressure), in. Hg	--	-1.80	-1.00	-1.40
T_s (stack temperature), °F	--	227.3	235.3	231.3
$\%O_2$ (oxygen stack gas), % volume dry	12.17	12.92	11.41	12.17
$\%CO_2$ (carbon dioxide stack gas), % volume dry	7.12	6.66	7.59	7.12
1a $V_{m(std)}$ (standard sample volume), dscf	126.202	124.216	128.188	126.202
1b $V_{w(std)}$ (water vapor volume), scf	21.896	21.953	21.840	21.896
1c B_{ws} (moisture fraction), non-dimensional	0.15	0.1502	0.1456	0.1479
1d MW_{dry} (stack gas molecular weight), dry	29.626	29.582	29.671	29.626
1e MW_{wet} (stack gas molecular weight), wet	27.91	27.843	27.972	27.907
1f P_s (absolute stack pressure), in Hg	29.937	29.918	29.956	29.937
1g V_s (stack gas velocity), ft/sec	87.09	87.883	86.304	87.093
1h Q (stack flow rate), acfm	65,667	66,262	65,072	65,667
1i Q_{ws} (stack flow rate), wscfm	50,188	50,898	49,478	50,188
1j Q_{ds} (stack flow rate), dscfm	42,835	43,324	42,345	42,835
1k I (isokinetic ratio), %	--	103.8	103.2	--

Total	Field Blank		Run 1		Run 2		Average	
2-Chlorophenol, µg	ND	0.106	ND	0.106	ND	0.106	ND	0.106
1,3-Dichlorobenzene, µg	ND	0.142	ND	0.142	ADL	0.143	DLL	0.143
1,4-Dichlorobenzene (CCC), µg	ND	0.235	ND	0.235	ND	0.235	ND	0.235
1,2-Dichlorobenzene, µg	ND	0.27	ND	0.27	ND	0.27	ND	0.27
2,4-Dichlorophenol, µg	ND	0.209	ND	0.209	ND	0.209	ND	0.209
1,2,4-Trichlorobenzene, µg	ND	0.180	ND	0.180	ND	0.180	ND	0.180
2,4,6-Trichlorophenol (CCC), µg	ND	0.211	ND	0.211	ADL	0.235	DLL	0.223
2,4,5-Trichlorophenol, µg	ND	0.25	ND	0.25	ND	0.25	ND	0.25
2,3,4,6-Tetrachlorophenol, µg	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Hexachlorobenzene, µg	ND	0.32	ND	0.32	ND	0.32	ND	0.32
Pentachlorophenol (CCC), µg	ND	0.223	ND	0.223	ND	0.223	ND	0.223
2-Chlorophenol, ng/sampling train			ND	1.06E+02	ND	1.06E+02	ND	1.06E+02
2-Chlorophenol, ng/dscm			ND	3.01E+01	ND	2.92E+01	ND	2.97E+01
2-Chlorophenol, lb/hr			ND	4.89E-06	ND	4.63E-06	ND	4.76E-06
1,3-Dichlorobenzene, ng/sampling train			ND	1.42E+02	ADL	1.43E+02	DLL	1.43E+02
1,3-Dichlorobenzene, ng/dscm			ND	4.04E+01	ADL	3.95E+01	DLL	3.99E+01
1,3-Dichlorobenzene, lb/hr			ND	6.55E-06	ADL	6.26E-06	DLL	6.40E-06
1,4-Dichlorobenzene (CCC), ng/sampling train			ND	2.35E+02	ND	2.35E+02	ND	2.35E+02
1,4-Dichlorobenzene (CCC), ng/dscm			ND	6.68E+01	ND	6.47E+01	ND	6.58E+01
1,4-Dichlorobenzene (CCC), lb/hr			ND	1.08E-05	ND	1.03E-05	ND	1.05E-05
1,2-Dichlorobenzene, ng/sampling train			ND	2.68E+02	ND	2.68E+02	ND	2.68E+02
1,2-Dichlorobenzene, ng/dscm			ND	7.62E+01	ND	7.38E+01	ND	7.50E+01
1,2-Dichlorobenzene, lb/hr			ND	1.24E-05	ND	1.17E-05	ND	1.20E-05
2,4-Dichlorophenol, ng/sampling train			ND	2.09E+02	ND	2.09E+02	ND	2.09E+02
2,4-Dichlorophenol, ng/dscm			ND	5.94E+01	ND	5.76E+01	ND	5.85E+01
2,4-Dichlorophenol, lb/hr			ND	9.63E-06	ND	9.12E-06	ND	9.38E-06
1,2,4-Trichlorobenzene, ng/sampling train			ND	1.80E+02	ND	1.80E+02	ND	1.80E+02
1,2,4-Trichlorobenzene, ng/dscm			ND	5.12E+01	ND	4.96E+01	ND	5.04E+01
1,2,4-Trichlorobenzene, lb/hr			ND	8.30E-06	ND	7.86E-06	ND	8.08E-06
2,4,6-Trichlorophenol (CCC), ng/sampling train			ND	2.11E+02	ADL	2.35E+02	DLL	2.23E+02
2,4,6-Trichlorophenol (CCC), ng/dscm			ND	6.00E+01	ADL	6.47E+01	DLL	6.24E+01
2,4,6-Trichlorophenol (CCC), lb/hr			ND	9.73E-06	ADL	1.03E-05	DLL	9.99E-06
2,4,5-Trichlorophenol, ng/sampling train			ND	2.51E+02	ND	2.51E+02	ND	2.51E+02
2,4,5-Trichlorophenol, ng/dscm			ND	7.14E+01	ND	6.91E+01	ND	7.02E+01
2,4,5-Trichlorophenol, lb/hr			ND	1.16E-05	ND	1.10E-05	ND	1.13E-05
2,3,4,6-Tetrachlorophenol, ng/sampling train			ND	3.42E+02	ND	3.42E+02	ND	3.42E+02
2,3,4,6-Tetrachlorophenol, ng/dscm			ND	9.72E+01	ND	9.42E+01	ND	9.57E+01
2,3,4,6-Tetrachlorophenol, lb/hr			ND	1.58E-05	ND	1.49E-05	ND	1.53E-05
Hexachlorobenzene, ng/sampling train			ND	3.21E+02	ND	3.21E+02	ND	3.21E+02
Hexachlorobenzene, ng/dscm			ND	9.12E+01	ND	8.84E+01	ND	8.98E+01
Hexachlorobenzene, lb/hr			ND	1.48E-05	ND	1.40E-05	ND	1.44E-05
Pentachlorophenol (CCC), ng/sampling train			ND	2.23E+02	ND	2.23E+02	ND	2.23E+02
Pentachlorophenol (CCC), ng/dscm			ND	6.34E+01	ND	6.14E+01	ND	6.24E+01
Pentachlorophenol (CCC), lb/hr			ND	1.03E-05	ND	9.74E-06	ND	1.00E-05

Appendix A.15
Example Calculations

MONTROSE AIR QUALITY SERVICES

EXAMPLE CALCULATIONS
STACK GAS VOLUMETRIC FLOW RATE

Project name:	Covanta	**Project number:**	006AS-010935D
Computed by:	A Vella	**Calculation date:**	2022-05-04
Run number:	Unit 1 R1 (EPA 23)		

SAMPLE TRAIN DATA

Meter calibration factor, Y_d	0.9940	Y
Stack area, square feet	12.566	A_s
Pitot Coefficient	0.84	C_p
Barometric pressure, in. Hg	30.05	P_{bar}
Meter box volume, acf	131.967	V_m
Impinger liquid volume, g	479.4	V_{lc}
Meter temperature, °R	540.1	T_m = (°F plus 460)
Meter pressure, (delta H) iwg	0.975	ΔH
Velocity head, (delta P) iwg	1.878	ΔP
Static pressure, iwg	-0.95	P_{sg}
Stack temperature, °R	732.2	T_s = (°F plus 460)
Stack O_2, % volume dry	11.57	O_2
Stack CO_2, % volume dry	7.75	CO_2
Stack N_2, % volume dry	80.68	$N_2 = (100 - \%O_2 - \%CO_2)$
Nozzle area, square feet	0.000163	$A_n = \pi (D_n / 2)^2 (1\ ft/ 12\ in)^2$
PM sampling time, minutes	240	Θ
Reference temperature, °R	528	T_{std} = (°F plus 460)

Note: The results calculated in the pages that follow may differ slightly from the results presented in the final report. This difference can be attributed to "significant digit round-off errors" common when comparing computer spreadsheets results with those derived from using a calculator.

1 VOLUMETRIC FLOW RATE

a. Standard sample gas volume, dscf

$$V_{m\,std} = 17.64 \times (V_m)(Y)\frac{\left[P_{bar} + \left(\frac{\Delta H}{13.6}\right)\right]}{(T_m)}$$

$$V_{m\,std} = \frac{17.64 \times (131.967)(0.994)[30.05+(0.975)/(13.6)]}{540.1}$$

$V_{m\,std}$ = 129.049 dscf

b. Water vapor volume, scf

$$V_{w\,std} = (0.04715)(V_{lc})\left(\frac{T_{std}}{528}\right)$$

$$V_{w\,std} = \frac{(0.04715)(479.4)(528)}{(528)}$$

$V_{w\,std}$ = 22.604 scf

c. Moisture content, non-dimensional

$$B_{ws} = \left(\frac{V_{w\,std}}{V_{m\,std} + V_{w\,std}}\right)$$

$$B_{ws} = \frac{(22.604)}{(129.049 + 22.604)}$$

B_{ws} = 0.1491 moisture content (multiply by 100 for % by volume)

d. Stack gas molecular weight, lb/lb mole (dry)

$MW_{dry} = [0.44(\%CO_2)] + [0.32(\%O_2)] + [0.28(\%N_2)]$

$MW_{dry} = [0.44(7.75)] + [0.32(11.57)] + [0.28(80.68)]$

$MW_{dry} =$ 29.703 lb/lb mole

e. Stack gas molecular weight, lb/lb mole (wet)

$MW_{wet} = [MW_{dry}(1\text{-}B_{ws})] + [18(B_{ws})]$

$MW_{wet} = [29.703(1\text{-}0.1491)] + [18(0.1491)]$

$MW_{wet} =$ 27.958 lb/lb mole

f. Absolute stack pressure, in Hg

$$P_s = P_{bar} + \left(\frac{P_{sg}}{13.6}\right)$$

$P_s =$ 30.05 + (-0.95/13.6)

$P_s =$ 29.980 in. Hg

g. Stack velocity, ft/sec

$$v_s = (85.49)(C_p)(\sqrt{\Delta P})\sqrt{\frac{T_s}{(P_s)(MW_{wet})}}$$

$v_s =$ $(85.49)(0.84)\sqrt{\frac{(1.878)(732.2)}{(29.98)(27.958)}}$

$v_s =$ 91.979 ft/sec

h. Actual stack flow rate, acfm

$$Q = (v_s)(A_s)(60\ min/hr)$$

Q = (91.979)(12.566)(60)

Q = 69,348 acfm

i. Standard stack gas flow rate, wscfm

$$Q_{ws} = (v_s)(A_s)(60\ min/hr)\left(\frac{T_{std}}{T_s}\right)\left(\frac{P_s}{P_{std}}\right)$$

Q_{ws} = (91.979)(12.566)(60)(528/732.2)(29.98/29.92)

Q_{ws} = 50,108 wscfm

j. Standard stack gas flow rate, dscfm

$$Q_{ds} = (v_s)(A_s)(60\ min/hr)(1 - B_{ws})\left(\frac{T_{std}}{T_s}\right)\left(\frac{P_s}{P_{std}}\right)$$

Q_{ds} = (91.979)(12.566)(60)(1-0.1491)(528/732.2)(29.98/29.92)

Q_{ds} = 42,637 dscfm

k. Percent Isokinetic, %

$$I = \frac{(T_s)(V_{m\,std})(P_{std})(100)}{(T_{std})(v_s)(\theta)(A_n)(P_s)(60)(1 - B_{ws})}$$

$$I = \frac{(732.2)(129.049)(29.92)(100)}{(528)(91.979)(240)(0.000163)(29.98)(60)(1 - 0.1491)}$$

I = 97.2 %

MONTROSE AIR QUALITY SERVICES

EXAMPLE CALCULATIONS
DIOXINS/FURANS

Project name:	Covanta	**Project number:**	006AS-010935
Computed by:	A Vella	**Calculation date:**	2022-05-05
Run number:	1	**Gaseous Species:**	1234678-Cl7-Furan

EMISSIONS DATA

Reference temperature, °R	528	T_{ref} = (°F plus 460)
Mass of measured PCDD in sample, pg/sample	49.0	m
Standard volume of gas sampled, dscf	129.024	V_{mstd}
Dry stack gas flow rate at standard conditions, dscfm	42,639	Q_{ds}

1 GASEOUS EMISSIONS

a. Concentration, ng/dscm

$$C = \frac{\sum m}{(V_{mstd})} \times \frac{1\ ng}{1000\ pg} \times \frac{35.315\ ft^3}{1\ m^3}$$

$$C = \frac{(49)(35.315)}{(129.024)(1000)}$$

C = 0.0134 ng/dscm

b. Mass emission rate, lb/hr

$$M = (C)(Q_{ds}) \times \left(\frac{1\ g}{10^9\ ng}\right)\left(\frac{1\ lb}{453.6\ g}\right)\left(\frac{1\ m^3}{35.315\ ft^3}\right)(60\ min/hr)$$

$$M = \frac{(0.0134)(42,639)(60)}{(10\text{^}9)(453.6)(35.315)}$$

M = 2.14E-09 lb/hr

Note: The results calculated on these pages may differ slightly from the results presented in the final report. This difference can be attributed to "significant digit round-off errors" common when comparing computer spreadsheets results with those derived from using a calculator.

MONTROSE AIR QUALITY SERVICES

EXAMPLE CALCULATIONS
PAHs

Project name:	Covanta	**Project number:**	006AS-010935
Computed by:	A Vella	**Calculation date:**	2022-05-04
Run number:	1	**Gaseous Species:**	Fluoranthene

EMISSIONS DATA

Reference temperature, °R	528	T_{ref} = (°F plus 460)
Mass of measured PAH in sample, ng/sample	25	m
Standard volume of gas sampled, dscf	139.649	V_{mstd}
Dry stack gas flow rate at standard conditions, dscfm	43,161	Q_{ds}

1 GASEOUS EMISSIONS

a. Concentration, ng/dscm

$$C = \frac{\sum m}{(V_{mstd})} \times \frac{35.315\ ft^3}{1\ m^3}$$

$$C = \frac{(25.2)(35.315)}{(139.649)}$$

C = 6.37 ng/dscm

b. Mass emission rate, lb/hr

$$M = (C)(Q_{ds}) \times \left(\frac{1\ g}{10^9\ ng}\right)\left(\frac{1\ lb}{453.6\ g}\right)\left(\frac{1\ m^3}{35.315\ ft^3}\right)(60\ min/hr)$$

$$M = \frac{(6.37268)(43,161)(60)}{(10\text{^}9)(453.6)(35.315)}$$

M = 1.03E-06 lb/hr

Note: The results calculated on these pages may differ slightly from the results presented in the final report. This difference can be attributed to "significant digit round-off errors" common when comparing computer spreadsheets results with those derived from using a calculator.

EXAMPLE CALCULATIONS
PCBs

Project name:	Covanta	**Project number:**	006AS-010935
Computed by:	A Vella	**Calculation date:**	2022-05-04
Run number:	1	**Gaseous Species:**	PCB-18

EMISSIONS DATA

Reference temperature, °R	528	T_{ref} = (°F plus 460)
Mass of measured PCB in sample, ng/sample	0.835	m
Standard volume of gas sampled, dscf	129.024	V_{mstd}
Dry stack gas flow rate at standard conditions, dscfm	42,639	Q_{ds}

1 GASEOUS EMISSIONS

a. Concentration, ng/dscm

$$C = \frac{\sum m}{(V_{mstd})} \times \frac{35.315\ ft^3}{1\ m^3}$$

C = $\frac{(0.835)(35.315)}{(129.024)}$

C = 0.23 ng/dscm

b. Mass emission rate, lb/hr

$$M = (C)(Q_{ds}) \times \left(\frac{1\ g}{10^9\ ng}\right)\left(\frac{1\ lb}{453.6\ g}\right)\left(\frac{1\ m^3}{35.315\ ft^3}\right)(60\ min/hr)$$

M = $\frac{(0.22855)(42,639)(60)}{(10\text{^}9)(453.6)(35.315)}$

M = 3.65E-08 lb/hr

Note: The results calculated on these pages may differ slightly from the results presented in the final report. This difference can be attributed to "significant digit round-off errors" common when comparing computer spreadsheets results with those derived from using a calculator.

MONTROSE AIR QUALITY SERVICES

EXAMPLE CALCULATIONS
Chlorobenzene/Chlorophenol

Project name:	Covanta	**Project number:**	006AS-010935
Computed by:	A Vella	**Calculation date:**	2022-05-04
Run number:	1	**Gaseous Species:**	2-Chlorophenol

EMISSIONS DATA

Reference temperature, °R	528	T_{ref} = (°F plus 460)
Mass of measured compound in sample, ng/sample (at detection limit)	106	m
Standard volume of gas sampled, dscf	124.216	V_{mstd}
Dry stack gas flow rate at standard conditions, dscfm	43,324	Q_{ds}

1 GASEOUS EMISSIONS

a. Concentration, ng/dscm

$$C = \frac{\sum m}{(V_{mstd})} \times \frac{35.315\ ft^3}{1\ m^3}$$

C = $\frac{(106)(35.315)}{(124.216)}$

C = 30.1 ng/dscm

b. Mass emission rate, lb/hr

$$M = (C)(Q_{ds}) \times \left(\frac{1\ g}{10^9\ ng}\right)\left(\frac{1\ lb}{453.6\ g}\right)\left(\frac{1\ m^3}{35.315\ ft^3}\right)(60\ min/hr)$$

M = $\frac{(30.1)(43,324)(60)}{(10\text{^}9)(453.6)(35.315)}$

M = 4.88E-06 lb/hr

Note: The results calculated on these pages may differ slightly from the results presented in the final report. This difference can be attributed to "significant digit round-off errors" common when comparing computer spreadsheets results with those derived from using a calculator.

Appendix A.16
General Equations

EMISSION CALCULATIONS

1. Volumetric Flow and Isokinetics

   a. Standard sample gas volume, dscf

   $$V_{m\,std} = (V_m)(Y)\frac{(T_{std} + 460)\left(P_{bar} + \frac{\Delta H}{13.6}\right)}{(T_m + 460)(P_{std})}$$

   b. Water vapor volume, scf

   $$V_{w\,std} = (0.04715)(V_{lc})\left(\frac{T_{std} + 460}{528}\right)$$

   c. Moisture content, non-dimensional

   $$B_{ws} = \frac{V_{w\,std}}{(V_{m\,std} + V_{w\,std})}$$

   d. Stack gas molecular weight, lb/lb mole (dry)

   $$MW_{dry} = [0.44(\%CO_2)] + [0.32(\%O_2)] + [0.28(\%N_2)]$$

   e. Stack gas molecular weight, lb/lb mole (wet)

   $$MW_{wet} = \left[MW_{dry}(1 - B_{ws})\right] + [18(B_{ws})]$$

   f. Absolute stack pressure, in Hg

   $$P_s = P_{bar} + \left(\frac{P_{sg}}{13.6}\right)$$

   g. Stack velocity, ft/sec

   $$v_s = (85.49)\left(C_p\right)\left(\sqrt{\Delta P}\right)\sqrt{\frac{T_s}{(P_s)(MW_{wet})}}$$

   h. Actual stack flow rate, acfm

   $$Q = (v_s)(A_s)(60\ min/hr)$$

   i. Standard stack gas flow rate, wscfm

   $$Q_{ws} = (v_s)(A_s)(60\ min/hr)\left(\frac{T_{std} + 460}{T_s + 460}\right)\left(\frac{P_s}{P_{std}}\right)$$

   j. Standard stack gas flow rate, dscfm

   $$Q_{ds} = (v_s)(A_s)(60\ min/hr)(1 - B_{ws})\left(\frac{T_{std} + 460}{T_s + 460}\right)\left(\frac{P_s}{P_{std}}\right)$$

   k. Percent isokinetic

   $$I = \frac{(T_s)(V_{m\,std})(P_{std})(100)}{(T_{std} + 460)(v_s)(\theta)(A_n)(P_s)(60)(1 - B_{ws})}$$

2. Gaseous Emissions

a. Concentration, ppm volume wet (i.e. to calculate wet ppm from dry ppm)

$$C_w = (C)(1 - B_{ws})$$

b. Concentration, ppm @ 3% O_2 dry

$$C_3 = (C)\left[\frac{(20.9 - 3.0)}{(20.9 - \%\ O_2)}\right]$$

c. Concentration, ppm @ 12% CO_2 dry

$$C_{12} = (C)\left(\frac{12.0}{\%\ CO_2}\right)$$

d. Concentration, ppm volume dry (i.e. to calculate dry ppm from wet ppm)

$$C = \left[\frac{C_w}{(1 - B_{ws})}\right]$$

e. Mass emission rate, lb/hr

$$M = (C)(CF)(Q_{ds})(60\ min/hr)$$

where,

CF = conversion factor from ppm to lb/scf:

$$CF_{NOx} = 1.194 \times 10^{-7}\left(\frac{lb/scf}{ppm}\right)$$

$$CF_{SO2} = 1.660 \times 10^{-7}\left(\frac{lb/scf}{ppm}\right)$$

$CF_X = CF_{NOX}\left(\frac{MW_X}{MW_{NOX}}\right)$ for other compounds (x)

f. Emission rate, lb/MMBtu

$$E = (C)(CF)(F_d)\left(\frac{20.9}{20.9 - \%\ O_2}\right)$$

g. Mass emission rate, grams/bhp-hr

$$M_j = (M)\left(\frac{453.59\ g/lb}{J}\right)$$

3. Particulate Emissions

   a. Grain loading, gr/dscf

   $$G = (0.0154)\left(\frac{G_m}{V_{m\,std}}\right)$$

   b. Grain loading corrected to 12% CO_2, gr/dscf @ 12% CO_2

   $$G_{12} = (G)\left(\frac{12.0}{\%\ CO_2}\right)$$

   c. Mass emission rate, lb/hr

   $$M = (G)(Q_{ds})\left(\frac{60\ min/hr}{7{,}000\ gr/lb}\right)$$

   d. Emission rate, lb/MMBtu

   $$E = (G)\left(\frac{1\ lb}{7{,}000\ gr}\right)(F_d)\left(\frac{20.9}{20.9 - \%\ O_2}\right)$$

4. Fuel Factor "F"

   a. Choice #1 – use the values for F_d provided in Method 19, Table 19-1
   Choice #2 – if you have fuel ultimate and proximate analysis, calculate F_d (need fuel weight %CHONS, HHV)
   Stoichiometric fuel factor at 68 °F, dscf/MMBtu at 0% O_2:

   $$F_d = \frac{(10^6)[3.64(\%\ H) + 1.53(\%\ C) + 0.14(\%\ N) + 0.57(\%\ S) - 0.46(\%\ O)]}{HHV, Btu/lb}$$

   b. Fuel factor at 60 °F (use if all your volumes and flows are at 60 °F)

   $$F_{d\,60} = F_d\left(\frac{520°R}{528°R}\right)$$

5. Miscellaneous Equations

a. Standard stack gas flow rate, calculated from fuel flow and F factor, dscfm

Note: Q_f and HHV need to be in units of either lb/hr and Btu/lb, or scf/hr and Btu/scf. *Do not mix units!*

(calculation based on stack $\%O_2$)

$$Q_{ds} = (Q_f)(HHV)(10^{-6})(F_d)\left(\frac{20.9}{20.9 - \%\ O_2}\right)/(60\ min/hr)$$

or (calculation based on stack $\%CO_2$ – see EPA Method 19 for values of F_c)

$$Q_{ds} = (Q_f)(HHV)(10^{-6})(F_c)\left(\frac{100}{\%\ CO_2}\right)/(60\ min/hr)$$

b. Destruction efficiency of emission control device, %

$$EFF = \left(\frac{C_{in} - C_{out}}{C_{in}}\right)(100\%)$$ based on concentrations

or

$$EFF = \left(\frac{M_{in} - M_{out}}{M_{in}}\right)(100\%)$$ based on mass emission rates

c. Cylinder gas audit, % accuracy

$$A_c = \left(\frac{C_m - C_a}{C_a}\right)(100\%)$$

Nomenclature:

A_c	=	accuracy of CEMS during cylinder gas audit (CGA), % difference
A_n	=	nozzle area, in^2 (πr^2), where π = 3.1416 and r = radius (½ diameter) in inches
A_s	=	stack area, ft^2 (πr^2), where π = 3.1416 and r = radius (½ diameter) in feet
B_{ws}	=	flue gas moisture content (multiply by 100 for % by volume)
C	=	concentration of gaseous species, ppm volume dry
C_a	=	concentration of audit gas, ppm (for CGA, equation 5c)
C_m	=	concentration measured by CEMS, ppm (for CGA, equation 5c)
C_p	=	calibration factor for pitot tube, dimensionless
C_w	=	concentration of gaseous species, ppm volume wet
C_3	=	corrected concentration of gaseous species, ppm @ 3% O_2 dry
C_{12}	=	corrected concentration of gaseous species, ppm @ 12% CO_2 dry
E	=	mass emission rate, lb/MMBtu
EFF	=	destruction or removal efficiency of emission control device, % efficiency
F_c	=	stoichiometric “F” factor of fuel based on CO_2, dscf/MMBtu @ 100% CO_2
F_d	=	stoichiometric “F” factor of fuel based on O_2, dscf/MMBtu @ 0% O_2
G	=	particulate matter grain loading, grains/dscf
G_{12}	=	corrected particulate matter grain loading, grains/dscf @ 12% CO_2
G_m	=	mass of collected particulate matter, mg
HHV	=	higher heating value, Btu/cubic foot
I	=	% isokinetic sampling rate, %
J	=	brake horsepower, bhp
M_j	=	mass emission rate of measured species (s), g/hp-hr
M	=	mass emission rate, lb/hr
MW_{dry}	=	molecular weight of stack gas, dry basis
MW_{wet}	=	molecular weight of stack gas, wet basis
MW_s	=	molecular weight of gaseous species (s), lb/lb mole:

CO:	28.01	(can use 28)	NO_x as NO_2:	46.01	(can use 46)
SO_x as SO_2:	64.06	(can use 64)	Hydrocarbons as C:	12.01	(can use 12)
Hydrocarbons as CH_4:	16.04	(can use 16)	Hydrocarbons as C_3H_8:	44.10	(can use 44)
NH_3:	17.03	(can use 17)			

N_2	=	nitrogen content of stack gas, % volume dry
P_{bar}	=	barometric pressure, in. Hg
P_s	=	stack absolute pressure, in. Hg
P_{sg}	=	stack static pressure, inches of water, gauge (iwg)
Q	=	wet stack gas flow rate at actual conditions, acfm
Q_f	=	fuel flow rate, scfh or lb/hr (be careful of units)
Q_{ds}	=	dry stack gas flow rate at standard conditions, dscfm
Q_{ws}	=	wet stack gas flow rate at standard conditions, wscfm
SV	=	specific molar volume of an ideal gas at standard conditions, ft^3/lb mole
T_m	=	meter temperature, °R
T_{std}	=	reference temperature, °R
T_s	=	stack gas temperature, °R
v_s	=	stack gas velocity, ft/sec
V_{lc}	=	volume of liquid collected in impingers, ml
V_m	=	dry meter volume uncorrected, acf
$V_{m\ std}$	=	dry meter volume corrected to standard conditions, dscf
$V_{w\ std}$	=	volume of water vapor at standard conditions, scf
Y	=	meter calibration coefficient, dimensionless
ΔH	=	average pressure differential across meter, inches water
ΔP	=	average velocity head of stack gas, inches water
Θ	=	sampling time, minutes

APPENDIX B
FACILITY PROCESS DATA

Covanta Marion
U-2>1 MinComputed
Valid Data Only
Test times: 1343-1521,Restarted 1551 to 1818

Date/Time	U-2>1 Min Computed - SteamFl	U-2>1 Min Computed - BagHTemp	U-2>1 Min Computed - CarbInj	U-2>1 Min Computed - LimeFlow	U-2>1 Min Computed - NH3 Flow	U-2>1 Min Computed - AuxGasFlow
3/10/2022 13:43	67.9	304	9.46	249.7	0	0
3/10/2022 13:44	67.1	305	9.46	251.6	0	0
3/10/2022 13:45	68.5	304	9.65	249.8	0	0
3/10/2022 13:46	70	305	9.7	247.5	0	0
3/10/2022 13:47	71	304	9.74	248.9	0	0
3/10/2022 13:48	70.6	305	9.81	248.1	0	0
3/10/2022 13:49	69.4	304	9.83	248	0	0
3/10/2022 13:50	69.3	304	9.85	250.8	0	0
3/10/2022 13:51	69.8	305	9.84	252.6	0	0
3/10/2022 13:52	70.4	305	9.85	248.4	0	0
3/10/2022 13:53	72.1	304	9.88	247.6	0	0
3/10/2022 13:54	73.4	304	9.9	251.7	0	0
3/10/2022 13:55	73.3	305	9.91	250.6	0	0
3/10/2022 13:56	73.2	305	9.87	248.2	0	0
3/10/2022 13:57	72.1	304	9.86	248.2	1.4	0
3/10/2022 13:58	72	305	9.87	250.2	0	0
3/10/2022 13:59	71.8	304	9.89	249.5	0	0
3/10/2022 14:00	71.9	304	9.88	249.1	0	0
3/10/2022 14:01	70.2	304	9.87	251.9	0	0
3/10/2022 14:02	68.7	305	9.91	250.3	0	0
3/10/2022 14:03	69	304	9.87	250.6	0	0
3/10/2022 14:04	67.8	305	9.8	248.2	0	0
3/10/2022 14:05	68.2	304	9.81	248.9	0	0
3/10/2022 14:06	68.6	304	9.83	248.9	1.4	0
3/10/2022 14:07	68.5	304	9.86	248.2	0	0
3/10/2022 14:08	68.1	304	9.85	252.1	0	0
3/10/2022 14:09	67.6	305	9.83	248.2	0	0
3/10/2022 14:10	67.3	304	9.79	251.1	0	0
3/10/2022 14:11	67.1	304	9.81	251.8	1.4	0
3/10/2022 14:12	67	304	9.82	246.1	0	0
3/10/2022 14:13	65.9	304	9.79	249.2	1.4	0
3/10/2022 14:14	64.7	304	9.8	253.8	0	0
3/10/2022 14:15	63.7	304	10.04	248.2	0	0
3/10/2022 14:16	62.3	304	9.92	245.6	0	0
3/10/2022 14:17	61.5	304	9.87	248.6	0	0
3/10/2022 14:18	61.4	304	9.88	251.7	0	0
3/10/2022 14:19	61.7	304	9.84	248.6	0	0
3/10/2022 14:20	62.7	304	9.76	249.3	0	0
3/10/2022 14:21	63	305	9.6	250.1	0	0
3/10/2022 14:22	62.6	304	9.5	249.8	0	0
3/10/2022 14:23	61.8	304	9.44	247.5	0	0
3/10/2022 14:24	62.1	304	9.45	250.6	0	0
3/10/2022 14:25	62	305	9.6	248.6	1.4	0
3/10/2022 14:26	62	304	9.72	250.5	0	0

3/10/2022 14:27	63.1	304	9.81	250.3	0	0
3/10/2022 14:28	64.9	305	9.83	251.3	0	0
3/10/2022 14:29	66.4	305	9.85	249.1	0	0
3/10/2022 14:30	68.3	304	9.87	249.3	0	0
3/10/2022 14:31	70.3	305	9.88	249.5	1.2	0
3/10/2022 14:32	71.5	305	9.87	246.7	1.4	0
3/10/2022 14:33	71.7	304	9.88	251.4	0.7	0
3/10/2022 14:34	71.2	305	9.86	250.7	0	0
3/10/2022 14:35	71	305	9.85	246.9	1.4	0
3/10/2022 14:36	69.8	304	9.84	249.7	0	0
3/10/2022 14:37	69.6	305	9.92	251.9	0	0
3/10/2022 14:38	70.3	304	9.88	248.9	0	0
3/10/2022 14:39	70.5	305	9.82	247.9	1.4	0
3/10/2022 14:40	70.7	304	9.8	249.6	0	0
3/10/2022 14:41	70.8	304	9.79	249.1	0	0
3/10/2022 14:42	71	304	9.77	250.7	0	0
3/10/2022 14:43	71.6	305	9.75	246.4	0	0
3/10/2022 14:44	72.2	304	9.8	252.5	0	0
3/10/2022 14:45	72.5	304	9.81	247.1	0	0
3/10/2022 14:46	72.7	304	9.8	251.2	0	0
3/10/2022 14:47	72.3	305	9.8	249.3	0	0
3/10/2022 14:48	71	304	9.8	249.4	0	0
3/10/2022 14:49	68.7	305	9.81	250.4	0	0
3/10/2022 14:50	67.3	305	9.81	251.3	0	0
3/10/2022 14:51	68.9	305	9.8	248.4	0	0
3/10/2022 14:52	69	304	9.92	247.5	0	0
3/10/2022 14:53	71	304	9.91	250.1	0	0
3/10/2022 14:54	71.6	304	9.86	247.9	0	0
3/10/2022 14:55	70.1	304	9.82	250.2	0	0
3/10/2022 14:56	68.4	304	9.79	252.9	0	0
3/10/2022 14:57	66.4	304	9.76	250.7	1.3	0
3/10/2022 14:58	65.7	304	9.76	250.9	0	0
3/10/2022 14:59	65.9	305	9.74	245.6	0	0
3/10/2022 15:00	67.6	305	9.75	248.8	0	0
3/10/2022 15:01	69.3	304	9.87	248.4	0	0
3/10/2022 15:02	69.5	304	9.67	251.5	0	0
3/10/2022 15:03	67.3	304	9.54	252.9	0	0
3/10/2022 15:04	64.7	304	9.47	248.2	1.4	0
3/10/2022 15:05	62.3	304	9.43	250.8	0	0
3/10/2022 15:06	60.4	305	9.57	246.6	0	0
3/10/2022 15:07	59.4	304	9.7	250.2	0	0
3/10/2022 15:08	58.9	304	9.77	250.8	0	0
3/10/2022 15:09	59.3	304	9.81	250.9	0	0
3/10/2022 15:10	59.5	304	9.84	247.9	0	0
3/10/2022 15:11	57.9	304	9.84	250.3	0	0
3/10/2022 15:12	55.8	305	9.82	246.9	0	0
3/10/2022 15:13	54.7	304	9.81	250	0	0
3/10/2022 15:14	55.4	305	9.81	245.8	1.4	0
3/10/2022 15:15	57.3	304	9.82	250.6	0	0
3/10/2022 15:16	59.4	305	10.11	249.2	0	0
3/10/2022 15:17	59.7	305	10.09	250.9	0	0
3/10/2022 15:18	59.3	305	10.06	248.2	0	0

3/10/2022 15:19	58.5	305	9.96	250.2	0	0
3/10/2022 15:20	56.4	305	9.89	248.7	0	0
3/10/2022 15:21	54.6	304	9.86	250.5	1.4	0
3/10/2022 15:51	68.2	305	9.83	250.6	0	0
3/10/2022 15:52	64.4	304	9.82	250.3	0	0
3/10/2022 15:53	61.9	304	9.83	247.6	1.4	0
3/10/2022 15:54	61	305	9.83	250.3	0	0
3/10/2022 15:55	61.9	305	9.84	249.5	0	0
3/10/2022 15:56	64.3	305	9.89	250.2	0	0
3/10/2022 15:57	65.6	305	9.87	249.6	0	0
3/10/2022 15:58	65.3	305	9.85	246.4	0	0
3/10/2022 15:59	64.4	305	9.84	252.2	1.4	0
3/10/2022 16:00	63.8	305	9.83	250.8	0	0
3/10/2022 16:01	63.6	305	9.85	248.3	1.4	0
3/10/2022 16:02	64.8	305	9.83	249.2	0	0
3/10/2022 16:03	66.8	305	9.84	249.5	1.4	0
3/10/2022 16:04	68.7	305	9.82	249.3	0	0
3/10/2022 16:05	69.2	304	9.85	246.4	0	0
3/10/2022 16:06	69.7	304	9.86	249.4	0	0
3/10/2022 16:07	69.3	304	9.86	251.1	0	0
3/10/2022 16:08	68.9	305	9.85	249.3	0	0
3/10/2022 16:09	69.2	305	9.86	250.5	0	0
3/10/2022 16:10	69.3	305	9.84	251.9	0	0
3/10/2022 16:11	69.4	305	9.82	248.8	0	0
3/10/2022 16:12	70.1	305	9.86	249.4	0	0
3/10/2022 16:13	71	304	9.9	249	0	0
3/10/2022 16:14	70.6	305	9.85	248.9	0	0
3/10/2022 16:15	69.3	305	9.79	251.7	0	0
3/10/2022 16:16	69.4	305	9.78	247.4	0	0
3/10/2022 16:17	70.2	304	9.81	248.4	0	0
3/10/2022 16:18	70.3	305	9.79	248.8	0	0
3/10/2022 16:19	70.4	305	9.83	248.5	0	0
3/10/2022 16:20	70.4	304	9.83	249.6	1.4	0
3/10/2022 16:21	70.4	305	9.9	251	0	0
3/10/2022 16:22	70.5	305	9.81	247.7	0	0
3/10/2022 16:23	70.4	304	9.63	253.5	0	0
3/10/2022 16:24	69.9	304	9.52	247.9	0	0
3/10/2022 16:25	69.9	305	9.45	251.1	0	0
3/10/2022 16:26	69.2	305	9.54	250.4	0	0
3/10/2022 16:27	66.7	304	9.65	250.6	1.3	0
3/10/2022 16:28	64.6	304	9.75	249	0	0
3/10/2022 16:29	63.7	304	9.81	249.1	0	0
3/10/2022 16:30	63.5	305	9.82	250	0	0
3/10/2022 16:31	63.8	305	9.85	248.6	0	0
3/10/2022 16:32	65	304	9.85	247.2	1.4	0
3/10/2022 16:33	65.5	304	9.86	252.6	1.3	0
3/10/2022 16:34	65.2	305	9.88	248.3	0	0
3/10/2022 16:35	64.5	304	9.87	248.8	0	0
3/10/2022 16:36	65	305	9.87	248.7	0	0
3/10/2022 16:37	67.4	304	9.83	250.2	0	0
3/10/2022 16:38	70.8	305	9.85	248	0	0
3/10/2022 16:39	73.8	304	9.87	247.4	0	0

3/10/2022 16:40	74.8	304	9.84	250.7	0	0
3/10/2022 16:41	73.5	304	9.83	250.3	0	0
3/10/2022 16:42	70.1	305	9.85	248.4	0	0
3/10/2022 16:43	69.4	304	9.85	251.5	0	0
3/10/2022 16:44	69.5	304	9.82	250.2	0	0
3/10/2022 16:45	69.4	304	9.85	247	0	0
3/10/2022 16:46	69.6	304	9.86	252.1	0	0
3/10/2022 16:47	70	304	9.89	251	0	0
3/10/2022 16:48	70.5	305	9.88	248.8	0	0
3/10/2022 16:49	71.8	304	9.84	252	0	0
3/10/2022 16:50	71.5	304	9.82	247.4	0	0
3/10/2022 16:51	70.9	304	9.81	250.3	0	0
3/10/2022 16:52	71	304	9.84	248.6	0	0
3/10/2022 16:53	70.4	304	9.85	249.6	0	0
3/10/2022 16:54	68.2	304	9.85	251.2	0	0
3/10/2022 16:55	67.2	304	9.83	249.1	0	0
3/10/2022 16:56	67	304	9.83	250.9	0	0
3/10/2022 16:57	66.6	304	9.78	248.7	0	0
3/10/2022 16:58	66.6	304	9.72	251.6	0	0
3/10/2022 16:59	66.9	305	9.73	246.7	0	0
3/10/2022 17:00	67.2	304	9.8	249.5	0	0
3/10/2022 17:01	67.5	304	9.72	248.4	1.4	0
3/10/2022 17:02	67.9	304	9.72	248.6	0	0
3/10/2022 17:03	68.2	304	9.73	247.7	1.3	0
3/10/2022 17:04	68.5	304	9.67	249.3	0	0
3/10/2022 17:05	68.4	304	9.55	250.9	0	0
3/10/2022 17:06	68.5	304	9.47	251.2	0	0
3/10/2022 17:07	68.9	305	9.43	251.3	0	0
3/10/2022 17:08	68.8	304	9.38	247.1	0	0
3/10/2022 17:09	69.1	304	9.55	251.4	0	0
3/10/2022 17:10	69.5	304	9.74	250	0	0
3/10/2022 17:11	69	304	9.84	247.6	1.3	0
3/10/2022 17:12	67.9	304	9.85	250	1.3	0
3/10/2022 17:13	67.2	304	9.88	249.8	0	0
3/10/2022 17:14	67.7	304	9.87	250.4	0	0
3/10/2022 17:15	68.2	304	9.87	250.4	0	0
3/10/2022 17:16	70.3	304	9.87	249	0	0
3/10/2022 17:17	72.1	304	9.84	246.4	0	0
3/10/2022 17:18	72.6	304	9.83	250.5	1.3	0
3/10/2022 17:19	71.9	304	9.85	249.5	1.3	0
3/10/2022 17:20	68.3	304	9.84	249.8	1.3	0
3/10/2022 17:21	68.5	305	9.85	248.2	0	0
3/10/2022 17:22	68.5	304	9.85	250.3	0	0
3/10/2022 17:23	67.8	304	9.83	248.8	0	0
3/10/2022 17:24	68.6	304	9.85	249.6	0	0
3/10/2022 17:25	70.1	304	9.83	251.7	0	0
3/10/2022 17:26	70.6	304	9.8	251	0	0
3/10/2022 17:27	69.7	304	9.8	248.3	0	0
3/10/2022 17:28	69.2	304	9.82	249.2	0	0
3/10/2022 17:29	69.7	304	9.86	250.5	0	0
3/10/2022 17:30	69.9	304	9.86	249.7	0	0
3/10/2022 17:31	70.2	304	9.89	248.8	0	0

3/10/2022 17:32	69.9	304	9.88	250.5	0	0
3/10/2022 17:33	69.2	304	9.85	245.3	0	0
3/10/2022 17:34	68.3	304	9.89	253.1	0	0
3/10/2022 17:35	67.5	304	9.87	248.1	0	0
3/10/2022 17:36	67	304	9.94	248.2	0	0
3/10/2022 17:37	67	304	9.9	250.3	0	0
3/10/2022 17:38	67.5	304	9.88	253.4	1.3	0
3/10/2022 17:39	70.3	304	9.87	246.6	1.3	0
3/10/2022 17:40	73.3	305	9.84	247.8	0	0
3/10/2022 17:41	74.2	304	9.88	248.4	0	0
3/10/2022 17:42	72.8	304	9.87	250.6	1.2	0
3/10/2022 17:43	70	304	9.89	249.5	0	0
3/10/2022 17:44	66.3	304	9.86	248.6	1.3	0
3/10/2022 17:45	63.1	304	9.85	251.5	0	0
3/10/2022 17:46	61	304	9.86	251.2	1.3	0
3/10/2022 17:47	60.6	304	9.85	249.6	0	0
3/10/2022 17:48	61.7	304	9.82	245.7	0	0
3/10/2022 17:49	64.7	304	9.64	251.7	0	0
3/10/2022 17:50	67.2	304	9.53	252.3	0	0
3/10/2022 17:51	68	304	9.46	245.9	1.3	0
3/10/2022 17:52	67.4	304	9.29	252	0	0
3/10/2022 17:53	67	304	9.5	248.2	0	0
3/10/2022 17:54	65.7	304	9.77	248.2	0	0
3/10/2022 17:55	64.3	304	9.86	249.4	0	0
3/10/2022 17:56	63.3	304	9.83	251.4	0	0
3/10/2022 17:57	63.1	304	9.86	250.8	1.3	0
3/10/2022 17:58	63	304	9.88	247.2	0	0
3/10/2022 17:59	63.7	304	9.87	249	0	0
3/10/2022 18:00	65	304	9.86	250	0	0
3/10/2022 18:01	66.9	304	9.89	247	0	0
3/10/2022 18:02	70.2	304	9.91	249.1	0	0
3/10/2022 18:03	73.2	304	9.89	250.1	0	0
3/10/2022 18:04	74.9	305	9.91	248.4	0	0
3/10/2022 18:05	74.4	304	9.92	248.1	1.3	0
3/10/2022 18:06	73.5	304	9.96	252.6	1.3	0
3/10/2022 18:07	72.9	304	9.91	249.2	0	0
3/10/2022 18:08	71.8	305	9.91	248.9	0	0
3/10/2022 18:09	71.4	304	9.92	249.8	1.3	0
3/10/2022 18:10	70.6	304	9.88	251.1	1.3	0
3/10/2022 18:11	73.9	304	9.86	253.5	0	0
3/10/2022 18:12	74.3	304	9.92	246.5	1.3	0
3/10/2022 18:13	71.7	304	9.91	249.9	0	0
3/10/2022 18:14	70.8	305	9.89	247.5	0	0
3/10/2022 18:15	71.3	304	9.89	249.8	0	0
3/10/2022 18:16	71.1	304	9.96	249.6	0	0
3/10/2022 18:17	70.8	304	9.94	251.8	0	0
3/10/2022 18:18	70.2	304	9.9	250.7	0	0
Period Average:	67.7	304.3	9.8	249.5	0.2	0.0
Period Maximum:	74.9	305	10.11	253.8	1.4	0
Period Minimum:	54.6	304	9.29	245.3	0	0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/11/2022 08:35
End of Report: 03/11/2022 12:40

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 08:35	72.6	304	9.46	249.4	1.0	0.0
03/11/2022 08:36	71.8	304	9.45	252.4	1.0	0.0
03/11/2022 08:37	70.2	304	9.44	249.9	1.0	0.0
03/11/2022 08:38	69.4	304	9.45	245.5	1.0	0.0
03/11/2022 08:39	69.2	304	9.45	252.5	0.0	0.0
03/11/2022 08:40	70.0	304	9.45	250.3	0.0	0.0
03/11/2022 08:41	71.3	304	9.43	247.9	0.0	0.0
03/11/2022 08:42	72.2	304	9.44	250.3	0.0	0.0
03/11/2022 08:43	72.4	304	9.42	252.7	1.0	0.0
03/11/2022 08:44	70.2	304	9.43	247.8	0.0	0.0
03/11/2022 08:45	68.7	304	9.44	251.9	0.0	0.0
03/11/2022 08:46	68.5	305	9.43	245.9	1.0	0.0
03/11/2022 08:47	68.9	304	9.39	249.9	0.0	0.0
03/11/2022 08:48	70.2	304	9.38	251.9	1.0	0.0
03/11/2022 08:49	71.8	305	9.36	245.0	0.0	0.0
03/11/2022 08:50	71.9	304	9.36	251.8	1.0	0.0
03/11/2022 08:51	70.6	304	9.46	254.1	1.0	0.0
03/11/2022 08:52	69.3	305	9.51	246.6	0.0	0.0
03/11/2022 08:53	68.9	304	9.54	247.7	0.0	0.0
03/11/2022 08:54	69.1	304	9.51	250.6	1.0	0.0
03/11/2022 08:55	69.3	304	9.47	248.5	1.0	0.0
03/11/2022 08:56	69.0	304	9.50	249.4	0.0	0.0
03/11/2022 08:57	68.4	304	9.45	253.1	0.0	0.0
03/11/2022 08:58	67.8	304	9.44	246.1	1.1	0.0
03/11/2022 08:59	67.0	304	9.45	251.8	1.1	0.0
03/11/2022 09:00	65.8	304	9.45	249.0	0.0	0.0
03/11/2022 09:01	65.0	304	9.46	249.0	0.0	0.0
03/11/2022 09:02	66.1	305	9.45	248.0	1.0	0.0
03/11/2022 09:03	67.3	304	9.45	252.5	0.9	0.0
03/11/2022 09:04	68.9	304	9.43	243.0	1.1	0.0
03/11/2022 09:05	69.6	304	9.43	253.3	1.0	0.0
03/11/2022 09:06	68.8	304	9.44	250.7	1.1	0.0
03/11/2022 09:07	67.6	304	9.46	248.1	0.0	0.0
03/11/2022 09:08	66.8	304	9.48	250.4	0.0	0.0
03/11/2022 09:09	67.1	304	9.43	252.9	1.1	0.0
03/11/2022 09:10	67.3	304	9.45	246.6	1.1	0.0
03/11/2022 09:11	67.8	304	9.44	250.0	1.1	0.0
03/11/2022 09:12	68.7	304	9.45	251.1	0.7	0.0
03/11/2022 09:13	68.5	305	9.43	249.3	0.0	0.0

Date/Time Printed: 06/06/2022 09:31

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 09:14	68.0	304	9.48	249.8	0.0	0.0
03/11/2022 09:15	68.3	304	9.48	252.0	1.1	0.0
03/11/2022 09:16	68.0	305	9.45	245.2	0.0	0.0
03/11/2022 09:17	68.3	304	9.43	252.5	0.0	0.0
03/11/2022 09:18	68.5	304	9.44	245.9	0.0	0.0
03/11/2022 09:19	69.0	304	9.45	246.8	0.0	0.0
03/11/2022 09:20	69.5	304	9.44	251.7	0.0	0.0
03/11/2022 09:21	69.5	304	9.44	246.9	0.0	0.0
03/11/2022 09:22	69.2	304	9.45	253.3	0.0	0.0
03/11/2022 09:23	69.0	304	9.41	247.9	0.0	0.0
03/11/2022 09:24	69.2	304	9.39	246.8	0.0	0.0
03/11/2022 09:25	69.8	304	9.37	247.0	1.1	0.0
03/11/2022 09:26	69.5	304	9.37	249.3	0.0	0.0
03/11/2022 09:27	68.7	304	9.53	249.1	0.0	0.0
03/11/2022 09:28	67.3	304	9.58	253.0	1.1	0.0
03/11/2022 09:29	66.0	304	9.60	247.8	1.1	0.0
03/11/2022 09:30	64.8	304	9.59	250.4	1.1	0.0
03/11/2022 09:31	64.6	304	9.58	248.7	1.1	0.0
03/11/2022 09:32	65.4	304	9.57	254.3	0.0	0.0
03/11/2022 09:33	66.2	304	9.57	249.6	0.0	0.0
03/11/2022 09:34	66.7	304	9.55	248.1	1.1	0.0
03/11/2022 09:35	67.3	304	9.56	244.6	1.1	0.0
03/11/2022 09:36	67.5	304	9.53	253.0	0.0	0.0
03/11/2022 09:37	67.9	304	9.51	251.9	0.0	0.0
03/11/2022 09:38	69.2	304	9.48	248.3	0.0	0.0
03/11/2022 09:39	69.8	304	9.47	246.1	1.1	0.0
03/11/2022 09:40	70.3	304	9.48	252.4	1.2	0.0
03/11/2022 09:41	70.2	304	9.46	248.3	0.0	0.0
03/11/2022 09:42	70.1	304	9.47	249.1	0.0	0.0
03/11/2022 09:43	69.3	304	9.47	249.2	1.1	0.0
03/11/2022 09:44	68.9	304	9.47	250.2	1.1	0.0
03/11/2022 09:45	69.1	304	9.49	249.5	0.0	0.0
03/11/2022 09:46	69.6	304	9.46	248.2	1.1	0.0
03/11/2022 09:47	70.3	304	9.48	254.4	1.2	0.0
03/11/2022 09:48	70.6	304	9.50	249.7	0.0	0.0
03/11/2022 09:49	70.4	304	9.47	247.0	1.1	0.0
03/11/2022 09:50	69.8	304	9.47	250.1	0.0	0.0
03/11/2022 09:51	69.0	304	9.46	248.8	0.0	0.0
03/11/2022 09:52	69.4	305	9.48	245.3	0.0	0.0
03/11/2022 09:53	70.2	304	9.51	249.3	1.2	0.0
03/11/2022 09:54	70.3	304	9.50	251.6	1.1	0.0
03/11/2022 09:55	69.9	305	9.52	246.8	0.0	0.0
03/11/2022 09:56	70.6	304	9.55	253.4	1.0	0.0
03/11/2022 09:57	71.3	304	9.52	252.3	1.1	0.0
03/11/2022 09:58	70.4	304	9.52	247.5	1.2	0.0
03/11/2022 09:59	69.4	304	9.50	246.6	1.2	0.0
03/11/2022 10:00	70.5	304	9.47	247.2	0.0	0.0
03/11/2022 10:01	70.6	304	9.48	249.1	1.2	0.0
03/11/2022 10:02	70.3	304	9.45	249.0	0.0	0.0
03/11/2022 10:03	70.2	304	9.41	250.4	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 10:04	69.7	305	9.39	246.3	1.2	0.0
03/11/2022 10:05	69.6	304	9.37	251.3	0.0	0.0
03/11/2022 10:06	68.9	304	9.45	250.5	0.0	0.0
03/11/2022 10:07	69.8	305	9.54	247.7	0.0	0.0
03/11/2022 10:08	71.6	304	9.63	252.2	0.0	0.0
03/11/2022 10:09	71.9	304	9.63	251.8	0.0	0.0
03/11/2022 10:10	71.6	305	9.65	246.5	0.0	0.0
03/11/2022 10:11	67.7	304	9.69	250.7	0.0	0.0
03/11/2022 10:12	65.3	304	9.70	249.7	0.0	0.0
03/11/2022 10:13	65.2	305	9.69	245.8	0.0	0.0
03/11/2022 10:14	65.7	304	9.71	251.8	0.0	0.0
03/11/2022 10:15	66.9	304	9.73	251.9	0.0	0.0
03/11/2022 10:16	68.7	304	9.71	248.2	0.0	0.0
03/11/2022 10:17	70.6	304	9.68	247.9	1.2	0.0
03/11/2022 10:18	70.3	304	9.71	252.3	0.0	0.0
03/11/2022 10:19	69.0	305	9.64	247.5	1.0	0.0
03/11/2022 10:20	68.1	304	9.61	253.8	0.0	0.0
03/11/2022 10:21	67.8	304	9.54	249.7	1.2	0.0
03/11/2022 10:22	67.4	304	9.52	249.2	0.0	0.0
03/11/2022 10:23	67.2	304	9.52	246.3	0.0	0.0
03/11/2022 10:24	69.2	305	9.50	245.9	1.2	0.0
03/11/2022 10:25	70.2	304	9.49	251.7	0.0	0.0
03/11/2022 10:26	70.0	304	9.49	253.1	1.2	0.0
03/11/2022 10:27	68.6	305	9.47	249.7	1.2	0.0
03/11/2022 10:28	65.7	304	9.50	248.2	0.0	0.0
03/11/2022 10:29	64.8	304	9.50	251.0	1.2	0.0
03/11/2022 10:30	65.0	305	9.49	247.8	0.0	0.0
03/11/2022 10:31	65.1	304	9.54	246.3	0.0	0.0
03/11/2022 10:32	65.5	304	9.50	249.4	0.0	0.0
03/11/2022 10:33	66.5	304	9.47	251.1	0.0	0.0
03/11/2022 10:34	67.2	305	9.48	246.2	1.2	0.0
03/11/2022 10:35	67.5	305	9.48	248.9	0.0	0.0
03/11/2022 10:36	68.0	304	9.52	248.3	0.0	0.0
03/11/2022 10:37	68.7	304	9.51	251.6	0.0	0.0
03/11/2022 10:38	69.3	305	9.50	251.0	1.2	0.0
03/11/2022 10:39	68.8	305	9.51	247.0	0.0	0.0
03/11/2022 10:40	68.0	305	9.47	250.7	1.2	0.0
03/11/2022 10:41	66.8	305	9.50	250.5	1.2	0.0
03/11/2022 10:42	66.2	304	9.45	249.0	1.2	0.0
03/11/2022 10:43	66.6	304	9.41	247.3	1.2	0.0
03/11/2022 10:44	69.0	304	9.39	249.5	0.0	0.0
03/11/2022 10:45	71.3	304	9.37	247.4	0.0	0.0
03/11/2022 10:46	71.7	304	9.37	251.5	0.0	0.0
03/11/2022 10:47	70.1	305	9.49	248.3	0.0	0.0
03/11/2022 10:48	68.8	304	9.56	251.4	1.2	0.0
03/11/2022 10:49	69.0	304	9.59	246.5	0.0	0.0
03/11/2022 10:50	69.2	304	9.61	253.3	0.0	0.0
03/11/2022 10:51	69.0	305	9.61	250.3	0.0	0.0
03/11/2022 10:52	69.3	304	9.62	251.2	0.0	0.0
03/11/2022 10:53	70.4	304	9.60	248.3	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 10:54	70.6	304	9.57	247.7	0.0	0.0
03/11/2022 10:55	69.7	304	9.58	247.3	0.0	0.0
03/11/2022 10:56	68.2	304	9.54	253.2	0.0	0.0
03/11/2022 10:57	67.7	305	9.52	248.4	1.2	0.0
03/11/2022 10:58	67.5	305	9.49	247.4	0.0	0.0
03/11/2022 10:59	68.9	304	9.50	250.7	0.0	0.0
03/11/2022 11:00	69.4	304	9.52	248.3	0.0	0.0
03/11/2022 11:01	69.0	304	9.51	252.2	0.7	0.0
03/11/2022 11:02	68.6	304	9.50	246.5	1.3	0.0
03/11/2022 11:03	67.9	304	9.49	251.1	0.0	0.0
03/11/2022 11:04	66.9	304	9.49	247.8	1.3	0.0
03/11/2022 11:05	66.2	305	9.51	249.2	0.0	0.0
03/11/2022 11:06	67.0	304	9.55	248.8	1.3	0.0
03/11/2022 11:07	68.9	304	9.51	252.7	0.0	0.0
03/11/2022 11:08	69.8	305	9.50	245.1	0.0	0.0
03/11/2022 11:09	69.5	304	9.52	248.4	0.0	0.0
03/11/2022 11:10	68.7	304	9.59	251.8	0.0	0.0
03/11/2022 11:11	68.6	304	9.53	250.6	0.0	0.0
03/11/2022 11:12	69.5	305	9.53	246.4	0.0	0.0
03/11/2022 11:13	69.6	305	9.54	248.4	0.0	0.0
03/11/2022 11:14	70.0	305	9.55	248.0	0.0	0.0
03/11/2022 11:15	70.6	304	9.55	252.3	0.0	0.0
03/11/2022 11:16	67.9	305	9.50	245.6	1.3	0.0
03/11/2022 11:17	66.8	304	9.51	251.9	0.0	0.0
03/11/2022 11:18	66.3	304	9.52	250.6	0.0	0.0
03/11/2022 11:19	64.7	305	9.52	246.2	0.0	0.0
03/11/2022 11:20	63.8	303	9.50	246.3	0.0	0.0
03/11/2022 11:21	64.0	304	9.53	253.6	1.3	0.0
03/11/2022 11:22	65.0	305	9.51	246.8	0.0	0.0
03/11/2022 11:23	66.5	304	9.56	250.4	0.0	0.0
03/11/2022 11:24	67.3	304	9.52	252.3	0.0	0.0
03/11/2022 11:25	68.0	305	9.50	248.5	0.0	0.0
03/11/2022 11:26	68.0	305	9.45	245.9	0.0	0.0
03/11/2022 11:27	68.2	304	9.46	253.1	0.0	0.0
03/11/2022 11:28	68.3	305	9.50	246.5	0.0	0.0
03/11/2022 11:29	69.1	304	9.48	248.7	0.0	0.0
03/11/2022 11:30	70.0	304	9.53	252.1	1.3	0.0
03/11/2022 11:31	70.4	304	9.49	252.3	0.0	0.0
03/11/2022 11:32	68.9	305	9.48	246.1	0.0	0.0
03/11/2022 11:33	67.0	304	9.43	251.5	0.0	0.0
03/11/2022 11:34	67.0	304	9.39	252.1	0.0	0.0
03/11/2022 11:35	67.6	305	9.38	249.2	0.0	0.0
03/11/2022 11:36	69.0	304	9.51	250.1	0.0	0.0
03/11/2022 11:37	70.3	305	9.58	251.0	0.0	0.0
03/11/2022 11:38	70.0	304	9.65	247.9	0.0	0.0
03/11/2022 11:39	69.0	304	9.66	248.6	0.0	0.0
03/11/2022 11:40	67.6	304	9.67	247.8	0.0	0.0
03/11/2022 11:41	66.5	304	9.68	253.5	0.0	0.0
03/11/2022 11:42	67.2	304	9.67	248.1	0.0	0.0
03/11/2022 11:43	67.0	304	9.68	245.3	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 11:44	67.6	304	9.66	249.7	0.0	0.0
03/11/2022 11:45	70.2	305	9.64	245.5	0.0	0.0
03/11/2022 11:46	71.1	304	9.62	256.3	0.0	0.0
03/11/2022 11:47	70.4	305	9.59	250.4	0.0	0.0
03/11/2022 11:48	68.6	304	9.58	249.1	0.0	0.0
03/11/2022 11:49	66.6	305	9.54	251.7	0.0	0.0
03/11/2022 11:50	66.5	304	9.52	249.7	0.0	0.0
03/11/2022 11:51	65.2	305	9.52	248.0	0.0	0.0
03/11/2022 11:52	66.1	304	9.56	249.2	0.0	0.0
03/11/2022 11:53	68.2	304	9.54	251.2	0.0	0.0
03/11/2022 11:54	69.2	305	9.54	248.3	0.0	0.0
03/11/2022 11:55	68.6	304	9.52	248.2	0.0	0.0
03/11/2022 11:56	66.9	304	9.54	250.1	0.0	0.0
03/11/2022 11:57	64.7	304	9.61	248.7	0.0	0.0
03/11/2022 11:58	64.0	304	9.65	248.7	0.0	0.0
03/11/2022 11:59	63.2	304	9.60	249.9	0.0	0.0
03/11/2022 12:00	62.8	305	9.56	245.1	0.0	0.0
03/11/2022 12:01	63.0	304	9.55	255.8	0.0	0.0
03/11/2022 12:02	64.4	305	9.53	249.2	0.0	0.0
03/11/2022 12:03	65.1	304	9.53	248.4	1.4	0.0
03/11/2022 12:04	64.4	304	9.55	251.3	0.0	0.0
03/11/2022 12:05	62.1	304	9.55	250.6	0.0	0.0
03/11/2022 12:06	60.7	304	9.56	249.9	0.0	0.0
03/11/2022 12:07	59.6	304	9.60	251.2	0.0	0.0
03/11/2022 12:08	58.2	305	9.59	246.9	0.0	0.0
03/11/2022 12:09	58.8	304	9.58	254.4	0.0	0.0
03/11/2022 12:10	60.5	305	9.57	247.7	1.4	0.0
03/11/2022 12:11	61.8	304	9.58	249.1	0.0	0.0
03/11/2022 12:12	61.7	304	9.60	251.3	1.4	0.0
03/11/2022 12:13	60.9	304	9.56	248.6	0.0	0.0
03/11/2022 12:14	59.8	304	9.60	250.8	0.0	0.0
03/11/2022 12:15	58.3	304	9.60	252.1	0.0	0.0
03/11/2022 12:16	56.9	305	9.59	244.4	0.0	0.0
03/11/2022 12:17	56.5	304	9.59	249.6	0.0	0.0
03/11/2022 12:18	56.0	305	9.57	248.8	1.4	0.0
03/11/2022 12:19	56.4	305	9.58	244.1	1.4	0.0
03/11/2022 12:20	57.5	304	9.59	252.0	0.0	0.0
03/11/2022 12:21	58.3	305	9.57	248.5	0.0	0.0
03/11/2022 12:22	57.6	304	9.48	252.0	0.0	0.0
03/11/2022 12:23	57.5	304	9.43	251.5	0.0	0.0
03/11/2022 12:24	58.4	305	9.39	246.1	0.0	0.0
03/11/2022 12:25	61.2	304	9.38	248.4	0.0	0.0
03/11/2022 12:26	65.3	305	9.65	243.6	1.4	0.0
03/11/2022 12:27	68.9	304	9.74	250.4	1.4	0.0
03/11/2022 12:28	71.2	304	9.78	252.8	0.0	0.0
03/11/2022 12:29	72.3	306	9.81	244.3	1.4	0.0
03/11/2022 12:30	71.9	306	9.81	246.9	1.4	0.0
03/11/2022 12:31	70.2	304	9.80	254.8	0.0	0.0
03/11/2022 12:32	70.4	306	9.77	245.4	0.0	0.0
03/11/2022 12:33	70.3	305	9.74	250.1	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 12:34	71.3	305	9.73	247.3	0.0	0.0
03/11/2022 12:35	71.8	304	9.68	251.6	0.0	0.0
03/11/2022 12:36	71.1	304	9.65	249.8	0.0	0.0
03/11/2022 12:37	69.9	304	9.62	250.4	0.0	0.0
03/11/2022 12:38	69.8	306	9.61	251.0	0.0	0.0
03/11/2022 12:39	70.1	306	9.63	252.1	0.0	0.0
03/11/2022 12:40	71.1	306	9.65	252.6	1.4	0.0
Period Average =	67.7	304	9.53	249.5	0.4	0.0
Period Max Value =	72.6	306	9.81	256.3	1.4	0.0
Period Min Value =	56.0	303	9.36	243.0	0.0	0.0
Period Totals =	1.6655E+4	7.4852E+4	2.3434E+3	6.1365E+4	8.8500E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/11/2022 13:42
End of Report: 03/11/2022 17:47

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 13:42	64.1	304	9.68	249.6	0.0	0.0
03/11/2022 13:43	64.7	304	9.69	252.0	0.0	0.0
03/11/2022 13:44	65.5	305	9.72	247.7	0.0	0.0
03/11/2022 13:45	66.0	304	9.77	252.6	0.0	0.0
03/11/2022 13:46	67.7	305	9.73	244.3	0.0	0.0
03/11/2022 13:47	68.9	304	9.69	248.7	0.0	0.0
03/11/2022 13:48	70.5	305	9.72	247.6	1.5	0.0
03/11/2022 13:49	70.8	304	9.72	250.6	0.0	0.0
03/11/2022 13:50	70.1	305	9.59	249.0	0.0	0.0
03/11/2022 13:51	68.8	304	9.49	248.6	0.0	0.0
03/11/2022 13:52	67.6	304	9.44	251.9	0.0	0.0
03/11/2022 13:53	66.9	305	9.46	244.4	0.0	0.0
03/11/2022 13:54	66.2	304	9.50	253.0	0.0	0.0
03/11/2022 13:55	66.0	304	9.55	252.4	0.0	0.0
03/11/2022 13:56	66.0	305	9.59	244.3	0.0	0.0
03/11/2022 13:57	65.5	304	9.67	250.5	0.4	0.0
03/11/2022 13:58	64.7	304	9.67	250.9	0.0	0.0
03/11/2022 13:59	64.0	305	9.71	245.2	0.0	0.0
03/11/2022 14:00	63.8	304	9.68	252.2	0.0	0.0
03/11/2022 14:01	64.9	305	9.70	248.3	0.0	0.0
03/11/2022 14:02	65.9	304	9.70	248.4	0.0	0.0
03/11/2022 14:03	66.9	304	9.66	254.0	1.6	0.0
03/11/2022 14:04	68.6	305	9.64	243.5	0.0	0.0
03/11/2022 14:05	70.3	304	9.64	253.6	0.0	0.0
03/11/2022 14:06	71.1	305	9.64	248.9	0.0	0.0
03/11/2022 14:07	71.2	304	9.65	249.4	0.0	0.0
03/11/2022 14:08	70.9	304	9.73	253.8	0.0	0.0
03/11/2022 14:09	69.6	304	9.70	248.1	0.0	0.0
03/11/2022 14:10	68.5	304	9.70	250.1	0.0	0.0
03/11/2022 14:11	68.7	305	9.67	247.2	1.6	0.0
03/11/2022 14:12	69.4	305	9.70	248.1	0.0	0.0
03/11/2022 14:13	70.4	304	9.76	249.7	0.0	0.0
03/11/2022 14:14	71.9	304	9.77	252.8	0.0	0.0
03/11/2022 14:15	72.9	305	9.73	248.7	0.0	0.0
03/11/2022 14:16	73.6	304	9.72	251.9	0.0	0.0
03/11/2022 14:17	73.4	305	9.86	245.2	0.0	0.0
03/11/2022 14:18	72.2	304	10.01	250.6	1.5	0.0
03/11/2022 14:19	70.9	305	10.00	248.5	0.0	0.0
03/11/2022 14:20	70.6	305	9.89	248.0	0.0	0.0

Date/Time Printed: 06/06/2022 09:32

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 14:21	71.0	305	9.82	246.7	0.0	0.0
03/11/2022 14:22	71.9	304	9.81	251.5	1.6	0.0
03/11/2022 14:23	71.9	304	9.87	251.3	0.0	0.0
03/11/2022 14:24	71.1	305	9.85	245.7	0.0	0.0
03/11/2022 14:25	69.9	303	9.72	252.7	0.0	0.0
03/11/2022 14:26	68.0	305	9.78	249.7	1.6	0.0
03/11/2022 14:27	66.9	305	9.78	246.4	0.0	0.0
03/11/2022 14:28	67.0	304	9.88	252.6	0.0	0.0
03/11/2022 14:29	67.8	305	10.01	247.8	0.0	0.0
03/11/2022 14:30	68.9	304	10.01	252.6	0.0	0.0
03/11/2022 14:31	69.0	305	9.95	247.1	0.0	0.0
03/11/2022 14:32	68.0	304	9.96	252.5	0.0	0.0
03/11/2022 14:33	67.1	305	9.98	250.1	0.0	0.0
03/11/2022 14:34	65.1	304	9.92	249.0	0.0	0.0
03/11/2022 14:35	63.9	304	9.80	254.7	0.0	0.0
03/11/2022 14:36	63.4	304	9.62	248.8	0.0	0.0
03/11/2022 14:37	63.6	304	9.52	253.5	0.0	0.0
03/11/2022 14:38	64.0	305	9.45	244.3	0.0	0.0
03/11/2022 14:39	64.1	304	9.56	250.1	0.0	0.0
03/11/2022 14:40	64.0	304	9.81	252.0	0.0	0.0
03/11/2022 14:41	63.0	304	9.85	249.3	0.0	0.0
03/11/2022 14:42	62.8	305	9.89	245.2	1.6	0.0
03/11/2022 14:43	62.9	304	9.80	255.4	1.6	0.0
03/11/2022 14:44	63.4	305	9.86	246.0	0.0	0.0
03/11/2022 14:45	64.2	305	9.81	245.5	0.0	0.0
03/11/2022 14:46	64.7	304	9.85	250.9	0.0	0.0
03/11/2022 14:47	66.0	304	9.84	248.9	0.0	0.0
03/11/2022 14:48	68.2	304	9.82	253.4	0.0	0.0
03/11/2022 14:49	69.8	304	9.80	250.5	0.0	0.0
03/11/2022 14:50	71.1	304	9.84	252.2	0.0	0.0
03/11/2022 14:51	71.9	305	9.76	245.0	0.0	0.0
03/11/2022 14:52	71.5	304	9.68	252.1	0.0	0.0
03/11/2022 14:53	70.6	304	9.67	251.9	0.0	0.0
03/11/2022 14:54	69.9	305	9.65	243.6	0.0	0.0
03/11/2022 14:55	69.3	304	9.65	256.1	0.0	0.0
03/11/2022 14:56	69.1	305	9.63	246.1	0.0	0.0
03/11/2022 14:57	69.0	304	9.67	244.7	0.0	0.0
03/11/2022 14:58	68.7	304	9.69	248.8	0.0	0.0
03/11/2022 14:59	69.4	305	9.78	244.1	0.0	0.0
03/11/2022 15:00	69.3	303	9.80	254.2	0.0	0.0
03/11/2022 15:01	68.7	304	9.84	252.9	1.6	0.0
03/11/2022 15:02	68.4	305	9.83	249.5	0.0	0.0
03/11/2022 15:03	67.7	304	9.85	250.6	0.0	0.0
03/11/2022 15:04	66.3	304	9.93	251.0	0.0	0.0
03/11/2022 15:05	65.5	304	10.01	251.7	0.0	0.0
03/11/2022 15:06	64.7	305	10.02	245.3	0.0	0.0
03/11/2022 15:07	63.9	304	9.87	251.2	0.0	0.0
03/11/2022 15:08	64.5	305	9.77	244.8	0.0	0.0
03/11/2022 15:09	65.2	304	9.80	254.6	0.0	0.0
03/11/2022 15:10	65.6	305	9.82	249.9	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 15:11	66.5	304	9.75	249.6	0.0	0.0
03/11/2022 15:12	67.1	305	9.78	243.8	0.0	0.0
03/11/2022 15:13	67.3	304	9.77	253.9	0.0	0.0
03/11/2022 15:14	67.6	305	9.80	245.0	0.0	0.0
03/11/2022 15:15	67.0	304	9.87	251.5	0.0	0.0
03/11/2022 15:16	66.2	304	9.87	250.4	0.0	0.0
03/11/2022 15:17	65.9	304	9.83	248.1	0.0	0.0
03/11/2022 15:18	65.4	304	9.74	251.0	0.0	0.0
03/11/2022 15:19	64.8	305	9.67	245.4	1.6	0.0
03/11/2022 15:20	64.9	304	9.54	250.5	0.0	0.0
03/11/2022 15:21	65.8	304	9.47	246.3	0.0	0.0
03/11/2022 15:22	66.9	304	9.42	252.3	0.0	0.0
03/11/2022 15:23	67.6	305	9.41	245.2	0.0	0.0
03/11/2022 15:24	67.0	304	9.81	253.4	0.0	0.0
03/11/2022 15:25	65.7	305	9.83	249.8	0.0	0.0
03/11/2022 15:26	64.6	305	9.85	247.0	0.0	0.0
03/11/2022 15:27	64.6	304	9.82	256.2	0.0	0.0
03/11/2022 15:28	66.2	305	9.85	245.6	0.0	0.0
03/11/2022 15:29	69.0	304	9.85	253.9	0.0	0.0
03/11/2022 15:30	72.6	305	9.87	242.5	0.0	0.0
03/11/2022 15:31	76.0	304	9.87	250.1	0.0	0.0
03/11/2022 15:32	76.1	304	9.83	249.8	1.0	0.0
03/11/2022 15:33	73.3	303	9.89	249.3	0.0	0.0
03/11/2022 15:34	71.2	304	9.90	250.5	0.0	0.0
03/11/2022 15:35	70.6	305	9.92	248.7	0.0	0.0
03/11/2022 15:36	68.3	303	9.86	252.1	0.0	0.0
03/11/2022 15:37	66.8	304	9.85	248.5	0.0	0.0
03/11/2022 15:38	65.8	304	9.83	251.1	0.0	0.0
03/11/2022 15:39	64.4	304	9.83	251.0	0.0	0.0
03/11/2022 15:40	64.2	304	9.81	249.8	0.0	0.0
03/11/2022 15:41	65.4	304	9.90	246.1	0.0	0.0
03/11/2022 15:42	66.6	304	9.99	251.4	0.0	0.0
03/11/2022 15:43	67.0	305	9.99	248.1	1.6	0.0
03/11/2022 15:44	66.6	304	9.91	249.3	0.0	0.0
03/11/2022 15:45	65.6	304	9.91	251.7	0.0	0.0
03/11/2022 15:46	64.6	304	9.98	245.5	0.0	0.0
03/11/2022 15:47	64.0	304	10.02	252.5	0.0	0.0
03/11/2022 15:48	64.3	304	9.97	249.2	0.0	0.0
03/11/2022 15:49	65.9	305	10.01	246.0	1.6	0.0
03/11/2022 15:50	68.9	304	10.01	250.8	0.0	0.0
03/11/2022 15:51	70.7	304	9.93	251.2	0.0	0.0
03/11/2022 15:52	71.3	305	9.90	247.2	0.0	0.0
03/11/2022 15:53	71.7	304	9.89	250.3	0.0	0.0
03/11/2022 15:54	72.4	304	9.88	249.9	0.0	0.0
03/11/2022 15:55	72.5	304	9.87	250.9	0.0	0.0
03/11/2022 15:56	72.3	305	9.83	248.3	0.0	0.0
03/11/2022 15:57	74.6	305	9.88	248.5	0.0	0.0
03/11/2022 15:58	75.1	304	9.89	252.9	0.0	0.0
03/11/2022 15:59	74.1	304	9.92	251.2	1.6	0.0
03/11/2022 16:00	70.8	304	9.86	247.2	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 16:01	67.8	304	9.86	251.5	0.0	0.0
03/11/2022 16:02	66.3	304	9.87	248.0	0.0	0.0
03/11/2022 16:03	64.8	304	9.85	248.8	0.0	0.0
03/11/2022 16:04	62.2	304	9.92	249.6	0.0	0.0
03/11/2022 16:05	60.6	303	9.89	253.8	0.0	0.0
03/11/2022 16:06	61.0	303	9.68	244.9	0.0	0.0
03/11/2022 16:07	63.6	304	9.55	249.1	0.0	0.0
03/11/2022 16:08	66.6	302	9.47	247.6	1.5	0.0
03/11/2022 16:09	67.3	304	9.45	247.0	0.0	0.0
03/11/2022 16:10	66.5	304	9.69	252.1	0.0	0.0
03/11/2022 16:11	65.8	304	9.80	251.3	0.0	0.0
03/11/2022 16:12	66.1	304	9.85	248.7	1.6	0.0
03/11/2022 16:13	66.4	304	9.82	250.4	0.0	0.0
03/11/2022 16:14	66.5	305	9.83	245.3	0.0	0.0
03/11/2022 16:15	67.4	304	9.83	253.3	0.0	0.0
03/11/2022 16:16	67.9	305	9.86	249.0	0.0	0.0
03/11/2022 16:17	67.2	304	9.87	249.0	1.6	0.0
03/11/2022 16:18	65.6	304	9.90	252.1	1.6	0.0
03/11/2022 16:19	64.1	305	9.85	247.7	0.0	0.0
03/11/2022 16:20	63.8	304	9.81	249.0	0.0	0.0
03/11/2022 16:21	64.7	305	9.80	249.7	0.0	0.0
03/11/2022 16:22	67.3	304	10.79	245.7	0.0	0.0
03/11/2022 16:23	69.9	304	10.75	251.6	0.0	0.0
03/11/2022 16:24	71.3	305	10.42	249.2	0.0	0.0
03/11/2022 16:25	71.4	304	10.15	248.3	1.6	0.0
03/11/2022 16:26	70.6	304	10.00	252.1	0.0	0.0
03/11/2022 16:27	69.1	305	9.89	248.9	1.5	0.0
03/11/2022 16:28	67.8	304	9.82	246.9	0.0	0.0
03/11/2022 16:29	67.1	304	9.81	254.1	0.0	0.0
03/11/2022 16:30	67.5	305	9.84	246.7	0.0	0.0
03/11/2022 16:31	68.1	304	9.85	250.7	0.0	0.0
03/11/2022 16:32	68.4	304	9.75	250.7	0.0	0.0
03/11/2022 16:33	68.4	305	9.79	246.9	0.0	0.0
03/11/2022 16:34	67.6	304	9.81	251.0	0.0	0.0
03/11/2022 16:35	67.0	304	9.86	250.8	0.0	0.0
03/11/2022 16:36	67.6	304	9.86	247.1	0.0	0.0
03/11/2022 16:37	68.8	304	9.86	252.5	1.5	0.0
03/11/2022 16:38	70.3	305	9.81	247.8	1.6	0.0
03/11/2022 16:39	70.5	305	9.96	248.2	0.0	0.0
03/11/2022 16:40	69.8	304	9.98	250.6	0.0	0.0
03/11/2022 16:41	68.4	304	9.94	246.5	0.0	0.0
03/11/2022 16:42	67.3	305	9.97	247.3	0.0	0.0
03/11/2022 16:43	66.7	304	9.93	249.5	0.0	0.0
03/11/2022 16:44	66.9	304	9.88	249.0	0.0	0.0
03/11/2022 16:45	68.1	304	9.89	253.3	0.0	0.0
03/11/2022 16:46	69.4	305	9.82	245.8	0.0	0.0
03/11/2022 16:47	69.7	304	9.82	246.6	0.0	0.0
03/11/2022 16:48	69.3	304	9.82	247.4	0.0	0.0
03/11/2022 16:49	69.0	304	9.80	248.7	0.0	0.0
03/11/2022 16:50	68.2	304	9.76	253.3	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 16:51	68.4	304	9.59	250.2	1.6	0.0
03/11/2022 16:52	70.4	304	9.50	255.3	1.5	0.0
03/11/2022 16:53	72.6	305	9.44	245.8	0.0	0.0
03/11/2022 16:54	73.0	304	9.45	250.2	0.0	0.0
03/11/2022 16:55	72.3	304	9.75	247.4	0.0	0.0
03/11/2022 16:56	71.3	304	9.86	249.5	0.0	0.0
03/11/2022 16:57	70.1	305	9.89	246.6	0.0	0.0
03/11/2022 16:58	71.5	304	9.86	249.9	0.0	0.0
03/11/2022 16:59	72.0	304	9.90	254.4	0.0	0.0
03/11/2022 17:00	70.6	305	9.89	253.5	0.0	0.0
03/11/2022 17:01	71.3	305	9.88	247.9	0.0	0.0
03/11/2022 17:02	73.1	305	9.88	247.0	0.0	0.0
03/11/2022 17:03	74.1	304	9.87	246.5	0.0	0.0
03/11/2022 17:04	74.4	304	9.88	251.6	0.0	0.0
03/11/2022 17:05	74.6	305	9.89	251.2	0.0	0.0
03/11/2022 17:06	74.1	305	9.86	247.1	0.0	0.0
03/11/2022 17:07	72.8	304	9.91	251.9	0.0	0.0
03/11/2022 17:08	71.9	305	9.93	246.4	0.0	0.0
03/11/2022 17:09	71.7	304	9.91	249.5	0.0	0.0
03/11/2022 17:10	71.8	304	9.90	250.8	0.0	0.0
03/11/2022 17:11	72.4	305	9.94	247.2	0.0	0.0
03/11/2022 17:12	72.4	304	9.95	251.3	0.0	0.0
03/11/2022 17:13	70.9	305	9.94	251.5	0.0	0.0
03/11/2022 17:14	69.9	304	9.95	245.8	0.0	0.0
03/11/2022 17:15	69.4	304	9.98	252.6	0.0	0.0
03/11/2022 17:16	69.2	304	9.94	245.3	0.0	0.0
03/11/2022 17:17	69.2	304	9.90	248.3	0.0	0.0
03/11/2022 17:18	69.7	302	9.91	253.3	0.0	0.0
03/11/2022 17:19	70.4	304	9.95	249.1	0.0	0.0
03/11/2022 17:20	70.4	304	9.98	252.3	0.0	0.0
03/11/2022 17:21	69.6	304	9.97	247.9	0.0	0.0
03/11/2022 17:22	68.6	305	9.95	246.1	0.0	0.0
03/11/2022 17:23	67.8	304	9.95	252.1	0.0	0.0
03/11/2022 17:24	68.0	305	9.90	245.7	0.0	0.0
03/11/2022 17:25	68.4	304	9.88	251.6	0.0	0.0
03/11/2022 17:26	68.6	304	9.92	251.5	0.0	0.0
03/11/2022 17:27	68.7	305	9.85	246.9	0.0	0.0
03/11/2022 17:28	68.3	304	9.88	253.4	1.5	0.0
03/11/2022 17:29	67.7	305	9.85	248.6	0.0	0.0
03/11/2022 17:30	66.9	304	9.86	249.8	1.5	0.0
03/11/2022 17:31	66.2	304	9.93	248.2	0.0	0.0
03/11/2022 17:32	66.6	304	9.89	250.9	0.0	0.0
03/11/2022 17:33	68.4	304	9.88	249.5	0.0	0.0
03/11/2022 17:34	70.0	304	9.89	252.3	0.0	0.0
03/11/2022 17:35	70.5	305	9.88	246.8	0.0	0.0
03/11/2022 17:36	69.9	305	9.79	248.7	1.5	0.0
03/11/2022 17:37	67.7	304	9.62	250.4	0.0	0.0
03/11/2022 17:38	66.8	305	9.52	245.3	0.0	0.0
03/11/2022 17:39	67.9	304	9.45	251.3	0.0	0.0
03/11/2022 17:40	68.3	304	9.47	250.5	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 17:41	69.1	305	9.70	248.1	0.0	0.0
03/11/2022 17:42	70.1	304	9.79	252.9	0.0	0.0
03/11/2022 17:43	70.6	305	9.84	248.0	0.0	0.0
03/11/2022 17:44	69.3	304	9.89	248.7	0.0	0.0
03/11/2022 17:45	67.8	304	9.93	249.8	1.5	0.0
03/11/2022 17:46	67.3	304	9.95	245.9	0.0	0.0
03/11/2022 17:47	66.8	304	9.94	250.6	0.0	0.0
Period Average =	68.3	304	9.82	249.5	0.2	0.0
Period Max Value =	76.1	305	10.79	256.2	1.6	0.0
Period Min Value =	60.6	302	9.41	242.5	0.0	0.0
Period Totals =	1.6800E+4	7.4854E+4	2.4149E+3	6.1365E+4	4.3600E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-1>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 10:03
End of Report: 03/09/2022 12:08

Validation: Valid Data Only

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 10:03	65.4	314	9.58	251.9	0.9	0.2
03/09/2022 10:04	66.1	312	9.65	252.3	0.9	0.2
03/09/2022 10:05	68.2	311	9.66	253.9	0.7	0.2
03/09/2022 10:06	69.7	310	9.69	253.0	0.3	0.2
03/09/2022 10:07	69.9	310	9.45	252.9	0.0	0.2
03/09/2022 10:08	70.1	309	9.74	253.7	0.0	0.2
03/09/2022 10:09	70.9	309	9.52	253.5	0.0	0.2
03/09/2022 10:10	71.2	309	10.01	254.7	0.0	0.2
03/09/2022 10:11	70.7	308	9.69	254.8	0.0	0.2
03/09/2022 10:12	70.5	308	9.40	257.1	0.0	0.2
03/09/2022 10:13	71.1	308	10.04	257.2	0.0	0.2
03/09/2022 10:14	71.3	308	9.63	256.8	0.0	0.2
03/09/2022 10:15	71.0	307	9.69	255.6	0.0	0.2
03/09/2022 10:16	70.4	307	9.38	254.0	0.0	0.2
03/09/2022 10:17	70.4	307	9.76	251.0	0.4	0.2
03/09/2022 10:18	71.3	307	9.65	251.2	0.9	0.2
03/09/2022 10:19	69.6	307	10.03	251.9	0.2	0.2
03/09/2022 10:20	67.1	306	9.47	254.2	0.9	0.2
03/09/2022 10:21	65.6	306	13.01	253.8	1.1	0.2
03/09/2022 10:22	64.9	306	9.66	255.4	1.4	0.2
03/09/2022 10:23	65.1	306	9.88	255.3	1.7	0.2
03/09/2022 10:24	65.3	305	9.63	254.9	2.0	0.2
03/09/2022 10:25	66.6	305	9.66	255.1	2.2	0.2
03/09/2022 10:26	67.5	305	9.58	255.0	2.6	0.2
03/09/2022 10:27	67.3	305	9.71	257.0	2.9	0.2
03/09/2022 10:28	66.1	305	9.71	255.2	3.3	0.2
03/09/2022 10:29	64.7	305	9.64	252.2	3.4	0.2
03/09/2022 10:30	63.9	305	9.54	250.1	3.4	0.2
03/09/2022 10:31	65.2	305	9.60	253.5	3.5	0.2
03/09/2022 10:32	67.4	305	9.83	255.3	3.4	0.2
03/09/2022 10:33	67.4	305	9.73	255.8	3.3	0.2
03/09/2022 10:34	67.6	305	9.56	256.0	3.3	0.2
03/09/2022 10:35	68.1	305	9.75	256.5	3.1	0.2
03/09/2022 10:36	68.2	305	9.76	255.8	2.7	0.2
03/09/2022 10:37	67.8	305	9.52	254.5	2.2	0.2
03/09/2022 10:38	68.0	306	9.47	255.1	1.9	0.2
03/09/2022 10:39	68.0	306	9.98	253.3	1.4	0.2
03/09/2022 10:40	68.0	306	9.74	252.5	1.0	0.2
03/09/2022 10:41	67.5	307	9.77	252.0	0.7	0.2

Date/Time Printed: 06/06/2022 08:51

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 10:42	66.6	307	9.50	251.7	0.9	0.2
03/09/2022 10:43	65.4	307	9.59	252.0	1.1	0.2
03/09/2022 10:44	65.1	307	9.79	253.0	0.9	0.2
03/09/2022 10:45	65.3	307	9.63	253.6	1.1	0.2
03/09/2022 10:46	67.6	307	9.79	252.9	1.4	0.2
03/09/2022 10:47	69.6	307	9.43	253.6	1.5	0.2
03/09/2022 10:48	68.5	307	9.59	254.9	1.4	0.2
03/09/2022 10:49	67.6	307	9.66	256.5	1.2	0.2
03/09/2022 10:50	67.5	306	9.57	256.0	0.9	0.2
03/09/2022 10:51	67.4	306	9.67	257.8	0.7	0.2
03/09/2022 10:52	66.7	306	9.73	256.5	0.4	0.2
03/09/2022 10:53	66.9	306	9.66	252.5	1.1	0.2
03/09/2022 10:54	67.7	306	9.48	254.0	0.7	0.2
03/09/2022 10:55	68.1	306	9.90	251.5	0.9	0.2
03/09/2022 10:56	68.6	307	9.58	250.7	0.9	0.2
03/09/2022 10:57	68.2	307	9.64	253.2	0.8	0.2
03/09/2022 10:58	69.2	307	9.68	255.0	1.0	0.2
03/09/2022 10:59	70.8	307	9.92	254.9	1.1	0.2
03/09/2022 11:00	70.9	307	9.48	254.0	0.3	0.2
03/09/2022 11:01	70.1	307	9.65	252.1	0.0	0.2
03/09/2022 11:02	70.5	307	9.80	252.6	0.0	0.2
03/09/2022 11:03	71.6	307	12.13	253.6	0.0	0.2
03/09/2022 11:04	71.9	307	9.90	257.2	0.0	0.2
03/09/2022 11:05	70.5	307	11.08	258.8	0.0	0.2
03/09/2022 11:06	69.0	306	9.00	256.0	0.0	0.2
03/09/2022 11:07	69.1	306	9.88	254.5	0.0	0.2
03/09/2022 11:08	69.6	306	9.85	253.1	0.0	0.2
03/09/2022 11:09	68.7	306	9.69	254.0	0.0	0.2
03/09/2022 11:10	70.6	306	9.68	253.3	0.0	0.2
03/09/2022 11:11	71.4	306	9.84	253.3	0.0	0.2
03/09/2022 11:12	69.3	305	9.70	251.2	0.0	0.2
03/09/2022 11:13	67.1	305	9.74	253.0	0.0	0.2
03/09/2022 11:14	68.0	305	9.52	252.6	0.0	0.2
03/09/2022 11:15	68.5	305	9.26	253.3	0.0	0.2
03/09/2022 11:16	70.3	305	9.87	254.2	0.0	0.2
03/09/2022 11:17	70.9	305	9.45	254.3	0.0	0.2
03/09/2022 11:18	70.2	305	9.72	253.4	0.0	0.2
03/09/2022 11:19	70.1	304	9.57	254.2	0.0	0.2
03/09/2022 11:20	70.2	304	9.77	255.5	0.6	0.2
03/09/2022 11:21	69.5	304	9.69	254.8	0.3	0.2
03/09/2022 11:22	69.4	304	9.51	255.6	0.0	0.2
03/09/2022 11:23	69.6	304	9.68	253.6	0.0	0.2
03/09/2022 11:24	69.6	303	9.57	253.7	0.0	0.2
03/09/2022 11:25	69.5	303	9.68	254.4	0.0	0.2
03/09/2022 11:26	70.0	303	9.66	256.5	0.0	0.2
03/09/2022 11:27	71.2	303	9.66	257.3	0.0	0.2
03/09/2022 11:28	70.9	303	9.66	256.1	0.0	0.2
03/09/2022 11:29	70.1	302	9.66	256.0	0.0	0.2
03/09/2022 11:30	69.7	302	9.17	254.8	0.0	0.2
03/09/2022 11:31	66.6	302	10.34	254.6	0.0	0.2

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 11:32	64.6	302	9.75	253.5	0.0	0.2
03/09/2022 11:33	67.3	302	9.74	254.6	0.5	0.2
03/09/2022 11:34	69.5	303	9.56	254.7	1.2	0.2
03/09/2022 11:35	68.9	303	9.68	253.5	0.7	0.2
03/09/2022 11:36	68.0	303	9.64	253.9	0.4	0.2
03/09/2022 11:37	68.1	303	9.82	255.0	1.0	0.2
03/09/2022 11:38	68.7	303	9.60	251.3	1.2	0.2
03/09/2022 11:39	67.7	303	9.43	251.8	0.5	0.2
03/09/2022 11:40	66.5	303	8.98	253.8	0.0	0.2
03/09/2022 11:41	64.8	303	12.48	253.0	0.0	0.2
03/09/2022 11:42	64.1	303	9.59	253.0	0.0	0.2
03/09/2022 11:43	65.2	303	9.60	253.7	0.0	0.2
03/09/2022 11:44	65.6	303	9.76	255.9	0.0	0.2
03/09/2022 11:45	66.0	303	9.50	256.5	0.0	0.2
03/09/2022 11:46	67.4	302	9.68	254.4	0.0	0.2
03/09/2022 11:47	67.6	302	9.82	253.2	0.0	0.2
03/09/2022 11:48	67.2	302	9.79	253.1	0.0	0.2
03/09/2022 11:49	68.2	302	9.68	254.4	0.0	0.2
03/09/2022 11:50	69.0	301	9.50	254.2	0.0	0.2
03/09/2022 11:51	70.2	301	9.84	255.0	0.0	0.2
03/09/2022 11:52	69.5	301	9.55	254.9	0.0	0.2
03/09/2022 11:53	68.7	301	9.84	254.5	0.0	0.2
03/09/2022 11:54	69.0	301	9.44	255.5	0.0	0.2
03/09/2022 11:55	69.6	301	9.61	255.4	0.0	0.2
03/09/2022 11:56	69.6	301	9.66	253.4	0.0	0.2
03/09/2022 11:57	69.5	301	9.95	254.9	0.0	0.2
03/09/2022 11:58	69.5	301	9.64	254.9	0.0	0.2
03/09/2022 11:59	69.3	301	9.53	251.8	0.0	0.2
03/09/2022 12:00	68.0	301	9.64	250.4	0.0	0.2
03/09/2022 12:01	66.7	301	9.77	251.3	0.0	0.2
03/09/2022 12:02	66.0	301	9.55	251.8	0.0	0.2
03/09/2022 12:03	65.3	301	9.87	253.1	0.4	0.2
03/09/2022 12:04	65.0	301	9.57	255.7	0.2	0.2
03/09/2022 12:05	66.5	300	10.00	257.4	0.3	0.2
03/09/2022 12:06	68.0	300	9.21	254.2	0.0	0.2
03/09/2022 12:07	67.9	300	9.44	252.5	0.0	0.2
03/09/2022 12:08	68.7	300	10.75	250.1	0.1	0.2
Period Average =	68.3	305	9.75	254.1	0.6	0.2
Period Max Value =	71.9	314	13.01	258.8	3.5	0.2
Period Min Value =	63.9	300	8.98	250.1	0.0	0.2
Period Totals =	8.6079E+3	3.8407E+4	1.2279E+3	3.2016E+4	8.1400E+1	2.5200E+1
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-1>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 13:50
End of Report: 03/09/2022 15:55

Validation: Valid Data Only

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 13:50	70.9	306	9.15	250.8	0.6	0.2
03/09/2022 13:51	68.7	306	10.39	252.0	0.8	0.2
03/09/2022 13:52	70.5	306	10.43	253.0	1.1	0.2
03/09/2022 13:53	70.7	306	9.42	257.5	0.5	0.2
03/09/2022 13:54	69.6	306	9.74	257.4	0.7	0.2
03/09/2022 13:55	70.0	306	9.37	256.2	0.6	0.2
03/09/2022 13:56	69.2	306	9.70	254.9	1.0	0.2
03/09/2022 13:57	68.1	306	9.62	254.3	0.8	0.2
03/09/2022 13:58	68.1	306	9.71	255.5	1.2	0.2
03/09/2022 13:59	67.8	306	9.56	255.4	0.8	0.2
03/09/2022 14:00	68.2	306	9.65	254.9	0.8	0.2
03/09/2022 14:01	67.1	305	10.01	251.7	1.0	0.2
03/09/2022 14:02	66.4	305	9.44	252.0	1.2	0.2
03/09/2022 14:03	67.0	305	9.92	253.5	0.4	0.2
03/09/2022 14:04	67.6	305	9.32	257.2	1.1	0.2
03/09/2022 14:05	67.9	305	9.30	265.3	1.3	0.2
03/09/2022 14:06	68.1	305	10.06	265.9	1.2	0.2
03/09/2022 14:07	69.0	306	9.35	259.5	1.1	0.2
03/09/2022 14:08	71.3	308	9.87	258.4	0.8	0.2
03/09/2022 14:09	72.9	310	8.57	255.7	0.0	0.2
03/09/2022 14:10	72.8	312	10.53	252.8	0.1	0.2
03/09/2022 14:11	72.4	313	9.42	253.1	0.0	0.2
03/09/2022 14:12	72.0	314	10.67	256.4	0.0	0.2
03/09/2022 14:13	72.0	315	9.44	256.5	0.0	0.2
03/09/2022 14:14	71.4	316	9.90	253.7	0.0	0.2
03/09/2022 14:15	72.2	317	9.41	251.7	0.0	0.2
03/09/2022 14:16	73.0	317	9.52	253.4	0.0	0.2
03/09/2022 14:17	72.4	318	9.73	255.2	0.0	0.2
03/09/2022 14:18	71.4	318	9.70	254.2	0.0	0.2
03/09/2022 14:19	71.5	318	9.85	252.7	0.0	0.2
03/09/2022 14:20	71.7	318	9.45	253.8	0.0	0.2
03/09/2022 14:21	71.7	319	9.90	253.2	0.0	0.2
03/09/2022 14:22	71.3	319	8.83	261.7	0.0	0.2
03/09/2022 14:23	71.1	319	9.52	255.5	0.0	0.2
03/09/2022 14:24	70.2	319	11.15	251.9	0.0	0.2
03/09/2022 14:25	69.2	319	8.45	252.4	0.0	0.2
03/09/2022 14:26	69.1	319	10.39	252.6	0.0	0.2
03/09/2022 14:27	69.7	319	9.39	253.0	0.0	0.2
03/09/2022 14:28	68.2	319	16.36	254.6	0.0	0.2

Date/Time Printed: 06/06/2022 08:52

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 14:29	66.8	320	9.84	254.9	0.0	0.2
03/09/2022 14:30	66.9	320	10.06	255.5	0.0	0.2
03/09/2022 14:31	67.7	320	9.56	253.5	0.0	0.2
03/09/2022 14:32	68.2	320	9.70	251.6	0.0	0.2
03/09/2022 14:33	68.2	320	9.42	253.7	0.0	0.2
03/09/2022 14:34	66.9	320	9.91	257.4	0.3	0.2
03/09/2022 14:35	64.8	320	9.84	251.5	0.5	0.2
03/09/2022 14:36	63.7	320	9.39	252.7	0.7	0.2
03/09/2022 14:37	63.8	320	9.70	252.9	1.5	0.2
03/09/2022 14:38	63.9	319	9.59	256.8	1.1	0.2
03/09/2022 14:39	63.9	319	9.88	256.7	1.3	0.2
03/09/2022 14:40	63.9	319	9.41	253.8	1.1	0.2
03/09/2022 14:41	63.4	319	9.84	254.4	0.8	0.2
03/09/2022 14:42	63.3	319	9.53	254.7	0.9	0.2
03/09/2022 14:43	63.4	319	9.80	252.7	0.2	0.2
03/09/2022 14:44	63.8	319	9.68	252.6	0.0	0.2
03/09/2022 14:45	64.9	319	9.71	252.9	0.0	0.2
03/09/2022 14:46	66.0	319	9.59	255.9	0.0	0.2
03/09/2022 14:47	68.0	319	10.67	256.5	0.0	0.2
03/09/2022 14:48	70.3	320	9.92	253.5	0.0	0.2
03/09/2022 14:49	70.9	320	9.09	251.0	0.0	0.2
03/09/2022 14:50	71.2	319	9.83	252.9	0.0	0.2
03/09/2022 14:51	71.6	318	9.74	257.6	0.0	0.2
03/09/2022 14:52	67.8	318	9.51	252.1	0.0	0.2
03/09/2022 14:53	69.8	317	9.93	255.1	0.0	0.2
03/09/2022 14:54	69.0	317	9.85	280.9	0.0	0.2
03/09/2022 14:55	67.7	316	9.63	280.6	0.0	0.2
03/09/2022 14:56	68.2	313	9.26	273.7	0.0	0.2
03/09/2022 14:57	68.4	310	10.03	268.2	0.0	0.2
03/09/2022 14:58	68.8	308	9.74	262.9	0.0	0.2
03/09/2022 14:59	67.6	306	9.49	258.1	0.2	0.2
03/09/2022 15:00	68.1	304	9.85	257.1	0.0	0.2
03/09/2022 15:01	68.7	303	9.73	257.6	0.0	0.2
03/09/2022 15:02	68.9	302	9.58	255.3	0.0	0.2
03/09/2022 15:03	69.8	301	9.73	253.5	0.0	0.2
03/09/2022 15:04	69.8	300	9.32	251.3	0.0	0.2
03/09/2022 15:05	69.5	300	9.82	251.2	0.0	0.2
03/09/2022 15:06	69.5	299	9.71	251.6	0.0	0.2
03/09/2022 15:07	70.6	299	10.08	253.3	0.0	0.2
03/09/2022 15:08	71.0	298	9.25	256.1	0.0	0.2
03/09/2022 15:09	71.1	298	13.62	256.8	0.0	0.2
03/09/2022 15:10	70.9	298	15.02	256.8	0.0	0.2
03/09/2022 15:11	70.8	298	9.97	258.5	0.0	0.2
03/09/2022 15:12	70.1	299	9.38	263.9	0.0	0.2
03/09/2022 15:13	69.0	301	9.69	260.0	0.0	0.2
03/09/2022 15:14	68.6	304	9.60	254.7	0.2	0.2
03/09/2022 15:15	68.2	307	9.82	255.3	0.5	0.2
03/09/2022 15:16	67.5	310	9.44	256.2	0.8	0.2
03/09/2022 15:17	65.7	312	9.78	254.8	1.0	0.2
03/09/2022 15:18	64.6	313	9.58	253.3	1.1	0.2

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 15:19	65.1	315	9.31	254.6	1.5	0.2
03/09/2022 15:20	67.3	316	9.90	255.5	1.5	0.2
03/09/2022 15:21	68.7	317	9.66	256.3	1.2	0.2
03/09/2022 15:22	68.4	318	9.66	254.8	0.5	0.2
03/09/2022 15:23	68.0	319	9.66	249.3	0.0	0.2
03/09/2022 15:24	69.6	319	9.66	205.5	0.0	0.2
03/09/2022 15:25	71.4	315	10.12	249.0	0.0	0.2
03/09/2022 15:26	72.7	311	9.59	250.7	0.0	0.2
03/09/2022 15:27	73.4	308	9.77	251.7	0.0	0.2
03/09/2022 15:28	73.5	306	9.79	251.9	0.0	0.2
03/09/2022 15:29	72.7	304	9.33	253.4	0.0	0.2
03/09/2022 15:30	72.2	302	9.79	254.6	0.1	0.2
03/09/2022 15:31	69.2	300	9.96	258.6	0.0	0.2
03/09/2022 15:32	69.8	299	9.58	258.6	0.3	0.2
03/09/2022 15:33	68.0	298	9.57	258.4	0.0	0.2
03/09/2022 15:34	67.1	297	9.66	257.5	0.9	0.2
03/09/2022 15:35	68.5	297	9.96	256.3	1.2	0.2
03/09/2022 15:36	69.2	296	9.72	256.1	1.5	0.2
03/09/2022 15:37	68.7	296	9.26	255.5	1.7	0.2
03/09/2022 15:38	69.3	295	9.57	255.0	2.2	0.2
03/09/2022 15:39	70.2	295	9.56	255.4	2.2	0.2
03/09/2022 15:40	70.0	295	9.54	256.6	2.2	0.2
03/09/2022 15:41	69.7	295	10.03	256.5	2.2	0.2
03/09/2022 15:42	68.4	295	9.45	267.8	2.3	0.2
03/09/2022 15:43	67.0	296	9.78	265.3	2.2	0.2
03/09/2022 15:44	65.5	299	9.73	255.0	2.2	0.2
03/09/2022 15:45	63.9	301	9.49	252.7	2.1	0.2
03/09/2022 15:46	62.5	301	9.71	253.5	1.9	0.2
03/09/2022 15:47	61.6	301	9.67	254.2	1.7	0.2
03/09/2022 15:48	62.0	302	9.72	255.0	1.6	0.2
03/09/2022 15:49	63.3	302	8.82	257.8	1.4	0.2
03/09/2022 15:50	65.1	303	17.88	255.6	1.3	0.2
03/09/2022 15:51	66.2	304	10.52	256.3	1.2	0.2
03/09/2022 15:52	67.0	305	9.20	255.2	0.7	0.2
03/09/2022 15:53	68.1	306	9.76	253.5	0.5	0.2
03/09/2022 15:54	69.2	307	9.85	252.8	0.1	0.2
03/09/2022 15:55	70.0	307	9.58	253.0	0.0	0.2
Period Average =	68.6	309	9.87	255.4	0.5	0.2
Period Max Value =	73.5	320	17.88	280.9	2.3	0.2
Period Min Value =	61.6	295	8.45	205.5	0.0	0.2
Period Totals =	8.6401E+3	3.8988E+4	1.2441E+3	3.2183E+4	6.7700E+1	2.5200E+1
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-1>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 17:30
End of Report: 03/09/2022 19:45

Validation: Valid Data Only

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 17:30	69.7	308	9.40	255.7	1.2	0.2
03/09/2022 17:31	69.5	308	9.82	255.3	0.2	0.2
03/09/2022 17:32	70.1	308	9.86	254.5	0.9	0.2
03/09/2022 17:33	70.4	309	9.51	254.4	0.6	0.2
03/09/2022 17:34	69.7	309	9.74	253.3	0.1	0.2
03/09/2022 17:35	67.5	309	9.59	254.2	0.0	0.2
03/09/2022 17:36	66.8	310	9.44	255.4	0.0	0.2
03/09/2022 17:37	67.4	310	9.49	254.2	0.0	0.2
03/09/2022 17:38	68.4	310	9.98	254.1	0.0	0.2
03/09/2022 17:39	68.9	310	9.29	253.1	0.1	0.2
03/09/2022 17:40	68.8	310	9.63	253.3	0.0	0.2
03/09/2022 17:41	64.1	310	10.00	254.1	0.1	0.2
03/09/2022 17:42	66.6	310	9.74	255.7	1.0	0.2
03/09/2022 17:43	66.0	310	9.84	254.1	0.9	0.2
03/09/2022 17:44	66.9	310	9.65	253.8	1.1	0.2
03/09/2022 17:45	67.7	310	9.75	253.1	1.1	0.2
03/09/2022 17:46	67.7	310	9.70	254.5	1.0	0.2
03/09/2022 17:47	67.5	310	9.46	255.7	1.4	0.2
03/09/2022 17:48	67.2	310	9.61	255.6	1.6	0.2
03/09/2022 17:49	66.8	310	9.76	254.8	1.7	0.2
03/09/2022 17:50	67.0	309	9.85	255.1	1.9	0.2
03/09/2022 17:51	66.6	309	9.71	255.8	1.7	0.2
03/09/2022 17:52	65.7	309	15.20	253.1	1.8	0.2
03/09/2022 17:53	64.8	310	9.74	253.5	1.9	0.2
03/09/2022 17:54	65.1	310	9.66	253.6	2.2	0.2
03/09/2022 17:55	65.3	310	9.77	254.4	2.4	0.2
03/09/2022 17:56	65.4	310	9.67	251.2	2.4	0.2
03/09/2022 17:57	64.0	310	9.52	251.4	2.5	0.2
03/09/2022 17:58	63.1	310	9.77	254.3	2.7	0.2
03/09/2022 17:59	62.9	310	9.96	256.9	2.8	0.2
03/09/2022 18:00	63.4	310	9.63	256.7	2.7	0.2
03/09/2022 18:01	64.2	310	9.75	254.9	2.7	0.2
03/09/2022 18:02	65.6	310	9.66	256.4	2.5	0.2
03/09/2022 18:03	66.6	310	9.50	256.3	2.2	0.2
03/09/2022 18:04	68.6	311	9.81	255.4	1.7	0.2
03/09/2022 18:05	70.3	311	9.66	254.8	1.1	0.2
03/09/2022 18:06	71.9	311	9.49	250.3	0.3	0.2
03/09/2022 18:07	72.0	311	9.73	251.9	0.0	0.2
03/09/2022 18:08	71.8	311	9.74	256.4	0.0	0.2

Date/Time Printed: 06/06/2022 08:53

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 18:09	72.4	310	9.56	254.5	0.0	0.2
03/09/2022 18:10	72.8	310	9.72	253.7	0.0	0.2
03/09/2022 18:11	73.3	310	9.75	252.2	0.0	0.2
03/09/2022 18:12	74.2	310	9.37	253.5	0.0	0.2
03/09/2022 18:13	74.8	311	9.99	256.4	0.0	0.2
03/09/2022 18:14	74.4	311	9.79	256.7	0.0	0.2
03/09/2022 18:15	73.6	311	9.38	256.4	0.0	0.2
03/09/2022 18:16	72.7	310	9.82	256.2	0.0	0.2
03/09/2022 18:17	67.3	310	9.67	255.4	0.5	0.2
03/09/2022 18:18	69.1	310	9.61	255.6	0.9	0.2
03/09/2022 18:19	68.1	310	9.45	253.1	0.8	0.2
03/09/2022 18:20	68.5	310	9.76	253.7	1.2	0.2
03/09/2022 18:21	69.2	310	9.74	254.0	1.2	0.2
03/09/2022 18:22	70.4	311	9.37	252.5	1.1	0.2
03/09/2022 18:23	70.4	311	9.92	253.0	1.4	0.2
03/09/2022 18:24	69.9	311	9.75	252.6	1.6	0.2
03/09/2022 18:25	70.1	310	9.37	252.8	1.7	0.2
03/09/2022 18:26	69.7	311	9.88	254.3	1.8	0.2
03/09/2022 18:27	69.1	310	9.74	250.4	1.6	0.2
03/09/2022 18:28	68.1	310	9.73	255.2	1.4	0.2
03/09/2022 18:29	68.2	310	9.52	255.9	1.3	0.2
03/09/2022 18:30	67.5	310	9.50	253.4	1.5	0.2
03/09/2022 18:31	66.6	310	19.28	254.7	1.6	0.2
03/09/2022 18:32	66.7	310	11.03	252.8	1.7	0.2
03/09/2022 18:33	67.2	310	9.62	252.2	1.5	0.2
03/09/2022 18:34	67.6	310	9.72	253.2	1.3	0.2
03/09/2022 18:35	66.8	310	9.70	256.6	0.9	0.2
03/09/2022 18:36	66.0	310	9.67	255.8	0.9	0.2
03/09/2022 18:37	64.8	310	9.64	256.7	0.8	0.2
03/09/2022 18:38	62.9	309	9.69	256.6	1.0	0.2
03/09/2022 18:39	61.2	309	9.91	256.2	0.8	0.2
03/09/2022 18:40	60.2	309	9.41	255.3	1.2	0.2
03/09/2022 18:41	59.5	309	9.81	254.4	1.4	0.2
03/09/2022 18:42	59.3	309	9.60	255.2	1.7	0.2
03/09/2022 18:43	60.2	309	9.59	253.9	2.1	0.2
03/09/2022 18:44	63.0	309	9.69	255.3	2.1	0.2
03/09/2022 18:45	67.0	310	9.73	254.7	2.0	0.2
03/09/2022 18:46	69.7	311	9.40	250.9	1.4	0.2
03/09/2022 18:47	71.3	311	9.95	250.8	0.5	0.2
03/09/2022 18:48	71.4	311	9.68	252.6	0.6	0.2
03/09/2022 18:49	71.7	310	9.50	254.6	0.0	0.2
03/09/2022 18:50	71.8	310	10.03	254.0	0.1	0.2
03/09/2022 18:51	69.0	310	9.53	251.8	0.0	0.2
03/09/2022 18:52	71.2	311	9.42	251.5	0.0	0.2
03/09/2022 18:53	69.7	311	9.65	251.7	0.0	0.2
03/09/2022 18:54	68.1	311	9.90	252.8	0.2	0.2
03/09/2022 18:55	68.2	311	9.70	256.8	0.8	0.2
03/09/2022 18:56	68.1	311	9.64	255.8	1.0	0.2
03/09/2022 18:57	69.4	311	9.65	256.4	1.3	0.2
03/09/2022 18:58	69.7	311	9.58	256.4	1.5	0.2

Group#-Channel#	G7-C35	G7-C37	G7-C40	G7-C39	G7-C3	G7-C2
Long Descrip.	U1-1Min S	U1-1Min B	U1-1Min C	U1-1Min L	U1-1Min A	U1-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 18:59	67.9	311	10.02	256.8	1.4	0.2
03/09/2022 19:00	66.7	311	9.51	253.4	1.4	0.2
03/09/2022 19:01	65.5	311	9.69	254.1	1.5	0.2
03/09/2022 19:02	64.1	311	9.68	255.4	1.4	0.2
03/09/2022 19:03	62.7	311	9.93	255.4	1.5	0.2
03/09/2022 19:04	61.2	311	9.69	255.0	1.6	0.2
03/09/2022 19:05	60.3	311	9.69	255.2	1.7	0.2
03/09/2022 19:06	59.0	311	9.76	255.3	1.7	0.2
03/09/2022 19:07	57.9	311	9.66	253.5	1.6	0.2
03/09/2022 19:08	57.2	311	9.56	252.3	1.5	0.2
03/09/2022 19:09	56.3	310	9.70	251.7	1.5	0.2
03/09/2022 19:10	56.2	310	9.66	252.2	1.7	0.2
03/09/2022 19:11	55.9	310	9.66	252.1	1.6	0.2
03/09/2022 19:12	56.1	310	9.66	254.1	1.6	0.2
03/09/2022 19:13	56.9	310	9.66	253.2	1.8	0.2
03/09/2022 19:14	57.9	310	9.66	252.4	1.9	0.2
03/09/2022 19:15	58.6	310	10.04	255.1	2.0	0.2
03/09/2022 19:16	58.0	310	9.69	253.9	2.2	0.2
03/09/2022 19:17	57.2	310	9.51	257.0	2.5	0.2
03/09/2022 19:18	56.3	310	9.68	257.5	2.4	0.2
03/09/2022 19:19	56.8	310	9.86	255.8	2.2	0.2
03/09/2022 19:20	58.7	310	9.53	255.6	1.7	0.2
03/09/2022 19:21	60.3	311	9.73	254.7	1.1	0.2
03/09/2022 19:22	60.9	311	9.42	249.2	0.2	0.2
03/09/2022 19:23	61.7	311	9.72	250.0	0.0	0.2
03/09/2022 19:24	62.7	311	9.73	253.5	0.0	0.2
03/09/2022 19:25	64.6	310	9.73	257.1	0.0	0.2
03/09/2022 19:26	65.8	311	9.44	253.9	0.1	0.2
03/09/2022 19:27	67.4	311	9.52	251.0	0.6	0.2
03/09/2022 19:28	68.0	312	9.73	254.6	0.6	0.2
03/09/2022 19:29	68.6	312	9.80	252.3	0.3	0.2
03/09/2022 19:30	69.0	312	9.64	252.0	0.0	0.2
03/09/2022 19:31	68.1	312	9.46	253.7	0.0	0.2
03/09/2022 19:32	68.1	311	9.81	253.5	0.0	0.2
03/09/2022 19:33	68.6	311	9.41	253.3	0.0	0.2
03/09/2022 19:34	68.5	311	9.86	253.2	0.0	0.2
03/09/2022 19:35	68.2	311	9.48	252.3	0.0	0.2
03/09/2022 19:36	68.1	311	9.95	253.6	0.0	0.2
03/09/2022 19:37	68.7	311	9.49	254.5	0.0	0.2
03/09/2022 19:38	69.5	310	9.63	258.4	0.0	0.2
03/09/2022 19:39	69.7	310	9.73	256.8	0.0	0.2
03/09/2022 19:40	70.1	310	9.41	256.7	0.0	0.2
03/09/2022 19:41	70.5	311	9.82	256.1	0.0	0.2
03/09/2022 19:42	71.2	311	9.51	256.3	0.0	0.2
03/09/2022 19:43	71.4	311	9.67	254.7	0.0	0.2
03/09/2022 19:44	71.3	310	10.06	255.5	0.0	0.2
03/09/2022 19:45	70.6	310	9.48	254.3	0.0	0.2

Period Average =	66.5	310	9.79	254.3	1.0	0.2
Period Max Value =	74.8	312	19.28	258.4	2.8	0.2
Period Min Value =	55.9	308	9.29	249.2	0.0	0.2
Period Totals =	9.0431E+3	4.2196E+4	1.3319E+3	3.4580E+4	1.3620E+2	2.7199E+1
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 09:40
End of Report: 03/09/2022 11:53

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 09:40	71.3	301	9.44	251.0	0.0	0.0
03/09/2022 09:41	70.9	301	9.38	249.8	1.2	0.0
03/09/2022 09:42	68.9	301	9.39	247.7	1.2	0.0
03/09/2022 09:43	68.8	301	9.53	251.7	1.2	0.0
03/09/2022 09:44	69.7	301	9.66	249.9	1.2	0.0
03/09/2022 09:45	69.9	301	9.78	249.8	1.2	0.0
03/09/2022 09:46	69.7	301	9.84	249.5	1.2	0.0
03/09/2022 09:47	69.3	301	9.87	249.1	1.2	0.0
03/09/2022 09:48	69.1	301	9.84	248.4	0.0	0.0
03/09/2022 09:49	69.5	301	9.84	249.4	1.2	0.0
03/09/2022 09:50	69.5	301	9.80	251.9	1.2	0.0
03/09/2022 09:51	68.3	301	9.76	248.7	1.2	0.0
03/09/2022 09:52	67.0	301	9.78	246.8	1.2	0.0
03/09/2022 09:53	65.1	301	9.80	251.9	1.2	0.0
03/09/2022 09:54	63.4	301	9.78	250.4	0.1	0.0
03/09/2022 09:55	62.7	301	9.79	248.3	1.2	0.0
03/09/2022 09:56	63.1	301	9.78	247.1	1.2	0.0
03/09/2022 09:57	65.0	301	9.84	246.7	0.0	0.0
03/09/2022 09:58	68.6	301	9.88	247.3	1.2	0.0
03/09/2022 09:59	70.2	301	9.83	252.0	0.0	0.0
03/09/2022 10:00	69.9	301	9.85	250.1	0.0	0.0
03/09/2022 10:01	68.1	301	9.87	246.5	1.2	0.0
03/09/2022 10:02	67.0	301	9.89	250.9	0.0	0.0
03/09/2022 10:03	66.4	301	10.05	249.6	0.0	0.0
03/09/2022 10:04	65.6	301	10.07	248.0	0.0	0.0
03/09/2022 10:05	63.8	301	9.92	253.3	1.0	0.0
03/09/2022 10:06	62.1	301	9.91	249.7	0.0	0.0
03/09/2022 10:07	60.8	301	9.91	248.5	1.2	0.0
03/09/2022 10:08	61.0	301	9.90	249.0	1.2	0.0
03/09/2022 10:09	60.9	301	9.89	249.5	1.1	0.0
03/09/2022 10:10	60.7	301	9.87	249.9	0.0	0.0
03/09/2022 10:11	60.5	301	9.85	248.7	0.0	0.0
03/09/2022 10:12	60.4	301	9.84	246.4	0.0	0.0
03/09/2022 10:13	62.1	301	9.84	246.3	1.2	0.0
03/09/2022 10:14	65.0	302	9.84	249.1	1.1	0.0
03/09/2022 10:15	67.1	301	9.81	252.0	1.2	0.0
03/09/2022 10:16	68.6	302	9.84	249.8	1.2	0.0
03/09/2022 10:17	68.6	301	9.84	248.6	0.0	0.0
03/09/2022 10:18	67.8	301	9.80	250.5	1.2	0.0

Date/Time Printed: 06/06/2022 09:33

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 10:19	66.7	302	9.72	249.2	0.0	0.0
03/09/2022 10:20	66.3	302	9.75	248.1	0.0	0.0
03/09/2022 10:21	66.8	302	9.71	248.8	1.2	0.0
03/09/2022 10:22	67.3	301	9.55	250.0	1.2	0.0
03/09/2022 10:23	67.2	301	9.45	250.4	1.2	0.0
03/09/2022 10:24	67.0	301	9.39	245.2	1.2	0.0
03/09/2022 10:25	66.1	302	9.35	248.6	1.2	0.0
03/09/2022 10:26	66.3	301	9.57	253.6	1.2	0.0
03/09/2022 10:27	66.4	301	9.74	249.5	0.0	0.0
03/09/2022 10:28	66.1	302	9.81	249.7	0.0	0.0
03/09/2022 10:29	67.0	302	9.85	248.3	1.2	0.0
03/09/2022 10:30	67.7	302	9.86	249.3	1.2	0.0
03/09/2022 10:31	67.7	302	9.84	248.5	1.2	0.0
03/09/2022 10:32	67.4	302	9.85	248.2	1.1	0.0
03/09/2022 10:33	67.6	302	9.88	248.7	1.1	0.0
03/09/2022 10:34	68.4	302	9.88	250.4	1.2	0.0
03/09/2022 10:35	68.0	302	9.86	249.3	0.0	0.0
03/09/2022 10:36	66.9	302	9.84	248.0	1.2	0.0
03/09/2022 10:37	66.5	301	9.86	251.9	0.0	0.0
03/09/2022 10:38	65.8	302	9.83	251.2	0.0	0.0
03/09/2022 10:39	65.1	302	9.82	248.7	0.0	0.0
03/09/2022 10:40	64.9	302	9.82	247.5	0.0	0.0
03/09/2022 10:41	65.7	301	9.82	251.2	0.0	0.0
03/09/2022 10:42	66.8	302	9.81	248.2	0.0	0.0
03/09/2022 10:43	69.1	302	9.81	248.6	0.0	0.0
03/09/2022 10:44	71.3	302	9.81	251.1	0.0	0.0
03/09/2022 10:45	72.2	302	9.80	251.3	1.2	0.0
03/09/2022 10:46	71.5	301	9.80	249.7	0.0	0.0
03/09/2022 10:47	69.5	301	9.82	246.8	0.0	0.0
03/09/2022 10:48	67.2	302	9.87	250.1	0.0	0.0
03/09/2022 10:49	65.5	302	9.95	248.7	0.0	0.0
03/09/2022 10:50	64.8	302	9.89	249.5	1.2	0.0
03/09/2022 10:51	65.0	302	9.85	249.7	1.2	0.0
03/09/2022 10:52	66.1	302	9.85	250.5	1.2	0.0
03/09/2022 10:53	66.2	302	9.85	250.6	0.0	0.0
03/09/2022 10:54	66.3	302	9.87	248.9	0.0	0.0
03/09/2022 10:55	68.3	302	9.83	249.0	1.2	0.0
03/09/2022 10:56	71.0	302	9.83	247.4	0.0	0.0
03/09/2022 10:57	72.3	302	9.83	252.4	1.2	0.0
03/09/2022 10:58	71.3	302	9.82	250.2	0.0	0.0
03/09/2022 10:59	69.6	302	9.80	251.2	1.2	0.0
03/09/2022 11:00	68.1	302	9.83	249.1	1.2	0.0
03/09/2022 11:01	68.1	302	9.81	248.6	0.0	0.0
03/09/2022 11:02	68.8	302	9.77	248.0	0.0	0.0
03/09/2022 11:03	69.9	302	9.61	248.7	0.0	0.0
03/09/2022 11:04	70.3	302	9.49	248.6	1.2	0.0
03/09/2022 11:05	72.1	302	9.42	244.3	0.0	0.0
03/09/2022 11:06	73.8	302	9.37	250.3	1.2	0.0
03/09/2022 11:07	73.4	302	9.43	251.0	0.0	0.0
03/09/2022 11:08	72.3	302	9.56	247.7	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 11:09	70.2	302	9.63	249.4	0.0	0.0
03/09/2022 11:10	70.9	302	9.71	253.3	0.0	0.0
03/09/2022 11:11	71.1	302	9.72	249.5	0.0	0.0
03/09/2022 11:12	69.3	302	9.73	250.3	0.0	0.0
03/09/2022 11:13	68.5	302	9.73	251.3	1.1	0.0
03/09/2022 11:14	68.7	302	9.77	251.4	1.2	0.0
03/09/2022 11:15	67.6	302	9.80	248.3	0.0	0.0
03/09/2022 11:16	67.4	302	9.77	246.7	0.0	0.0
03/09/2022 11:17	68.8	302	9.77	248.7	0.0	0.0
03/09/2022 11:18	69.7	302	9.78	250.7	0.0	0.0
03/09/2022 11:19	69.9	302	9.82	250.8	0.0	0.0
03/09/2022 11:20	69.6	302	9.79	251.8	1.2	0.0
03/09/2022 11:21	67.3	302	9.78	247.7	1.2	0.0
03/09/2022 11:22	65.5	302	9.79	249.1	0.0	0.0
03/09/2022 11:23	64.7	302	9.83	250.4	0.0	0.0
03/09/2022 11:24	64.3	302	9.85	247.0	0.0	0.0
03/09/2022 11:25	64.1	302	9.87	248.5	0.0	0.0
03/09/2022 11:26	64.9	302	9.84	248.4	0.0	0.0
03/09/2022 11:27	66.6	302	9.81	248.0	1.2	0.0
03/09/2022 11:28	67.8	303	9.80	249.7	1.2	0.0
03/09/2022 11:29	67.9	302	9.82	248.9	0.0	0.0
03/09/2022 11:30	68.3	303	9.79	248.7	0.0	0.0
03/09/2022 11:31	67.4	302	9.79	251.0	0.0	0.0
03/09/2022 11:32	66.5	303	9.77	246.3	1.2	0.0
03/09/2022 11:33	66.8	303	9.77	253.6	1.2	0.0
03/09/2022 11:34	67.8	303	9.80	249.8	1.2	0.0
03/09/2022 11:35	68.6	303	9.79	245.7	1.2	0.0
03/09/2022 11:36	68.1	303	9.82	250.1	0.0	0.0
03/09/2022 11:37	66.5	303	9.83	252.1	0.0	0.0
03/09/2022 11:38	65.2	303	9.83	251.1	0.7	0.0
03/09/2022 11:39	64.0	303	9.81	247.0	0.0	0.0
03/09/2022 11:40	64.2	303	9.74	247.9	1.2	0.0
03/09/2022 11:41	66.2	303	9.58	248.8	1.2	0.0
03/09/2022 11:42	69.2	303	9.47	247.8	0.0	0.0
03/09/2022 11:43	71.1	303	9.40	248.9	0.0	0.0
03/09/2022 11:44	70.5	303	9.28	252.1	0.0	0.0
03/09/2022 11:45	69.6	303	9.44	246.0	0.0	0.0
03/09/2022 11:46	69.4	303	9.71	249.3	0.0	0.0
03/09/2022 11:47	69.9	303	9.80	251.5	1.2	0.0
03/09/2022 11:48	70.9	303	9.82	250.9	0.0	0.0
03/09/2022 11:49	71.7	302	9.82	249.7	1.2	0.0
03/09/2022 11:50	71.6	303	9.81	248.0	1.2	0.0
03/09/2022 11:51	70.7	304	9.81	246.1	1.2	0.0
03/09/2022 11:52	70.2	303	9.82	251.1	0.0	0.0
03/09/2022 11:53	69.0	303	9.81	249.0	0.0	0.0

Period Average =	67.6	302	9.77	249.3	0.6	0.0
Period Max Value =	73.8	304	10.07	253.6	1.2	0.0
Period Min Value =	60.4	301	9.28	244.3	0.0	0.0
Period Totals =	9.0603E+3	4.0446E+4	1.3085E+3	3.3410E+4	7.6900E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 13:50
End of Report: 03/09/2022 15:55

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 13:50	71.4	304	9.43	251.3	0.0	0.0
03/09/2022 13:51	67.8	304	9.38	248.8	1.4	0.0
03/09/2022 13:52	69.1	304	9.46	247.7	0.0	0.0
03/09/2022 13:53	69.0	304	9.55	251.3	0.0	0.0
03/09/2022 13:54	69.3	304	9.61	250.2	0.0	0.0
03/09/2022 13:55	70.7	304	9.73	249.0	0.0	0.0
03/09/2022 13:56	69.8	304	9.77	250.4	0.0	0.0
03/09/2022 13:57	66.9	304	9.80	249.4	1.4	0.0
03/09/2022 13:58	65.9	304	9.79	246.9	1.4	0.0
03/09/2022 13:59	65.7	304	9.79	249.2	1.4	0.0
03/09/2022 14:00	65.8	303	9.82	252.9	1.4	0.0
03/09/2022 14:01	66.4	305	9.81	248.1	0.0	0.0
03/09/2022 14:02	68.6	304	9.81	248.1	1.4	0.0
03/09/2022 14:03	69.3	304	9.78	250.2	1.4	0.0
03/09/2022 14:04	68.6	304	9.81	248.3	0.0	0.0
03/09/2022 14:05	67.8	304	9.82	251.8	0.0	0.0
03/09/2022 14:06	66.2	304	9.82	248.0	0.9	0.0
03/09/2022 14:07	64.8	304	9.84	248.9	0.0	0.0
03/09/2022 14:08	64.8	304	9.86	249.2	0.0	0.0
03/09/2022 14:09	66.4	304	9.86	252.3	0.0	0.0
03/09/2022 14:10	67.8	304	9.90	247.1	0.0	0.0
03/09/2022 14:11	68.1	304	9.83	248.2	1.4	0.0
03/09/2022 14:12	68.2	304	9.83	251.6	0.0	0.0
03/09/2022 14:13	67.0	304	9.81	248.2	1.4	0.0
03/09/2022 14:14	65.5	304	9.77	250.5	1.4	0.0
03/09/2022 14:15	64.2	304	9.80	252.4	1.4	0.0
03/09/2022 14:16	63.6	304	9.75	248.6	1.4	0.0
03/09/2022 14:17	63.3	304	9.77	247.3	0.0	0.0
03/09/2022 14:18	62.9	304	9.73	247.9	1.4	0.0
03/09/2022 14:19	62.7	304	9.77	251.7	0.0	0.0
03/09/2022 14:20	62.7	304	9.79	247.7	1.4	0.0
03/09/2022 14:21	63.6	304	9.81	249.0	1.4	0.0
03/09/2022 14:22	65.0	304	9.77	250.8	0.0	0.0
03/09/2022 14:23	67.0	304	9.86	248.4	0.0	0.0
03/09/2022 14:24	69.5	304	9.79	249.2	0.0	0.0
03/09/2022 14:25	71.4	304	9.81	249.4	1.4	0.0
03/09/2022 14:26	71.8	304	9.76	246.5	0.0	0.0
03/09/2022 14:27	71.0	304	9.76	250.6	1.0	0.0
03/09/2022 14:28	68.4	304	9.67	252.0	1.4	0.0

Date/Time Printed: 06/06/2022 11:53

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 14:29	67.4	304	9.53	248.7	0.0	0.0
03/09/2022 14:30	67.6	304	9.44	250.0	0.0	0.0
03/09/2022 14:31	67.3	304	9.39	249.9	0.0	0.0
03/09/2022 14:32	67.0	304	9.34	251.6	1.5	0.0
03/09/2022 14:33	67.3	304	9.54	249.0	0.0	0.0
03/09/2022 14:34	68.3	304	9.69	248.1	1.4	0.0
03/09/2022 14:35	68.5	304	9.75	249.7	0.0	0.0
03/09/2022 14:36	68.3	304	9.79	247.9	1.4	0.0
03/09/2022 14:37	68.0	304	9.80	252.7	0.0	0.0
03/09/2022 14:38	66.7	304	9.83	248.5	0.0	0.0
03/09/2022 14:39	66.0	304	9.83	251.1	0.0	0.0
03/09/2022 14:40	66.4	304	9.81	246.9	1.4	0.0
03/09/2022 14:41	67.0	305	9.82	247.5	0.0	0.0
03/09/2022 14:42	69.1	304	9.79	252.3	1.4	0.0
03/09/2022 14:43	72.2	304	9.82	248.4	0.0	0.0
03/09/2022 14:44	75.4	304	9.83	248.9	1.4	0.0
03/09/2022 14:45	77.3	304	9.76	249.0	0.0	0.0
03/09/2022 14:46	76.7	304	9.81	250.1	0.0	0.0
03/09/2022 14:47	74.7	304	9.89	248.8	0.0	0.0
03/09/2022 14:48	72.5	304	9.85	251.4	1.4	0.0
03/09/2022 14:49	71.7	304	9.83	248.5	0.0	0.0
03/09/2022 14:50	71.1	304	9.78	251.7	0.0	0.0
03/09/2022 14:51	70.4	304	9.77	249.4	0.0	0.0
03/09/2022 14:52	66.7	304	9.78	250.9	0.0	0.0
03/09/2022 14:53	69.0	304	9.80	261.1	0.0	0.0
03/09/2022 14:54	68.5	304	9.81	260.7	0.0	0.0
03/09/2022 14:55	69.1	304	9.78	253.1	0.0	0.0
03/09/2022 14:56	70.6	304	9.78	249.9	0.0	0.0
03/09/2022 14:57	71.0	304	9.81	251.4	0.0	0.0
03/09/2022 14:58	69.8	304	9.80	251.0	0.0	0.0
03/09/2022 14:59	67.7	304	9.81	249.2	0.0	0.0
03/09/2022 15:00	67.5	304	9.85	251.3	0.0	0.0
03/09/2022 15:01	68.1	305	9.87	249.8	1.4	0.0
03/09/2022 15:02	68.4	304	9.79	247.8	1.4	0.0
03/09/2022 15:03	68.8	304	9.89	251.6	0.0	0.0
03/09/2022 15:04	69.2	304	9.89	246.5	0.0	0.0
03/09/2022 15:05	69.8	304	9.95	250.5	0.0	0.0
03/09/2022 15:06	69.7	304	9.84	249.9	0.0	0.0
03/09/2022 15:07	68.6	304	9.83	250.2	1.4	0.0
03/09/2022 15:08	67.1	304	9.75	247.7	1.4	0.0
03/09/2022 15:09	65.9	304	9.76	250.5	0.0	0.0
03/09/2022 15:10	65.9	304	9.61	249.3	0.0	0.0
03/09/2022 15:11	65.9	304	9.49	249.6	1.4	0.0
03/09/2022 15:12	65.9	304	9.42	249.8	0.0	0.0
03/09/2022 15:13	65.6	304	9.38	249.5	0.0	0.0
03/09/2022 15:14	65.0	304	9.70	249.5	0.0	0.0
03/09/2022 15:15	64.0	305	9.75	247.0	0.0	0.0
03/09/2022 15:16	64.1	304	9.77	250.2	0.0	0.0
03/09/2022 15:17	65.6	304	9.81	250.2	1.4	0.0
03/09/2022 15:18	66.5	304	9.86	250.1	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 15:19	66.9	304	9.85	247.1	0.0	0.0
03/09/2022 15:20	68.9	304	9.85	246.8	0.0	0.0
03/09/2022 15:21	71.8	304	9.83	250.2	0.0	0.0
03/09/2022 15:22	74.7	304	9.82	252.9	0.0	0.0
03/09/2022 15:23	75.2	304	9.82	251.6	0.0	0.0
03/09/2022 15:24	73.5	304	9.84	248.5	0.0	0.0
03/09/2022 15:25	71.6	304	9.82	249.1	0.0	0.0
03/09/2022 15:26	70.3	304	9.85	246.7	1.4	0.0
03/09/2022 15:27	69.6	304	9.80	250.6	0.0	0.0
03/09/2022 15:28	69.4	304	9.81	249.4	1.4	0.0
03/09/2022 15:29	69.9	304	9.80	251.8	0.0	0.0
03/09/2022 15:30	70.2	304	9.81	248.2	1.4	0.0
03/09/2022 15:31	68.1	304	9.81	250.8	0.0	0.0
03/09/2022 15:32	70.1	304	9.83	248.3	0.0	0.0
03/09/2022 15:33	69.5	304	9.87	249.1	1.4	0.0
03/09/2022 15:34	68.1	304	9.85	248.6	1.4	0.0
03/09/2022 15:35	68.2	304	9.87	250.5	1.4	0.0
03/09/2022 15:36	68.1	304	9.81	251.3	0.0	0.0
03/09/2022 15:37	66.8	304	9.91	247.8	0.0	0.0
03/09/2022 15:38	66.6	304	9.88	245.8	0.0	0.0
03/09/2022 15:39	67.7	304	9.88	250.3	0.0	0.0
03/09/2022 15:40	68.3	304	9.84	250.7	1.4	0.0
03/09/2022 15:41	68.4	304	9.80	252.0	1.4	0.0
03/09/2022 15:42	69.0	304	9.80	248.8	0.0	0.0
03/09/2022 15:43	69.1	304	9.85	248.1	0.0	0.0
03/09/2022 15:44	68.9	304	9.85	247.8	0.0	0.0
03/09/2022 15:45	69.2	304	9.85	249.5	1.4	0.0
03/09/2022 15:46	69.8	304	9.77	250.3	1.4	0.0
03/09/2022 15:47	70.1	304	9.85	250.4	1.4	0.0
03/09/2022 15:48	69.3	304	10.00	249.2	0.0	0.0
03/09/2022 15:49	69.5	304	10.14	251.4	0.0	0.0
03/09/2022 15:50	69.7	304	9.84	247.7	1.4	0.0
03/09/2022 15:51	69.5	304	9.63	249.8	0.0	0.0
03/09/2022 15:52	68.7	304	9.51	249.3	0.0	0.0
03/09/2022 15:53	67.7	304	9.43	249.9	0.0	0.0
03/09/2022 15:54	68.2	304	9.47	248.0	1.4	0.0
03/09/2022 15:55	69.1	304	9.70	252.6	0.0	0.0
Period Average =	68.4	304	9.77	249.7	0.5	0.0
Period Max Value =	77.3	305	10.14	261.1	1.5	0.0
Period Min Value =	62.7	303	9.34	245.8	0.0	0.0
Period Totals =	8.6186E+3	3.8307E+4	1.2307E+3	3.1468E+4	6.2200E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 17:30
End of Report: 03/09/2022 19:35

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 17:30	66.6	304	9.96	250.2	0.0	0.0
03/09/2022 17:31	66.8	304	9.94	247.1	0.0	0.0
03/09/2022 17:32	67.5	304	9.94	250.1	1.3	0.0
03/09/2022 17:33	69.7	304	9.91	249.7	0.0	0.0
03/09/2022 17:34	73.3	304	9.89	247.8	0.0	0.0
03/09/2022 17:35	75.8	304	9.91	249.9	0.0	0.0
03/09/2022 17:36	76.4	303	9.90	251.4	0.0	0.0
03/09/2022 17:37	75.5	304	9.93	251.0	1.3	0.0
03/09/2022 17:38	74.2	304	9.97	248.4	1.3	0.0
03/09/2022 17:39	73.3	304	10.00	251.3	1.3	0.0
03/09/2022 17:40	73.0	304	10.03	249.5	0.0	0.0
03/09/2022 17:41	67.2	304	10.03	249.0	0.0	0.0
03/09/2022 17:42	68.9	304	9.99	247.4	0.0	0.0
03/09/2022 17:43	66.5	304	10.09	249.3	0.0	0.0
03/09/2022 17:44	65.8	304	10.04	252.7	0.0	0.0
03/09/2022 17:45	67.0	304	10.02	248.5	0.0	0.0
03/09/2022 17:46	67.5	304	9.97	247.6	1.3	0.0
03/09/2022 17:47	68.3	304	9.92	250.9	0.0	0.0
03/09/2022 17:48	68.9	304	9.93	249.2	0.0	0.0
03/09/2022 17:49	69.5	304	9.90	249.8	1.3	0.0
03/09/2022 17:50	69.5	304	9.95	250.2	1.3	0.0
03/09/2022 17:51	69.1	304	9.91	248.8	0.0	0.0
03/09/2022 17:52	68.7	304	9.71	249.1	1.3	0.0
03/09/2022 17:53	69.2	304	9.56	250.0	1.3	0.0
03/09/2022 17:54	69.1	304	9.47	249.2	1.3	0.0
03/09/2022 17:55	68.7	304	9.41	248.7	0.0	0.0
03/09/2022 17:56	67.6	304	9.49	247.5	0.0	0.0
03/09/2022 17:57	67.0	304	9.75	249.2	1.0	0.0
03/09/2022 17:58	67.3	304	9.87	250.3	1.3	0.0
03/09/2022 17:59	67.1	304	9.90	249.2	1.2	0.0
03/09/2022 18:00	66.7	304	9.92	248.8	1.3	0.0
03/09/2022 18:01	66.1	304	9.93	248.9	0.0	0.0
03/09/2022 18:02	66.4	304	9.95	249.5	0.0	0.0
03/09/2022 18:03	66.5	304	9.93	250.1	0.0	0.0
03/09/2022 18:04	66.8	304	9.91	249.5	0.0	0.0
03/09/2022 18:05	68.4	304	9.95	247.9	0.0	0.0
03/09/2022 18:06	70.4	304	9.95	249.3	0.0	0.0
03/09/2022 18:07	71.3	304	9.92	249.5	1.3	0.0
03/09/2022 18:08	71.3	304	9.92	251.7	1.2	0.0

Date/Time Printed: 06/06/2022 11:54

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 18:09	70.6	304	9.94	250.5	0.0	0.0
03/09/2022 18:10	70.2	304	9.89	247.5	0.0	0.0
03/09/2022 18:11	69.6	304	9.92	251.1	0.0	0.0
03/09/2022 18:12	68.7	304	9.93	249.1	0.0	0.0
03/09/2022 18:13	68.1	304	9.95	250.4	1.2	0.0
03/09/2022 18:14	68.4	304	9.95	249.1	0.0	0.0
03/09/2022 18:15	68.9	304	9.95	250.0	0.0	0.0
03/09/2022 18:16	67.6	304	9.95	248.7	1.2	0.0
03/09/2022 18:17	64.9	305	10.05	251.9	1.2	0.0
03/09/2022 18:18	66.0	304	10.04	248.8	1.2	0.0
03/09/2022 18:19	64.3	304	10.01	250.8	0.0	0.0
03/09/2022 18:20	63.3	304	9.97	246.9	0.0	0.0
03/09/2022 18:21	63.5	304	9.92	246.6	0.0	0.0
03/09/2022 18:22	64.0	304	9.93	250.1	0.0	0.0
03/09/2022 18:23	64.4	304	9.94	249.0	0.0	0.0
03/09/2022 18:24	64.7	304	9.93	250.9	0.0	0.0
03/09/2022 18:25	63.9	304	9.95	250.1	1.2	0.0
03/09/2022 18:26	63.8	304	9.92	251.4	0.0	0.0
03/09/2022 18:27	64.5	304	9.90	247.7	0.0	0.0
03/09/2022 18:28	65.7	304	9.91	249.3	0.0	0.0
03/09/2022 18:29	67.1	304	9.95	251.1	0.0	0.0
03/09/2022 18:30	68.2	304	9.97	248.1	1.2	0.0
03/09/2022 18:31	68.9	304	9.86	247.6	1.2	0.0
03/09/2022 18:32	68.5	304	9.65	248.8	0.0	0.0
03/09/2022 18:33	68.4	304	9.52	252.6	1.2	0.0
03/09/2022 18:34	68.7	304	9.45	247.0	0.0	0.0
03/09/2022 18:35	69.6	304	9.32	249.2	0.0	0.0
03/09/2022 18:36	69.8	304	9.48	252.4	0.0	0.0
03/09/2022 18:37	70.2	304	9.77	248.4	0.0	0.0
03/09/2022 18:38	70.9	304	9.88	250.8	0.0	0.0
03/09/2022 18:39	69.9	304	9.92	247.7	1.2	0.0
03/09/2022 18:40	67.9	304	9.95	247.8	0.0	0.0
03/09/2022 18:41	66.5	304	9.93	251.0	0.0	0.0
03/09/2022 18:42	65.4	304	9.97	248.2	0.0	0.0
03/09/2022 18:43	64.5	304	9.98	247.5	1.2	0.0
03/09/2022 18:44	64.3	304	9.96	250.4	0.0	0.0
03/09/2022 18:45	66.8	304	9.94	249.7	1.2	0.0
03/09/2022 18:46	69.9	304	9.98	251.6	0.0	0.0
03/09/2022 18:47	71.4	305	9.93	242.8	0.0	0.0
03/09/2022 18:48	71.6	303	9.93	252.4	0.0	0.0
03/09/2022 18:49	71.1	304	9.95	250.2	0.0	0.0
03/09/2022 18:50	69.1	304	9.98	249.0	1.2	0.0
03/09/2022 18:51	66.1	304	9.99	250.1	0.0	0.0
03/09/2022 18:52	67.2	304	9.98	252.0	0.0	0.0
03/09/2022 18:53	66.2	304	9.95	247.3	1.2	0.0
03/09/2022 18:54	67.2	304	9.96	247.0	0.0	0.0
03/09/2022 18:55	69.4	304	9.98	252.1	0.0	0.0
03/09/2022 18:56	70.2	304	9.95	250.4	1.2	0.0
03/09/2022 18:57	69.1	304	9.96	249.5	0.0	0.0
03/09/2022 18:58	68.3	304	9.94	247.2	0.3	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 18:59	66.7	304	9.95	248.9	0.0	0.0
03/09/2022 19:00	66.1	304	9.94	250.2	0.0	0.0
03/09/2022 19:01	65.2	304	9.98	247.3	1.2	0.0
03/09/2022 19:02	65.4	304	9.92	248.8	0.0	0.0
03/09/2022 19:03	66.2	304	9.92	247.3	0.0	0.0
03/09/2022 19:04	66.6	304	9.97	253.1	0.0	0.0
03/09/2022 19:05	66.7	304	9.93	246.9	0.0	0.0
03/09/2022 19:06	68.1	304	9.95	251.0	1.2	0.0
03/09/2022 19:07	71.1	304	9.92	247.0	0.0	0.0
03/09/2022 19:08	73.4	304	10.00	251.8	1.2	0.0
03/09/2022 19:09	73.7	304	9.97	252.2	0.0	0.0
03/09/2022 19:10	72.3	304	9.97	251.3	1.2	0.0
03/09/2022 19:11	70.7	304	9.96	247.1	0.0	0.0
03/09/2022 19:12	69.2	304	9.85	250.8	1.2	0.0
03/09/2022 19:13	67.8	304	9.66	248.6	0.0	0.0
03/09/2022 19:14	66.9	305	9.53	247.5	0.0	0.0
03/09/2022 19:15	66.9	303	9.45	250.2	0.0	0.0
03/09/2022 19:16	67.7	304	9.33	247.3	0.0	0.0
03/09/2022 19:17	68.3	304	9.44	250.7	0.0	0.0
03/09/2022 19:18	69.0	304	9.68	247.1	1.2	0.0
03/09/2022 19:19	70.4	304	9.76	249.2	0.0	0.0
03/09/2022 19:20	71.9	304	9.82	250.6	0.0	0.0
03/09/2022 19:21	72.3	304	9.89	251.9	0.0	0.0
03/09/2022 19:22	71.7	304	9.91	249.5	0.0	0.0
03/09/2022 19:23	70.8	304	9.92	250.4	1.2	0.0
03/09/2022 19:24	70.3	304	9.93	247.4	1.2	0.0
03/09/2022 19:25	70.2	304	9.94	247.8	0.0	0.0
03/09/2022 19:26	70.6	304	9.96	252.1	1.1	0.0
03/09/2022 19:27	71.0	304	9.95	246.7	1.2	0.0
03/09/2022 19:28	71.4	304	9.96	252.0	0.0	0.0
03/09/2022 19:29	71.2	304	9.92	251.2	0.0	0.0
03/09/2022 19:30	70.4	304	9.93	247.0	1.2	0.0
03/09/2022 19:31	67.7	304	9.93	252.0	0.0	0.0
03/09/2022 19:32	66.3	304	9.95	249.1	0.0	0.0
03/09/2022 19:33	65.5	304	9.97	247.0	0.0	0.0
03/09/2022 19:34	64.3	304	10.01	250.5	0.0	0.0
03/09/2022 19:35	64.3	304	10.04	246.9	0.0	0.0
Period Average =	68.5	304	9.89	249.4	0.4	0.0
Period Max Value =	76.4	305	10.09	253.1	1.3	0.0
Period Min Value =	63.3	303	9.32	242.8	0.0	0.0
Period Totals =	8.6247E+3	3.8304E+4	1.2457E+3	3.1424E+4	5.0500E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Covanta Marion
U-2>1 MinComputed
Valid Data Only
Test times: 1343-1521, Restarted 1551 to 1818

Date/Time		U-2>1 Min Computed - BagHTemp	U-2>1 Min Computed - CarbInj	U-2>1 Min Computed - LimeFlow	U-2>1 Min Computed - NH3 Flow	U-2>1 Min Computed - AuxGasFlow
3/10/2022 13:43	67.9	304	9.46	249.7	0	0
3/10/2022 13:44	67.1	305	9.46	251.6	0	0
3/10/2022 13:45	68.5	304	9.65	249.8	0	0
3/10/2022 13:46	70	305	9.7	247.5	0	0
3/10/2022 13:47	71	304	9.74	248.9	0	0
3/10/2022 13:48	70.6	305	9.81	248.1	0	0
3/10/2022 13:49	69.4	304	9.83	248	0	0
3/10/2022 13:50	69.3	304	9.85	250.8	0	0
3/10/2022 13:51	69.8	305	9.84	252.6	0	0
3/10/2022 13:52	70.4	305	9.85	248.4	0	0
3/10/2022 13:53	72.1	304	9.88	247.6	0	0
3/10/2022 13:54	73.4	304	9.9	251.7	0	0
3/10/2022 13:55	73.3	305	9.91	250.6	0	0
3/10/2022 13:56	73.2	305	9.87	248.2	0	0
3/10/2022 13:57	72.1	304	9.86	248.2	1.4	0
3/10/2022 13:58	72	305	9.87	250.2	0	0
3/10/2022 13:59	71.8	304	9.89	249.5	0	0
3/10/2022 14:00	71.9	304	9.88	249.1	0	0
3/10/2022 14:01	70.2	304	9.87	251.9	0	0
3/10/2022 14:02	68.7	305	9.91	250.3	0	0
3/10/2022 14:03	69	304	9.87	250.6	0	0
3/10/2022 14:04	67.8	305	9.8	248.2	0	0
3/10/2022 14:05	68.2	304	9.81	248.9	0	0
3/10/2022 14:06	68.6	304	9.83	248.9	1.4	0
3/10/2022 14:07	68.5	304	9.86	248.2	0	0
3/10/2022 14:08	68.1	304	9.85	252.1	0	0
3/10/2022 14:09	67.6	305	9.83	248.2	0	0
3/10/2022 14:10	67.3	304	9.79	251.1	0	0
3/10/2022 14:11	67.1	304	9.81	251.8	1.4	0
3/10/2022 14:12	67	304	9.82	246.1	0	0
3/10/2022 14:13	65.9	304	9.79	249.2	1.4	0
3/10/2022 14:14	64.7	304	9.8	253.8	0	0
3/10/2022 14:15	63.7	304	10.04	248.2	0	0
3/10/2022 14:16	62.3	304	9.92	245.6	0	0
3/10/2022 14:17	61.5	304	9.87	248.6	0	0
3/10/2022 14:18	61.4	304	9.88	251.7	0	0
3/10/2022 14:19	61.7	304	9.84	248.6	0	0
3/10/2022 14:20	62.7	304	9.76	249.3	0	0
3/10/2022 14:21	63	305	9.6	250.1	0	0
3/10/2022 14:22	62.6	304	9.5	249.8	0	0
3/10/2022 14:23	61.8	304	9.44	247.5	0	0
3/10/2022 14:24	62.1	304	9.45	250.6	0	0
3/10/2022 14:25	62	305	9.6	248.6	1.4	0
3/10/2022 14:26	62	304	9.72	250.5	0	0

3/10/2022 14:27	63.1	304	9.81	250.3	0	0
3/10/2022 14:28	64.9	305	9.83	251.3	0	0
3/10/2022 14:29	66.4	305	9.85	249.1	0	0
3/10/2022 14:30	68.3	304	9.87	249.3	0	0
3/10/2022 14:31	70.3	305	9.88	249.5	1.2	0
3/10/2022 14:32	71.5	305	9.87	246.7	1.4	0
3/10/2022 14:33	71.7	304	9.88	251.4	0.7	0
3/10/2022 14:34	71.2	305	9.86	250.7	0	0
3/10/2022 14:35	71	305	9.85	246.9	1.4	0
3/10/2022 14:36	69.8	304	9.84	249.7	0	0
3/10/2022 14:37	69.6	305	9.92	251.9	0	0
3/10/2022 14:38	70.3	304	9.88	248.9	0	0
3/10/2022 14:39	70.5	305	9.82	247.9	1.4	0
3/10/2022 14:40	70.7	304	9.8	249.6	0	0
3/10/2022 14:41	70.8	304	9.79	249.1	0	0
3/10/2022 14:42	71	304	9.77	250.7	0	0
3/10/2022 14:43	71.6	305	9.75	246.4	0	0
3/10/2022 14:44	72.2	304	9.8	252.5	0	0
3/10/2022 14:45	72.5	304	9.81	247.1	0	0
3/10/2022 14:46	72.7	304	9.8	251.2	0	0
3/10/2022 14:47	72.3	305	9.8	249.3	0	0
3/10/2022 14:48	71	304	9.8	249.4	0	0
3/10/2022 14:49	68.7	305	9.81	250.4	0	0
3/10/2022 14:50	67.3	305	9.81	251.3	0	0
3/10/2022 14:51	68.9	305	9.8	248.4	0	0
3/10/2022 14:52	69	304	9.92	247.5	0	0
3/10/2022 14:53	71	304	9.91	250.1	0	0
3/10/2022 14:54	71.6	304	9.86	247.9	0	0
3/10/2022 14:55	70.1	304	9.82	250.2	0	0
3/10/2022 14:56	68.4	304	9.79	252.9	0	0
3/10/2022 14:57	66.4	304	9.76	250.7	1.3	0
3/10/2022 14:58	65.7	304	9.76	250.9	0	0
3/10/2022 14:59	65.9	305	9.74	245.6	0	0
3/10/2022 15:00	67.6	305	9.75	248.8	0	0
3/10/2022 15:01	69.3	304	9.87	248.4	0	0
3/10/2022 15:02	69.5	304	9.67	251.5	0	0
3/10/2022 15:03	67.3	304	9.54	252.9	0	0
3/10/2022 15:04	64.7	304	9.47	248.2	1.4	0
3/10/2022 15:05	62.3	304	9.43	250.8	0	0
3/10/2022 15:06	60.4	305	9.57	246.6	0	0
3/10/2022 15:07	59.4	304	9.7	250.2	0	0
3/10/2022 15:08	58.9	304	9.77	250.8	0	0
3/10/2022 15:09	59.3	304	9.81	250.9	0	0
3/10/2022 15:10	59.5	304	9.84	247.9	0	0
3/10/2022 15:11	57.9	304	9.84	250.3	0	0
3/10/2022 15:12	55.8	305	9.82	246.9	0	0
3/10/2022 15:13	54.7	304	9.81	250	0	0
3/10/2022 15:14	55.4	305	9.81	245.8	1.4	0
3/10/2022 15:15	57.3	304	9.82	250.6	0	0
3/10/2022 15:16	59.4	305	10.11	249.2	0	0
3/10/2022 15:17	59.7	305	10.09	250.9	0	0
3/10/2022 15:18	59.3	305	10.06	248.2	0	0

3/10/2022 15:19	58.5	305	9.96	250.2	0	0
3/10/2022 15:20	56.4	305	9.89	248.7	0	0
3/10/2022 15:21	54.6	304	9.86	250.5	1.4	0
3/10/2022 15:51	68.2	305	9.83	250.6	0	0
3/10/2022 15:52	64.4	304	9.82	250.3	0	0
3/10/2022 15:53	61.9	304	9.83	247.6	1.4	0
3/10/2022 15:54	61	305	9.83	250.3	0	0
3/10/2022 15:55	61.9	305	9.84	249.5	0	0
3/10/2022 15:56	64.3	305	9.89	250.2	0	0
3/10/2022 15:57	65.6	305	9.87	249.6	0	0
3/10/2022 15:58	65.3	305	9.85	246.4	0	0
3/10/2022 15:59	64.4	305	9.84	252.2	1.4	0
3/10/2022 16:00	63.8	305	9.83	250.8	0	0
3/10/2022 16:01	63.6	305	9.85	248.3	1.4	0
3/10/2022 16:02	64.8	305	9.83	249.2	0	0
3/10/2022 16:03	66.8	305	9.84	249.5	1.4	0
3/10/2022 16:04	68.7	305	9.82	249.3	0	0
3/10/2022 16:05	69.2	304	9.85	246.4	0	0
3/10/2022 16:06	69.7	304	9.86	249.4	0	0
3/10/2022 16:07	69.3	304	9.86	251.1	0	0
3/10/2022 16:08	68.9	305	9.85	249.3	0	0
3/10/2022 16:09	69.2	305	9.86	250.5	0	0
3/10/2022 16:10	69.3	305	9.84	251.9	0	0
3/10/2022 16:11	69.4	305	9.82	248.8	0	0
3/10/2022 16:12	70.1	305	9.86	249.4	0	0
3/10/2022 16:13	71	304	9.9	249	0	0
3/10/2022 16:14	70.6	305	9.85	248.9	0	0
3/10/2022 16:15	69.3	305	9.79	251.7	0	0
3/10/2022 16:16	69.4	305	9.78	247.4	0	0
3/10/2022 16:17	70.2	304	9.81	248.4	0	0
3/10/2022 16:18	70.3	305	9.79	248.8	0	0
3/10/2022 16:19	70.4	305	9.83	248.5	0	0
3/10/2022 16:20	70.4	304	9.83	249.6	1.4	0
3/10/2022 16:21	70.4	305	9.9	251	0	0
3/10/2022 16:22	70.5	305	9.81	247.7	0	0
3/10/2022 16:23	70.4	304	9.63	253.5	0	0
3/10/2022 16:24	69.9	304	9.52	247.9	0	0
3/10/2022 16:25	69.9	305	9.45	251.1	0	0
3/10/2022 16:26	69.2	305	9.54	250.4	0	0
3/10/2022 16:27	66.7	304	9.65	250.6	1.3	0
3/10/2022 16:28	64.6	304	9.75	249	0	0
3/10/2022 16:29	63.7	304	9.81	249.1	0	0
3/10/2022 16:30	63.5	305	9.82	250	0	0
3/10/2022 16:31	63.8	305	9.85	248.6	0	0
3/10/2022 16:32	65	304	9.85	247.2	1.4	0
3/10/2022 16:33	65.5	304	9.86	252.6	1.3	0
3/10/2022 16:34	65.2	305	9.88	248.3	0	0
3/10/2022 16:35	64.5	304	9.87	248.8	0	0
3/10/2022 16:36	65	305	9.87	248.7	0	0
3/10/2022 16:37	67.4	304	9.83	250.2	0	0
3/10/2022 16:38	70.8	305	9.85	248	0	0
3/10/2022 16:39	73.8	304	9.87	247.4	0	0

3/10/2022 16:40	74.8	304	9.84	250.7	0	0
3/10/2022 16:41	73.5	304	9.83	250.3	0	0
3/10/2022 16:42	70.1	305	9.85	248.4	0	0
3/10/2022 16:43	69.4	304	9.85	251.5	0	0
3/10/2022 16:44	69.5	304	9.82	250.2	0	0
3/10/2022 16:45	69.4	304	9.85	247	0	0
3/10/2022 16:46	69.6	304	9.86	252.1	0	0
3/10/2022 16:47	70	304	9.89	251	0	0
3/10/2022 16:48	70.5	305	9.88	248.8	0	0
3/10/2022 16:49	71.8	304	9.84	252	0	0
3/10/2022 16:50	71.5	304	9.82	247.4	0	0
3/10/2022 16:51	70.9	304	9.81	250.3	0	0
3/10/2022 16:52	71	304	9.84	248.6	0	0
3/10/2022 16:53	70.4	304	9.85	249.6	0	0
3/10/2022 16:54	68.2	304	9.85	251.2	0	0
3/10/2022 16:55	67.2	304	9.83	249.1	0	0
3/10/2022 16:56	67	304	9.83	250.9	0	0
3/10/2022 16:57	66.6	304	9.78	248.7	0	0
3/10/2022 16:58	66.6	304	9.72	251.6	0	0
3/10/2022 16:59	66.9	305	9.73	246.7	0	0
3/10/2022 17:00	67.2	304	9.8	249.5	0	0
3/10/2022 17:01	67.5	304	9.72	248.4	1.4	0
3/10/2022 17:02	67.9	304	9.72	248.6	0	0
3/10/2022 17:03	68.2	304	9.73	247.7	1.3	0
3/10/2022 17:04	68.5	304	9.67	249.3	0	0
3/10/2022 17:05	68.4	304	9.55	250.9	0	0
3/10/2022 17:06	68.5	304	9.47	251.2	0	0
3/10/2022 17:07	68.9	305	9.43	251.3	0	0
3/10/2022 17:08	68.8	304	9.38	247.1	0	0
3/10/2022 17:09	69.1	304	9.55	251.4	0	0
3/10/2022 17:10	69.5	304	9.74	250	0	0
3/10/2022 17:11	69	304	9.84	247.6	1.3	0
3/10/2022 17:12	67.9	304	9.85	250	1.3	0
3/10/2022 17:13	67.2	304	9.88	249.8	0	0
3/10/2022 17:14	67.7	304	9.87	250.4	0	0
3/10/2022 17:15	68.2	304	9.87	250.4	0	0
3/10/2022 17:16	70.3	304	9.87	249	0	0
3/10/2022 17:17	72.1	304	9.84	246.4	0	0
3/10/2022 17:18	72.6	304	9.83	250.5	1.3	0
3/10/2022 17:19	71.9	304	9.85	249.5	1.3	0
3/10/2022 17:20	68.3	304	9.84	249.8	1.3	0
3/10/2022 17:21	68.5	305	9.85	248.2	0	0
3/10/2022 17:22	68.5	304	9.85	250.3	0	0
3/10/2022 17:23	67.8	304	9.83	248.8	0	0
3/10/2022 17:24	68.6	304	9.85	249.6	0	0
3/10/2022 17:25	70.1	304	9.83	251.7	0	0
3/10/2022 17:26	70.6	304	9.8	251	0	0
3/10/2022 17:27	69.7	304	9.8	248.3	0	0
3/10/2022 17:28	69.2	304	9.82	249.2	0	0
3/10/2022 17:29	69.7	304	9.86	250.5	0	0
3/10/2022 17:30	69.9	304	9.86	249.7	0	0
3/10/2022 17:31	70.2	304	9.89	248.8	0	0

3/10/2022 17:32	69.9	304	9.88	250.5	0	0
3/10/2022 17:33	69.2	304	9.85	245.3	0	0
3/10/2022 17:34	68.3	304	9.89	253.1	0	0
3/10/2022 17:35	67.5	304	9.87	248.1	0	0
3/10/2022 17:36	67	304	9.94	248.2	0	0
3/10/2022 17:37	67	304	9.9	250.3	0	0
3/10/2022 17:38	67.5	304	9.88	253.4	1.3	0
3/10/2022 17:39	70.3	304	9.87	246.6	1.3	0
3/10/2022 17:40	73.3	305	9.84	247.8	0	0
3/10/2022 17:41	74.2	304	9.88	248.4	0	0
3/10/2022 17:42	72.8	304	9.87	250.6	1.2	0
3/10/2022 17:43	70	304	9.89	249.5	0	0
3/10/2022 17:44	66.3	304	9.86	248.6	1.3	0
3/10/2022 17:45	63.1	304	9.85	251.5	0	0
3/10/2022 17:46	61	304	9.86	251.2	1.3	0
3/10/2022 17:47	60.6	304	9.85	249.6	0	0
3/10/2022 17:48	61.7	304	9.82	245.7	0	0
3/10/2022 17:49	64.7	304	9.64	251.7	0	0
3/10/2022 17:50	67.2	304	9.53	252.3	0	0
3/10/2022 17:51	68	304	9.46	245.9	1.3	0
3/10/2022 17:52	67.4	304	9.29	252	0	0
3/10/2022 17:53	67	304	9.5	248.2	0	0
3/10/2022 17:54	65.7	304	9.77	248.2	0	0
3/10/2022 17:55	64.3	304	9.86	249.4	0	0
3/10/2022 17:56	63.3	304	9.83	251.4	0	0
3/10/2022 17:57	63.1	304	9.86	250.8	1.3	0
3/10/2022 17:58	63	304	9.88	247.2	0	0
3/10/2022 17:59	63.7	304	9.87	249	0	0
3/10/2022 18:00	65	304	9.86	250	0	0
3/10/2022 18:01	66.9	304	9.89	247	0	0
3/10/2022 18:02	70.2	304	9.91	249.1	0	0
3/10/2022 18:03	73.2	304	9.89	250.1	0	0
3/10/2022 18:04	74.9	305	9.91	248.4	0	0
3/10/2022 18:05	74.4	304	9.92	248.1	1.3	0
3/10/2022 18:06	73.5	304	9.96	252.6	1.3	0
3/10/2022 18:07	72.9	304	9.91	249.2	0	0
3/10/2022 18:08	71.8	305	9.91	248.9	0	0
3/10/2022 18:09	71.4	304	9.92	249.8	1.3	0
3/10/2022 18:10	70.6	304	9.88	251.1	1.3	0
3/10/2022 18:11	73.9	304	9.86	253.5	0	0
3/10/2022 18:12	74.3	304	9.92	246.5	1.3	0
3/10/2022 18:13	71.7	304	9.91	249.9	0	0
3/10/2022 18:14	70.8	305	9.89	247.5	0	0
3/10/2022 18:15	71.3	304	9.89	249.8	0	0
3/10/2022 18:16	71.1	304	9.96	249.6	0	0
3/10/2022 18:17	70.8	304	9.94	251.8	0	0
3/10/2022 18:18	70.2	304	9.9	250.7	0	0

Period Average:	67.7	304.3	9.8	249.5	0.2	0.0
Period Maximum:	74.9	305	10.11	253.8	1.4	0
Period Minimum:	54.6	304	9.29	245.3	0	0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/11/2022 08:35
End of Report: 03/11/2022 12:40

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 08:35	72.6	304	9.46	249.4	1.0	0.0
03/11/2022 08:36	71.8	304	9.45	252.4	1.0	0.0
03/11/2022 08:37	70.2	304	9.44	249.9	1.0	0.0
03/11/2022 08:38	69.4	304	9.45	245.5	1.0	0.0
03/11/2022 08:39	69.2	304	9.45	252.5	0.0	0.0
03/11/2022 08:40	70.0	304	9.45	250.3	0.0	0.0
03/11/2022 08:41	71.3	304	9.43	247.9	0.0	0.0
03/11/2022 08:42	72.2	304	9.44	250.3	0.0	0.0
03/11/2022 08:43	72.4	304	9.42	252.7	1.0	0.0
03/11/2022 08:44	70.2	304	9.43	247.8	0.0	0.0
03/11/2022 08:45	68.7	304	9.44	251.9	0.0	0.0
03/11/2022 08:46	68.5	305	9.43	245.9	1.0	0.0
03/11/2022 08:47	68.9	304	9.39	249.9	0.0	0.0
03/11/2022 08:48	70.2	304	9.38	251.9	1.0	0.0
03/11/2022 08:49	71.8	305	9.36	245.0	0.0	0.0
03/11/2022 08:50	71.9	304	9.36	251.8	1.0	0.0
03/11/2022 08:51	70.6	304	9.46	254.1	1.0	0.0
03/11/2022 08:52	69.3	305	9.51	246.6	0.0	0.0
03/11/2022 08:53	68.9	304	9.54	247.7	0.0	0.0
03/11/2022 08:54	69.1	304	9.51	250.6	1.0	0.0
03/11/2022 08:55	69.3	304	9.47	248.5	1.0	0.0
03/11/2022 08:56	69.0	304	9.50	249.4	0.0	0.0
03/11/2022 08:57	68.4	304	9.45	253.1	0.0	0.0
03/11/2022 08:58	67.8	304	9.44	246.1	1.1	0.0
03/11/2022 08:59	67.0	304	9.45	251.8	1.1	0.0
03/11/2022 09:00	65.8	304	9.45	249.0	0.0	0.0
03/11/2022 09:01	65.0	304	9.46	249.0	0.0	0.0
03/11/2022 09:02	66.1	305	9.45	248.0	1.0	0.0
03/11/2022 09:03	67.3	304	9.45	252.5	0.9	0.0
03/11/2022 09:04	68.9	304	9.43	243.0	1.1	0.0
03/11/2022 09:05	69.6	304	9.43	253.3	1.0	0.0
03/11/2022 09:06	68.8	304	9.44	250.7	1.1	0.0
03/11/2022 09:07	67.6	304	9.46	248.1	0.0	0.0
03/11/2022 09:08	66.8	304	9.48	250.4	0.0	0.0
03/11/2022 09:09	67.1	304	9.43	252.9	1.1	0.0
03/11/2022 09:10	67.3	304	9.45	246.6	1.1	0.0
03/11/2022 09:11	67.8	304	9.44	250.0	1.1	0.0
03/11/2022 09:12	68.7	304	9.45	251.1	0.7	0.0
03/11/2022 09:13	68.5	305	9.43	249.3	0.0	0.0

Date/Time Printed: 06/06/2022 09:37

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 09:14	68.0	304	9.48	249.8	0.0	0.0
03/11/2022 09:15	68.3	304	9.48	252.0	1.1	0.0
03/11/2022 09:16	68.0	305	9.45	245.2	0.0	0.0
03/11/2022 09:17	68.3	304	9.43	252.5	0.0	0.0
03/11/2022 09:18	68.5	304	9.44	245.9	0.0	0.0
03/11/2022 09:19	69.0	304	9.45	246.8	0.0	0.0
03/11/2022 09:20	69.5	304	9.44	251.7	0.0	0.0
03/11/2022 09:21	69.5	304	9.44	246.9	0.0	0.0
03/11/2022 09:22	69.2	304	9.45	253.3	0.0	0.0
03/11/2022 09:23	69.0	304	9.41	247.9	0.0	0.0
03/11/2022 09:24	69.2	304	9.39	246.8	0.0	0.0
03/11/2022 09:25	69.8	304	9.37	247.0	1.1	0.0
03/11/2022 09:26	69.5	304	9.37	249.3	0.0	0.0
03/11/2022 09:27	68.7	304	9.53	249.1	0.0	0.0
03/11/2022 09:28	67.3	304	9.58	253.0	1.1	0.0
03/11/2022 09:29	66.0	304	9.60	247.8	1.1	0.0
03/11/2022 09:30	64.8	304	9.59	250.4	1.1	0.0
03/11/2022 09:31	64.6	304	9.58	248.7	1.1	0.0
03/11/2022 09:32	65.4	304	9.57	254.3	0.0	0.0
03/11/2022 09:33	66.2	304	9.57	249.6	0.0	0.0
03/11/2022 09:34	66.7	304	9.55	248.1	1.1	0.0
03/11/2022 09:35	67.3	304	9.56	244.6	1.1	0.0
03/11/2022 09:36	67.5	304	9.53	253.0	0.0	0.0
03/11/2022 09:37	67.9	304	9.51	251.9	0.0	0.0
03/11/2022 09:38	69.2	304	9.48	248.3	0.0	0.0
03/11/2022 09:39	69.8	304	9.47	246.1	1.1	0.0
03/11/2022 09:40	70.3	304	9.48	252.4	1.2	0.0
03/11/2022 09:41	70.2	304	9.46	248.3	0.0	0.0
03/11/2022 09:42	70.1	304	9.47	249.1	0.0	0.0
03/11/2022 09:43	69.3	304	9.47	249.2	1.1	0.0
03/11/2022 09:44	68.9	304	9.47	250.2	1.1	0.0
03/11/2022 09:45	69.1	304	9.49	249.5	0.0	0.0
03/11/2022 09:46	69.6	304	9.46	248.2	1.1	0.0
03/11/2022 09:47	70.3	304	9.48	254.4	1.2	0.0
03/11/2022 09:48	70.6	304	9.50	249.7	0.0	0.0
03/11/2022 09:49	70.4	304	9.47	247.0	1.1	0.0
03/11/2022 09:50	69.8	304	9.47	250.1	0.0	0.0
03/11/2022 09:51	69.0	304	9.46	248.8	0.0	0.0
03/11/2022 09:52	69.4	305	9.48	245.3	0.0	0.0
03/11/2022 09:53	70.2	304	9.51	249.3	1.2	0.0
03/11/2022 09:54	70.3	304	9.50	251.6	1.1	0.0
03/11/2022 09:55	69.9	305	9.52	246.8	0.0	0.0
03/11/2022 09:56	70.6	304	9.55	253.4	1.0	0.0
03/11/2022 09:57	71.3	304	9.52	252.3	1.1	0.0
03/11/2022 09:58	70.4	304	9.52	247.5	1.2	0.0
03/11/2022 09:59	69.4	304	9.50	246.6	1.2	0.0
03/11/2022 10:00	70.5	304	9.47	247.2	0.0	0.0
03/11/2022 10:01	70.6	304	9.48	249.1	1.2	0.0
03/11/2022 10:02	70.3	304	9.45	249.0	0.0	0.0
03/11/2022 10:03	70.2	304	9.41	250.4	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 10:04	69.7	305	9.39	246.3	1.2	0.0
03/11/2022 10:05	69.6	304	9.37	251.3	0.0	0.0
03/11/2022 10:06	68.9	304	9.45	250.5	0.0	0.0
03/11/2022 10:07	69.8	305	9.54	247.7	0.0	0.0
03/11/2022 10:08	71.6	304	9.63	252.2	0.0	0.0
03/11/2022 10:09	71.9	304	9.63	251.8	0.0	0.0
03/11/2022 10:10	71.6	305	9.65	246.5	0.0	0.0
03/11/2022 10:11	67.7	304	9.69	250.7	0.0	0.0
03/11/2022 10:12	65.3	304	9.70	249.7	0.0	0.0
03/11/2022 10:13	65.2	305	9.69	245.8	0.0	0.0
03/11/2022 10:14	65.7	304	9.71	251.8	0.0	0.0
03/11/2022 10:15	66.9	304	9.73	251.9	0.0	0.0
03/11/2022 10:16	68.7	304	9.71	248.2	0.0	0.0
03/11/2022 10:17	70.6	304	9.68	247.9	1.2	0.0
03/11/2022 10:18	70.3	304	9.71	252.3	0.0	0.0
03/11/2022 10:19	69.0	305	9.64	247.5	1.0	0.0
03/11/2022 10:20	68.1	304	9.61	253.8	0.0	0.0
03/11/2022 10:21	67.8	304	9.54	249.7	1.2	0.0
03/11/2022 10:22	67.4	304	9.52	249.2	0.0	0.0
03/11/2022 10:23	67.2	304	9.52	246.3	0.0	0.0
03/11/2022 10:24	69.2	305	9.50	245.9	1.2	0.0
03/11/2022 10:25	70.2	304	9.49	251.7	0.0	0.0
03/11/2022 10:26	70.0	304	9.49	253.1	1.2	0.0
03/11/2022 10:27	68.6	305	9.47	249.7	1.2	0.0
03/11/2022 10:28	65.7	304	9.50	248.2	0.0	0.0
03/11/2022 10:29	64.8	304	9.50	251.0	1.2	0.0
03/11/2022 10:30	65.0	305	9.49	247.8	0.0	0.0
03/11/2022 10:31	65.1	304	9.54	246.3	0.0	0.0
03/11/2022 10:32	65.5	304	9.50	249.4	0.0	0.0
03/11/2022 10:33	66.5	304	9.47	251.1	0.0	0.0
03/11/2022 10:34	67.2	305	9.48	246.2	1.2	0.0
03/11/2022 10:35	67.5	305	9.48	248.9	0.0	0.0
03/11/2022 10:36	68.0	304	9.52	248.3	0.0	0.0
03/11/2022 10:37	68.7	304	9.51	251.6	0.0	0.0
03/11/2022 10:38	69.3	305	9.50	251.0	1.2	0.0
03/11/2022 10:39	68.8	305	9.51	247.0	0.0	0.0
03/11/2022 10:40	68.0	305	9.47	250.7	1.2	0.0
03/11/2022 10:41	66.8	305	9.50	250.5	1.2	0.0
03/11/2022 10:42	66.2	304	9.45	249.0	1.2	0.0
03/11/2022 10:43	66.6	304	9.41	247.3	1.2	0.0
03/11/2022 10:44	69.0	304	9.39	249.5	0.0	0.0
03/11/2022 10:45	71.3	304	9.37	247.4	0.0	0.0
03/11/2022 10:46	71.7	304	9.37	251.5	0.0	0.0
03/11/2022 10:47	70.1	305	9.49	248.3	0.0	0.0
03/11/2022 10:48	68.8	304	9.56	251.4	1.2	0.0
03/11/2022 10:49	69.0	304	9.59	246.5	0.0	0.0
03/11/2022 10:50	69.2	304	9.61	253.3	0.0	0.0
03/11/2022 10:51	69.0	305	9.61	250.3	0.0	0.0
03/11/2022 10:52	69.3	304	9.62	251.2	0.0	0.0
03/11/2022 10:53	70.4	304	9.60	248.3	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 10:54	70.6	304	9.57	247.7	0.0	0.0
03/11/2022 10:55	69.7	304	9.58	247.3	0.0	0.0
03/11/2022 10:56	68.2	304	9.54	253.2	0.0	0.0
03/11/2022 10:57	67.7	305	9.52	248.4	1.2	0.0
03/11/2022 10:58	67.5	305	9.49	247.4	0.0	0.0
03/11/2022 10:59	68.9	304	9.50	250.7	0.0	0.0
03/11/2022 11:00	69.4	304	9.52	248.3	0.0	0.0
03/11/2022 11:01	69.0	304	9.51	252.2	0.7	0.0
03/11/2022 11:02	68.6	304	9.50	246.5	1.3	0.0
03/11/2022 11:03	67.9	304	9.49	251.1	0.0	0.0
03/11/2022 11:04	66.9	304	9.49	247.8	1.3	0.0
03/11/2022 11:05	66.2	305	9.51	249.2	0.0	0.0
03/11/2022 11:06	67.0	304	9.55	248.8	1.3	0.0
03/11/2022 11:07	68.9	304	9.51	252.7	0.0	0.0
03/11/2022 11:08	69.8	305	9.50	245.1	0.0	0.0
03/11/2022 11:09	69.5	304	9.52	248.4	0.0	0.0
03/11/2022 11:10	68.7	304	9.59	251.8	0.0	0.0
03/11/2022 11:11	68.6	304	9.53	250.6	0.0	0.0
03/11/2022 11:12	69.5	305	9.53	246.4	0.0	0.0
03/11/2022 11:13	69.6	305	9.54	248.4	0.0	0.0
03/11/2022 11:14	70.0	305	9.55	248.0	0.0	0.0
03/11/2022 11:15	70.6	304	9.55	252.3	0.0	0.0
03/11/2022 11:16	67.9	305	9.50	245.6	1.3	0.0
03/11/2022 11:17	66.8	304	9.51	251.9	0.0	0.0
03/11/2022 11:18	66.3	304	9.52	250.6	0.0	0.0
03/11/2022 11:19	64.7	305	9.52	246.2	0.0	0.0
03/11/2022 11:20	63.8	303	9.50	246.3	0.0	0.0
03/11/2022 11:21	64.0	304	9.53	253.6	1.3	0.0
03/11/2022 11:22	65.0	305	9.51	246.8	0.0	0.0
03/11/2022 11:23	66.5	304	9.56	250.4	0.0	0.0
03/11/2022 11:24	67.3	304	9.52	252.3	0.0	0.0
03/11/2022 11:25	68.0	305	9.50	248.5	0.0	0.0
03/11/2022 11:26	68.0	305	9.45	245.9	0.0	0.0
03/11/2022 11:27	68.2	304	9.46	253.1	0.0	0.0
03/11/2022 11:28	68.3	305	9.50	246.5	0.0	0.0
03/11/2022 11:29	69.1	304	9.48	248.7	0.0	0.0
03/11/2022 11:30	70.0	304	9.53	252.1	1.3	0.0
03/11/2022 11:31	70.4	304	9.49	252.3	0.0	0.0
03/11/2022 11:32	68.9	305	9.48	246.1	0.0	0.0
03/11/2022 11:33	67.0	304	9.43	251.5	0.0	0.0
03/11/2022 11:34	67.0	304	9.39	252.1	0.0	0.0
03/11/2022 11:35	67.6	305	9.38	249.2	0.0	0.0
03/11/2022 11:36	69.0	304	9.51	250.1	0.0	0.0
03/11/2022 11:37	70.3	305	9.58	251.0	0.0	0.0
03/11/2022 11:38	70.0	304	9.65	247.9	0.0	0.0
03/11/2022 11:39	69.0	304	9.66	248.6	0.0	0.0
03/11/2022 11:40	67.6	304	9.67	247.8	0.0	0.0
03/11/2022 11:41	66.5	304	9.68	253.5	0.0	0.0
03/11/2022 11:42	67.2	304	9.67	248.1	0.0	0.0
03/11/2022 11:43	67.0	304	9.68	245.3	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 11:44	67.6	304	9.66	249.7	0.0	0.0
03/11/2022 11:45	70.2	305	9.64	245.5	0.0	0.0
03/11/2022 11:46	71.1	304	9.62	256.3	0.0	0.0
03/11/2022 11:47	70.4	305	9.59	250.4	0.0	0.0
03/11/2022 11:48	68.6	304	9.58	249.1	0.0	0.0
03/11/2022 11:49	66.6	305	9.54	251.7	0.0	0.0
03/11/2022 11:50	66.5	304	9.52	249.7	0.0	0.0
03/11/2022 11:51	65.2	305	9.52	248.0	0.0	0.0
03/11/2022 11:52	66.1	304	9.56	249.2	0.0	0.0
03/11/2022 11:53	68.2	304	9.54	251.2	0.0	0.0
03/11/2022 11:54	69.2	305	9.54	248.3	0.0	0.0
03/11/2022 11:55	68.6	304	9.52	248.2	0.0	0.0
03/11/2022 11:56	66.9	304	9.54	250.1	0.0	0.0
03/11/2022 11:57	64.7	304	9.61	248.7	0.0	0.0
03/11/2022 11:58	64.0	304	9.65	248.7	0.0	0.0
03/11/2022 11:59	63.2	304	9.60	249.9	0.0	0.0
03/11/2022 12:00	62.8	305	9.56	245.1	0.0	0.0
03/11/2022 12:01	63.0	304	9.55	255.8	0.0	0.0
03/11/2022 12:02	64.4	305	9.53	249.2	0.0	0.0
03/11/2022 12:03	65.1	304	9.53	248.4	1.4	0.0
03/11/2022 12:04	64.4	304	9.55	251.3	0.0	0.0
03/11/2022 12:05	62.1	304	9.55	250.6	0.0	0.0
03/11/2022 12:06	60.7	304	9.56	249.9	0.0	0.0
03/11/2022 12:07	59.6	304	9.60	251.2	0.0	0.0
03/11/2022 12:08	58.2	305	9.59	246.9	0.0	0.0
03/11/2022 12:09	58.8	304	9.58	254.4	0.0	0.0
03/11/2022 12:10	60.5	305	9.57	247.7	1.4	0.0
03/11/2022 12:11	61.8	304	9.58	249.1	0.0	0.0
03/11/2022 12:12	61.7	304	9.60	251.3	1.4	0.0
03/11/2022 12:13	60.9	304	9.56	248.6	0.0	0.0
03/11/2022 12:14	59.8	304	9.60	250.8	0.0	0.0
03/11/2022 12:15	58.3	304	9.60	252.1	0.0	0.0
03/11/2022 12:16	56.9	305	9.59	244.4	0.0	0.0
03/11/2022 12:17	56.5	304	9.59	249.6	0.0	0.0
03/11/2022 12:18	56.0	305	9.57	248.8	1.4	0.0
03/11/2022 12:19	56.4	305	9.58	244.1	1.4	0.0
03/11/2022 12:20	57.5	304	9.59	252.0	0.0	0.0
03/11/2022 12:21	58.3	305	9.57	248.5	0.0	0.0
03/11/2022 12:22	57.6	304	9.48	252.0	0.0	0.0
03/11/2022 12:23	57.5	304	9.43	251.5	0.0	0.0
03/11/2022 12:24	58.4	305	9.39	246.1	0.0	0.0
03/11/2022 12:25	61.2	304	9.38	248.4	0.0	0.0
03/11/2022 12:26	65.3	305	9.65	243.6	1.4	0.0
03/11/2022 12:27	68.9	304	9.74	250.4	1.4	0.0
03/11/2022 12:28	71.2	304	9.78	252.8	0.0	0.0
03/11/2022 12:29	72.3	306	9.81	244.3	1.4	0.0
03/11/2022 12:30	71.9	306	9.81	246.9	1.4	0.0
03/11/2022 12:31	70.2	304	9.80	254.8	0.0	0.0
03/11/2022 12:32	70.4	306	9.77	245.4	0.0	0.0
03/11/2022 12:33	70.3	305	9.74	250.1	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 12:34	71.3	305	9.73	247.3	0.0	0.0
03/11/2022 12:35	71.8	304	9.68	251.6	0.0	0.0
03/11/2022 12:36	71.1	304	9.65	249.8	0.0	0.0
03/11/2022 12:37	69.9	304	9.62	250.4	0.0	0.0
03/11/2022 12:38	69.8	306	9.61	251.0	0.0	0.0
03/11/2022 12:39	70.1	306	9.63	252.1	0.0	0.0
03/11/2022 12:40	71.1	306	9.65	252.6	1.4	0.0
Period Average =	67.7	304	9.53	249.5	0.4	0.0
Period Max Value =	72.6	306	9.81	256.3	1.4	0.0
Period Min Value =	56.0	303	9.36	243.0	0.0	0.0
Period Totals =	1.6655E+4	7.4852E+4	2.3434E+3	6.1365E+4	8.8500E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/11/2022 13:42
End of Report: 03/11/2022 17:47

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 13:42	64.1	304	9.68	249.6	0.0	0.0
03/11/2022 13:43	64.7	304	9.69	252.0	0.0	0.0
03/11/2022 13:44	65.5	305	9.72	247.7	0.0	0.0
03/11/2022 13:45	66.0	304	9.77	252.6	0.0	0.0
03/11/2022 13:46	67.7	305	9.73	244.3	0.0	0.0
03/11/2022 13:47	68.9	304	9.69	248.7	0.0	0.0
03/11/2022 13:48	70.5	305	9.72	247.6	1.5	0.0
03/11/2022 13:49	70.8	304	9.72	250.6	0.0	0.0
03/11/2022 13:50	70.1	305	9.59	249.0	0.0	0.0
03/11/2022 13:51	68.8	304	9.49	248.6	0.0	0.0
03/11/2022 13:52	67.6	304	9.44	251.9	0.0	0.0
03/11/2022 13:53	66.9	305	9.46	244.4	0.0	0.0
03/11/2022 13:54	66.2	304	9.50	253.0	0.0	0.0
03/11/2022 13:55	66.0	304	9.55	252.4	0.0	0.0
03/11/2022 13:56	66.0	305	9.59	244.3	0.0	0.0
03/11/2022 13:57	65.5	304	9.67	250.5	0.4	0.0
03/11/2022 13:58	64.7	304	9.67	250.9	0.0	0.0
03/11/2022 13:59	64.0	305	9.71	245.2	0.0	0.0
03/11/2022 14:00	63.8	304	9.68	252.2	0.0	0.0
03/11/2022 14:01	64.9	305	9.70	248.3	0.0	0.0
03/11/2022 14:02	65.9	304	9.70	248.4	0.0	0.0
03/11/2022 14:03	66.9	304	9.66	254.0	1.6	0.0
03/11/2022 14:04	68.6	305	9.64	243.5	0.0	0.0
03/11/2022 14:05	70.3	304	9.64	253.6	0.0	0.0
03/11/2022 14:06	71.1	305	9.64	248.9	0.0	0.0
03/11/2022 14:07	71.2	304	9.65	249.4	0.0	0.0
03/11/2022 14:08	70.9	304	9.73	253.8	0.0	0.0
03/11/2022 14:09	69.6	304	9.70	248.1	0.0	0.0
03/11/2022 14:10	68.5	304	9.70	250.1	0.0	0.0
03/11/2022 14:11	68.7	305	9.67	247.2	1.6	0.0
03/11/2022 14:12	69.4	305	9.70	248.1	0.0	0.0
03/11/2022 14:13	70.4	304	9.76	249.7	0.0	0.0
03/11/2022 14:14	71.9	304	9.77	252.8	0.0	0.0
03/11/2022 14:15	72.9	305	9.73	248.7	0.0	0.0
03/11/2022 14:16	73.6	304	9.72	251.9	0.0	0.0
03/11/2022 14:17	73.4	305	9.86	245.2	0.0	0.0
03/11/2022 14:18	72.2	304	10.01	250.6	1.5	0.0
03/11/2022 14:19	70.9	305	10.00	248.5	0.0	0.0
03/11/2022 14:20	70.6	305	9.89	248.0	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 14:21	71.0	305	9.82	246.7	0.0	0.0
03/11/2022 14:22	71.9	304	9.81	251.5	1.6	0.0
03/11/2022 14:23	71.9	304	9.87	251.3	0.0	0.0
03/11/2022 14:24	71.1	305	9.85	245.7	0.0	0.0
03/11/2022 14:25	69.9	303	9.72	252.7	0.0	0.0
03/11/2022 14:26	68.0	305	9.78	249.7	1.6	0.0
03/11/2022 14:27	66.9	305	9.78	246.4	0.0	0.0
03/11/2022 14:28	67.0	304	9.88	252.6	0.0	0.0
03/11/2022 14:29	67.8	305	10.01	247.8	0.0	0.0
03/11/2022 14:30	68.9	304	10.01	252.6	0.0	0.0
03/11/2022 14:31	69.0	305	9.95	247.1	0.0	0.0
03/11/2022 14:32	68.0	304	9.96	252.5	0.0	0.0
03/11/2022 14:33	67.1	305	9.98	250.1	0.0	0.0
03/11/2022 14:34	65.1	304	9.92	249.0	0.0	0.0
03/11/2022 14:35	63.9	304	9.80	254.7	0.0	0.0
03/11/2022 14:36	63.4	304	9.62	248.8	0.0	0.0
03/11/2022 14:37	63.6	304	9.52	253.5	0.0	0.0
03/11/2022 14:38	64.0	305	9.45	244.3	0.0	0.0
03/11/2022 14:39	64.1	304	9.56	250.1	0.0	0.0
03/11/2022 14:40	64.0	304	9.81	252.0	0.0	0.0
03/11/2022 14:41	63.0	304	9.85	249.3	0.0	0.0
03/11/2022 14:42	62.8	305	9.89	245.2	1.6	0.0
03/11/2022 14:43	62.9	304	9.80	255.4	1.6	0.0
03/11/2022 14:44	63.4	305	9.86	246.0	0.0	0.0
03/11/2022 14:45	64.2	305	9.81	245.5	0.0	0.0
03/11/2022 14:46	64.7	304	9.85	250.9	0.0	0.0
03/11/2022 14:47	66.0	304	9.84	248.9	0.0	0.0
03/11/2022 14:48	68.2	304	9.82	253.4	0.0	0.0
03/11/2022 14:49	69.8	304	9.80	250.5	0.0	0.0
03/11/2022 14:50	71.1	304	9.84	252.2	0.0	0.0
03/11/2022 14:51	71.9	305	9.76	245.0	0.0	0.0
03/11/2022 14:52	71.5	304	9.68	252.1	0.0	0.0
03/11/2022 14:53	70.6	304	9.67	251.9	0.0	0.0
03/11/2022 14:54	69.9	305	9.65	243.6	0.0	0.0
03/11/2022 14:55	69.3	304	9.65	256.1	0.0	0.0
03/11/2022 14:56	69.1	305	9.63	246.1	0.0	0.0
03/11/2022 14:57	69.0	304	9.67	244.7	0.0	0.0
03/11/2022 14:58	68.7	304	9.69	248.8	0.0	0.0
03/11/2022 14:59	69.4	305	9.78	244.1	0.0	0.0
03/11/2022 15:00	69.3	303	9.80	254.2	0.0	0.0
03/11/2022 15:01	68.7	304	9.84	252.9	1.6	0.0
03/11/2022 15:02	68.4	305	9.83	249.5	0.0	0.0
03/11/2022 15:03	67.7	304	9.85	250.6	0.0	0.0
03/11/2022 15:04	66.3	304	9.93	251.0	0.0	0.0
03/11/2022 15:05	65.5	304	10.01	251.7	0.0	0.0
03/11/2022 15:06	64.7	305	10.02	245.3	0.0	0.0
03/11/2022 15:07	63.9	304	9.87	251.2	0.0	0.0
03/11/2022 15:08	64.5	305	9.77	244.8	0.0	0.0
03/11/2022 15:09	65.2	304	9.80	254.6	0.0	0.0
03/11/2022 15:10	65.6	305	9.82	249.9	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 15:11	66.5	304	9.75	249.6	0.0	0.0
03/11/2022 15:12	67.1	305	9.78	243.8	0.0	0.0
03/11/2022 15:13	67.3	304	9.77	253.9	0.0	0.0
03/11/2022 15:14	67.6	305	9.80	245.0	0.0	0.0
03/11/2022 15:15	67.0	304	9.87	251.5	0.0	0.0
03/11/2022 15:16	66.2	304	9.87	250.4	0.0	0.0
03/11/2022 15:17	65.9	304	9.83	248.1	0.0	0.0
03/11/2022 15:18	65.4	304	9.74	251.0	0.0	0.0
03/11/2022 15:19	64.8	305	9.67	245.4	1.6	0.0
03/11/2022 15:20	64.9	304	9.54	250.5	0.0	0.0
03/11/2022 15:21	65.8	304	9.47	246.3	0.0	0.0
03/11/2022 15:22	66.9	304	9.42	252.3	0.0	0.0
03/11/2022 15:23	67.6	305	9.41	245.2	0.0	0.0
03/11/2022 15:24	67.0	304	9.81	253.4	0.0	0.0
03/11/2022 15:25	65.7	305	9.83	249.8	0.0	0.0
03/11/2022 15:26	64.6	305	9.85	247.0	0.0	0.0
03/11/2022 15:27	64.6	304	9.82	256.2	0.0	0.0
03/11/2022 15:28	66.2	305	9.85	245.6	0.0	0.0
03/11/2022 15:29	69.0	304	9.85	253.9	0.0	0.0
03/11/2022 15:30	72.6	305	9.87	242.5	0.0	0.0
03/11/2022 15:31	76.0	304	9.87	250.1	0.0	0.0
03/11/2022 15:32	76.1	304	9.83	249.8	1.0	0.0
03/11/2022 15:33	73.3	303	9.89	249.3	0.0	0.0
03/11/2022 15:34	71.2	304	9.90	250.5	0.0	0.0
03/11/2022 15:35	70.6	305	9.92	248.7	0.0	0.0
03/11/2022 15:36	68.3	303	9.86	252.1	0.0	0.0
03/11/2022 15:37	66.8	304	9.85	248.5	0.0	0.0
03/11/2022 15:38	65.8	304	9.83	251.1	0.0	0.0
03/11/2022 15:39	64.4	304	9.83	251.0	0.0	0.0
03/11/2022 15:40	64.2	304	9.81	249.8	0.0	0.0
03/11/2022 15:41	65.4	304	9.90	246.1	0.0	0.0
03/11/2022 15:42	66.6	304	9.99	251.4	0.0	0.0
03/11/2022 15:43	67.0	305	9.99	248.1	1.6	0.0
03/11/2022 15:44	66.6	304	9.91	249.3	0.0	0.0
03/11/2022 15:45	65.6	304	9.91	251.7	0.0	0.0
03/11/2022 15:46	64.6	304	9.98	245.5	0.0	0.0
03/11/2022 15:47	64.0	304	10.02	252.5	0.0	0.0
03/11/2022 15:48	64.3	304	9.97	249.2	0.0	0.0
03/11/2022 15:49	65.9	305	10.01	246.0	1.6	0.0
03/11/2022 15:50	68.9	304	10.01	250.8	0.0	0.0
03/11/2022 15:51	70.7	304	9.93	251.2	0.0	0.0
03/11/2022 15:52	71.3	305	9.90	247.2	0.0	0.0
03/11/2022 15:53	71.7	304	9.89	250.3	0.0	0.0
03/11/2022 15:54	72.4	304	9.88	249.9	0.0	0.0
03/11/2022 15:55	72.5	304	9.87	250.9	0.0	0.0
03/11/2022 15:56	72.3	305	9.83	248.3	0.0	0.0
03/11/2022 15:57	74.6	305	9.88	248.5	0.0	0.0
03/11/2022 15:58	75.1	304	9.89	252.9	0.0	0.0
03/11/2022 15:59	74.1	304	9.92	251.2	1.6	0.0
03/11/2022 16:00	70.8	304	9.86	247.2	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 16:01	67.8	304	9.86	251.5	0.0	0.0
03/11/2022 16:02	66.3	304	9.87	248.0	0.0	0.0
03/11/2022 16:03	64.8	304	9.85	248.8	0.0	0.0
03/11/2022 16:04	62.2	304	9.92	249.6	0.0	0.0
03/11/2022 16:05	60.6	303	9.89	253.8	0.0	0.0
03/11/2022 16:06	61.0	303	9.68	244.9	0.0	0.0
03/11/2022 16:07	63.6	304	9.55	249.1	0.0	0.0
03/11/2022 16:08	66.6	302	9.47	247.6	1.5	0.0
03/11/2022 16:09	67.3	304	9.45	247.0	0.0	0.0
03/11/2022 16:10	66.5	304	9.69	252.1	0.0	0.0
03/11/2022 16:11	65.8	304	9.80	251.3	0.0	0.0
03/11/2022 16:12	66.1	304	9.85	248.7	1.6	0.0
03/11/2022 16:13	66.4	304	9.82	250.4	0.0	0.0
03/11/2022 16:14	66.5	305	9.83	245.3	0.0	0.0
03/11/2022 16:15	67.4	304	9.83	253.3	0.0	0.0
03/11/2022 16:16	67.9	305	9.86	249.0	0.0	0.0
03/11/2022 16:17	67.2	304	9.87	249.0	1.6	0.0
03/11/2022 16:18	65.6	304	9.90	252.1	1.6	0.0
03/11/2022 16:19	64.1	305	9.85	247.7	0.0	0.0
03/11/2022 16:20	63.8	304	9.81	249.0	0.0	0.0
03/11/2022 16:21	64.7	305	9.80	249.7	0.0	0.0
03/11/2022 16:22	67.3	304	10.79	245.7	0.0	0.0
03/11/2022 16:23	69.9	304	10.75	251.6	0.0	0.0
03/11/2022 16:24	71.3	305	10.42	249.2	0.0	0.0
03/11/2022 16:25	71.4	304	10.15	248.3	1.6	0.0
03/11/2022 16:26	70.6	304	10.00	252.1	0.0	0.0
03/11/2022 16:27	69.1	305	9.89	248.9	1.5	0.0
03/11/2022 16:28	67.8	304	9.82	246.9	0.0	0.0
03/11/2022 16:29	67.1	304	9.81	254.1	0.0	0.0
03/11/2022 16:30	67.5	305	9.84	246.7	0.0	0.0
03/11/2022 16:31	68.1	304	9.85	250.7	0.0	0.0
03/11/2022 16:32	68.4	304	9.75	250.7	0.0	0.0
03/11/2022 16:33	68.4	305	9.79	246.9	0.0	0.0
03/11/2022 16:34	67.6	304	9.81	251.0	0.0	0.0
03/11/2022 16:35	67.0	304	9.86	250.8	0.0	0.0
03/11/2022 16:36	67.6	304	9.86	247.1	0.0	0.0
03/11/2022 16:37	68.8	304	9.86	252.5	1.5	0.0
03/11/2022 16:38	70.3	305	9.81	247.8	1.6	0.0
03/11/2022 16:39	70.5	305	9.96	248.2	0.0	0.0
03/11/2022 16:40	69.8	304	9.98	250.6	0.0	0.0
03/11/2022 16:41	68.4	304	9.94	246.5	0.0	0.0
03/11/2022 16:42	67.3	305	9.97	247.3	0.0	0.0
03/11/2022 16:43	66.7	304	9.93	249.5	0.0	0.0
03/11/2022 16:44	66.9	304	9.88	249.0	0.0	0.0
03/11/2022 16:45	68.1	304	9.89	253.3	0.0	0.0
03/11/2022 16:46	69.4	305	9.82	245.8	0.0	0.0
03/11/2022 16:47	69.7	304	9.82	246.6	0.0	0.0
03/11/2022 16:48	69.3	304	9.82	247.4	0.0	0.0
03/11/2022 16:49	69.0	304	9.80	248.7	0.0	0.0
03/11/2022 16:50	68.2	304	9.76	253.3	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 16:51	68.4	304	9.59	250.2	1.6	0.0
03/11/2022 16:52	70.4	304	9.50	255.3	1.5	0.0
03/11/2022 16:53	72.6	305	9.44	245.8	0.0	0.0
03/11/2022 16:54	73.0	304	9.45	250.2	0.0	0.0
03/11/2022 16:55	72.3	304	9.75	247.4	0.0	0.0
03/11/2022 16:56	71.3	304	9.86	249.5	0.0	0.0
03/11/2022 16:57	70.1	305	9.89	246.6	0.0	0.0
03/11/2022 16:58	71.5	304	9.86	249.9	0.0	0.0
03/11/2022 16:59	72.0	304	9.90	254.4	0.0	0.0
03/11/2022 17:00	70.6	305	9.89	253.5	0.0	0.0
03/11/2022 17:01	71.3	305	9.88	247.9	0.0	0.0
03/11/2022 17:02	73.1	305	9.88	247.0	0.0	0.0
03/11/2022 17:03	74.1	304	9.87	246.5	0.0	0.0
03/11/2022 17:04	74.4	304	9.88	251.6	0.0	0.0
03/11/2022 17:05	74.6	305	9.89	251.2	0.0	0.0
03/11/2022 17:06	74.1	305	9.86	247.1	0.0	0.0
03/11/2022 17:07	72.8	304	9.91	251.9	0.0	0.0
03/11/2022 17:08	71.9	305	9.93	246.4	0.0	0.0
03/11/2022 17:09	71.7	304	9.91	249.5	0.0	0.0
03/11/2022 17:10	71.8	304	9.90	250.8	0.0	0.0
03/11/2022 17:11	72.4	305	9.94	247.2	0.0	0.0
03/11/2022 17:12	72.4	304	9.95	251.3	0.0	0.0
03/11/2022 17:13	70.9	305	9.94	251.5	0.0	0.0
03/11/2022 17:14	69.9	304	9.95	245.8	0.0	0.0
03/11/2022 17:15	69.4	304	9.98	252.6	0.0	0.0
03/11/2022 17:16	69.2	304	9.94	245.3	0.0	0.0
03/11/2022 17:17	69.2	304	9.90	248.3	0.0	0.0
03/11/2022 17:18	69.7	302	9.91	253.3	0.0	0.0
03/11/2022 17:19	70.4	304	9.95	249.1	0.0	0.0
03/11/2022 17:20	70.4	304	9.98	252.3	0.0	0.0
03/11/2022 17:21	69.6	304	9.97	247.9	0.0	0.0
03/11/2022 17:22	68.6	305	9.95	246.1	0.0	0.0
03/11/2022 17:23	67.8	304	9.95	252.1	0.0	0.0
03/11/2022 17:24	68.0	305	9.90	245.7	0.0	0.0
03/11/2022 17:25	68.4	304	9.88	251.6	0.0	0.0
03/11/2022 17:26	68.6	304	9.92	251.5	0.0	0.0
03/11/2022 17:27	68.7	305	9.85	246.9	0.0	0.0
03/11/2022 17:28	68.3	304	9.88	253.4	1.5	0.0
03/11/2022 17:29	67.7	305	9.85	248.6	0.0	0.0
03/11/2022 17:30	66.9	304	9.86	249.8	1.5	0.0
03/11/2022 17:31	66.2	304	9.93	248.2	0.0	0.0
03/11/2022 17:32	66.6	304	9.89	250.9	0.0	0.0
03/11/2022 17:33	68.4	304	9.88	249.5	0.0	0.0
03/11/2022 17:34	70.0	304	9.89	252.3	0.0	0.0
03/11/2022 17:35	70.5	305	9.88	246.8	0.0	0.0
03/11/2022 17:36	69.9	305	9.79	248.7	1.5	0.0
03/11/2022 17:37	67.7	304	9.62	250.4	0.0	0.0
03/11/2022 17:38	66.8	305	9.52	245.3	0.0	0.0
03/11/2022 17:39	67.9	304	9.45	251.3	0.0	0.0
03/11/2022 17:40	68.3	304	9.47	250.5	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/11/2022 17:41	69.1	305	9.70	248.1	0.0	0.0
03/11/2022 17:42	70.1	304	9.79	252.9	0.0	0.0
03/11/2022 17:43	70.6	305	9.84	248.0	0.0	0.0
03/11/2022 17:44	69.3	304	9.89	248.7	0.0	0.0
03/11/2022 17:45	67.8	304	9.93	249.8	1.5	0.0
03/11/2022 17:46	67.3	304	9.95	245.9	0.0	0.0
03/11/2022 17:47	66.8	304	9.94	250.6	0.0	0.0
Period Average =	68.3	304	9.82	249.5	0.2	0.0
Period Max Value =	76.1	305	10.79	256.2	1.6	0.0
Period Min Value =	60.6	302	9.41	242.5	0.0	0.0
Period Totals =	1.6800E+4	7.4854E+4	2.4149E+3	6.1365E+4	4.3600E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Covanta Marion
U-1>1 MinComputed
Valid Data Only
Test times: 1330-1525, Restarted 1628 to 1828

Date/Time	U-1>1 Min Computed - SteamFl	U-1>1 Min Computed - BagHTemp	U-1>1 Min Computed - CarbInj	U-1>1 Min Computed - LimeFlow	U-1>1 Min Computed - NH3 Flow	U-1>1 Min Computed - AuxGasFlow
3/10/2022 13:30	66.6	293	9.54	253.5	0.1	0.2
3/10/2022 13:31	67.1	293	10	254.4	0.1	0.2
3/10/2022 13:32	67.1	293	9.7	252.6	0	0.2
3/10/2022 13:33	66.1	293	9.4	255.4	0.3	0.2
3/10/2022 13:34	65.6	293	9.81	255.3	0.6	0.2
3/10/2022 13:35	65.9	292	9.75	257	0.6	0.2
3/10/2022 13:36	66.6	292	9.58	256.1	0.6	0.2
3/10/2022 13:37	67.1	292	9.39	255.6	1	0.2
3/10/2022 13:38	68.3	292	9.9	254.2	0	0.2
3/10/2022 13:39	68.7	292	9.35	254.5	0	0.2
3/10/2022 13:40	69.7	292	14.4	253	0	0.2
3/10/2022 13:41	69.2	292	9.78	252.6	0	0.2
3/10/2022 13:42	67.5	292	10.06	251.6	0	0.2
3/10/2022 13:43	67.6	292	9.63	252.3	0.2	0.2
3/10/2022 13:44	66.2	292	9.62	252.7	0.1	0.2
3/10/2022 13:45	66.8	292	9.83	253.3	0	0.2
3/10/2022 13:46	66.5	292	9.63	253.1	0	0.2
3/10/2022 13:47	65.1	292	9.63	254.6	0.7	0.2
3/10/2022 13:48	64.6	292	9.68	260.4	0.7	0.2
3/10/2022 13:49	64.1	292	9.63	258.3	0.7	0.2
3/10/2022 13:50	63.2	293	9.83	256.9	0.9	0.2
3/10/2022 13:51	62.7	294	9.71	255.9	0.8	0.2
3/10/2022 13:52	63.5	294	9.57	255.4	0.9	0.2
3/10/2022 13:53	67.7	295	9.8	254.7	0.9	0.2
3/10/2022 13:54	69	295	9.51	253	0.2	0.2
3/10/2022 13:55	69.1	296	9.69	253.2	0	0.2
3/10/2022 13:56	69.3	296	9.97	253.1	0	0.2
3/10/2022 13:57	70.6	297	9.54	255.6	0	0.2
3/10/2022 13:58	70.7	297	9.83	256.7	0	0.2
3/10/2022 13:59	70.5	297	9.62	254.5	0	0.2
3/10/2022 14:00	70.2	298	9.63	254.5	0	0.2
3/10/2022 14:01	68.2	298	9.85	253.9	0	0.2
3/10/2022 14:02	64.7	297	9.74	250.3	0.1	0.2
3/10/2022 14:03	65.5	297	9.57	251.9	0.2	0.2
3/10/2022 14:04	63.6	297	9.59	255	0.7	0.2
3/10/2022 14:05	62.5	297	9.7	257.3	0.9	0.2
3/10/2022 14:06	62.8	296	9.5	255.5	1.3	0.2
3/10/2022 14:07	63.8	296	9.87	255.1	1.6	0.2
3/10/2022 14:08	64.7	297	9.88	254.4	2	0.2
3/10/2022 14:09	65.3	296	9.44	255.2	2.5	0.2
3/10/2022 14:10	65.9	297	9.69	253.6	2.6	0.2
3/10/2022 14:11	66.1	297	9.88	253.1	2.5	0.2
3/10/2022 14:12	66	298	9.5	253.2	2.4	0.2

3/10/2022 14:13	65.9	298	9.7	251.9	2.4	0.2
3/10/2022 14:14	66.4	298	9.77	252	2.4	0.2
3/10/2022 14:15	67.3	299	9.41	253	2.4	0.2
3/10/2022 14:16	67.4	299	9.77	255.4	2.3	0.2
3/10/2022 14:17	66.6	299	9.76	256.3	2.1	0.2
3/10/2022 14:18	65.7	299	9.45	256.3	1.2	0.2
3/10/2022 14:19	65.1	299	9.8	256.5	0.9	0.2
3/10/2022 14:20	64	300	17.16	253.8	1	0.2
3/10/2022 14:21	63.8	300	9.68	253.5	0.9	0.2
3/10/2022 14:22	64	300	9.81	253.9	0.9	0.2
3/10/2022 14:23	64.8	300	9.5	253.8	0.9	0.2
3/10/2022 14:24	66.7	301	9.65	254.3	0.8	0.2
3/10/2022 14:25	67.3	301	9.67	255.4	0.9	0.2
3/10/2022 14:26	66.9	301	9.61	254.6	0.1	0.2
3/10/2022 14:27	66	301	9.59	253.2	0	0.2
3/10/2022 14:28	65.6	301	9.85	252.4	0	0.2
3/10/2022 14:29	65	301	9.71	252.2	0.9	0.2
3/10/2022 14:30	64.5	300	9.76	253.5	0.1	0.2
3/10/2022 14:31	64.3	300	9.62	254.6	0.4	0.2
3/10/2022 14:32	64.2	300	9.62	255.4	1.2	0.2
3/10/2022 14:33	64.2	300	9.56	256.6	1.4	0.2
3/10/2022 14:34	64.6	300	9.82	254.6	1.3	0.2
3/10/2022 14:35	64.8	300	9.47	255.5	1.3	0.2
3/10/2022 14:36	63.9	300	9.66	254.9	1.5	0.2
3/10/2022 14:37	62.2	301	9.81	253.3	1.9	0.2
3/10/2022 14:38	61.6	301	9.71	253.5	2.2	0.2
3/10/2022 14:39	62.2	301	9.61	254	2.5	0.2
3/10/2022 14:40	63.8	301	9.75	254.1	2.7	0.2
3/10/2022 14:41	65.8	301	9.71	254.7	2.7	0.2
3/10/2022 14:42	67.5	302	9.45	256	2.5	0.2
3/10/2022 14:43	68.9	302	9.67	253.1	2.1	0.2
3/10/2022 14:44	70.1	302	9.74	253.3	1.4	0.2
3/10/2022 14:45	70.3	302	9.71	254.1	0.8	0.2
3/10/2022 14:46	70	302	9.6	253.5	0.7	0.2
3/10/2022 14:47	70	303	9.63	252.6	0.2	0.2
3/10/2022 14:48	71	302	9.89	251.8	0.2	0.2
3/10/2022 14:49	69.9	302	9.67	253.5	1	0.2
3/10/2022 14:50	65.1	302	9.7	255.1	0.6	0.2
3/10/2022 14:51	66.6	301	9.67	256.7	0.9	0.2
3/10/2022 14:52	65.5	301	9.44	255	1.1	0.2
3/10/2022 14:53	65.4	301	9.78	255	0.6	0.2
3/10/2022 14:54	65.8	301	9.56	255.3	0.9	0.2
3/10/2022 14:55	67.1	301	9.86	254.4	0.8	0.2
3/10/2022 14:56	68.5	301	9.74	254.9	0.2	0.2
3/10/2022 14:57	68.4	301	9.75	254.7	0.8	0.2
3/10/2022 14:58	68.2	301	9.56	253.9	0.2	0.2
3/10/2022 14:59	67.3	301	9.74	253.3	0.7	0.2
3/10/2022 15:00	65.2	301	9.64	253.4	0.5	0.2
3/10/2022 15:01	63.5	300	18.18	255.7	0.3	0.2
3/10/2022 15:02	62.9	300	10.93	255.1	1	0.2
3/10/2022 15:03	62.4	301	9.58	252.3	0.9	0.2
3/10/2022 15:04	61.5	301	9.66	250.3	1.2	0.2

3/10/2022 15:05	61.8	301	9.66	252.8	1.6	0.2
3/10/2022 15:06	62.3	302	9.67	254.9	1.6	0.2
3/10/2022 15:07	61.7	302	9.69	253.9	1.6	0.2
3/10/2022 15:08	61.1	302	9.96	252.1	1.6	0.2
3/10/2022 15:09	60.3	302	9.58	253.9	1.5	0.2
3/10/2022 15:10	60	302	9.56	253.9	1.5	0.2
3/10/2022 15:11	59.9	301	9.83	254	1.5	0.2
3/10/2022 15:12	60.7	301	9.95	253.9	1.6	0.2
3/10/2022 15:13	60.7	301	9.24	254.4	1.6	0.2
3/10/2022 15:14	60	301	9.81	254.2	1.7	0.2
3/10/2022 15:15	59.1	301	7.93	255.5	1.7	0.2
3/10/2022 15:16	59.1	301	21.57	253.4	1.8	0.2
3/10/2022 15:17	59.4	301	11.2	252.4	1.9	0.2
3/10/2022 15:18	59.9	301	9.63	256.1	1.8	0.2
3/10/2022 15:19	60.9	301	9.68	257.3	1.7	0.2
3/10/2022 15:20	61.5	301	9.02	254.9	1.6	0.2
3/10/2022 15:21	60	301	9.96	255.5	1.6	0.2
3/10/2022 15:22	60.4	301	10.08	254.2	1.7	0.2
3/10/2022 15:23	60	301	9.71	254	1.6	0.2
3/10/2022 15:24	59.7	302	9.59	255.5	1.5	0.2
3/10/2022 15:25	61	302	9.26	253.5	1.5	0.2
3/10/2022 16:28	64.9	306	9.72	255.6	1.7	0.2
3/10/2022 16:29	63.5	306	9.65	254.6	1.7	0.2
3/10/2022 16:30	62	306	9.68	254	1.7	0.2
3/10/2022 16:31	61.9	306	9.43	252.2	1.8	0.2
3/10/2022 16:32	61.1	306	9.81	250.9	1.5	0.2
3/10/2022 16:33	60.8	305	9.76	251.9	1.2	0.2
3/10/2022 16:34	62	305	9.69	252.6	1	0.2
3/10/2022 16:35	63.6	305	9.54	253.6	0.4	0.2
3/10/2022 16:36	64.4	305	9.5	251	0.5	0.2
3/10/2022 16:37	64.4	306	9.96	251.1	0	0.2
3/10/2022 16:38	65	306	9.43	252.2	0	0.2
3/10/2022 16:39	65.1	306	9.72	254.1	0	0.2
3/10/2022 16:40	64.7	306	9.65	255	0.1	0.2
3/10/2022 16:41	65.2	305	9.76	254.4	0.1	0.2
3/10/2022 16:42	64.5	305	9.71	253.7	0.6	0.2
3/10/2022 16:43	65.5	305	9.85	254.9	0.3	0.2
3/10/2022 16:44	66.4	305	9.34	253.3	0.4	0.2
3/10/2022 16:45	66.7	306	9.86	254.7	1.1	0.2
3/10/2022 16:46	66.2	306	9.62	255.6	0.8	0.2
3/10/2022 16:47	65.6	306	9.54	255.9	0.7	0.2
3/10/2022 16:48	65.4	306	9.7	255.4	0.5	0.2
3/10/2022 16:49	65.9	306	9.68	255.6	0.5	0.2
3/10/2022 16:50	66.8	306	9.74	254.6	0.7	0.2
3/10/2022 16:51	67.7	306	9.5	254.9	0.2	0.2
3/10/2022 16:52	67.4	306	9.89	255.7	0	0.2
3/10/2022 16:53	67.6	306	9.75	254	0	0.2
3/10/2022 16:54	68	306	9.73	253.2	0	0.2
3/10/2022 16:55	69.6	306	9.43	253.6	0	0.2
3/10/2022 16:56	70.9	307	9.69	255.9	0	0.2
3/10/2022 16:57	71.3	307	9.77	255.3	0	0.2
3/10/2022 16:58	70.7	307	9.67	256.4	0	0.2

3/10/2022 16:59	70.1	307	9.72	252.5	0	0.2
3/10/2022 17:00	70.4	307	9.64	251.7	0	0.2
3/10/2022 17:01	70.7	306	9.79	251.1	0	0.2
3/10/2022 17:02	70.8	306	9.46	252.2	0	0.2
3/10/2022 17:03	70.7	306	9.78	253.3	0	0.2
3/10/2022 17:04	70.5	306	9.48	254.4	0	0.2
3/10/2022 17:05	70.4	306	9.66	255.3	0	0.2
3/10/2022 17:06	70.1	307	9.66	255.6	0	0.2
3/10/2022 17:07	69.7	307	9.67	253.4	0	0.2
3/10/2022 17:08	70	307	9.66	251.6	0	0.2
3/10/2022 17:09	70.6	307	10.16	255.7	0	0.2
3/10/2022 17:10	70.7	307	9.48	256.6	0	0.2
3/10/2022 17:11	70.4	306	9.74	256.9	0	0.2
3/10/2022 17:12	69.8	306	9.8	255.2	0	0.2
3/10/2022 17:13	69.1	306	9.68	253.9	0	0.2
3/10/2022 17:14	68.6	305	9.62	253.4	0	0.2
3/10/2022 17:15	68.5	305	9.67	251.4	0	0.2
3/10/2022 17:16	69.1	306	9.6	251.7	0	0.2
3/10/2022 17:17	69.2	306	9.64	252.7	0	0.2
3/10/2022 17:18	69.2	306	9.73	253.6	0	0.2
3/10/2022 17:19	69.8	306	9.66	256.1	0	0.2
3/10/2022 17:20	67.3	306	9.77	259.1	0	0.2
3/10/2022 17:21	66.1	305	9.45	256.3	0	0.2
3/10/2022 17:22	65.5	305	9.78	256.1	0	0.2
3/10/2022 17:23	63.7	305	9.67	254.9	0	0.2
3/10/2022 17:24	62.6	305	9.53	252.8	0	0.2
3/10/2022 17:25	62.7	305	9.48	255.6	0	0.2
3/10/2022 17:26	63.2	305	9.77	255.9	0	0.2
3/10/2022 17:27	64.5	305	9.63	254.3	0	0.2
3/10/2022 17:28	63.7	305	9.85	252.4	0	0.2
3/10/2022 17:29	62	306	9.58	252.1	0	0.2
3/10/2022 17:30	59.9	306	9.54	254	0	0.2
3/10/2022 17:31	57.9	305	9.73	254.7	0	0.2
3/10/2022 17:32	56.7	305	9.8	253.2	0.8	0.2
3/10/2022 17:33	55.4	305	9.48	252.5	1.4	0.2
3/10/2022 17:34	54.4	305	9.73	254.2	2.1	0.2
3/10/2022 17:35	53.6	305	9.72	254.6	2.5	0.2
3/10/2022 17:36	52.9	305	9.57	252.4	2.5	0.2
3/10/2022 17:37	52	305	9.94	252.7	2.6	0.2
3/10/2022 17:38	51.5	305	9.81	253.7	2.5	0.2
3/10/2022 17:39	52.2	305	9.58	253.8	2.3	0.2
3/10/2022 17:40	52.9	305	9.72	253.3	2.2	0.2
3/10/2022 17:41	53.8	305	9.52	257.2	2	0.2
3/10/2022 17:42	55.3	305	9.62	256.9	1.9	0.2
3/10/2022 17:43	56.1	305	9.85	256.3	1.8	0.2
3/10/2022 17:44	55.3	304	9.57	254.5	1.7	0.2
3/10/2022 17:45	56	304	9.72	254.6	1.6	0.2
3/10/2022 17:46	57.4	304	9.6	254.3	1.3	0.2
3/10/2022 17:47	58.3	305	9.63	253.5	1.1	0.2
3/10/2022 17:48	57.9	305	14.27	254.8	1.1	0.2
3/10/2022 17:49	58.8	306	9.66	254.3	1.3	0.2
3/10/2022 17:50	60.2	306	9.65	254.1	1.3	0.2

3/10/2022 17:51	60.7	306	9.66	254.8	1.3	0.2
3/10/2022 17:52	61.2	307	9.73	253.1	1.3	0.2
3/10/2022 17:53	61.9	307	9.7	252.6	1.3	0.2
3/10/2022 17:54	62.1	307	9.64	252.4	1.5	0.2
3/10/2022 17:55	61.2	307	9.58	253.1	1.5	0.2
3/10/2022 17:56	60.6	307	9.64	254.9	1.5	0.2
3/10/2022 17:57	59.8	307	9.69	255.7	1.8	0.2
3/10/2022 17:58	59.8	306	9.8	254.4	1.7	0.2
3/10/2022 17:59	60.6	306	9.6	254.6	1.6	0.2
3/10/2022 18:00	61.5	307	9.63	254.6	1.5	0.2
3/10/2022 18:01	63.3	307	9.71	255.1	1.5	0.2
3/10/2022 18:02	65.2	307	9.64	254.1	1.3	0.2
3/10/2022 18:03	66.4	307	9.64	254.8	0.9	0.2
3/10/2022 18:04	67.3	307	9.71	254.8	0.8	0.2
3/10/2022 18:05	68.1	308	9.71	253.8	0	0.2
3/10/2022 18:06	68.8	308	9.62	252.8	0	0.2
3/10/2022 18:07	69.2	308	9.82	252.7	0	0.2
3/10/2022 18:08	70.1	308	9.64	254	0	0.2
3/10/2022 18:09	70.2	307	9.48	256.4	0	0.2
3/10/2022 18:10	67.2	307	9.79	256.8	0	0.2
3/10/2022 18:11	67.1	307	9.58	256.2	0	0.2
3/10/2022 18:12	66	307	9.67	255.3	0	0.2
3/10/2022 18:13	63.5	307	9.69	255.2	0	0.2
3/10/2022 18:14	63.7	306	9.6	254.8	0	0.2
3/10/2022 18:15	65	306	9.76	254.6	0.1	0.2
3/10/2022 18:16	65.8	307	9.57	254.6	0.3	0.2
3/10/2022 18:17	66.1	307	9.55	254.2	0.1	0.2
3/10/2022 18:18	64.9	307	9.69	254.9	0	0.2
3/10/2022 18:19	63.9	307	9.85	254.2	0	0.2
3/10/2022 18:20	64.1	307	9.57	253.7	0	0.2
3/10/2022 18:21	63.5	308	9.71	253.1	0.1	0.2
3/10/2022 18:22	62.7	308	9.62	253.8	0.2	0.2
3/10/2022 18:23	62.2	308	9.72	253.3	0.3	0.2
3/10/2022 18:24	61.6	308	9.67	252.5	0.3	0.2
3/10/2022 18:25	60.5	308	9.83	253.4	0.2	0.2
3/10/2022 18:26	59.9	308	9.77	253.1	0	0.2
3/10/2022 18:27	60.6	308	9.4	253.7	0.2	0.2
3/10/2022 18:28	61.3	308	9.8	253.5	0.3	0.2
Period Average:	64.5	302.4	9.8	254.2	0.8	0.2
Period Maximum:	71.3	308	21.57	260.4	2.7	0.2
Period Minimum:	51.5	292	7.93	250.3	0	0.2

Covanta Marion
U-1>1 MinComputed
Valid Data Only
Test times: 1005-1032, Restart 1127 to 1246,Restart 1310 to 1325,
Restart 1327 to 1440,Restart 1500 to 1546

Date/Time	U-1>1 Min Computed - SteamFl	U-1>1 Min Computed - BagHTemp	U-1>1 Min Computed - CarbInj	U-1>1 Min Computed - LimeFlow	U-1>1 Min Computed - NH3 Flow	U-1>1 Min Computed - AuxGasFlow
3/11/2022 10:05	69.1	319	9.98	252.2	0	0.2
3/11/2022 10:06	68.3	319	9.38	250.9	0	0.2
3/11/2022 10:07	67.9	319	9.76	251.1	0	0.2
3/11/2022 10:08	68.6	320	9.43	256.3	0	0.2
3/11/2022 10:09	68.9	320	9.74	257.8	0	0.2
3/11/2022 10:10	69.2	320	9.64	256.6	0	0.2
3/11/2022 10:11	66.6	320	9.96	256.6	0	0.2
3/11/2022 10:12	65.3	320	9.48	252.6	0	0.2
3/11/2022 10:13	65.7	319	9.72	240.9	0.1	0.2
3/11/2022 10:14	66	319	9.4	212.1	0.2	0.2
3/11/2022 10:15	65.3	318	9.78	203.7	0.4	0.2
3/11/2022 10:16	64.9	318	9.64	197.7	0.6	0.2
3/11/2022 10:17	66.1	317	9.68	195.3	0.2	0.2
3/11/2022 10:18	66.9	316	9.61	190.2	0.3	0.2
3/11/2022 10:19	67.5	316	9.7	188.8	0	0.2
3/11/2022 10:20	66.7	316	9.61	189.6	0	0.2
3/11/2022 10:21	66.5	316	9.45	190.2	0	0.2
3/11/2022 10:22	66.9	316	10.18	188.9	0	0.2
3/11/2022 10:23	68	317	9.59	190.1	0	0.2
3/11/2022 10:24	69.5	317	9.44	185	0	0.2
3/11/2022 10:25	70.2	318	10.03	187.6	0	0.2
3/11/2022 10:26	70.8	318	9.65	212.7	0	0.2
3/11/2022 10:27	70	318	9.47	198.4	0	0.2
3/11/2022 10:28	67.9	317	9.78	192.2	0	0.2
3/11/2022 10:29	67.8	316	9.66	184.6	0	0.2
3/11/2022 10:30	67.7	314	9.66	154.6	0	0.2
3/11/2022 10:31	67.5	314	9.66	138.6	0	0.2
3/11/2022 10:32	65.7	313	9.66	125.9	0	0.2
3/11/2022 11:27	70	321	9.62	254.3	0	0.2
3/11/2022 11:28	69.7	323	10.07	255.3	0	0.2
3/11/2022 11:29	68.6	324	9.44	254.7	0	0.2
3/11/2022 11:30	68.1	325	9.91	251.1	0	0.2
3/11/2022 11:31	68.8	324	9.59	252	0	0.2
3/11/2022 11:32	68.8	324	12.4	252.6	0	0.2
3/11/2022 11:33	68	323	9.56	255.8	0.4	0.2
3/11/2022 11:34	69.2	321	10.03	253	0.2	0.2
3/11/2022 11:35	69.7	321	9.25	254.6	0	0.2
3/11/2022 11:36	70.5	320	9.98	254.8	0	0.2
3/11/2022 11:37	71.3	319	9.55	254.7	0	0.2
3/11/2022 11:38	72.1	319	9.42	253.4	0	0.2
3/11/2022 11:39	73.1	319	9.18	251.9	0	0.2
3/11/2022 11:40	72.7	317	10.08	252.3	0	0.2
3/11/2022 11:41	71	316	9.51	257.1	0	0.2

3/11/2022 11:42	72.4	314	9.44	252.7	0	0.2
3/11/2022 11:43	71.8	313	9.78	256	0	0.2
3/11/2022 11:44	70.3	312	9.78	254.6	0	0.2
3/11/2022 11:45	70.9	311	9.59	252.6	0	0.2
3/11/2022 11:46	70.9	311	9.73	253.5	0	0.2
3/11/2022 11:47	71.6	310	9.7	253.9	0	0.2
3/11/2022 11:48	71.5	310	9.62	256.2	0	0.2
3/11/2022 11:49	68.9	309	9.88	255.5	0.1	0.2
3/11/2022 11:50	69.1	309	9.71	256	0.6	0.2
3/11/2022 11:51	67.5	308	9.81	254.6	0	0.2
3/11/2022 11:52	68	308	9.75	253.7	1.2	0.2
3/11/2022 11:53	69.5	308	9.52	253.2	0.4	0.2
3/11/2022 11:54	70.2	308	9.67	250.8	0.4	0.2
3/11/2022 11:55	70.9	308	9.63	254.7	0	0.2
3/11/2022 11:56	70.5	308	9.8	255.5	0	0.2
3/11/2022 11:57	70.4	308	9.62	255.6	0	0.2
3/11/2022 11:58	70.4	307	9.37	255.5	0	0.2
3/11/2022 11:59	70.1	307	9.91	253.8	0	0.2
3/11/2022 12:00	70	306	9.82	252.9	0	0.2
3/11/2022 12:01	69.8	306	9.52	251.5	0	0.2
3/11/2022 12:02	70	306	9.59	253.1	0	0.2
3/11/2022 12:03	70.3	306	9.71	254.9	0	0.2
3/11/2022 12:04	70.3	305	9.7	255.1	0	0.2
3/11/2022 12:05	69.6	305	9.86	256.9	0.5	0.2
3/11/2022 12:06	70.4	305	9.7	255.4	0.6	0.2
3/11/2022 12:07	71.1	305	9.94	252.5	0.5	0.2
3/11/2022 12:08	70.8	304	9.21	251.5	0.2	0.2
3/11/2022 12:09	70.3	304	9.92	256	0.1	0.2
3/11/2022 12:10	69.6	305	9.53	256.4	0.1	0.2
3/11/2022 12:11	70.2	306	9.87	253.4	0.3	0.2
3/11/2022 12:12	70.4	306	9.58	252.6	0.6	0.2
3/11/2022 12:13	70.8	306	10	253.6	0.7	0.2
3/11/2022 12:14	71.7	306	9.84	251.7	0.6	0.2
3/11/2022 12:15	72	306	9.31	254	0.6	0.2
3/11/2022 12:16	71.1	306	9.6	252.8	1.1	0.2
3/11/2022 12:17	70.7	306	9.96	255.4	0.8	0.2
3/11/2022 12:18	69.9	306	9.7	253.6	0.6	0.2
3/11/2022 12:19	68.8	306	9.68	252.8	0.2	0.2
3/11/2022 12:20	67.5	306	9.34	255.6	0	0.2
3/11/2022 12:21	66.8	305	10.79	256.8	0	0.2
3/11/2022 12:22	65.6	305	12.64	253.9	0	0.2
3/11/2022 12:23	64.5	305	9.84	252.5	0	0.2
3/11/2022 12:24	64.2	304	9.36	252.8	0	0.2
3/11/2022 12:25	65.1	304	9.73	252	0	0.2
3/11/2022 12:26	66.3	304	9.49	253.6	0	0.2
3/11/2022 12:27	66.4	304	9.81	253.2	0	0.2
3/11/2022 12:28	65.5	304	9.71	253.9	0	0.2
3/11/2022 12:29	65.1	303	9.66	257.7	0	0.2
3/11/2022 12:30	64.2	303	9.66	257.4	0	0.2
3/11/2022 12:31	62	303	9.66	255.1	0	0.2
3/11/2022 12:32	60.5	303	9.66	254.2	0	0.2
3/11/2022 12:33	58.8	302	9.89	253.4	0	0.2

3/11/2022 12:34	57.6	302	9.54	253.6	0	0.2
3/11/2022 12:35	56.2	302	9.68	251.5	0	0.2
3/11/2022 12:36	54.8	302	9.46	252.5	0	0.2
3/11/2022 12:37	53.3	301	9.8	254.1	0	0.2
3/11/2022 12:38	52.5	301	9.41	257	0	0.2
3/11/2022 12:39	51.5	301	9.76	256.1	0.3	0.2
3/11/2022 12:40	50.2	301	9.59	252.3	0.5	0.2
3/11/2022 12:41	49.5	302	9.62	256.6	0.5	0.2
3/11/2022 12:42	49	302	9.92	254.5	0.6	0.2
3/11/2022 12:43	48.1	303	9.21	251.2	0.7	0.2
3/11/2022 12:44	46.5	303	10.15	252.4	0.7	0.2
3/11/2022 12:45	45.9	303	9.25	257	0.6	0.2
3/11/2022 12:46	44.7	303	9.88	255.5	0.7	0.2
3/11/2022 13:10	64.5	306	9.73	253.4	0	0.2
3/11/2022 13:11	65.9	306	9.6	254.9	0	0.2
3/11/2022 13:12	66.1	307	9.88	253.7	0	0.2
3/11/2022 13:13	66	308	9.51	256.6	0	0.2
3/11/2022 13:14	66.4	308	9.7	255.7	0.2	0.2
3/11/2022 13:15	66.5	308	9.03	253.3	0.3	0.2
3/11/2022 13:16	66.4	308	10.16	251.9	0.2	0.2
3/11/2022 13:17	66.1	309	9.93	251.6	0.2	0.2
3/11/2022 13:18	65.9	309	9.65	253.5	0	0.2
3/11/2022 13:19	65.4	309	9.53	257.9	0	0.2
3/11/2022 13:20	64.3	308	9.64	257.2	0.5	0.2
3/11/2022 13:21	63.1	308	9.72	256.1	0.7	0.2
3/11/2022 13:22	61.4	308	9.21	256.2	1	0.2
3/11/2022 13:23	60.3	307	10	250.4	1.4	0.2
3/11/2022 13:24	58.8	307	9.44	251.7	1.8	0.2
3/11/2022 13:25	57.7	307	9.58	256.7	1.9	0.2
3/11/2022 13:27	61.2	308	9.8	253.2	1.7	0.2
3/11/2022 13:28	64.2	309	9.48	255.3	1	0.2
3/11/2022 13:29	65.9	309	9.88	255.2	0.2	0.2
3/11/2022 13:30	67.2	309	9.46	254.8	0	0.2
3/11/2022 13:31	68	309	9.79	255.5	0	0.2
3/11/2022 13:32	68.2	309	9.88	256	0	0.2
3/11/2022 13:33	68.8	309	9.46	253.8	0	0.2
3/11/2022 13:34	68.5	309	9.59	252	0	0.2
3/11/2022 13:35	68	309	9.69	252.3	0.3	0.2
3/11/2022 13:36	66.9	309	9.91	255.1	0.6	0.2
3/11/2022 13:37	66.4	309	9.62	255.6	0.5	0.2
3/11/2022 13:38	66.4	309	9.84	255.8	0.7	0.2
3/11/2022 13:39	66	309	9.54	254.6	0.8	0.2
3/11/2022 13:40	64.9	309	9.86	251.6	0.5	0.2
3/11/2022 13:41	63.4	309	9.54	252	1.1	0.2
3/11/2022 13:42	62	310	9.26	254	1.2	0.2
3/11/2022 13:43	60.8	310	10.12	255.3	1.3	0.2
3/11/2022 13:44	59.5	310	9.52	255.6	1.5	0.2
3/11/2022 13:45	58.7	310	9.91	253.5	1.6	0.2
3/11/2022 13:46	57.1	310	9.56	257.2	1.5	0.2
3/11/2022 13:47	55.9	310	9.72	254.4	1.3	0.2
3/11/2022 13:48	56.5	310	9.6	250.5	1.2	0.2
3/11/2022 13:49	56.7	310	18.1	252.8	1.1	0.2

3/11/2022 13:50	56.6	311	9.92	256.9	1.1	0.2
3/11/2022 13:51	54.8	310	9.34	254.6	1.2	0.2
3/11/2022 13:52	53.5	310	9.85	252.9	1.3	0.2
3/11/2022 13:53	53.5	310	9.54	253.1	1.3	0.2
3/11/2022 13:54	53.4	310	9.61	251.4	1.1	0.2
3/11/2022 13:55	53.9	310	9.64	254.3	0.9	0.2
3/11/2022 13:56	54.3	310	9.75	257.3	0.2	0.2
3/11/2022 13:57	54.9	310	9.65	253.7	0	0.2
3/11/2022 13:58	55.7	310	9.52	253.4	0	0.2
3/11/2022 13:59	55.6	310	9.89	253.5	0	0.2
3/11/2022 14:00	56.2	310	9.42	256.2	0	0.2
3/11/2022 14:01	57.5	310	9.42	254	0	0.2
3/11/2022 14:02	58.5	310	9.88	253	0	0.2
3/11/2022 14:03	58.2	310	9.7	255.5	0	0.2
3/11/2022 14:04	58.7	310	9.5	254.1	0	0.2
3/11/2022 14:05	59.2	310	9.91	254.9	0	0.2
3/11/2022 14:06	59.6	311	9.66	253	0	0.2
3/11/2022 14:07	61.1	311	9.7	254.9	0	0.2
3/11/2022 14:08	61.8	311	9.47	254.3	0	0.2
3/11/2022 14:09	62.1	311	9.61	252.7	0	0.2
3/11/2022 14:10	61.8	311	9.58	252.5	0	0.2
3/11/2022 14:11	61.2	311	9.63	256.8	0	0.2
3/11/2022 14:12	60.6	311	9.73	252.3	0	0.2
3/11/2022 14:13	59.9	310	9.68	252	0	0.2
3/11/2022 14:14	58.2	310	9.62	252.5	0	0.2
3/11/2022 14:15	56.9	310	9.68	254.7	0	0.2
3/11/2022 14:16	56	309	9.66	254.8	0	0.2
3/11/2022 14:17	55	309	9.78	253.2	0	0.2
3/11/2022 14:18	53.7	309	9.69	258.2	0.4	0.2
3/11/2022 14:19	52.9	309	9.71	254.7	0.8	0.2
3/11/2022 14:20	52.6	310	9.82	254.3	1.4	0.2
3/11/2022 14:21	51.4	311	9.57	252.6	1.5	0.2
3/11/2022 14:22	50.6	311	9.73	254	1.7	0.2
3/11/2022 14:23	50.8	311	9.63	252.5	1.5	0.2
3/11/2022 14:24	51.6	310	9.66	255	1.6	0.2
3/11/2022 14:25	53.3	310	9.66	254.2	1.6	0.2
3/11/2022 14:26	53.5	310	9.66	256	1.4	0.2
3/11/2022 14:27	54.2	310	9.66	256.2	1	0.2
3/11/2022 14:28	54.4	311	9.69	252.6	0.9	0.2
3/11/2022 14:29	53.2	311	9.74	256	0.8	0.2
3/11/2022 14:30	53.2	311	9.65	253.3	0.7	0.2
3/11/2022 14:31	53.6	311	9.43	253.2	0.6	0.2
3/11/2022 14:32	53.7	311	9.82	252.6	0	0.2
3/11/2022 14:33	54.3	311	9.33	253.6	0	0.2
3/11/2022 14:34	54.2	311	9.64	253.9	0	0.2
3/11/2022 14:35	53.9	311	12.97	255.9	0.2	0.2
3/11/2022 14:36	53.5	311	10.07	254.8	1	0.2
3/11/2022 14:37	52.8	311	9.85	257.5	1.2	0.2
3/11/2022 14:38	52.4	311	9.4	252.1	1.3	0.2
3/11/2022 14:39	53.7	311	9.89	252	1.2	0.2
3/11/2022 14:40	56	311	9.51	253.3	0.9	0.2
3/11/2022 15:00	65.3	313	9.85	256.1	0	0.2

3/11/2022 15:01	64	312	9.72	256.2	0	0.2
3/11/2022 15:02	63.8	312	9.41	250.3	0	0.2
3/11/2022 15:03	63.5	312	9.79	253.1	0	0.2
3/11/2022 15:04	63.8	312	9.54	253.3	0	0.2
3/11/2022 15:05	64.5	312	9.8	253.1	0	0.2
3/11/2022 15:06	64.5	312	9.92	253.1	0	0.2
3/11/2022 15:07	64.3	312	9.89	256.9	0	0.2
3/11/2022 15:08	65	312	9.77	253.6	0	0.2
3/11/2022 15:09	65.8	312	9.67	254	0	0.2
3/11/2022 15:10	66.2	311	10.35	254.2	0	0.2
3/11/2022 15:11	66	311	9.59	257.6	0	0.2
3/11/2022 15:12	65.7	311	9.87	252.5	0	0.2
3/11/2022 15:13	65.9	311	9.78	257.2	0	0.2
3/11/2022 15:14	65.7	311	9.87	255.3	0	0.2
3/11/2022 15:15	63.9	311	9.61	255.6	0	0.2
3/11/2022 15:16	62.2	311	9.54	251.5	0	0.2
3/11/2022 15:17	61	311	9.74	252	0	0.2
3/11/2022 15:18	60.9	311	9.74	253.2	0.3	0.2
3/11/2022 15:19	60.4	311	12.81	256.2	1	0.2
3/11/2022 15:20	59.8	311	13.37	256.5	0.5	0.2
3/11/2022 15:21	58.8	310	9.46	253.6	1.1	0.2
3/11/2022 15:22	57.7	311	9.48	252.8	0.9	0.2
3/11/2022 15:23	57	311	9.91	253.8	1.4	0.2
3/11/2022 15:24	57.4	311	9.84	253.7	1.2	0.2
3/11/2022 15:25	58.7	311	9.32	251.7	1.5	0.2
3/11/2022 15:26	59.8	311	9.38	254.8	1.5	0.2
3/11/2022 15:27	60.7	311	9.88	258.1	1.3	0.2
3/11/2022 15:28	61.9	311	9.25	253.5	1	0.2
3/11/2022 15:29	62.7	312	9.7	254	0.5	0.2
3/11/2022 15:30	63.6	312	9.83	254.2	0.2	0.2
3/11/2022 15:31	64.2	312	9.67	255	0	0.2
3/11/2022 15:32	65.3	312	9.7	254.4	0	0.2
3/11/2022 15:33	65.6	312	9.62	255.2	0	0.2
3/11/2022 15:34	63.3	312	9.7	252.7	0	0.2
3/11/2022 15:35	64.3	311	9.55	257.5	0	0.2
3/11/2022 15:36	63.6	311	9.62	254.6	0.4	0.2
3/11/2022 15:37	64.8	311	9.65	251.7	0	0.2
3/11/2022 15:38	66.4	311	9.61	251.8	0	0.2
3/11/2022 15:39	67.3	311	9.65	257.2	0.2	0.2
3/11/2022 15:40	66.9	311	9.75	255.7	0	0.2
3/11/2022 15:41	67.4	311	9.73	256.3	0	0.2
3/11/2022 15:42	68	311	9.55	251.3	0	0.2
3/11/2022 15:43	67.7	311	9.6	256.9	0	0.2
3/11/2022 15:44	67.8	311	9.71	252	0	0.2
3/11/2022 15:45	66.2	311	9.86	254.5	0.2	0.2
3/11/2022 15:46	65.8	310	9.61	255.8	0.4	0.2

Period Average:	63.2	310.5	9.8	248.8	0.4	0.2
Period Maximum:	73.1	325	18.1	258.2	1.9	0.2
Period Minimum:	44.7	301	9.03	125.9	0	0.2

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 09:40
End of Report: 03/09/2022 11:53

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 09:40	71.3	301	9.44	251.0	0.0	0.0
03/09/2022 09:41	70.9	301	9.38	249.8	1.2	0.0
03/09/2022 09:42	68.9	301	9.39	247.7	1.2	0.0
03/09/2022 09:43	68.8	301	9.53	251.7	1.2	0.0
03/09/2022 09:44	69.7	301	9.66	249.9	1.2	0.0
03/09/2022 09:45	69.9	301	9.78	249.8	1.2	0.0
03/09/2022 09:46	69.7	301	9.84	249.5	1.2	0.0
03/09/2022 09:47	69.3	301	9.87	249.1	1.2	0.0
03/09/2022 09:48	69.1	301	9.84	248.4	0.0	0.0
03/09/2022 09:49	69.5	301	9.84	249.4	1.2	0.0
03/09/2022 09:50	69.5	301	9.80	251.9	1.2	0.0
03/09/2022 09:51	68.3	301	9.76	248.7	1.2	0.0
03/09/2022 09:52	67.0	301	9.78	246.8	1.2	0.0
03/09/2022 09:53	65.1	301	9.80	251.9	1.2	0.0
03/09/2022 09:54	63.4	301	9.78	250.4	0.1	0.0
03/09/2022 09:55	62.7	301	9.79	248.3	1.2	0.0
03/09/2022 09:56	63.1	301	9.78	247.1	1.2	0.0
03/09/2022 09:57	65.0	301	9.84	246.7	0.0	0.0
03/09/2022 09:58	68.6	301	9.88	247.3	1.2	0.0
03/09/2022 09:59	70.2	301	9.83	252.0	0.0	0.0
03/09/2022 10:00	69.9	301	9.85	250.1	0.0	0.0
03/09/2022 10:01	68.1	301	9.87	246.5	1.2	0.0
03/09/2022 10:02	67.0	301	9.89	250.9	0.0	0.0
03/09/2022 10:03	66.4	301	10.05	249.6	0.0	0.0
03/09/2022 10:04	65.6	301	10.07	248.0	0.0	0.0
03/09/2022 10:05	63.8	301	9.92	253.3	1.0	0.0
03/09/2022 10:06	62.1	301	9.91	249.7	0.0	0.0
03/09/2022 10:07	60.8	301	9.91	248.5	1.2	0.0
03/09/2022 10:08	61.0	301	9.90	249.0	1.2	0.0
03/09/2022 10:09	60.9	301	9.89	249.5	1.1	0.0
03/09/2022 10:10	60.7	301	9.87	249.9	0.0	0.0
03/09/2022 10:11	60.5	301	9.85	248.7	0.0	0.0
03/09/2022 10:12	60.4	301	9.84	246.4	0.0	0.0
03/09/2022 10:13	62.1	301	9.84	246.3	1.2	0.0
03/09/2022 10:14	65.0	302	9.84	249.1	1.1	0.0
03/09/2022 10:15	67.1	301	9.81	252.0	1.2	0.0
03/09/2022 10:16	68.6	302	9.84	249.8	1.2	0.0
03/09/2022 10:17	68.6	301	9.84	248.6	0.0	0.0
03/09/2022 10:18	67.8	301	9.80	250.5	1.2	0.0

Date/Time Printed: 06/06/2022 09:26

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 10:19	66.7	302	9.72	249.2	0.0	0.0
03/09/2022 10:20	66.3	302	9.75	248.1	0.0	0.0
03/09/2022 10:21	66.8	302	9.71	248.8	1.2	0.0
03/09/2022 10:22	67.3	301	9.55	250.0	1.2	0.0
03/09/2022 10:23	67.2	301	9.45	250.4	1.2	0.0
03/09/2022 10:24	67.0	301	9.39	245.2	1.2	0.0
03/09/2022 10:25	66.1	302	9.35	248.6	1.2	0.0
03/09/2022 10:26	66.3	301	9.57	253.6	1.2	0.0
03/09/2022 10:27	66.4	301	9.74	249.5	0.0	0.0
03/09/2022 10:28	66.1	302	9.81	249.7	0.0	0.0
03/09/2022 10:29	67.0	302	9.85	248.3	1.2	0.0
03/09/2022 10:30	67.7	302	9.86	249.3	1.2	0.0
03/09/2022 10:31	67.7	302	9.84	248.5	1.2	0.0
03/09/2022 10:32	67.4	302	9.85	248.2	1.1	0.0
03/09/2022 10:33	67.6	302	9.88	248.7	1.1	0.0
03/09/2022 10:34	68.4	302	9.88	250.4	1.2	0.0
03/09/2022 10:35	68.0	302	9.86	249.3	0.0	0.0
03/09/2022 10:36	66.9	302	9.84	248.0	1.2	0.0
03/09/2022 10:37	66.5	301	9.86	251.9	0.0	0.0
03/09/2022 10:38	65.8	302	9.83	251.2	0.0	0.0
03/09/2022 10:39	65.1	302	9.82	248.7	0.0	0.0
03/09/2022 10:40	64.9	302	9.82	247.5	0.0	0.0
03/09/2022 10:41	65.7	301	9.82	251.2	0.0	0.0
03/09/2022 10:42	66.8	302	9.81	248.2	0.0	0.0
03/09/2022 10:43	69.1	302	9.81	248.6	0.0	0.0
03/09/2022 10:44	71.3	302	9.81	251.1	0.0	0.0
03/09/2022 10:45	72.2	302	9.80	251.3	1.2	0.0
03/09/2022 10:46	71.5	301	9.80	249.7	0.0	0.0
03/09/2022 10:47	69.5	301	9.82	246.8	0.0	0.0
03/09/2022 10:48	67.2	302	9.87	250.1	0.0	0.0
03/09/2022 10:49	65.5	302	9.95	248.7	0.0	0.0
03/09/2022 10:50	64.8	302	9.89	249.5	1.2	0.0
03/09/2022 10:51	65.0	302	9.85	249.7	1.2	0.0
03/09/2022 10:52	66.1	302	9.85	250.5	1.2	0.0
03/09/2022 10:53	66.2	302	9.85	250.6	0.0	0.0
03/09/2022 10:54	66.3	302	9.87	248.9	0.0	0.0
03/09/2022 10:55	68.3	302	9.83	249.0	1.2	0.0
03/09/2022 10:56	71.0	302	9.83	247.4	0.0	0.0
03/09/2022 10:57	72.3	302	9.83	252.4	1.2	0.0
03/09/2022 10:58	71.3	302	9.82	250.2	0.0	0.0
03/09/2022 10:59	69.6	302	9.80	251.2	1.2	0.0
03/09/2022 11:00	68.1	302	9.83	249.1	1.2	0.0
03/09/2022 11:01	68.1	302	9.81	248.6	0.0	0.0
03/09/2022 11:02	68.8	302	9.77	248.0	0.0	0.0
03/09/2022 11:03	69.9	302	9.61	248.7	0.0	0.0
03/09/2022 11:04	70.3	302	9.49	248.6	1.2	0.0
03/09/2022 11:05	72.1	302	9.42	244.3	0.0	0.0
03/09/2022 11:06	73.8	302	9.37	250.3	1.2	0.0
03/09/2022 11:07	73.4	302	9.43	251.0	0.0	0.0
03/09/2022 11:08	72.3	302	9.56	247.7	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 11:09	70.2	302	9.63	249.4	0.0	0.0
03/09/2022 11:10	70.9	302	9.71	253.3	0.0	0.0
03/09/2022 11:11	71.1	302	9.72	249.5	0.0	0.0
03/09/2022 11:12	69.3	302	9.73	250.3	0.0	0.0
03/09/2022 11:13	68.5	302	9.73	251.3	1.1	0.0
03/09/2022 11:14	68.7	302	9.77	251.4	1.2	0.0
03/09/2022 11:15	67.6	302	9.80	248.3	0.0	0.0
03/09/2022 11:16	67.4	302	9.77	246.7	0.0	0.0
03/09/2022 11:17	68.8	302	9.77	248.7	0.0	0.0
03/09/2022 11:18	69.7	302	9.78	250.7	0.0	0.0
03/09/2022 11:19	69.9	302	9.82	250.8	0.0	0.0
03/09/2022 11:20	69.6	302	9.79	251.8	1.2	0.0
03/09/2022 11:21	67.3	302	9.78	247.7	1.2	0.0
03/09/2022 11:22	65.5	302	9.79	249.1	0.0	0.0
03/09/2022 11:23	64.7	302	9.83	250.4	0.0	0.0
03/09/2022 11:24	64.3	302	9.85	247.0	0.0	0.0
03/09/2022 11:25	64.1	302	9.87	248.5	0.0	0.0
03/09/2022 11:26	64.9	302	9.84	248.4	0.0	0.0
03/09/2022 11:27	66.6	302	9.81	248.0	1.2	0.0
03/09/2022 11:28	67.8	303	9.80	249.7	1.2	0.0
03/09/2022 11:29	67.9	302	9.82	248.9	0.0	0.0
03/09/2022 11:30	68.3	303	9.79	248.7	0.0	0.0
03/09/2022 11:31	67.4	302	9.79	251.0	0.0	0.0
03/09/2022 11:32	66.5	303	9.77	246.3	1.2	0.0
03/09/2022 11:33	66.8	303	9.77	253.6	1.2	0.0
03/09/2022 11:34	67.8	303	9.80	249.8	1.2	0.0
03/09/2022 11:35	68.6	303	9.79	245.7	1.2	0.0
03/09/2022 11:36	68.1	303	9.82	250.1	0.0	0.0
03/09/2022 11:37	66.5	303	9.83	252.1	0.0	0.0
03/09/2022 11:38	65.2	303	9.83	251.1	0.7	0.0
03/09/2022 11:39	64.0	303	9.81	247.0	0.0	0.0
03/09/2022 11:40	64.2	303	9.74	247.9	1.2	0.0
03/09/2022 11:41	66.2	303	9.58	248.8	1.2	0.0
03/09/2022 11:42	69.2	303	9.47	247.8	0.0	0.0
03/09/2022 11:43	71.1	303	9.40	248.9	0.0	0.0
03/09/2022 11:44	70.5	303	9.28	252.1	0.0	0.0
03/09/2022 11:45	69.6	303	9.44	246.0	0.0	0.0
03/09/2022 11:46	69.4	303	9.71	249.3	0.0	0.0
03/09/2022 11:47	69.9	303	9.80	251.5	1.2	0.0
03/09/2022 11:48	70.9	303	9.82	250.9	0.0	0.0
03/09/2022 11:49	71.7	302	9.82	249.7	1.2	0.0
03/09/2022 11:50	71.6	303	9.81	248.0	1.2	0.0
03/09/2022 11:51	70.7	304	9.81	246.1	1.2	0.0
03/09/2022 11:52	70.2	303	9.82	251.1	0.0	0.0
03/09/2022 11:53	69.0	303	9.81	249.0	0.0	0.0

Period Average =	67.6	302	9.77	249.3	0.6	0.0
Period Max Value =	73.8	304	10.07	253.6	1.2	0.0
Period Min Value =	60.4	301	9.28	244.3	0.0	0.0
Period Totals =	9.0603E+3	4.0446E+4	1.3085E+3	3.3410E+4	7.6900E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 13:50
End of Report: 03/09/2022 16:12

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 13:50	71.4	304	9.43	251.3	0.0	0.0
03/09/2022 13:51	67.8	304	9.38	248.8	1.4	0.0
03/09/2022 13:52	69.1	304	9.46	247.7	0.0	0.0
03/09/2022 13:53	69.0	304	9.55	251.3	0.0	0.0
03/09/2022 13:54	69.3	304	9.61	250.2	0.0	0.0
03/09/2022 13:55	70.7	304	9.73	249.0	0.0	0.0
03/09/2022 13:56	69.8	304	9.77	250.4	0.0	0.0
03/09/2022 13:57	66.9	304	9.80	249.4	1.4	0.0
03/09/2022 13:58	65.9	304	9.79	246.9	1.4	0.0
03/09/2022 13:59	65.7	304	9.79	249.2	1.4	0.0
03/09/2022 14:00	65.8	303	9.82	252.9	1.4	0.0
03/09/2022 14:01	66.4	305	9.81	248.1	0.0	0.0
03/09/2022 14:02	68.6	304	9.81	248.1	1.4	0.0
03/09/2022 14:03	69.3	304	9.78	250.2	1.4	0.0
03/09/2022 14:04	68.6	304	9.81	248.3	0.0	0.0
03/09/2022 14:05	67.8	304	9.82	251.8	0.0	0.0
03/09/2022 14:06	66.2	304	9.82	248.0	0.9	0.0
03/09/2022 14:07	64.8	304	9.84	248.9	0.0	0.0
03/09/2022 14:08	64.8	304	9.86	249.2	0.0	0.0
03/09/2022 14:09	66.4	304	9.86	252.3	0.0	0.0
03/09/2022 14:10	67.8	304	9.90	247.1	0.0	0.0
03/09/2022 14:11	68.1	304	9.83	248.2	1.4	0.0
03/09/2022 14:12	68.2	304	9.83	251.6	0.0	0.0
03/09/2022 14:13	67.0	304	9.81	248.2	1.4	0.0
03/09/2022 14:14	65.5	304	9.77	250.5	1.4	0.0
03/09/2022 14:15	64.2	304	9.80	252.4	1.4	0.0
03/09/2022 14:16	63.6	304	9.75	248.6	1.4	0.0
03/09/2022 14:17	63.3	304	9.77	247.3	0.0	0.0
03/09/2022 14:18	62.9	304	9.73	247.9	1.4	0.0
03/09/2022 14:19	62.7	304	9.77	251.7	0.0	0.0
03/09/2022 14:20	62.7	304	9.79	247.7	1.4	0.0
03/09/2022 14:21	63.6	304	9.81	249.0	1.4	0.0
03/09/2022 14:22	65.0	304	9.77	250.8	0.0	0.0
03/09/2022 14:23	67.0	304	9.86	248.4	0.0	0.0
03/09/2022 14:24	69.5	304	9.79	249.2	0.0	0.0
03/09/2022 14:25	71.4	304	9.81	249.4	1.4	0.0
03/09/2022 14:26	71.8	304	9.76	246.5	0.0	0.0
03/09/2022 14:27	71.0	304	9.76	250.6	1.0	0.0
03/09/2022 14:28	68.4	304	9.67	252.0	1.4	0.0

Date/Time Printed: 06/06/2022 09:28

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 14:29	67.4	304	9.53	248.7	0.0	0.0
03/09/2022 14:30	67.6	304	9.44	250.0	0.0	0.0
03/09/2022 14:31	67.3	304	9.39	249.9	0.0	0.0
03/09/2022 14:32	67.0	304	9.34	251.6	1.5	0.0
03/09/2022 14:33	67.3	304	9.54	249.0	0.0	0.0
03/09/2022 14:34	68.3	304	9.69	248.1	1.4	0.0
03/09/2022 14:35	68.5	304	9.75	249.7	0.0	0.0
03/09/2022 14:36	68.3	304	9.79	247.9	1.4	0.0
03/09/2022 14:37	68.0	304	9.80	252.7	0.0	0.0
03/09/2022 14:38	66.7	304	9.83	248.5	0.0	0.0
03/09/2022 14:39	66.0	304	9.83	251.1	0.0	0.0
03/09/2022 14:40	66.4	304	9.81	246.9	1.4	0.0
03/09/2022 14:41	67.0	305	9.82	247.5	0.0	0.0
03/09/2022 14:42	69.1	304	9.79	252.3	1.4	0.0
03/09/2022 14:43	72.2	304	9.82	248.4	0.0	0.0
03/09/2022 14:44	75.4	304	9.83	248.9	1.4	0.0
03/09/2022 14:45	77.3	304	9.76	249.0	0.0	0.0
03/09/2022 14:46	76.7	304	9.81	250.1	0.0	0.0
03/09/2022 14:47	74.7	304	9.89	248.8	0.0	0.0
03/09/2022 14:48	72.5	304	9.85	251.4	1.4	0.0
03/09/2022 14:49	71.7	304	9.83	248.5	0.0	0.0
03/09/2022 14:50	71.1	304	9.78	251.7	0.0	0.0
03/09/2022 14:51	70.4	304	9.77	249.4	0.0	0.0
03/09/2022 14:52	66.7	304	9.78	250.9	0.0	0.0
03/09/2022 14:53	69.0	304	9.80	261.1	0.0	0.0
03/09/2022 14:54	68.5	304	9.81	260.7	0.0	0.0
03/09/2022 14:55	69.1	304	9.78	253.1	0.0	0.0
03/09/2022 14:56	70.6	304	9.78	249.9	0.0	0.0
03/09/2022 14:57	71.0	304	9.81	251.4	0.0	0.0
03/09/2022 14:58	69.8	304	9.80	251.0	0.0	0.0
03/09/2022 14:59	67.7	304	9.81	249.2	0.0	0.0
03/09/2022 15:00	67.5	304	9.85	251.3	0.0	0.0
03/09/2022 15:01	68.1	305	9.87	249.8	1.4	0.0
03/09/2022 15:02	68.4	304	9.79	247.8	1.4	0.0
03/09/2022 15:03	68.8	304	9.89	251.6	0.0	0.0
03/09/2022 15:04	69.2	304	9.89	246.5	0.0	0.0
03/09/2022 15:05	69.8	304	9.95	250.5	0.0	0.0
03/09/2022 15:06	69.7	304	9.84	249.9	0.0	0.0
03/09/2022 15:07	68.6	304	9.83	250.2	1.4	0.0
03/09/2022 15:08	67.1	304	9.75	247.7	1.4	0.0
03/09/2022 15:09	65.9	304	9.76	250.5	0.0	0.0
03/09/2022 15:10	65.9	304	9.61	249.3	0.0	0.0
03/09/2022 15:11	65.9	304	9.49	249.6	1.4	0.0
03/09/2022 15:12	65.9	304	9.42	249.8	0.0	0.0
03/09/2022 15:13	65.6	304	9.38	249.5	0.0	0.0
03/09/2022 15:14	65.0	304	9.70	249.5	0.0	0.0
03/09/2022 15:15	64.0	305	9.75	247.0	0.0	0.0
03/09/2022 15:16	64.1	304	9.77	250.2	0.0	0.0
03/09/2022 15:17	65.6	304	9.81	250.2	1.4	0.0
03/09/2022 15:18	66.5	304	9.86	250.1	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 15:19	66.9	304	9.85	247.1	0.0	0.0
03/09/2022 15:20	68.9	304	9.85	246.8	0.0	0.0
03/09/2022 15:21	71.8	304	9.83	250.2	0.0	0.0
03/09/2022 15:22	74.7	304	9.82	252.9	0.0	0.0
03/09/2022 15:23	75.2	304	9.82	251.6	0.0	0.0
03/09/2022 15:24	73.5	304	9.84	248.5	0.0	0.0
03/09/2022 15:25	71.6	304	9.82	249.1	0.0	0.0
03/09/2022 15:26	70.3	304	9.85	246.7	1.4	0.0
03/09/2022 15:27	69.6	304	9.80	250.6	0.0	0.0
03/09/2022 15:28	69.4	304	9.81	249.4	1.4	0.0
03/09/2022 15:29	69.9	304	9.80	251.8	0.0	0.0
03/09/2022 15:30	70.2	304	9.81	248.2	1.4	0.0
03/09/2022 15:31	68.1	304	9.81	250.8	0.0	0.0
03/09/2022 15:32	70.1	304	9.83	248.3	0.0	0.0
03/09/2022 15:33	69.5	304	9.87	249.1	1.4	0.0
03/09/2022 15:34	68.1	304	9.85	248.6	1.4	0.0
03/09/2022 15:35	68.2	304	9.87	250.5	1.4	0.0
03/09/2022 15:36	68.1	304	9.81	251.3	0.0	0.0
03/09/2022 15:37	66.8	304	9.91	247.8	0.0	0.0
03/09/2022 15:38	66.6	304	9.88	245.8	0.0	0.0
03/09/2022 15:39	67.7	304	9.88	250.3	0.0	0.0
03/09/2022 15:40	68.3	304	9.84	250.7	1.4	0.0
03/09/2022 15:41	68.4	304	9.80	252.0	1.4	0.0
03/09/2022 15:42	69.0	304	9.80	248.8	0.0	0.0
03/09/2022 15:43	69.1	304	9.85	248.1	0.0	0.0
03/09/2022 15:44	68.9	304	9.85	247.8	0.0	0.0
03/09/2022 15:45	69.2	304	9.85	249.5	1.4	0.0
03/09/2022 15:46	69.8	304	9.77	250.3	1.4	0.0
03/09/2022 15:47	70.1	304	9.85	250.4	1.4	0.0
03/09/2022 15:48	69.3	304	10.00	249.2	0.0	0.0
03/09/2022 15:49	69.5	304	10.14	251.4	0.0	0.0
03/09/2022 15:50	69.7	304	9.84	247.7	1.4	0.0
03/09/2022 15:51	69.5	304	9.63	249.8	0.0	0.0
03/09/2022 15:52	68.7	304	9.51	249.3	0.0	0.0
03/09/2022 15:53	67.7	304	9.43	249.9	0.0	0.0
03/09/2022 15:54	68.2	304	9.47	248.0	1.4	0.0
03/09/2022 15:55	69.1	304	9.70	252.6	0.0	0.0
03/09/2022 15:56	69.9	304	9.79	249.7	1.4	0.0
03/09/2022 15:57	69.8	304	9.82	248.2	0.0	0.0
03/09/2022 15:58	69.7	304	9.82	248.3	1.4	0.0
03/09/2022 15:59	69.2	304	9.88	248.3	0.0	0.0
03/09/2022 16:00	68.8	304	9.84	246.1	0.0	0.0
03/09/2022 16:01	67.7	304	9.85	251.7	1.4	0.0
03/09/2022 16:02	65.4	304	9.83	249.5	0.0	0.0
03/09/2022 16:03	63.5	304	9.84	249.4	1.4	0.0
03/09/2022 16:04	62.7	304	9.82	250.0	0.0	0.0
03/09/2022 16:05	63.0	304	9.84	248.2	1.3	0.0
03/09/2022 16:06	64.1	304	9.82	250.2	0.0	0.0
03/09/2022 16:07	64.9	304	9.83	250.6	0.0	0.0
03/09/2022 16:08	65.9	304	9.84	247.1	0.0	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 16:09	64.9	304	9.80	251.0	0.0	0.0
03/09/2022 16:10	63.2	304	9.83	250.6	0.0	0.0
03/09/2022 16:11	61.7	304	9.83	249.0	1.4	0.0
03/09/2022 16:12	60.3	304	9.80	249.9	1.4	0.0
Period Average =	68.1	304	9.77	249.7	0.5	0.0
Period Max Value =	77.3	305	10.14	261.1	1.5	0.0
Period Min Value =	60.3	303	9.34	245.8	0.0	0.0
Period Totals =	9.7333E+3	4.3475E+4	1.3978E+3	3.5706E+4	7.1900E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Marion, Inc.
P.O. Box 9126
Salem, OR 97305

Data Group: U-2>1 Min Computed
Report Name: No Title
Start of Report: 03/09/2022 17:30
End of Report: 03/09/2022 19:45

Validation: Valid Data Only

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 17:30	66.6	304	9.96	250.2	0.0	0.0
03/09/2022 17:31	66.8	304	9.94	247.1	0.0	0.0
03/09/2022 17:32	67.5	304	9.94	250.1	1.3	0.0
03/09/2022 17:33	69.7	304	9.91	249.7	0.0	0.0
03/09/2022 17:34	73.3	304	9.89	247.8	0.0	0.0
03/09/2022 17:35	75.8	304	9.91	249.9	0.0	0.0
03/09/2022 17:36	76.4	303	9.90	251.4	0.0	0.0
03/09/2022 17:37	75.5	304	9.93	251.0	1.3	0.0
03/09/2022 17:38	74.2	304	9.97	248.4	1.3	0.0
03/09/2022 17:39	73.3	304	10.00	251.3	1.3	0.0
03/09/2022 17:40	73.0	304	10.03	249.5	0.0	0.0
03/09/2022 17:41	67.2	304	10.03	249.0	0.0	0.0
03/09/2022 17:42	68.9	304	9.99	247.4	0.0	0.0
03/09/2022 17:43	66.5	304	10.09	249.3	0.0	0.0
03/09/2022 17:44	65.8	304	10.04	252.7	0.0	0.0
03/09/2022 17:45	67.0	304	10.02	248.5	0.0	0.0
03/09/2022 17:46	67.5	304	9.97	247.6	1.3	0.0
03/09/2022 17:47	68.3	304	9.92	250.9	0.0	0.0
03/09/2022 17:48	68.9	304	9.93	249.2	0.0	0.0
03/09/2022 17:49	69.5	304	9.90	249.8	1.3	0.0
03/09/2022 17:50	69.5	304	9.95	250.2	1.3	0.0
03/09/2022 17:51	69.1	304	9.91	248.8	0.0	0.0
03/09/2022 17:52	68.7	304	9.71	249.1	1.3	0.0
03/09/2022 17:53	69.2	304	9.56	250.0	1.3	0.0
03/09/2022 17:54	69.1	304	9.47	249.2	1.3	0.0
03/09/2022 17:55	68.7	304	9.41	248.7	0.0	0.0
03/09/2022 17:56	67.6	304	9.49	247.5	0.0	0.0
03/09/2022 17:57	67.0	304	9.75	249.2	1.0	0.0
03/09/2022 17:58	67.3	304	9.87	250.3	1.3	0.0
03/09/2022 17:59	67.1	304	9.90	249.2	1.2	0.0
03/09/2022 18:00	66.7	304	9.92	248.8	1.3	0.0
03/09/2022 18:01	66.1	304	9.93	248.9	0.0	0.0
03/09/2022 18:02	66.4	304	9.95	249.5	0.0	0.0
03/09/2022 18:03	66.5	304	9.93	250.1	0.0	0.0
03/09/2022 18:04	66.8	304	9.91	249.5	0.0	0.0
03/09/2022 18:05	68.4	304	9.95	247.9	0.0	0.0
03/09/2022 18:06	70.4	304	9.95	249.3	0.0	0.0
03/09/2022 18:07	71.3	304	9.92	249.5	1.3	0.0
03/09/2022 18:08	71.3	304	9.92	251.7	1.2	0.0

Date/Time Printed: 06/06/2022 09:28

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 18:09	70.6	304	9.94	250.5	0.0	0.0
03/09/2022 18:10	70.2	304	9.89	247.5	0.0	0.0
03/09/2022 18:11	69.6	304	9.92	251.1	0.0	0.0
03/09/2022 18:12	68.7	304	9.93	249.1	0.0	0.0
03/09/2022 18:13	68.1	304	9.95	250.4	1.2	0.0
03/09/2022 18:14	68.4	304	9.95	249.1	0.0	0.0
03/09/2022 18:15	68.9	304	9.95	250.0	0.0	0.0
03/09/2022 18:16	67.6	304	9.95	248.7	1.2	0.0
03/09/2022 18:17	64.9	305	10.05	251.9	1.2	0.0
03/09/2022 18:18	66.0	304	10.04	248.8	1.2	0.0
03/09/2022 18:19	64.3	304	10.01	250.8	0.0	0.0
03/09/2022 18:20	63.3	304	9.97	246.9	0.0	0.0
03/09/2022 18:21	63.5	304	9.92	246.6	0.0	0.0
03/09/2022 18:22	64.0	304	9.93	250.1	0.0	0.0
03/09/2022 18:23	64.4	304	9.94	249.0	0.0	0.0
03/09/2022 18:24	64.7	304	9.93	250.9	0.0	0.0
03/09/2022 18:25	63.9	304	9.95	250.1	1.2	0.0
03/09/2022 18:26	63.8	304	9.92	251.4	0.0	0.0
03/09/2022 18:27	64.5	304	9.90	247.7	0.0	0.0
03/09/2022 18:28	65.7	304	9.91	249.3	0.0	0.0
03/09/2022 18:29	67.1	304	9.95	251.1	0.0	0.0
03/09/2022 18:30	68.2	304	9.97	248.1	1.2	0.0
03/09/2022 18:31	68.9	304	9.86	247.6	1.2	0.0
03/09/2022 18:32	68.5	304	9.65	248.8	0.0	0.0
03/09/2022 18:33	68.4	304	9.52	252.6	1.2	0.0
03/09/2022 18:34	68.7	304	9.45	247.0	0.0	0.0
03/09/2022 18:35	69.6	304	9.32	249.2	0.0	0.0
03/09/2022 18:36	69.8	304	9.48	252.4	0.0	0.0
03/09/2022 18:37	70.2	304	9.77	248.4	0.0	0.0
03/09/2022 18:38	70.9	304	9.88	250.8	0.0	0.0
03/09/2022 18:39	69.9	304	9.92	247.7	1.2	0.0
03/09/2022 18:40	67.9	304	9.95	247.8	0.0	0.0
03/09/2022 18:41	66.5	304	9.93	251.0	0.0	0.0
03/09/2022 18:42	65.4	304	9.97	248.2	0.0	0.0
03/09/2022 18:43	64.5	304	9.98	247.5	1.2	0.0
03/09/2022 18:44	64.3	304	9.96	250.4	0.0	0.0
03/09/2022 18:45	66.8	304	9.94	249.7	1.2	0.0
03/09/2022 18:46	69.9	304	9.98	251.6	0.0	0.0
03/09/2022 18:47	71.4	305	9.93	242.8	0.0	0.0
03/09/2022 18:48	71.6	303	9.93	252.4	0.0	0.0
03/09/2022 18:49	71.1	304	9.95	250.2	0.0	0.0
03/09/2022 18:50	69.1	304	9.98	249.0	1.2	0.0
03/09/2022 18:51	66.1	304	9.99	250.1	0.0	0.0
03/09/2022 18:52	67.2	304	9.98	252.0	0.0	0.0
03/09/2022 18:53	66.2	304	9.95	247.3	1.2	0.0
03/09/2022 18:54	67.2	304	9.96	247.0	0.0	0.0
03/09/2022 18:55	69.4	304	9.98	252.1	0.0	0.0
03/09/2022 18:56	70.2	304	9.95	250.4	1.2	0.0
03/09/2022 18:57	69.1	304	9.96	249.5	0.0	0.0
03/09/2022 18:58	68.3	304	9.94	247.2	0.3	0.0

Group#-Channel#	G21-C35	G21-C37	G21-C40	G21-C39	G21-C3	G21-C2
Long Descrip.	U2-1Min S	U2-1Min B	U2-1Min C	U2-1Min L	U2-1Min A	U2-1Min A
Short Descrip.	SteamFl	BagHTemp	CarbInj	LimeFlow	NH3 Flow	AuxGasFlo
Units	Yes/No	Yes/No	Yes/No	Yes/No	GPH	KSCFH
Range	0-100	0-500	0-50	0-1200	0-60	0-50
03/09/2022 18:59	66.7	304	9.95	248.9	0.0	0.0
03/09/2022 19:00	66.1	304	9.94	250.2	0.0	0.0
03/09/2022 19:01	65.2	304	9.98	247.3	1.2	0.0
03/09/2022 19:02	65.4	304	9.92	248.8	0.0	0.0
03/09/2022 19:03	66.2	304	9.92	247.3	0.0	0.0
03/09/2022 19:04	66.6	304	9.97	253.1	0.0	0.0
03/09/2022 19:05	66.7	304	9.93	246.9	0.0	0.0
03/09/2022 19:06	68.1	304	9.95	251.0	1.2	0.0
03/09/2022 19:07	71.1	304	9.92	247.0	0.0	0.0
03/09/2022 19:08	73.4	304	10.00	251.8	1.2	0.0
03/09/2022 19:09	73.7	304	9.97	252.2	0.0	0.0
03/09/2022 19:10	72.3	304	9.97	251.3	1.2	0.0
03/09/2022 19:11	70.7	304	9.96	247.1	0.0	0.0
03/09/2022 19:12	69.2	304	9.85	250.8	1.2	0.0
03/09/2022 19:13	67.8	304	9.66	248.6	0.0	0.0
03/09/2022 19:14	66.9	305	9.53	247.5	0.0	0.0
03/09/2022 19:15	66.9	303	9.45	250.2	0.0	0.0
03/09/2022 19:16	67.7	304	9.33	247.3	0.0	0.0
03/09/2022 19:17	68.3	304	9.44	250.7	0.0	0.0
03/09/2022 19:18	69.0	304	9.68	247.1	1.2	0.0
03/09/2022 19:19	70.4	304	9.76	249.2	0.0	0.0
03/09/2022 19:20	71.9	304	9.82	250.6	0.0	0.0
03/09/2022 19:21	72.3	304	9.89	251.9	0.0	0.0
03/09/2022 19:22	71.7	304	9.91	249.5	0.0	0.0
03/09/2022 19:23	70.8	304	9.92	250.4	1.2	0.0
03/09/2022 19:24	70.3	304	9.93	247.4	1.2	0.0
03/09/2022 19:25	70.2	304	9.94	247.8	0.0	0.0
03/09/2022 19:26	70.6	304	9.96	252.1	1.1	0.0
03/09/2022 19:27	71.0	304	9.95	246.7	1.2	0.0
03/09/2022 19:28	71.4	304	9.96	252.0	0.0	0.0
03/09/2022 19:29	71.2	304	9.92	251.2	0.0	0.0
03/09/2022 19:30	70.4	304	9.93	247.0	1.2	0.0
03/09/2022 19:31	67.7	304	9.93	252.0	0.0	0.0
03/09/2022 19:32	66.3	304	9.95	249.1	0.0	0.0
03/09/2022 19:33	65.5	304	9.97	247.0	0.0	0.0
03/09/2022 19:34	64.3	304	10.01	250.5	0.0	0.0
03/09/2022 19:35	64.3	304	10.04	246.9	0.0	0.0
03/09/2022 19:36	64.8	304	10.02	253.0	0.0	0.0
03/09/2022 19:37	66.3	305	9.99	245.4	0.0	0.0
03/09/2022 19:38	68.4	304	9.93	251.8	0.0	0.0
03/09/2022 19:39	71.2	304	9.88	247.9	1.2	0.0
03/09/2022 19:40	72.5	304	9.89	251.1	0.0	0.0
03/09/2022 19:41	72.4	304	9.84	249.2	0.0	0.0
03/09/2022 19:42	71.7	304	9.86	249.8	0.0	0.0
03/09/2022 19:43	71.2	304	9.95	249.6	0.0	0.0
03/09/2022 19:44	71.1	304	9.90	253.5	0.0	0.0
03/09/2022 19:45	69.8	304	9.95	246.3	1.1	0.0

Period Average =	68.6	304	9.89	249.4	0.4	0.0
Period Max Value =	76.4	305	10.09	253.5	1.3	0.0
Period Min Value =	63.3	303	9.32	242.8	0.0	0.0
Period Totals =	9.3241E+3	4.1345E+4	1.3449E+3	3.3922E+4	5.2800E+1	0.0000E+0
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

APPENDIX C
LABORATORY ANALYSIS DATA

Appendix C.1
HCl, HF, Metals & TICs Analyses

Montrose Air Quality Services, LLC – Portland

13585 NE Whitaker Way
Portland, OR 97230

Covanta Marion, Inc.

Client Project # PROJ-010935

Analytical Report (0222-186)

EPA Method 29

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel, Phosphorus, Selenium, Silver, Thallium, Zinc, Mercury, Aluminum, Iron, Molybdenum, Potassium and Vanadium

EPA Method 26A

Hydrogen chloride, Hydrogen fluoride, Hydrogen bromide, Chlorine, Bromine

EPA SW-846 Method 8270D

Client Requested Target Compound List
Top Ten Tentatively Identified Compounds

Enthalpy Analytical, LLC

Phone: (919) 850 - 4392 / Fax: (919) 850 - 9012 / www.enthalpy.com
800-1 Capitola Drive Durham, NC 27713-4385

I certify that to the best of my knowledge all analytical data presented in this report:

- Have been checked for completeness
- Are accurate, error-free, and legible
- Have been conducted in accordance with approved protocol, and that all deviations and analytical problems are summarized in the appropriate narrative(s)

This analytical report was prepared in Portable Document Format (.PDF) and contains 268 pages.



Digitally signed by Alexa Cross
DN: dc=com, dc=montrose-env, dc=meg, ou=meg, ou=Sites, ou=053-Durham, ou=Users, cn=Alexa Cross, email=alexa.cross@enthalpy.com
Date: 2022.04.11 15:56:09 -04'00'

Report Issued: 4/11/22

ENTHALPY ANALYTICAL

Summary of Results

EPA Method 29 Summary

EA Project #: 0222-186
Client: Montrose Air Quality Services, LLC - Portland
Client Project ID: PROJ-010935 - Covanta Marion, Inc. - Unit 2

Total Micrograms in Sample (ug)

Sample	Sb	As	Ba	Be	Cd
Chronic Run 1 - FH	3.18	0.445 J	6.46	0.0500 ND	1.02
Chronic Run 1 - BH	2.25	0.116 J	0.840	0.0110 ND	0.645
Chronic Run 2 - FH	9.10	0.745 J	6.52	0.0500 ND	2.33
Chronic Run 2 - BH	0.0548 ND	0.0548 ND	0.260	0.0110 ND	0.0110 ND
Chronic Run 3 - FH	9.70	0.520 J	6.42	0.0500 ND	2.90
Chronic Run 3 - BH	0.0648 J	0.0551 ND	0.254	0.0110 ND	0.0110 ND
Acute Run 1 - FH	9.94	0.410 J	6.17	0.0500 ND	2.17
Acute Run 1 - BH	0.0553 ND	0.0553 ND	0.214 J	0.0111 ND	0.0111 ND
Acute Run 2 - FH	7.35	0.439 J	6.56	0.0500 ND	2.90
Acute Run 2 - BH	0.0555 ND	0.0555 ND	0.187 J	0.0111 ND	0.0111 ND
Acute Run 3 - FH	9.59	0.372 J	6.13	0.0500 ND	2.19
Acute Run 3 - BH	0.0552 ND	0.0552 ND	0.123 J	0.0110 ND	0.0110 ND
Reagent Blank - FH	0.250 ND	0.348 ND	4.25	0.0500 ND	0.751
Reagent Blank - BH	0.0576 ND	0.0576 ND	0.0230 ND	0.0115 ND	0.0115 ND

QC SUMMARY

	Sb	As	Ba	Be	Cd
Spike, %Rec. Front	102%	95%	104%	100%	99%
Spike, %Rec. Back	98%	101%	100%	95%	91%
Duplicate, %RPD Front	N/A	N/A	0.5%	N/A	N/A
Duplicate, %RPD Back	N/A	N/A	N/A	N/A	N/A

EPA Method 29 Summary

EA Project #: 0222-186
Client: Montrose Air Quality Services, LLC - Portland
Client Project ID: PROJ-010935 - Covanta Marion, Inc. - Unit 2

Total Micrograms in Sample (ug)

Sample	Cr	Co	Cu	Pb	Mn
Chronic Run 1 - FH	2.82	0.294 J	2.45 J	3.06	4.02
Chronic Run 1 - BH	0.903	0.0523 J	3.56	3.16	1.46
Chronic Run 2 - FH	4.72	0.227 J	6.15	10.9	4.31
Chronic Run 2 - BH	0.490	0.0205 J	0.436 J	0.177	0.577
Chronic Run 3 - FH	3.86	0.310 J	6.03	11.0	4.46
Chronic Run 3 - BH	0.333	0.0122 J	0.271 J	0.0908 J	0.207 J
Acute Run 1 - FH	4.58	0.188 J	5.57	7.00	4.04
Acute Run 1 - BH	0.447	0.0240 J	0.543 J	0.130	0.515
Acute Run 2 - FH	4.25	0.271 J	5.36	6.97	5.10
Acute Run 2 - BH	0.498	0.0500 J	0.286 J	0.188	0.471
Acute Run 3 - FH	3.56	0.179 ND	5.11	7.07	3.62
Acute Run 3 - BH	0.224	0.0126 J	0.227 J	0.0758 J	0.463
Reagent Blank - FH	1.35	0.179 ND	2.35 J	0.481 J	0.978 J
Reagent Blank - BH	0.0887 ND	0.0115 ND	0.0576 ND	0.0115 ND	0.0743 J

QC SUMMARY

	Cr	Co	Cu	Pb	Mn
Spike, %Rec. Front	102%	102%	102%	100%	101%
Spike, %Rec. Back	98%	113%	113%	100%	96%
Duplicate, %RPD Front	N/A	N/A	N/A	2.8%	N/A
Duplicate, %RPD Back	N/A	N/A	N/A	N/A	N/A

EPA Method 29 Summary

EA Project #: 0222-186
Client: Montrose Air Quality Services, LLC - Portland
Client Project ID: PROJ-010935 - Covanta Marion, Inc. - Unit 2

Total Micrograms in Sample (ug)

Sample	Ni	P	Se	Ag	Tl
Chronic Run 1 - FH	3.50	9.72 J	0.487 J	0.185 J	0.202 ND
Chronic Run 1 - BH	0.986	4.95 J	0.523 J	0.103 J	0.0140 J
Chronic Run 2 - FH	4.97	28.0	0.478 ND	0.210 J	0.202 ND
Chronic Run 2 - BH	0.415 J	2.71 J	0.301 J	0.0110 ND	0.0110 ND
Chronic Run 3 - FH	4.03	12.6 J	0.743 J	0.143 J	0.202 ND
Chronic Run 3 - BH	0.208 J	1.67 J	0.235 J	0.137	0.0110 ND
Acute Run 1 - FH	5.18	17.4 J	0.478 ND	0.196 J	0.202 ND
Acute Run 1 - BH	0.516 J	4.16 J	0.346 J	0.0198 J	0.0111 ND
Acute Run 2 - FH	4.37	17.4 J	0.478 ND	0.181 J	0.202 ND
Acute Run 2 - BH	0.290 J	4.04 J	0.394 J	0.210	0.0253 J
Acute Run 3 - FH	3.91	21.8 J	0.501 J	0.198 J	0.202 ND
Acute Run 3 - BH	0.248 J	2.39 J	0.224 J	0.0110 ND	0.0110 ND
Reagent Blank - FH	2.99	2.50 ND	0.522 J	0.0500 ND	0.202 ND
Reagent Blank - BH	0.0649 ND	1.03 J	0.151 ND	0.0115 ND	0.0115 ND

QC SUMMARY

	Ni	P	Se	Ag	Tl
Spike, %Rec. Front	98%	100%	99%	107%	99%
Spike, %Rec. Back	92%	86%	108%	98%	98%
Duplicate, %RPD Front	N/A	N/A	N/A	N/A	N/A
Duplicate, %RPD Back	N/A	N/A	N/A	N/A	N/A

EPA Method 29 Summary

EA Project #: 0222-186
Client: Montrose Air Quality Services, LLC - Portland
Client Project ID: PROJ-010935 - Covanta Marion, Inc. - Unit 2

Total Micrograms in Sample (ug)

Sample	Zn	Al	Fe	K	Mo	V
Chronic Run 1 - FH	45.0	164	189	157	11.4	5.00 ND
Chronic Run 1 - BH	67.7	12.8	58.6	133	0.552 ND	1.10 ND
Chronic Run 2 - FH	157	129	249	372	11.6	5.00 ND
Chronic Run 2 - BH	3.84	7.91	13.4	12.6	0.548 ND	1.10 ND
Chronic Run 3 - FH	151	127	282	358	11.7	5.00 ND
Chronic Run 3 - BH	1.91 J	5.51 ND	8.30	5.51 ND	0.551 ND	1.10 ND
Acute Run 1 - FH	97.7	148	233	296	11.6	5.00 ND
Acute Run 1 - BH	11.1	8.63	18.4	6.86	0.553 ND	1.11 ND
Acute Run 2 - FH	109	141	306	317	11.8	5.00 ND
Acute Run 2 - BH	6.18	9.13	25.1	5.67	0.555 ND	1.11 ND
Acute Run 3 - FH	109	131	234	308	12.2	5.00 ND
Acute Run 3 - BH	3.71	5.52 ND	11.9	8.42	0.552 ND	1.10 ND
Reagent Blank - FH	3.73 ND	92.9	20.9	51.9	11.6	5.00 ND
Reagent Blank - BH	0.319 J	5.76 ND	2.30 ND	5.76 ND	0.576 ND	1.15 ND

QC SUMMARY

	Zn	Al	Fe	K	Mo	V
Spike, %Rec. Front	100%	87%	78%	85%	96%	100%
Spike, %Rec. Back	101%	98%	81%	111%	107%	107%
Duplicate, %RPD Front	0.6%	0.6%	0.10%	1.0%	N/A	N/A
Duplicate, %RPD Back	N/A	N/A	0.2%	N/A	N/A	N/A

EPA Method 29 Summary

EA Project #: 0222-186
Client: Montrose Air Quality Services, LLC - Portland
Client Project ID: PROJ-010935 - Covanta Marion, Inc. - Unit 2

Total Micrograms of Mercury in Sample

Sample	Frac 1B µg	Frac 2B µg	Frac 3A µg	Frac 3B µg	Frac 3C µg
Chronic Run 1	0.119	1.57	0.0587 J	0.0940 ND	0.186
Chronic Run 2	0.188	1.50	0.0300 ND	0.103 ND	0.114 J
Chronic Run 3	0.204	1.47	0.0335 ND	0.0932 ND	0.182
Acute Run 1	0.116	1.25	0.0292 ND	0.0952 ND	0.195
Acute Run 2	0.171	1.25	0.0277 ND	0.119 J	0.216
Acute Run 3	0.149	1.32	0.0285 ND	0.147 J	0.179
Reagent Blank	0.0290 J	0.523	0.0495 ND	0.0222 ND	0.0682 ND

Q C S U M M A R Y

Matrix Spike, % Rec.	102%	101%
Duplicate, RPD	N/A	N/A

Audit Summary - EPA Method 29

EA Project #: 0222-186
Client: Montrose Air Quality Services, LLC - Portland
Client Project ID: Method 29 Audit Sample E052 / E053

Element	Metals on Filter µg/Filter	Metals in Impinger µg/mL
Sb	69.0	2.964
As	105	0.356
Ba	35.6	2.225
Be	77.7	0.115
Cd	57.1	0.442
Cr	69.4	2.600
Co	119	2.835
Cu	79.4	1.341
Pb	90.0	1.274
Mn	55.2	1.466
Ni	68.4	0.231
P	89.4	2.806
Se	60.2	0.804
Ag	57.9	1.181
Tl	77.3	2.822
Zn	68.3	0.208

	Hg on Filter µg/Filter	Hg in Impinger ng/mL
Hg	66.8	92.8

Enthalpy Analytical

Company: Montrose Air Quality Services, LLC - Portland
Job No.: 0222-186-3 EPA Method 26A (Chronic H2SO4)
Client No.: PROJ-010935 Site: Covanta Marion, Inc.

Summary Table - Chronic Unit 1

Sample ID	Hydrogen Bromide Catch Weight (ug)	Hydrogen Chloride Catch Weight (ug)	Hydrogen Fluoride Catch Weight (ug)
R1-Chronic	399	16,260	25.0 ND
R2-Chronic	420	16,113	23.9 ND
R3-Chronic	352	18,230	26.0 ND
FB-H2SO4	10.1 ND	10.3 ND	10.5 ND
RB-H2SO4	12.6 ND	12.8 ND	13.1 ND
RB-DIH2O	10.1 ND	10.3 ND	10.5 ND

Enthalpy Analytical

Company: Montrose Air Quality Services, LLC - Portland
Job No.: 0222-186-4 EPA Method 26A (Chronic NaOH)
Client No.: PROJ-010935 Site: Covanta Marion, Inc.

Summary Table - Chronic Unit 1

Sample ID	Bromide Catch Weight (ug)	Chlorine Catch Weight (ug)
R1-Chronic	280 ND	280 ND
R2-Chronic	255 ND	255 ND
R3-Chronic	290 ND	290 ND
FB-NaOH	20.2 ND	42.4 J
RB-NaOH	19.8 ND	41.2 J
RB-DIH2O	20.0 ND	20.0 ND

Results

Method 29 Analysis Run Summary Calculations

Element	Sb 121	Methodology		ICP-MS	
Client	MAQS	MDL	0.50	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	6.35	31.77	100	5		3.1772	
Chronic Run 2	0222-186.2	-1A	18.20	91.02	100	5		9.1017	
Chronic Run 3	0222-186.3	-1A	19.39	96.96	100	5		9.6961	
Acute Run 1	0222-186.4	-1A	19.88	99.41	100	5		9.9413	
Acute Run 2	0222-186.5	-1A	14.71	73.53	100	5		7.3528	
Acute Run 3	0222-186.6	-1A	19.19	95.93	100	5		9.5933	
Reagent Blank	0222-186.7	-1A	0.05	0.24	100	5		0.2500	ND
Lab Blank Front	0222-186.LB	-1A	0.25	0.25	100	1		0.0500	ND
LCS Front	0222-186.LCS	-1A	51.07	102.14	100	2	% REC =	102.1%	
Spike Front	0222-186.1S	-1A	57.25	286.25	100	5	% REC =	101.8%	
Duplicate Front	0222-186.2D	-1A	18.33				RPD =	N/A	

Element	Sb 121	Methodology		ICP-MS	
Client	MAQS	MDL	0.50	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	20.40	20.40	100	1	529	479		2.2532	
Chronic Run 2	0222-186.2	-2A	0.34	0.34	100	1	569	519		0.0548	ND
Chronic Run 3	0222-186.3	-2A	0.59	0.59	100	1	538	488		0.0648	J
Acute Run 1	0222-186.4	-2A	0.14	0.14	100	1	521	471		0.0553	ND
Acute Run 2	0222-186.5	-2A	0.18	0.18	100	1	504	454		0.0555	ND
Acute Run 3	0222-186.6	-2A	0.18	0.18	100	1	535	485		0.0552	ND
Reagent Blank	0222-186.7	-2A	0.04	0.04	100	1	190	165		0.0576	ND
Lab Blank Back	0222-186.LB	-2A	0.01	0.01	100	1				0.0500	ND
LCS Back	0222-186.LCS	-2A	51.45	102.90	100	2			% REC =	102.9%	
Spike Back	0222-186.1S	-2A	69.47	69.47	100	1			% REC =	98.1%	
Duplicate Back	0222-186.2D	-2A	0.36						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	As 75	Methodology		ICP-MS	
Client	MAQS	MDL	0.70	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022 and 3/31/22	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	0.89	4.45	100	5		0.4452	J
Chronic Run 2	0222-186.2	-1A	1.49	7.45	100	5		0.7449	J
Chronic Run 3	0222-186.3	-1A	1.04	5.20	100	5		0.5200	J
Acute Run 1	0222-186.4	-1A	0.82	4.10	100	5		0.4103	J
Acute Run 2	0222-186.5	-1A	0.88	4.39	100	5		0.4385	J
Acute Run 3	0222-186.6	-1A	0.74	3.72	100	5		0.3719	J
Reagent Blank	0222-186.7	-1A	0.29	1.44	100	5		0.3484	ND
Lab Blank Front	0222-186.LB	-1A	1.34	1.34	100	1		0.1342	J
LCS Front	0222-186.LCS	-1A	51.40	102.80	100	2	% REC =	102.8%	
Spike Front	0222-186.1S	-1A	48.34	241.69	100	5	% REC =	94.9%	
Duplicate Front	0222-186.2D	-1A	1.26				RPD =	N/A	

Element	As 75	Methodology		ICP-MS	
Client	MAQS	MDL	0.50	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	1.05	1.05	100	1	529	479		0.1161	J
Chronic Run 2	0222-186.2	-2A	0.20	0.20	100	1	569	519		0.0548	ND
Chronic Run 3	0222-186.3	-2A	0.12	0.12	100	1	538	488		0.0551	ND
Acute Run 1	0222-186.4	-2A	0.11	0.11	100	1	521	471		0.0553	ND
Acute Run 2	0222-186.5	-2A	0.29	0.29	100	1	504	454		0.0555	ND
Acute Run 3	0222-186.6	-2A	0.10	0.10	100	1	535	485		0.0552	ND
Reagent Blank	0222-186.7	-2A	0.02	0.02	100	1	190	165		0.0576	ND
Lab Blank Back	0222-186.LB	-2A	0.01	0.01	100	1				0.0500	ND
LCS Back	0222-186.LCS	-2A	52.58	105.16	100	2			% REC =	105.2%	
Spike Back	0222-186.1S	-2A	51.41	51.41	100	1			% REC =	100.7%	
Duplicate Back	0222-186.2D	-2A	0.21						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Ba 455	Methodology		ICP-OES	
Client	MAQS	MDL	0.91	µg/L	
EA Project No.	0222-186	LOQ	2.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	12.92	64.60	100	5		6.4600	
Chronic Run 2	0222-186.2	-1A	13.03	65.15	100	5		6.5150	
Chronic Run 3	0222-186.3	-1A	12.84	64.20	100	5		6.4200	
Acute Run 1	0222-186.4	-1A	12.34	61.70	100	5		6.1700	
Acute Run 2	0222-186.5	-1A	13.12	65.60	100	5		6.5600	
Acute Run 3	0222-186.6	-1A	12.25	61.25	100	5		6.1250	
Reagent Blank	0222-186.7	-1A	8.51	42.55	100	5		4.2545	
Lab Blank Front	0222-186.LB	-1A	0.06	0.06	100	1		0.0910	ND
LCS Front	0222-186.LCS	-1A	102.20	102.20	100	1	% REC =	102.2%	
Spike Front	0222-186.1S	-1A	116.90	584.50	100	5	% REC =	104.0%	
Duplicate Front	0222-186.2D	-1A	13.09				RPD =	0.46%	

Element	Ba 455	Methodology		ICP-OES	
Client	MAQS	MDL	0.20	µg/L	
EA Project No.	0222-186	LOQ	2.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	7.61	7.61	100	1	529	479		0.8399	
Chronic Run 2	0222-186.2	-2A	2.37	2.37	100	1	569	519		0.2603	
Chronic Run 3	0222-186.3	-2A	2.30	2.30	100	1	538	488		0.2537	
Acute Run 1	0222-186.4	-2A	1.94	1.94	100	1	521	471		0.2140	J
Acute Run 2	0222-186.5	-2A	1.68	1.68	100	1	504	454		0.1865	J
Acute Run 3	0222-186.6	-2A	1.12	1.12	100	1	535	485		0.1230	J
Reagent Blank	0222-186.7	-2A	0.13	0.13	100	1	190	165		0.0230	ND
Lab Blank Back	0222-186.LB	-2A	0.04	0.04	100	1				0.0200	ND
LCS Back	0222-186.LCS	-2A	104.30	104.30	100	1			% REC =	104.3%	
Spike Back	0222-186.1S	-2A	107.10	107.10	100	1			% REC =	99.5%	
Duplicate Back	0222-186.2D	-2A	2.47						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Be 313	Methodology		ICP-OES	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	0.01	0.05	100	5		0.0500	ND
Chronic Run 2	0222-186.2	-1A	-0.02	-0.09	100	5		0.0500	ND
Chronic Run 3	0222-186.3	-1A	-0.02	-0.10	100	5		0.0500	ND
Acute Run 1	0222-186.4	-1A	-0.02	-0.09	100	5		0.0500	ND
Acute Run 2	0222-186.5	-1A	-0.03	-0.14	100	5		0.0500	ND
Acute Run 3	0222-186.6	-1A	-0.01	-0.04	100	5		0.0500	ND
Reagent Blank	0222-186.7	-1A	0.00	0.00	100	5		0.0500	ND
Lab Blank Front	0222-186.LB	-1A	0.04	0.04	100	1		0.0100	ND
LCS Front	0222-186.LCS	-1A	95.45	95.45	100	1	% REC =	95.5%	
Spike Front	0222-186.1S	-1A	99.94	499.70	100	5	% REC =	99.9%	
Duplicate Front	0222-186.2D	-1A	-0.01				RPD =	N/A	

Element	Be 313	Methodology		ICP-OES	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	-0.03	-0.03	100	1	529	479		0.0110	ND
Chronic Run 2	0222-186.2	-2A	-0.02	-0.02	100	1	569	519		0.0110	ND
Chronic Run 3	0222-186.3	-2A	-0.01	-0.01	100	1	538	488		0.0110	ND
Acute Run 1	0222-186.4	-2A	-0.01	-0.01	100	1	521	471		0.0111	ND
Acute Run 2	0222-186.5	-2A	0.00	0.00	100	1	504	454		0.0111	ND
Acute Run 3	0222-186.6	-2A	0.00	0.00	100	1	535	485		0.0110	ND
Reagent Blank	0222-186.7	-2A	-0.01	-0.01	100	1	190	165		0.0115	ND
Lab Blank Back	0222-186.LB	-2A	0.00	0.00	100	1				0.0100	ND
LCS Back	0222-186.LCS	-2A	99.38	99.38	100	1			% REC =	99.4%	
Spike Back	0222-186.1S	-2A	94.51	94.51	100	1			% REC =	94.5%	
Duplicate Back	0222-186.2D	-2A	-0.01						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Cd 214	Methodology		ICP-OES	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	2.03	10.17	100	5		1.0170	
Chronic Run 2	0222-186.2	-1A	4.66	23.31	100	5		2.3310	
Chronic Run 3	0222-186.3	-1A	5.80	29.01	100	5		2.9010	
Acute Run 1	0222-186.4	-1A	4.33	21.67	100	5		2.1670	
Acute Run 2	0222-186.5	-1A	5.81	29.04	100	5		2.9035	
Acute Run 3	0222-186.6	-1A	4.37	21.87	100	5		2.1865	
Reagent Blank	0222-186.7	-1A	1.50	7.51	100	5		0.7505	
Lab Blank Front	0222-186.LB	-1A	-0.15	-0.15	100	1		0.0100	ND
LCS Front	0222-186.LCS	-1A	94.77	94.77	100	1	% REC =	94.8%	
Spike Front	0222-186.1S	-1A	101.00	505.00	100	5	% REC =	99.0%	
Duplicate Front	0222-186.2D	-1A	4.64				RPD =	N/A	

Element	Cd 214	Methodology		ICP-OES	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	5.84	5.84	100	1	529	479		0.6446	
Chronic Run 2	0222-186.2	-2A	-0.03	-0.03	100	1	569	519		0.0110	ND
Chronic Run 3	0222-186.3	-2A	-0.18	-0.18	100	1	538	488		0.0110	ND
Acute Run 1	0222-186.4	-2A	0.05	0.05	100	1	521	471		0.0111	ND
Acute Run 2	0222-186.5	-2A	0.02	0.02	100	1	504	454		0.0111	ND
Acute Run 3	0222-186.6	-2A	-0.13	-0.13	100	1	535	485		0.0110	ND
Reagent Blank	0222-186.7	-2A	-0.26	-0.26	100	1	190	165		0.0115	ND
Lab Blank Back	0222-186.LB	-2A	-0.19	-0.19	100	1				0.0100	ND
LCS Back	0222-186.LCS	-2A	98.48	98.48	100	1			% REC =	98.5%	
Spike Back	0222-186.1S	-2A	97.08	97.08	100	1			% REC =	91.2%	
Duplicate Back	0222-186.2D	-2A	-0.03						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Cr 267	Methodology		ICP-OES	
Client	MAQS	MDL	0.54	µg/L	
EA Project No.	0222-186	LOQ	2.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	5.64	28.20	100	5		2.8200	
Chronic Run 2	0222-186.2	-1A	9.43	47.17	100	5		4.7170	
Chronic Run 3	0222-186.3	-1A	7.72	38.62	100	5		3.8620	
Acute Run 1	0222-186.4	-1A	9.17	45.83	100	5		4.5825	
Acute Run 2	0222-186.5	-1A	8.51	42.54	100	5		4.2535	
Acute Run 3	0222-186.6	-1A	7.12	35.58	100	5		3.5580	
Reagent Blank	0222-186.7	-1A	2.70	13.52	100	5		1.3520	
Lab Blank Front	0222-186.LB	-1A	0.57	0.57	100	1		0.0570	J
LCS Front	0222-186.LCS	-1A	98.91	98.91	100	1	% REC =	98.9%	
Spike Front	0222-186.1S	-1A	107.50	537.50	100	5	% REC =	101.9%	
Duplicate Front	0222-186.2D	-1A	9.65				RPD =	N/A	

Element	Cr 267	Methodology		ICP-OES	
Client	MAQS	MDL	0.77	µg/L	
EA Project No.	0222-186	LOQ	2.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)	Total (µg)	
BACK HALVES										
Chronic Run 1	0222-186.1	-2A	8.17	8.17	100	1	529	479	0.9027	
Chronic Run 2	0222-186.2	-2A	4.47	4.47	100	1	569	519	0.4902	
Chronic Run 3	0222-186.3	-2A	3.02	3.02	100	1	538	488	0.3331	
Acute Run 1	0222-186.4	-2A	4.04	4.04	100	1	521	471	0.4466	
Acute Run 2	0222-186.5	-2A	4.48	4.48	100	1	504	454	0.4976	
Acute Run 3	0222-186.6	-2A	2.03	2.03	100	1	535	485	0.2238	
Reagent Blank	0222-186.7	-2A	0.29	0.29	100	1	190	165	0.0887	ND
Lab Blank Back	0222-186.LB	-2A	0.15	0.15	100	1			0.0770	ND
LCS Back	0222-186.LCS	-2A	100.80	100.80	100	1		% REC =	100.8%	
Spike Back	0222-186.1S	-2A	106.60	106.60	100	1		% REC =	98.4%	
Duplicate Back	0222-186.2D	-2A	5.01					RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Co 59	Methodology		ICP-MS	
Client	MAQS	MDL	0.36	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022 and 3/31/22	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	0.59	2.94	100	5		0.2937	J
Chronic Run 2	0222-186.2	-1A	0.45	2.27	100	5		0.2272	J
Chronic Run 3	0222-186.3	-1A	0.62	3.10	100	5		0.3103	J
Acute Run 1	0222-186.4	-1A	0.38	1.88	100	5		0.1879	J
Acute Run 2	0222-186.5	-1A	0.54	2.71	100	5		0.2710	J
Acute Run 3	0222-186.6	-1A	0.34	1.70	100	5		0.1793	ND
Reagent Blank	0222-186.7	-1A	0.10	0.49	100	5		0.1793	ND
Lab Blank Front	0222-186.LB	-1A	0.17	0.17	100	1		0.0359	ND
LCS Front	0222-186.LCS	-1A	50.86	101.71	100	2	% REC =	101.7%	
Spike Front	0222-186.1S	-1A	51.45	257.23	100	5	% REC =	101.7%	
Duplicate Front	0222-186.2D	-1A	0.42				RPD =	N/A	

Element	Co 59	Methodology		ICP-MS	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022 and 3/31/22	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	0.47	0.47	100	1	529	479		0.0523	J
Chronic Run 2	0222-186.2	-2A	0.19	0.19	100	1	569	519		0.0205	J
Chronic Run 3	0222-186.3	-2A	0.11	0.11	100	1	538	488		0.0122	J
Acute Run 1	0222-186.4	-2A	0.22	0.22	100	1	521	471		0.0240	J
Acute Run 2	0222-186.5	-2A	0.45	0.45	100	1	504	454		0.0500	J
Acute Run 3	0222-186.6	-2A	0.11	0.11	100	1	535	485		0.0126	J
Reagent Blank	0222-186.7	-2A	0.03	0.03	100	1	190	165		0.0115	ND
Lab Blank Back	0222-186.LB	-2A	0.01	0.01	100	1				0.0100	ND
LCS Back	0222-186.LCS	-2A	57.49	114.98	100	2			% REC =	115.0%	
Spike Back	0222-186.1S	-2A	56.71	56.71	100	1			% REC =	112.5%	
Duplicate Back	0222-186.2D	-2A	0.23						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Cu 63	Methodology		ICP-MS	
Client	MAQS	MDL	1.03	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022 and 3/31/22	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	4.91	24.53	100	5		2.4531	J
Chronic Run 2	0222-186.2	-1A	12.30	61.52	100	5		6.1522	
Chronic Run 3	0222-186.3	-1A	12.07	60.35	100	5		6.0348	
Acute Run 1	0222-186.4	-1A	11.14	55.68	100	5		5.5677	
Acute Run 2	0222-186.5	-1A	10.72	53.61	100	5		5.3609	
Acute Run 3	0222-186.6	-1A	10.22	51.10	100	5		5.1101	
Reagent Blank	0222-186.7	-1A	4.70	23.49	100	5		2.3489	J
Lab Blank Front	0222-186.LB	-1A	0.10	0.10	100	1		0.1031	ND
LCS Front	0222-186.LCS	-1A	51.06	102.11	100	2	% REC =	102.1%	
Spike Front	0222-186.1S	-1A	55.70	278.52	100	5	% REC =	101.6%	
Duplicate Front	0222-186.2D	-1A	12.37				RPD =	N/A	

Element	Cu 63	Methodology		ICP-MS	
Client	MAQS	MDL	0.50	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	32.20	32.20	100	1	529	479		3.5557	
Chronic Run 2	0222-186.2	-2A	3.98	3.98	100	1	569	519		0.4362	J
Chronic Run 3	0222-186.3	-2A	2.46	2.46	100	1	538	488		0.2712	J
Acute Run 1	0222-186.4	-2A	4.91	4.91	100	1	521	471		0.5430	J
Acute Run 2	0222-186.5	-2A	2.58	2.58	100	1	504	454		0.2861	J
Acute Run 3	0222-186.6	-2A	2.06	2.06	100	1	535	485		0.2270	J
Reagent Blank	0222-186.7	-2A	0.41	0.41	100	1	190	165		0.0576	ND
Lab Blank Back	0222-186.LB	-2A	0.04	0.04	100	1				0.0500	ND
LCS Back	0222-186.LCS	-2A	58.24	116.47	100	2			% REC =	116.5%	
Spike Back	0222-186.1S	-2A	88.47	88.47	100	1			% REC =	112.6%	
Duplicate Back	0222-186.2D	-2A	4.084						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Pb 208	Methodology		ICP-MS	
Client	MAQS	MDL	0.12	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	6.12	30.60	100	5		3.0596	
Chronic Run 2	0222-186.2	-1A	21.86	109.28	100	5		10.9279	
Chronic Run 3	0222-186.3	-1A	21.98	109.88	100	5		10.9884	
Acute Run 1	0222-186.4	-1A	14.00	70.01	100	5		7.0010	
Acute Run 2	0222-186.5	-1A	13.93	69.67	100	5		6.9667	
Acute Run 3	0222-186.6	-1A	14.15	70.73	100	5		7.0727	
Reagent Blank	0222-186.7	-1A	0.96	4.81	100	5		0.4813	J
Lab Blank Front	0222-186.LB	-1A	0.10	0.10	100	1		0.0123	ND
LCS Front	0222-186.LCS	-1A	50.93	101.86	100	2	% REC =	101.9%	
Spike Front	0222-186.1S	-1A	55.98	279.90	100	5	% REC =	99.7%	
Duplicate Front	0222-186.2D	-1A	21.26				RPD =	2.78%	

Element	Pb 208	Methodology		ICP-MS	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	28.61	28.61	100	1	529	479		3.160	
Chronic Run 2	0222-186.2	-2A	1.61	1.6	100	1	569	519		0.177	
Chronic Run 3	0222-186.3	-2A	0.82	0.82	100	1	538	488		0.0908	J
Acute Run 1	0222-186.4	-2A	1.17	1.17	100	1	521	471		0.1295	
Acute Run 2	0222-186.5	-2A	1.70	1.70	100	1	504	454		0.1883	
Acute Run 3	0222-186.6	-2A	0.69	0.69	100	1	535	485		0.0758	J
Reagent Blank	0222-186.7	-2A	0.07	0.07	100	1	190	165		0.0115	ND
Lab Blank Back	0222-186.LB	-2A	0.01	0.01	100	1				0.0100	ND
LCS Back	0222-186.LCS	-2A	52.37	104.74	100	2			% REC =	104.7%	
Spike Back	0222-186.1S	-2A	78.60	78.6	100	1			% REC =	100.0%	
Duplicate Back	0222-186.2D	-2A	1.67						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Mn 257	Methodology		ICP-OES	
Client	MAQS	MDL	0.20	µg/L	
EA Project No.	0222-186	LOQ	2.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	8.04	40.22	100	5		4.0220	
Chronic Run 2	0222-186.2	-1A	8.63	43.14	100	5		4.3140	
Chronic Run 3	0222-186.3	-1A	8.91	44.57	100	5		4.4570	
Acute Run 1	0222-186.4	-1A	8.08	40.40	100	5		4.0400	
Acute Run 2	0222-186.5	-1A	10.19	50.95	100	5		5.0950	
Acute Run 3	0222-186.6	-1A	7.23	36.16	100	5		3.6155	
Reagent Blank	0222-186.7	-1A	1.96	9.78	100	5		0.9775	J
Lab Blank Front	0222-186.LB	-1A	0.13	0.13	100	1		0.0200	ND
LCS Front	0222-186.LCS	-1A	99.02	99.02	100	1	% REC =	99.0%	
Spike Front	0222-186.1S	-1A	109.10	545.50	100	5	% REC =	101.1%	
Duplicate Front	0222-186.2D	-1A	8.76				RPD =	N/A	

Element	Mn 257	Methodology		ICP-OES	
Client	MAQS	MDL	0.20	µg/L	
EA Project No.	0222-186	LOQ	2.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	13.21	13.21	100	1	529	479		1.4589	
Chronic Run 2	0222-186.2	-2A	5.26	5.26	100	1	569	519		0.5768	
Chronic Run 3	0222-186.3	-2A	1.87	1.87	100	1	538	488		0.2066	J
Acute Run 1	0222-186.4	-2A	4.65	4.65	100	1	521	471		0.5146	
Acute Run 2	0222-186.5	-2A	4.24	4.24	100	1	504	454		0.4711	
Acute Run 3	0222-186.6	-2A	4.20	4.20	100	1	535	485		0.4631	
Reagent Blank	0222-186.7	-2A	0.65	0.65	100	1	190	165		0.0743	J
Lab Blank Back	0222-186.LB	-2A	0.08	0.08	100	1				0.0200	ND
LCS Back	0222-186.LCS	-2A	102.50	102.50	100	1			% REC =	102.5%	
Spike Back	0222-186.1S	-2A	109.40	109.40	100	1			% REC =	96.2%	
Duplicate Back	0222-186.2D	-2A	5.52						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Ni 231	Methodology		ICP-OES	
Client	MAQS	MDL	1.30	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	7.00	35.02	100	5		3.5015	
Chronic Run 2	0222-186.2	-1A	9.95	49.74	100	5		4.9735	
Chronic Run 3	0222-186.3	-1A	8.06	40.29	100	5		4.0285	
Acute Run 1	0222-186.4	-1A	10.36	51.80	100	5		5.1800	
Acute Run 2	0222-186.5	-1A	8.73	43.67	100	5		4.3665	
Acute Run 3	0222-186.6	-1A	7.81	39.06	100	5		3.9055	
Reagent Blank	0222-186.7	-1A	5.97	29.86	100	5		2.9855	
Lab Blank Front	0222-186.LB	-1A	-0.25	-0.25	100	1		0.1298	ND
LCS Front	0222-186.LCS	-1A	95.87	95.87	100	1	% REC =	95.9%	
Spike Front	0222-186.1S	-1A	104.50	522.50	100	5	% REC =	97.5%	
Duplicate Front	0222-186.2D	-1A	9.82				RPD =	N/A	

Element	Ni 231	Methodology		ICP-OES	
Client	MAQS	MDL	0.56	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	8.93	8.93	100	1	529	479		0.9863	
Chronic Run 2	0222-186.2	-2A	3.79	3.79	100	1	569	519		0.4154	J
Chronic Run 3	0222-186.3	-2A	1.89	1.89	100	1	538	488		0.2080	J
Acute Run 1	0222-186.4	-2A	4.67	4.67	100	1	521	471		0.5161	J
Acute Run 2	0222-186.5	-2A	2.62	2.62	100	1	504	454		0.2903	J
Acute Run 3	0222-186.6	-2A	2.25	2.25	100	1	535	485		0.2476	J
Reagent Blank	0222-186.7	-2A	-0.66	-0.66	100	1	190	165		0.0649	ND
Lab Blank Back	0222-186.LB	-2A	-0.63	-0.63	100	1				0.0564	ND
LCS Back	0222-186.LCS	-2A	97.88	97.88	100	1			% REC =	97.9%	
Spike Back	0222-186.1S	-2A	100.80	100.80	100	1			% REC =	91.9%	
Duplicate Back	0222-186.2D	-2A	4.32						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	P 177.4	Methodology		ICP-OES	
Client	MAQS	MDL	5.00	µg/L	
EA Project No.	0222-186	LOQ	50.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	19.44	97.20	100	5		9.7200	J
Chronic Run 2	0222-186.2	-1A	55.96	279.80	100	5		27.9800	
Chronic Run 3	0222-186.3	-1A	25.25	126.25	100	5		12.6250	J
Acute Run 1	0222-186.4	-1A	34.70	173.50	100	5		17.3500	J
Acute Run 2	0222-186.5	-1A	34.70	173.50	100	5		17.3500	J
Acute Run 3	0222-186.6	-1A	43.68	218.40	100	5		21.8400	J
Reagent Blank	0222-186.7	-1A	0.75	3.73	100	5		2.5000	ND
Lab Blank Front	0222-186.LB	-1A	-0.20	-0.20	100	1		0.5000	ND
LCS Front	0222-186.LCS	-1A	93.94	93.94	100	1	% REC =	93.9%	
Spike Front	0222-186.1S	-1A	118.90	594.50	100	5	% REC =	99.5%	
Duplicate Front	0222-186.2D	-1A	57.18				RPD =	N/A	

Element	P 177.4	Methodology		ICP-OES	
Client	MAQS	MDL	5.00	µg/L	
EA Project No.	0222-186	LOQ	50.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	44.83	44.83	100	1	529	479		4.9510	J
Chronic Run 2	0222-186.2	-2A	24.75	24.75	100	1	569	519		2.7134	J
Chronic Run 3	0222-186.3	-2A	15.18	15.18	100	1	538	488		1.6735	J
Acute Run 1	0222-186.4	-2A	37.65	37.65	100	1	521	471		4.1647	J
Acute Run 2	0222-186.5	-2A	36.43	36.43	100	1	504	454		4.0442	J
Acute Run 3	0222-186.6	-2A	21.70	21.70	100	1	535	485		2.3937	J
Reagent Blank	0222-186.7	-2A	8.98	8.98	100	1	190	165		1.0342	J
Lab Blank Back	0222-186.LB	-2A	6.07	6.07	100	1				0.6072	J
LCS Back	0222-186.LCS	-2A	100.10	100.10	100	1			% REC =	100.1%	
Spike Back	0222-186.1S	-2A	131.00	131.00	100	1			% REC =	86.2%	
Duplicate Back	0222-186.2D	-2A	24.73						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Se 82	Methodology		ICP-MS	
Client	MAQS	MDL	0.96	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022 and 3/31/22	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	0.97	4.87	100	5		0.4874	J
Chronic Run 2	0222-186.2	-1A	0.67	3.37	100	5		0.4784	ND
Chronic Run 3	0222-186.3	-1A	1.49	7.43	100	5		0.7429	J
Acute Run 1	0222-186.4	-1A	0.85	4.25	100	5		0.4784	ND
Acute Run 2	0222-186.5	-1A	0.65	3.25	100	5		0.4784	ND
Acute Run 3	0222-186.6	-1A	1.00	5.01	100	5		0.5010	J
Reagent Blank	0222-186.7	-1A	1.04	5.22	100	5		0.5218	J
Lab Blank Front	0222-186.LB	-1A	0.23	0.23	100	1		0.0957	ND
LCS Front	0222-186.LCS	-1A	53.38	106.76	100	2	% REC =	106.8%	
Spike Front	0222-186.1S	-1A	50.63	253.16	100	5	% REC =	99.3%	
Duplicate Front	0222-186.2D	-1A	0.83				RPD =	N/A	

Element	Se 82	Methodology		ICP-MS	
Client	MAQS	MDL	1.31	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	4.73	4.73	100	1	529	479		0.5228	J
Chronic Run 2	0222-186.2	-2A	2.74	2.74	100	1	569	519		0.3007	J
Chronic Run 3	0222-186.3	-2A	2.13	2.13	100	1	538	488		0.2348	J
Acute Run 1	0222-186.4	-2A	3.13	3.13	100	1	521	471		0.3463	J
Acute Run 2	0222-186.5	-2A	3.55	3.55	100	1	504	454		0.3942	J
Acute Run 3	0222-186.6	-2A	2.03	2.03	100	1	535	485		0.2244	J
Reagent Blank	0222-186.7	-2A	0.38	0.38	100	1	190	165		0.1510	ND
Lab Blank Back	0222-186.LB	-2A	0.00	0.00	100	1				0.1311	ND
LCS Back	0222-186.LCS	-2A	55.12	110.23	100	2			% REC =	110.2%	
Spike Back	0222-186.1S	-2A	58.54	58.54	100	1			% REC =	107.6%	
Duplicate Back	0222-186.2D	-2A	3.09						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Ag 107	Methodology		ICP-MS	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	0.37	1.85	100	5		0.1852	J
Chronic Run 2	0222-186.2	-1A	0.42	2.10	100	5		0.2099	J
Chronic Run 3	0222-186.3	-1A	0.29	1.43	100	5		0.1427	J
Acute Run 1	0222-186.4	-1A	0.39	1.96	100	5		0.1958	J
Acute Run 2	0222-186.5	-1A	0.36	1.81	100	5		0.1813	J
Acute Run 3	0222-186.6	-1A	0.40	1.98	100	5		0.1984	J
Reagent Blank	0222-186.7	-1A	0.00	0.00	100	5		0.0500	ND
Lab Blank Front	0222-186.LB	-1A	0.21	0.21	100	1		0.0206	J
LCS Front	0222-186.LCS	-1A	51.13	102.26	100	2	% REC =	102.3%	
Spike Front	0222-186.1S	-1A	53.74	268.72	100	5	% REC =	106.7%	
Duplicate Front	0222-186.2D	-1A	0.39				RPD =	N/A	

Element	Ag 107	Methodology		ICP-MS	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	0.93	0.93	100	1	529	479		0.1026	J
Chronic Run 2	0222-186.2	-2A	0.10	0.10	100	1	569	519		0.0110	ND
Chronic Run 3	0222-186.3	-2A	1.25	1.25	100	1	538	488		0.1373	
Acute Run 1	0222-186.4	-2A	0.18	0.18	100	1	521	471		0.0198	J
Acute Run 2	0222-186.5	-2A	1.89	1.89	100	1	504	454		0.2096	
Acute Run 3	0222-186.6	-2A	0.05	0.05	100	1	535	485		0.0110	ND
Reagent Blank	0222-186.7	-2A	0.00	0.00	100	1	190	165		0.0115	ND
Lab Blank Back	0222-186.LB	-2A	0.00	0.00	100	1				0.0100	ND
LCS Back	0222-186.LCS	-2A	55.70	111.40	100	2			% REC =	111.4%	
Spike Back	0222-186.1S	-2A	49.67	49.67	100	1			% REC =	97.5%	
Duplicate Back	0222-186.2D	-2A	0.13						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Tl 205	Methodology		ICP-MS	
Client	MAQS	MDL	0.40	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	0.30	1.50	100	5		0.2016	ND
Chronic Run 2	0222-186.2	-1A	0.10	0.48	100	5		0.2016	ND
Chronic Run 3	0222-186.3	-1A	0.03	0.13	100	5		0.2016	ND
Acute Run 1	0222-186.4	-1A	0.01	0.05	100	5		0.2016	ND
Acute Run 2	0222-186.5	-1A	0.07	0.34	100	5		0.2016	ND
Acute Run 3	0222-186.6	-1A	0.02	0.08	100	5		0.2016	ND
Reagent Blank	0222-186.7	-1A	0.00	0.02	100	5		0.2016	ND
Lab Blank Front	0222-186.LB	-1A	0.09	0.09	100	1		0.0403	ND
LCS Front	0222-186.LCS	-1A	51.27	102.53	100	2	% REC =	102.5%	
Spike Front	0222-186.1S	-1A	49.59	247.96	100	5	% REC =	99.2%	
Duplicate Front	0222-186.2D	-1A	0.04				RPD =	N/A	

Element	Tl 205	Methodology		ICP-MS	
Client	MAQS	MDL	0.10	µg/L	
EA Project No.	0222-186	LOQ	1.0	µg/L	
Analysis Date	3/30/2022, 3/31/2022	Postdig'n Spike Conc.	50	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	0.13	0.13	100	1	529	479		0.0140	J
Chronic Run 2	0222-186.2	-2A	0.05	0.05	100	1	569	519		0.0110	ND
Chronic Run 3	0222-186.3	-2A	0.04	0.04	100	1	538	488		0.0110	ND
Acute Run 1	0222-186.4	-2A	0.05	0.05	100	1	521	471		0.0111	ND
Acute Run 2	0222-186.5	-2A	0.23	0.23	100	1	504	454		0.0253	J
Acute Run 3	0222-186.6	-2A	0.07	0.07	100	1	535	485		0.0110	ND
Reagent Blank	0222-186.7	-2A	0.05	0.05	100	1	190	165		0.0115	ND
Lab Blank Back	0222-186.LB	-2A	0.01	0.01	100	1				0.0100	ND
LCS Back	0222-186.LCS	-2A	52.34	104.69	100	2			% REC =	104.7%	
Spike Back	0222-186.1S	-2A	49.09	245.46	100	5			% REC =	98.1%	
Duplicate Back	0222-186.2D	-2A	0.10						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Zn 202	Methodology		ICP-OES	
Client	MAQS	MDL	7.45	µg/L	
EA Project No.	0222-186	LOQ	20.0	µg/L	
Analysis Date	3/31/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	89.99	449.95	100	5		44.9950	
Chronic Run 2	0222-186.2	-1A	313.80	1569.0	100	5		156.900	
Chronic Run 3	0222-186.3	-1A	301.40	1507.0	100	5		150.700	
Acute Run 1	0222-186.4	-1A	195.30	976.5	100	5		97.650	
Acute Run 2	0222-186.5	-1A	217.40	1087.0	100	5		108.700	
Acute Run 3	0222-186.6	-1A	217.60	1088.0	100	5		108.800	
Reagent Blank	0222-186.7	-1A	6.76	33.78	100	5		3.7262	ND
Lab Blank Front	0222-186.LB	-1A	2.54	2.54	100	1		0.7452	ND
LCS Front	0222-186.LCS	-1A	97.07	97.07	100	1	% REC =	97.1%	
Spike Front	0222-186.1S	-1A	190.40	952.00	100	5	% REC =	100.4%	
Duplicate Front	0222-186.2D	-1A	315.80				RPD =	0.64%	

Element	Zn 202	Methodology		ICP-OES	
Client	MAQS	MDL	2.00	µg/L	
EA Project No.	0222-186	LOQ	20.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	612.80	612.80	100	1	529	479		67.6767	
Chronic Run 2	0222-186.2	-2A	35.04	35.04	100	1	569	519		3.8416	
Chronic Run 3	0222-186.3	-2A	17.28	17.28	100	1	538	488		1.9050	J
Acute Run 1	0222-186.4	-2A	100.40	100.40	100	1	521	471		11.1058	
Acute Run 2	0222-186.5	-2A	55.64	55.64	100	1	504	454		6.1768	
Acute Run 3	0222-186.6	-2A	33.59	33.59	100	1	535	485		3.7053	
Reagent Blank	0222-186.7	-2A	2.77	2.77	100	1	190	165		0.3192	J
Lab Blank Back	0222-186.LB	-2A	0.57	0.57	100	1				0.2000	ND
LCS Back	0222-186.LCS	-2A	97.43	97.43	100	1			% REC =	97.4%	
Spike Back	0222-186.1S	-2A	223.30	1116.5	100	5			% REC =	100.7%	
Duplicate Back	0222-186.2D	-2A	34.50						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Al 167	Methodology		ICP-OES	
Client	MAQS	MDL	50.0	µg/L	
EA Project No.	0222-186	LOQ	50.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	328.20	1641.0	100	5		164.100	
Chronic Run 2	0222-186.2	-1A	257.00	1285.0	100	5		128.500	
Chronic Run 3	0222-186.3	-1A	253.20	1266.0	100	5		126.600	
Acute Run 1	0222-186.4	-1A	295.00	1475.0	100	5		147.500	
Acute Run 2	0222-186.5	-1A	281.20	1406.0	100	5		140.600	
Acute Run 3	0222-186.6	-1A	261.20	1306.0	100	5		130.600	
Reagent Blank	0222-186.7	-1A	185.80	929.00	100	5		92.9000	
Lab Blank Front	0222-186.LB	-1A	6.94	6.94	100	1		5.0000	ND
LCS Front	0222-186.LCS	-1A	112.60	112.60	100	1	% REC =	112.6%	
Spike Front	0222-186.1S	-1A	414.80	2074.0	100	5	% REC =	86.6%	
Duplicate Front	0222-186.2D	-1A	258.60				RPD =	0.62%	

Element	Al 167	Methodology		ICP-OES	
Client	MAQS	MDL	50.0	µg/L	
EA Project No.	0222-186	LOQ	50.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	116.10	116.10	100	1	529	479		12.8219	
Chronic Run 2	0222-186.2	-2A	72.14	72.14	100	1	569	519		7.9090	
Chronic Run 3	0222-186.3	-2A	24.92	24.92	100	1	538	488		5.5123	ND
Acute Run 1	0222-186.4	-2A	78.01	78.01	100	1	521	471		8.6291	
Acute Run 2	0222-186.5	-2A	82.26	82.26	100	1	504	454		9.1319	
Acute Run 3	0222-186.6	-2A	49.49	49.49	100	1	535	485		5.5155	ND
Reagent Blank	0222-186.7	-2A	7.75	7.75	100	1	190	165		5.7576	ND
Lab Blank Back	0222-186.LB	-2A	1.56	1.56	100	1				5.0000	ND
LCS Back	0222-186.LCS	-2A	104.60	104.60	100	1			% REC =	104.6%	
Spike Back	0222-186.1S	-2A	213.90	213.9	100	1			% REC =	97.8%	
Duplicate Back	0222-186.2D	-2A	72.48						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Fe 238	Methodology		ICP-OES	
Client	MAQS	MDL	20.0	µg/L	
EA Project No.	0222-186	LOQ	20.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	377.30	1886.5	100	5		188.650	
Chronic Run 2	0222-186.2	-1A	498.20	2491.0	100	5		249.100	
Chronic Run 3	0222-186.3	-1A	564.50	2822.5	100	5		282.250	
Acute Run 1	0222-186.4	-1A	466.80	2334.0	100	5		233.400	
Acute Run 2	0222-186.5	-1A	612.00	3060.0	100	5		306.000	
Acute Run 3	0222-186.6	-1A	467.60	2338.0	100	5		233.800	
Reagent Blank	0222-186.7	-1A	41.81	209.05	100	5		20.9050	
Lab Blank Front	0222-186.LB	-1A	7.33	7.33	100	1		2.0000	ND
LCS Front	0222-186.LCS	-1A	112.40	112.40	100	1	% REC =	112.4%	
Spike Front	0222-186.1S	-1A	455.00	2275.0	100	5	% REC =	77.7%	
Duplicate Front	0222-186.2D	-1A	497.70				RPD =	0.10%	

Element	Fe 238	Methodology		ICP-OES	
Client	MAQS	MDL	20.0	µg/L	
EA Project No.	0222-186	LOQ	20.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	530.90	530.90	100	1	529	479		58.6318	
Chronic Run 2	0222-186.2	-2A	122.20	122.20	100	1	569	519		13.3973	
Chronic Run 3	0222-186.3	-2A	75.31	75.31	100	1	538	488		8.3026	
Acute Run 1	0222-186.4	-2A	166.10	166.10	100	1	521	471		18.3733	
Acute Run 2	0222-186.5	-2A	225.90	225.90	100	1	504	454		25.0779	
Acute Run 3	0222-186.6	-2A	107.60	107.60	100	1	535	485		11.8693	
Reagent Blank	0222-186.7	-2A	6.36	6.36	100	1	190	165		2.3030	ND
Lab Blank Back	0222-186.LB	-2A	3.10	3.10	100	1				2.0000	ND
LCS Back	0222-186.LCS	-2A	106.40	106.40	100	1			% REC =	106.4%	
Spike Back	0222-186.1S	-2A	611.70	611.7	100	1			% REC =	80.8%	
Duplicate Back	0222-186.2D	-2A	122.40						RPD =	0.16%	

Method 29 Analysis Run Summary Calculations

Element	K 766	Methodology	ICP-OES		
Client	MAQS	MDL	50.00	µg/L	
EA Project No.	0222-186	LOQ	50.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	314.80	1574.0	100	5		157.400	
Chronic Run 2	0222-186.2	-1A	744.80	3724.0	100	5		372.400	
Chronic Run 3	0222-186.3	-1A	716.10	3580.5	100	5		358.050	
Acute Run 1	0222-186.4	-1A	592.50	2962.5	100	5		296.250	
Acute Run 2	0222-186.5	-1A	634.50	3172.5	100	5		317.250	
Acute Run 3	0222-186.6	-1A	616.40	3082.0	100	5		308.200	
Reagent Blank	0222-186.7	-1A	103.70	518.50	100	5		51.8500	
Lab Blank Front	0222-186.LB	-1A	2.49	2.49	100	1		5.0000	ND
LCS Front	0222-186.LCS	-1A	93.68	93.68	100	1	% REC =	93.7%	
Spike Front	0222-186.1S	-1A	399.70	1998.50	100	5	% REC =	84.9%	
Duplicate Front	0222-186.2D	-1A	752.50				RPD =	1.03%	

Element	K 766	Methodology	ICP-OES		
Client	MAQS	MDL	50.00	µg/L	
EA Project No.	0222-186	LOQ	50.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	1202.0	1202.0	100	1	529	479		132.747	
Chronic Run 2	0222-186.2	-2A	114.70	114.70	100	1	569	519		12.5750	
Chronic Run 3	0222-186.3	-2A	25.00	25.00	100	1	538	488		5.5123	ND
Acute Run 1	0222-186.4	-2A	62.06	62.06	100	1	521	471		6.8648	
Acute Run 2	0222-186.5	-2A	51.03	51.03	100	1	504	454		5.6650	
Acute Run 3	0222-186.6	-2A	76.31	76.31	100	1	535	485		8.4177	
Reagent Blank	0222-186.7	-2A	7.97	7.97	100	1	190	165		5.7576	ND
Lab Blank Back	0222-186.LB	-2A	2.94	2.94	100	1				5.0000	ND
LCS Back	0222-186.LCS	-2A	92.22	92.22	100	1			% REC =	92.2%	
Spike Back	0222-186.1S	-2A	351.30	1756.5	100	5			% REC =	110.9%	
Duplicate Back	0222-186.2D	-2A	112.00						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	Mo 202	Methodology		ICP-OES	
Client	MAQS	MDL	5.0	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	22.87	114.35	100	5		11.4350	
Chronic Run 2	0222-186.2	-1A	23.26	116.30	100	5		11.6300	
Chronic Run 3	0222-186.3	-1A	23.44	117.20	100	5		11.7200	
Acute Run 1	0222-186.4	-1A	23.16	115.80	100	5		11.5800	
Acute Run 2	0222-186.5	-1A	23.54	117.70	100	5		11.7700	
Acute Run 3	0222-186.6	-1A	24.36	121.80	100	5		12.1800	
Reagent Blank	0222-186.7	-1A	23.15	115.75	100	5		11.5750	
Lab Blank Front	0222-186.LB	-1A	0.40	0.40	100	1		0.5000	ND
LCS Front	0222-186.LCS	-1A	99.51	99.51	100	1	% REC =	99.5%	
Spike Front	0222-186.1S	-1A	119.20	596.00	100	5	% REC =	96.3%	
Duplicate Front	0222-186.2D	-1A	23.52				RPD =	N/A	

Element	Mo 202	Methodology		ICP-OES	
Client	MAQS	MDL	5.0	µg/L	
EA Project No.	0222-186	LOQ	5.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	0.98	0.98	100	1	529	479		0.5522	ND
Chronic Run 2	0222-186.2	-2A	0.74	0.74	100	1	569	519		0.5482	ND
Chronic Run 3	0222-186.3	-2A	0.65	0.65	100	1	538	488		0.5512	ND
Acute Run 1	0222-186.4	-2A	0.76	0.76	100	1	521	471		0.5531	ND
Acute Run 2	0222-186.5	-2A	0.62	0.62	100	1	504	454		0.5551	ND
Acute Run 3	0222-186.6	-2A	0.63	0.63	100	1	535	485		0.5515	ND
Reagent Blank	0222-186.7	-2A	0.30	0.30	100	1	190	165		0.5758	ND
Lab Blank Back	0222-186.LB	-2A	0.25	0.25	100	1				0.5000	ND
LCS Back	0222-186.LCS	-2A	102.60	102.60	100	1			% REC =	102.6%	
Spike Back	0222-186.1S	-2A	106.90	106.9	100	1			% REC =	106.9%	
Duplicate Back	0222-186.2D	-2A	0.64						RPD =	N/A	

Method 29 Analysis Run Summary Calculations

Element	V 292	Methodology		ICP-OES	
Client	MAQS	MDL	10.0	µg/L	
EA Project No.	0222-186	LOQ	10.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor		Total (µg)	
FRONT HALVES									
Chronic Run 1	0222-186.1	-1A	-0.80	-4.01	100	5		5.0000	ND
Chronic Run 2	0222-186.2	-1A	-0.63	-3.13	100	5		5.0000	ND
Chronic Run 3	0222-186.3	-1A	-0.61	-3.05	100	5		5.0000	ND
Acute Run 1	0222-186.4	-1A	-0.61	-3.03	100	5		5.0000	ND
Acute Run 2	0222-186.5	-1A	-0.74	-3.68	100	5		5.0000	ND
Acute Run 3	0222-186.6	-1A	0.06	0.31	100	5		5.0000	ND
Reagent Blank	0222-186.7	-1A	-0.86	-4.32	100	5		5.0000	ND
Lab Blank Front	0222-186.LB	-1A	-0.01	-0.01	100	1		1.0000	ND
LCS Front	0222-186.LCS	-1A	103.30	103.30	100	1	% REC =	103.3%	
Spike Front	0222-186.1S	-1A	99.54	497.70	100	5	% REC =	99.5%	
Duplicate Front	0222-186.2D	-1A	-0.78				RPD =	N/A	

Element	V 292	Methodology		ICP-OES	
Client	MAQS	MDL	10.0	µg/L	
EA Project No.	0222-186	LOQ	10.0	µg/L	
Analysis Date	4/1/2022	Postdig'n Spike Conc.	100	µg/L	
		Analyst(s)	MAL		

Client ID	EA ID		Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)		Total (µg)	
BACK HALVES											
Chronic Run 1	0222-186.1	-2A	-0.11	-0.11	100	1	529	479		1.1044	ND
Chronic Run 2	0222-186.2	-2A	-0.22	-0.22	100	1	569	519		1.0963	ND
Chronic Run 3	0222-186.3	-2A	-0.67	-0.67	100	1	538	488		1.1025	ND
Acute Run 1	0222-186.4	-2A	0.09	0.09	100	1	521	471		1.1062	ND
Acute Run 2	0222-186.5	-2A	-0.18	-0.18	100	1	504	454		1.1101	ND
Acute Run 3	0222-186.6	-2A	0.02	0.02	100	1	535	485		1.1031	ND
Reagent Blank	0222-186.7	-2A	-0.31	-0.31	100	1	190	165		1.1515	ND
Lab Blank Back	0222-186.LB	-2A	-0.19	-0.19	100	1				1.0000	ND
LCS Back	0222-186.LCS	-2A	104.80	104.80	100	1			% REC =	104.8%	
Spike Back	0222-186.1S	-2A	107.40	107.4	100	1			% REC =	107.4%	
Duplicate Back	0222-186.2D	-2A	-0.57						RPD =	N/A	

METHOD 29 MERCURY

CVAA ANALYSIS RUN SUMMARY AND CALCULATION WORKSHEET

MDL = 0.050 µg/L
Client: MAQS RL = 0.10 µg/L
EA Project #: 0222-186 Matrix spike conc. = 5.00 µg/L
Analysis Date: 3/23/22, 3/24/22, 3/25/22, 3/28/22

Client	Sample ID EA	Test Sol'n µg/L	Dig'te Conc µg/L	FV ml	Dil'n Factor	Total Volume ml	Volume Dig'd ml	Total µg	
FRACTION 1B									
Chronic Run 1	0222-186.1 -1B	0.238	0.24	50	1	100	10.0	0.1190	
Chronic Run 2	0222-186.2 -1B	0.376	0.38	50	1	100	10.0	0.1880	
Chronic Run 3	0222-186.3 -1B	0.408	0.41	50	1	100	10.0	0.2040	
Acute Run 1	0222-186.4 -1B	0.232	0.23	50	1	100	10.0	0.1160	
Acute Run 2	0222-186.5 -1B	0.342	0.34	50	1	100	10.0	0.1710	
Acute Run 3	0222-186.6 -1B	0.297	0.30	50	1	100	10.0	0.1485	
Reagent Blank	0222-186.7 -1B	0.058	0.06	50	1	100	10.0	0.0290	J
Matrix Spike	0222-186.1S -1B	5.120				% REC =	102.4%		
Duplicate	0222-186.2D -1B	0.398				% RPD =	N/A		
FRACTION 2B									
Chronic Run 1	0222-186.1 -2B	0.296	0.30	50	1	529	5.0	1.5658	
Chronic Run 2	0222-186.2 -2B	0.263	0.26	50	1	569	5.0	1.4965	
Chronic Run 3	0222-186.3 -2B	0.274	0.27	50	1	538	5.0	1.4741	
Acute Run 1	0222-186.4 -2B	0.239	0.24	50	1	521	5.0	1.2452	
Acute Run 2	0222-186.5 -2B	0.248	0.25	50	1	504	5.0	1.2499	
Acute Run 3	0222-186.6 -2B	0.247	0.25	50	1	535	5.0	1.3215	
Reagent Blank	0222-186.7 -2B	0.220	0.22	50	1	190	4.0	0.5225	
FRACTION 3A									
Chronic Run 1	0222-186.1 -3A	0.091	0.09	50	1	129	10.0	0.0587	J
Chronic Run 2	0222-186.2 -3A	-0.006	-0.01	50	1	120	10.0	0.0300	ND
Chronic Run 3	0222-186.3 -3A	0.013	0.01	50	1	134	10.0	0.0335	ND
Acute Run 1	0222-186.4 -3A	0.006	0.01	50	1	117	10.0	0.0292	ND
Acute Run 2	0222-186.5 -3A	0.012	0.01	50	1	111	10.0	0.0277	ND
Acute Run 3	0222-186.6 -3A	-0.002	0.00	50	1	114	10.0	0.0285	ND
Reagent Blank	0222-186.7 -3A	-0.036	-0.04	50	1	198	10.0	0.0495	ND
Matrix Spike	0222-186.1S -3A	5.040				% REC =	100.8%		
Duplicate	0222-186.2D -3A	0.016				% RPD =	N/A		

METHOD 29 MERCURY

CVAA ANALYSIS RUN SUMMARY AND CALCULATION WORKSHEET

MDL = 0.050 µg/L
Client: MAQS RL = 0.10 µg/L
EA Project #: 0222-186 Matrix spike conc. = 5.00 µg/L
Analysis Date: 3/23/22, 3/24/22, 3/25/22, 3/28/22

Client	Sample ID EA	Test Sol'n µg/L	Dig'te Conc µg/L	FV ml	Dil'n Factor	Total Volume ml	Volume Dig'd ml	Total µg	
FRACTION 3B									
Chronic Run 1	0222-186.1 -3B	0.043	0.04	50	1	376	10.0	0.0940	ND
Chronic Run 2	0222-186.2 -3B	0.036	0.04	50	1	411	10.0	0.1027	ND
Chronic Run 3	0222-186.3 -3B	0.042	0.04	50	1	373	10.0	0.0932	ND
Acute Run 1	0222-186.4 -3B	0.044	0.04	50	1	381	10.0	0.0952	ND
Acute Run 2	0222-186.5 -3B	0.062	0.06	50	1	384	10.0	0.1190	J
Acute Run 3	0222-186.6 -3B	0.074	0.07	50	1	397	10.0	0.1469	J
Reagent Blank	0222-186.7 -3B	0.043	0.04	50	1	89	10.0	0.0222	ND
FRACTION 3C									
Chronic Run 1	0222-186.1 -3C	0.122	0.12	50	1	305	10.0	0.1861	
Chronic Run 2	0222-186.2 -3C	0.077	0.08	50	1	296	10.0	0.1140	J
Chronic Run 3	0222-186.3 -3C	0.128	0.13	50	1	284	10.0	0.1818	
Acute Run 1	0222-186.4 -3C	0.132	0.13	50	1	295	10.0	0.1947	
Acute Run 2	0222-186.5 -3C	0.144	0.14	50	1	300	10.0	0.2160	
Acute Run 3	0222-186.6 -3C	0.125	0.13	50	1	286	10.0	0.1788	
Reagent Blank	0222-186.7 -3C	-0.001	0.00	50	1	273	10.0	0.0682	ND
Batch Quality Control									
Lab Blank	0222-186.LB1	0.050	0.05	50	1	50	20	0.00625	J
Lab Control Sample	0222-186.LCS1	4.950				% REC =	99.0%		
Lab Blank	0222-186.LB2	0.028	0.03	50	1	50	20	0.00625	ND
Lab Control Sample	0222-186.LCS2	5.540				% REC =	110.8%		
Lab Blank	0222-186.LB3	0.064	0.06	50	1	50	20	0.00800	J
Lab Control Sample	0222-186.LCS3	5.020				% REC =	100.4%		
Lab Blank	0322-186.LB4	-0.019	-0.02	50	1	50	20	0.00625	ND
Lab Control Sample	0322-186.LCS4	4.800				% REC =	96.0%		

Client: MAQS - Portland Audit Sample
EA Project & Sample ID: 0222-186.8

Initial Vol: 100 mL
Final Vol: 100 mL

Element	Fraction	Analysis Date	Methodology	LOQ (ug/L)	Test Soln (ug/L)	Dil. Factor	Dig. Conc. (ug/L)	Total ug	Conc. (ug/mL)
Sb	1A	3/30/2022	ICPMS	5.0	34.5	20	689.658	68.97	
Sb	2A	3/31/2022	ICPMS	5.0	59.3	50	2963.545	296.35	2.964
As	1A	3/30/2022	ICPMS	5.0	52.4	20	1048.794	104.88	
As	2A	3/30/2022	ICPMS	5.0	17.8	20	356.286	35.63	0.356
Ba	1A	3/31/2022	ICPOES	2.0	153.0	5	765	76.50	
Ba	2A	4/1/2022	ICPOES	2.0	445.0	5	2225	222.50	2.225
Be	1A	3/31/2022	ICPOES	1.0	155.3	5	776.5	77.65	
Be	2A	3/31/2022	ICPOES	1.0	114.9	1	114.9	11.49	0.115
Cd	1A	3/31/2022	ICPOES	1.0	114.2	5	571	57.10	
Cd	2A	3/31/2022	ICPOES	1.0	441.9	1	441.9	44.19	0.442
Cr	1A	3/31/2022	ICPOES	2.0	138.7	5	693.5	69.35	
Cr	2A	4/1/2022	ICPOES	2.0	519.9	5	2599.5	259.95	2.600
Co	1A	3/30/2022	ICPMS	1.0	59.6	20	1192.982	119.30	
Co	2A	3/31/2022	ICPMS	1.0	56.7	50	2834.82	283.48	2.835
Cu	1A	3/30/2022	ICPMS	5.0	39.7	20	794.046	79.40	
Cu	2A	3/30/2022	ICPMS	5.0	67.1	20	1341.118	134.11	1.341
Pb	1A	3/30/2022	ICPMS	1.0	45.0	20	899.644	89.96	
Pb	2A	3/30/2022	ICPMS	1.0	63.7	20	1273.648	127.36	1.274
Mn	1A	3/31/2022	ICPOES	2.0	110.4	5	552	55.20	
Mn	2A	3/31/2022	ICPOES	2.0	1466.0	1	1466	146.60	1.466
Ni	1A	3/31/2022	ICPOES	5.0	136.8	5	684	68.40	
Ni	2A	3/31/2022	ICPOES	5.0	230.5	1	230.5	23.05	0.231
P	1A	3/31/2022	ICPOES	50.0	178.8	5	894	89.40	
P	2A	4/1/2022	ICPOES	50.0	561.2	5	2806	280.60	2.806
Se	1A	3/30/2022	ICPMS	5.0	30.1	20	601.528	60.15	
Se	2A	3/30/2022	ICPMS	5.0	40.2	20	804.088	80.41	0.804
Ag	1A	3/30/2022	ICPMS	1.0	29.0	20	579.24	57.92	
Ag	2A	3/30/2022	ICPMS	1.0	59.0	20	1180.992	118.10	1.181
Tl	1A	3/30/2022	ICPMS	1.0	38.7	20	773.034	77.30	
Tl	2A	3/30/2022	ICPMS	1.0	56.4	50	2822.175	282.22	2.822
Zn	1A	3/31/2022	ICPOES	20.0	136.6	5	683	68.30	
Zn	2A	4/1/2022	ICPOES	20.0	207.6	1	207.6	20.76	0.208

Method 29 Mercury - CVAA Audit Worksheet

Client: MAQS
EA Proj. #: 0222-186
Analysis Date: 04/01/22

RL = 0.10 µg/L
Spike conc. = 5.00 µg/L

Sample ID Client	EA	Test Sol'n (µg/L)	Dig'te Conc (µg/L)	FV (mL)	Dil'n Factor	Total Volume (mL)	Volume Dig'd (mL)	Total Hg	
Hg on Filter	0222-186.8-1B	6.68	334	100	50	50	25	66.800	ug/filter
Hg in Impinger	0222-186.8-2B	4.64	46.4		10	50	25	92.800	ng/mL

Enthalpy Analytical

Company: Montrose Air Quality Services, LLC - Portland

Job No.: 0222-186-3 EPA Method 26A (Chronic H2SO4)

Client No.: PROJ-010935 Site: Covanta Marion, Inc.

Sample ID	Filename #1	Filename #2	MDL (ug/mL)	Curve Min. (ug/mL)	Curve Max. (ug/mL)	Ret. Time (min.)	Ret. Time (min.)	%diff. RT	Conc. # 1 (ug/mL)	Conc. # 2 (ug/mL)	%diff. conc.	Avg. Conc. (ug/mL)	DF	Liquid Vol. (mL)	Conv. Factor	Catch Weight (ug)	Flag	pH
Hydrogen Bromide as Bromide																		
1-26A-Chronic H2SO4	032	033	0.0499	0.500	30.0	6.57	6.57	0.0	0.831	0.829	0.1	0.830	1	475	1.013	399		1
2-26A-Chronic H2SO4	038	039	0.0499	0.500	30.0	6.58	6.58	0.0	0.914	0.908	0.3	0.911	1	455	1.013	420		1
3-26A-Chronic H2SO4	042	043	0.0499	0.500	30.0	6.58	6.58	0.0	0.697	0.707	0.7	0.702	1	495	1.013	352		1
FB-26A Chronic H2SO4	044	045	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	200	1.013	10.1	ND	1
RB-H2SO4-Chronic	046	047	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	250	1.013	12.6	ND	1
RB-DI-Chronic	048	049	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	200	1.013	10.1	ND	8
Hydrogen Chloride as Chloride																		
1-26A-Chronic H2SO4	092	093	0.0499	0.500	30.0	4.56	4.56	0.0	6.63	6.68	0.4	6.66	5	475	1.028	16,260		1
2-26A-Chronic H2SO4	098	099	0.0499	0.500	30.0	4.55	4.55	0.0	6.91	6.87	0.3	6.89	5	455	1.028	16,113		1
3-26A-Chronic H2SO4	100	101	0.0499	0.500	30.0	4.55	4.55	0.0	7.16	7.16	0.0	7.16	5	495	1.028	18,230		1
FB-26A Chronic H2SO4	044	045	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	200	1.028	10.3	ND	1
RB-H2SO4-Chronic	046	047	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	250	1.028	12.8	ND	1
RB-DI-Chronic	048	049	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	200	1.028	10.3	ND	8
Hydrogen Fluoride as Fluoride																		
1-26A-Chronic H2SO4	032	033	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	475	1.053	25.0	ND	1
2-26A-Chronic H2SO4	038	039	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	455	1.053	23.9	ND	1
3-26A-Chronic H2SO4	042	043	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	495	1.053	26.0	ND	1
FB-26A Chronic H2SO4	044	045	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	200	1.053	10.5	ND	1
RB-H2SO4-Chronic	046	047	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	250	1.053	13.1	ND	1
RB-DI-Chronic	048	049	0.0499	0.500	30.0	NA	NA	NA	0.0499	0.0499	0.0	0.0499	1	200	1.053	10.5	ND	8

Enthalpy Analytical

Company: Montrose Air Quality Services, LLC - Portland

Job No.: 0222-186-3 EPA Method 26A (Chronic H2SO4)

Client No.: PROJ-010935 Site: Covanta Marion, Inc.

Matrix Spike Recovery

Sample ID	Compound	Filename #1	Filename #2	Ret. Time (min.)	Ret. Time (min.)	%diff. RT	Conc. # 1 (ug/mL)	Conc. # 2 (ug/mL)	%diff. conc.	Avg. Conc. (ug/mL)	DF	Vol. (mL)	Catch Weight (ug)	Flag
MS / R1-Chronic.H2SO4	Bromide	034	035	6.57	6.58	0.0	5.66	5.63	0.3	5.65	1	0.8	4.52	
												Native Amount (ug):	0.631	
												Mass Spiked:	4.00	
												Recovery (%):	97.2%	
MSD / R1-Chronic.H2SO4	Bromide	036	037	6.57	6.58	0.0	5.64	5.60	0.3	5.62	1	0.8	4.50	
												Native Amount (ug):	0.631	
												Mass Spiked:	4.00	
												Recovery (%):	96.7%	
MS / R1-Chronic.H2SO4	Chloride	094	095	4.56	4.56	0.0	11.7	11.6	0.4	11.6	1	0.8	9.29	
												Native Amount (ug):	5.06	
												Mass Spiked:	4.00	
												Recovery (%):	106	
MSD / R1-Chronic.H2SO4	Chloride	096	097	4.55	4.55	0.0	11.6	11.7	0.3	11.7	1	0.8	9.33	
												Native Amount (ug):	5.06	
												Mass Spiked:	4.00	
												Recovery (%):	107	
MS / R1-Chronic.H2SO4	Fluoride	034	035	3.14	3.14	0.0	4.79	4.80	0.0	4.80	1	0.8	3.84	
												Native Amount (ug):	0	
												Mass Spiked:	4.00	
												Recovery (%):	95.9	
MSD / R1-Chronic.H2SO4	Fluoride	036	037	3.14	3.14	0.0	4.84	4.79	0.6	4.81	1	0.8	3.85	
												Native Amount (ug):	0	
												Mass Spiked:	4.00	
												Recovery (%):	96.3	

Enthalpy Analytical

Company: Montrose Air Quality Services, LLC - Portland

Job No.: 0222-186-4 EPA Method 26A (Chronic NaOH)

Client No.: PROJ-010935 Site: Covanta Marion, Inc.

Bromine as Bromide

Sample ID	Filename #1	Filename #2	MDL (ug/mL)	Curve Min. (ug/mL)	Curve Max. (ug/mL)	Ret. Time (min.)	Ret. Time (min.)	%diff. RT	Conc. # 1 (ug/mL)	Conc. # 2 (ug/mL)	%diff. conc.	Avg. Conc. (ug/mL)	DF	Liquid Vol. (mL)	Conv. Factor	Catch Weight (ug)	Flag	pH
1-26A-Chronic NaOH	019	020	0.100	0.500	30.0	NA	NA	NA	0.100	0.100	0.0	0.100	10	280	1.000	280	ND	8
2-26A-Chronic NaOH	025	026	0.100	0.500	30.0	NA	NA	NA	0.100	0.100	0.0	0.100	10	255	1.000	255	ND	8
3-26A-Chronic NaOH	027	028	0.100	0.500	30.0	NA	NA	NA	0.100	0.100	0.0	0.100	10	290	1.000	290	ND	8
FB-26A Chronic NaOH	029	030	0.100	0.500	30.0	NA	NA	NA	0.100	0.100	0.0	0.100	1	202	1.000	20.2	ND	14
RB-NaOH-Chronic	031	032	0.100	0.500	30.0	NA	NA	NA	0.100	0.100	0.0	0.100	1	198	1.000	19.8	ND	14
RB-DI-Chronic	033	034	0.100	0.500	30.0	NA	NA	NA	0.100	0.100	0.0	0.100	1	200	1.000	20.0	ND	8

Chlorine as Chloride

Sample ID	Filename #1	Filename #2	MDL (ug/mL)	Curve Min. (ug/mL)	Curve Max. (ug/mL)	Ret. Time (min.)	Ret. Time (min.)	%diff. RT	Conc. # 1 (ug/mL)	Conc. # 2 (ug/mL)	%diff. conc.	Avg. Conc. (ug/mL)	DF	Liquid Vol. (mL)	Conv. Factor	Catch Weight (ug)	Flag	pH
1-26A-Chronic NaOH	019	020	0.100	0.500	30.0	4.45	4.45	0	0.100	0.100	0.0	0.100	10	280	1.000	280	ND	8
2-26A-Chronic NaOH	025	026	0.100	0.500	30.0	4.45	4.45	0	0.100	0.100	0.0	0.100	10	255	1.000	255	ND	8
3-26A-Chronic NaOH	027	028	0.100	0.500	30.0	4.45	4.45	0	0.100	0.100	0.0	0.100	10	290	1.000	290	ND	8
FB-26A Chronic NaOH	029	030	0.100	0.500	30.0	4.37	4.38	0.0	0.213	0.207	1.6	0.210	1	202	1.000	42.4	J	14
RB-NaOH-Chronic	031	032	0.100	0.500	30.0	4.38	4.38	0.0	0.202	0.214	2.9	0.208	1	198	1.000	41.2	J	14
RB-DI-Chronic	033	034	0.100	0.500	30.0	NA	NA	NA	0.100	0.100	0.0	0.100	1	200	1.000	20.0	ND	8

Enthalpy Analytical

Company: Montrose Air Quality Services, LLC - Portland

Job No.: 0222-186-4 EPA Method 26A (Chronic NaOH)

Client No.: PROJ-010935 Site: Covanta Marion, Inc.

Matrix Spike Recovery

Sample ID	Compound	Filename #1	Filename #2	Ret. Time (min.)	Ret. Time (min.)	%diff. RT	Conc. # 1 (ug/mL)	Conc. # 2 (ug/mL)	%diff. conc.	Avg. Conc. (ug/mL)	DF	Vol. (mL)	Catch Weight (ug)	Flag
MS / R1-Chronic.NaOH	bromide	021	022	6.48	6.48	0.0	4.85	4.79	0.6	4.82	1	0.85	4.10	
												Native Amount (ug):	0	
												Mass Spiked:	4.00	
												Recovery (%):	102	
MSD / R1-Chronic.NaOH	bromide	023	024	6.48	6.48	0.0	4.89	4.93	0.4	4.91	1	0.85	4.17	
												Native Amount (ug):	0	
												Mass Spiked:	4.00	
												Recovery (%):	104	
MS / R1-Chronic.NaOH	chloride	021	022	4.46	4.46	0.0	4.67	4.62	0.6	4.64	1	0.85	3.95	
												Native Amount (ug):	0	
												Mass Spiked:	4.00	
												Recovery (%):	98.6	
MSD / R1-Chronic.NaOH	chloride	023	024	4.46	4.46	0.0	4.71	4.75	0.5	4.73	1	0.85	4.02	
												Native Amount (ug):	0	
												Mass Spiked:	4.00	
												Recovery (%):	100	

Sample Name	: 1-0023A
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_001
Data File	: W2200748.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 20:07:32
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	:	1-0023A
Sample Info	:	0222-186; IS SVOAPrep446; 0222-816_13172_001
Data File	:	W2200748.D
Dilution	:	1
Extract Volume	:	1.00
Acquisition Date	:	2022-04-01 20:07:32
Instrument Method	:	RXI-M8270V1.M
Matrix	:	LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	129,555	4.29	40.0	-9.0	PASS
Naphthalene-d8 (I)	534,208	5.36	40.0	1.1	PASS
Acenaphthene-d10 (I)	337,935	6.92	40.0	12.1	PASS
Phenanthrene-d10 (I)	710,457	8.27	40.0	18.8	PASS
Chrysene-d12 (I)	736,387	12.3	40.0	25.2	PASS
Perylene-d12 (I)	727,007	16.4	40.0	19.4	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	2,856	3.31	0.737	0.7	20.0	3.69	FAIL
Phenol-d5 (surr)	20,163	3.93	4.20	4.2	20.0	21.0	PASS
Nitrobenzene-d5 (surr)	92,041	4.72	18.8	18.8	20.0	93.8	m PASS
2-Fluorobiphenyl (surr)	248,364	6.28	22.0	22.0	20.0	110	PASS
Fluorene-d10 (surr)	185,766	7.38	17.5	17.5	20.0	87.5	PASS
2,4,6-Tribromophenol (surr)	18,800	7.62	10.3	10.3	20.0	51.4	PASS
Pyrene-d10 (surr)	375,721	9.91	21.1	21.1	20.0	105	PASS
Terphenyl-d14 (surr)	389,050	10.1	26.2	26.2	20.0	131	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: 1-0023A (Conf)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_001
Data File	: W2200749.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 20:40:09
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	:	1-0023A (Conf)
Sample Info	:	0222-186; IS SVOAPrep446; 0222-816_13172_001
Data File	:	W2200749.D
Dilution	:	1
Extract Volume	:	1.00
Acquisition Date	:	2022-04-01 20:40:09
Instrument Method	:	RXI-M8270V1.M
Matrix	:	LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	132,049	4.29	40.0	-7.2	PASS
Naphthalene-d8 (I)	505,967	5.36	40.0	-4.2	PASS
Acenaphthene-d10 (I)	318,015	6.92	40.0	5.5	PASS
Phenanthrene-d10 (I)	678,158	8.27	40.0	13.4	PASS
Chrysene-d12 (I)	729,570	12.3	40.0	24.0	PASS
Perylene-d12 (I)	691,617	16.4	40.0	13.6	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	6,593	3.31	1.67	1.7	20.0	8.35	FAIL
Phenol-d5 (surr)	27,671	3.93	5.66	5.7	20.0	28.3	PASS
Nitrobenzene-d5 (surr)	94,556	4.73	18.9	18.9	20.0	94.6	m PASS
2-Fluorobiphenyl (surr)	253,482	6.28	23.8	23.8	20.0	119	PASS
Fluorene-d10 (surr)	192,145	7.38	19.2	19.2	20.0	96.2	PASS
2,4,6-Tribromophenol (surr)	19,543	7.62	11.2	11.2	20.0	56.0	PASS
Pyrene-d10 (surr)	375,740	9.91	22.1	22.1	20.0	110	PASS
Terphenyl-d14 (surr)	392,324	10.1	27.7	27.7	20.0	138	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: 2-0023A
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_002
Data File	: W2200750.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 21:12:51
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	0.143	0.142	0.143	J
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	0.235	0.211	0.235	m J
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: 2-0023A
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_002
Data File	: W2200750.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 21:12:51
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	129,505	4.29	40.0	-9.0	PASS
Naphthalene-d8 (I)	507,372	5.36	40.0	-4.0	PASS
Acenaphthene-d10 (I)	320,525	6.92	40.0	6.3	PASS
Phenanthrene-d10 (I)	691,967	8.27	40.0	15.7	PASS
Chrysene-d12 (I)	722,526	12.3	40.0	22.8	PASS
Perylene-d12 (I)	715,813	16.4	40.0	17.6	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	11,535	3.31	2.98	3.0	20.0	14.9	FAIL
Phenol-d5 (surr)	31,755	3.93	6.62	6.6	20.0	33.1	PASS
Nitrobenzene-d5 (surr)	89,952	4.73	18.3	18.3	20.0	91.7	PASS
2-Fluorobiphenyl (surr)	251,187	6.28	23.4	23.4	20.0	117	PASS
Fluorene-d10 (surr)	213,815	7.38	21.2	21.2	20.0	106	PASS
2,4,6-Tribromophenol (surr)	26,457	7.62	14.9	14.9	20.0	74.3	PASS
Pyrene-d10 (surr)	412,559	9.91	23.8	23.8	20.0	119	FAIL
Terphenyl-d14 (surr)	400,376	10.1	27.7	27.7	20.0	138	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: 2-0023A (Conf)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_002
Data File	: W2200751.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 21:45:37
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	0.155	0.106	0.155	m J
1,3-Dichlorobenzene	0.142	0.183	0.142	0.183	J
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	:	2-0023A (Conf)
Sample Info	:	0222-186; IS SVOAPrep446; 0222-816_13172_002
Data File	:	W2200751.D
Dilution	:	1
Extract Volume	:	1.00
Acquisition Date	:	2022-04-01 21:45:37
Instrument Method	:	RXI-M8270V1.M
Matrix	:	LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	143,060	4.29	40.0	0.5	PASS
Naphthalene-d8 (I)	555,934	5.36	40.0	5.2	PASS
Acenaphthene-d10 (I)	356,127	6.92	40.0	18.1	PASS
Phenanthrene-d10 (I)	748,772	8.27	40.0	25.2	PASS
Chrysene-d12 (I)	769,997	12.3	40.0	30.9	PASS
Perylene-d12 (I)	755,381	16.4	40.0	24.1	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	11,495	3.31	2.69	2.7	20.0	13.4	FAIL
Phenol-d5 (surr)	34,586	3.93	6.53	6.5	20.0	32.7	m PASS
Nitrobenzene-d5 (surr)	99,152	4.72	18.3	18.3	20.0	91.5	PASS
2-Fluorobiphenyl (surr)	269,603	6.28	22.6	22.6	20.0	113	PASS
Fluorene-d10 (surr)	220,650	7.38	19.7	19.7	20.0	98.6	PASS
2,4,6-Tribromophenol (surr)	26,407	7.62	13.7	13.7	20.0	68.5	m PASS
Pyrene-d10 (surr)	424,448	9.91	22.6	22.6	20.0	113	FAIL
Terphenyl-d14 (surr)	425,198	10.1	27.2	27.2	20.0	136	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: FB-0023A
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_003
Data File	: W2200752.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 22:18:18
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: FB-0023A
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_003
Data File	: W2200752.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 22:18:18
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	134,138	4.29	40.0	-5.8	PASS
Naphthalene-d8 (I)	535,014	5.36	40.0	1.3	PASS
Acenaphthene-d10 (I)	340,428	6.92	40.0	12.9	PASS
Phenanthrene-d10 (I)	707,071	8.27	40.0	18.3	PASS
Chrysene-d12 (I)	744,283	12.3	40.0	26.5	PASS
Perylene-d12 (I)	747,700	16.4	40.0	22.8	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	16,951	3.30	4.23	4.2	20.0	21.1	PASS
Phenol-d5 (surr)	37,526	3.93	7.56	7.6	20.0	37.8	PASS
Nitrobenzene-d5 (surr)	112,143	4.73	22.1	22.1	20.0	110	m PASS
2-Fluorobiphenyl (surr)	272,730	6.28	23.9	23.9	20.0	120	PASS
Fluorene-d10 (surr)	203,424	7.38	19.0	19.0	20.0	95.1	PASS
2,4,6-Tribromophenol (surr)	25,602	7.62	14.1	14.1	20.0	70.4	PASS
Pyrene-d10 (surr)	409,589	9.91	23.1	23.1	20.0	115	FAIL
Terphenyl-d14 (surr)	402,086	10.1	27.2	27.2	20.0	136	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: FB-0023A (Conf)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_003
Data File	: W2200753.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 22:50:57
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: FB-0023A (Conf)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_003
Data File	: W2200753.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 22:50:57
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	135,000	4.29	40.0	-5.1	PASS
Naphthalene-d8 (I)	540,374	5.36	40.0	2.3	PASS
Acenaphthene-d10 (I)	342,198	6.92	40.0	13.5	PASS
Phenanthrene-d10 (I)	733,452	8.27	40.0	22.7	PASS
Chrysene-d12 (I)	754,036	12.3	40.0	28.2	PASS
Perylene-d12 (I)	734,628	16.4	40.0	20.7	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	15,280	3.30	3.78	3.8	20.0	18.9	FAIL
Phenol-d5 (surr)	34,881	3.93	6.98	7.0	20.0	34.9	PASS
Nitrobenzene-d5 (surr)	105,174	4.72	20.6	20.6	20.0	103	m PASS
2-Fluorobiphenyl (surr)	264,148	6.28	23.1	23.1	20.0	115	PASS
Fluorene-d10 (surr)	189,739	7.38	17.7	17.7	20.0	88.3	PASS
2,4,6-Tribromophenol (surr)	22,539	7.62	11.9	11.9	20.0	59.7	m PASS
Pyrene-d10 (surr)	398,607	9.91	21.7	21.7	20.0	108	PASS
Terphenyl-d14 (surr)	407,024	10.1	26.6	26.6	20.0	133	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: PB-0023A
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_004
Data File	: W2200754.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 23:23:47
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: PB-0023A
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_004
Data File	: W2200754.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 23:23:47
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	124,702	4.29	40.0	-12.4	PASS
Naphthalene-d8 (I)	530,606	5.36	40.0	0.4	PASS
Acenaphthene-d10 (I)	336,560	6.92	40.0	11.6	PASS
Phenanthrene-d10 (I)	705,729	8.27	40.0	18.0	PASS
Chrysene-d12 (I)	745,539	12.3	40.0	26.7	PASS
Perylene-d12 (I)	766,467	16.4	40.0	25.9	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	11,986	3.31	3.21	3.2	20.0	16.1	FAIL
Phenol-d5 (surr)	43,165	3.93	9.35	9.4	20.0	46.8	m PASS
Fluorene-d10 (surr)	191,951	7.38	18.2	18.2	20.0	90.8	PASS
2,4,6-Tribromophenol (surr)	22,083	7.62	12.2	12.2	20.0	60.8	m PASS
Pyrene-d10 (surr)	377,995	9.91	21.3	21.3	20.0	107	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: PB-0023A (Conf)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_004
Data File	: W2200755.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 23:56:29
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: PB-0023A (Conf)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_004
Data File	: W2200755.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 23:56:29
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	136,043	4.29	40.0	-4.4	PASS
Naphthalene-d8 (I)	536,368	5.36	40.0	1.5	PASS
Acenaphthene-d10 (I)	343,934	6.92	40.0	14.1	PASS
Phenanthrene-d10 (I)	749,487	8.27	40.0	25.4	PASS
Chrysene-d12 (I)	810,966	12.3	40.0	37.8	PASS
Perylene-d12 (I)	824,335	16.4	40.0	35.4	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	12,634	3.31	3.10	3.1	20.0	15.5	FAIL
Phenol-d5 (surr)	43,927	3.93	8.72	8.7	20.0	43.6	PASS
Fluorene-d10 (surr)	188,295	7.38	17.4	17.4	20.0	87.2	m PASS
2,4,6-Tribromophenol (surr)	23,346	7.62	12.1	12.1	20.0	60.5	m PASS
Pyrene-d10 (surr)	411,086	9.91	21.9	21.9	20.0	109	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: RB
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_005
Data File	: W2200756.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-02 00:29:18
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: RB
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_005
Data File	: W2200756.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-02 00:29:18
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	145,529	4.29	40.0	2.2	PASS
Naphthalene-d8 (I)	566,524	5.36	40.0	7.2	PASS
Acenaphthene-d10 (I)	358,209	6.92	40.0	18.8	PASS
Phenanthrene-d10 (I)	745,662	8.27	40.0	24.7	PASS
Chrysene-d12 (I)	773,339	12.3	40.0	31.4	PASS
Perylene-d12 (I)	795,710	16.4	40.0	30.7	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	23,651	3.31	5.43	5.4	20.0	27.2	PASS
Phenol-d5 (surr)	48,435	3.93	8.99	9.0	20.0	45.0	m PASS
Fluorene-d10 (surr)	189,276	7.38	16.8	16.8	20.0	84.1	PASS
2,4,6-Tribromophenol (surr)	20,568	7.62	10.7	10.7	20.0	53.6	m PASS
Pyrene-d10 (surr)	377,546	9.91	20.2	20.2	20.0	101	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: Audit Sample
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_006
Data File	: W2200758.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-02 01:34:50
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	PT Performance Acceptance Limits	Flag *
2-Chlorophenol	0.106	40.6	0.106	40.6	72.8 - 136	FAIL
1,3-Dichlorobenzene	0.142	ND	0.142	ND	---	PASS
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	---	PASS
1,2-Dichlorobenzene	0.268	ND	0.268	ND	---	PASS
2,4-Dichlorophenol (CCC)	0.209	57.9	0.209	57.9	99.1 - 162	FAIL
1,2,4-Trichlorobenzene	0.180	49.3	0.180	49.3	50.0 - 114	FAIL
2,4,6-Trichlorophenol (CCC)	0.211	42.6	0.211	42.6	69.5 - 111	FAIL
2,4,5-Trichlorophenol	0.251	22.2	0.251	22.2	35.4 - 54.5	FAIL
2,3,4,6-Tetrachlorophenol	0.342	82.2	0.342	82.2	104 - 205	FAIL
Hexachlorobenzene	0.321	23.5	0.321	23.5	23.0 - 43.9	PASS
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	---	PASS

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: Audit Sample
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_006
Data File	: W2200758.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-02 01:34:50
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	185,256	4.29	40.0	30.2	PASS
Naphthalene-d8 (I)	664,542	5.36	40.0	25.8	PASS
Acenaphthene-d10 (I)	400,256	6.92	40.0	32.8	PASS
Phenanthrene-d10 (I)	837,087	8.27	40.0	40.0	PASS
Chrysene-d12 (I)	890,048	12.3	40.0	51.3	PASS
Perylene-d12 (I)	913,789	16.4	40.0	50.1	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	29,557	3.30	5.33	5.3	20.0	26.7	PASS
Phenol-d5 (surr)	40,836	3.93	5.95	6.0	20.0	29.8	m PASS
Nitrobenzene-d5 (surr)	75,160	4.73	10.7	10.7	20.0	53.6	PASS
2-Fluorobiphenyl (surr)	143,784	6.28	10.7	10.7	20.0	53.7	PASS
Fluorene-d10 (surr)	167,155	7.38	13.3	13.3	20.0	66.5	PASS
2,4,6-Tribromophenol (surr)	20,360	7.62	9.45	9.5	20.0	47.3	PASS
Pyrene-d10 (surr)	343,245	9.91	16.3	16.3	20.0	81.7	PASS
Terphenyl-d14 (surr)	264,001	10.1	15.1	15.1	20.0	75.5	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Company	Montrose Air Quality Services - Portland	Client #	PROJ-010935
		Job #	0222-186
Analyst	DBS	# Samples	6 Samples
Parameters	GC/MS SVOA Scan		

Sample ID: **1-0023A** DF: 1.00

Data File: W2200748.D Final Vol.(mL): 1.00

Tank/Misc ID: 0222-186; IS SVOAPrep446; 0222-816_13172_001

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ethylbenzene	000100-41-4	106	3.30	2,823,920	93.3	93.3
Octamethylcyclotetrasiloxane	000556-67-2	296	3.89	586,794	19.4	19.4
Benzaldehyde	000100-52-7	106	3.94	878,726	29.0	29.0
Benzoic Acid	000065-85-0	122	5.04	610,445	18.4	18.4
2-Fluoro-1,1'-biphenyl	000321-60-8	172	6.28	771,783	18.7	18.7

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ethylcyclohexane	001678-91-7	112	3.15	572,947	18.9	18.9
Iodine	007553-56-2	254	3.23	1,252,960	41.4	41.4
Xylene isomer		106	3.35	1,828,430	60.4	60.4
Ethenyl-ethylbenzene isomer		132	4.69	1,049,810	34.7	34.7
Ethenyl-ethylbenzene isomer		132	4.75	548,445	18.1	18.1
Diethenylbenzene isomer	001321-74-0	130	4.87	633,164	19.0	19.0

Company	Montrose Air Quality Services - Portland	Client #	PROJ-010935
		Job #	0222-186
Analyst	DBS	# Samples	6 Samples
Parameters	GC/MS SVOA Scan		

Sample ID: **2-0023A** DF: 1.00

Data File: W2200750.D Final Vol.(mL): 1.00

Tank/Misc ID: 0222-186; IS SVOAPrep446; 0222-816_13172_002

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ethylcyclohexane	001678-91-7	112	3.14	573,185	24.0	24.0
Diethenylbenzene	001321-74-0	130	4.87	596,464	19.7	19.7
Benzoic Acid	000065-85-0	122	5.06	857,116	28.4	28.4

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Iodine	007553-56-2	254	3.23	434,789	18.2	18.2
Ethylbenzene	000100-41-4	106	3.30	3,100,551	130	130
Xylene isomer / Unknown Hydrocarbon*		106 /	3.35	5,796,120	242	242
Benzaldehyde	000100-52-7	106	3.94	1,391,176	58.2	58.2
Ethylbenzaldehyde isomer / Ethenylbenzaldehyde *	/ 043145-54-6	134 / 132	5.28	448,841	14.9	14.9
Unknown carboxylic acid		114	5.87	498,984	16.5	16.5
p-tert-Butylcatechol	000098-29-3	166	6.86	537,998	14.2	14.2

* Compounds Co-elute

Company	Montrose Air Quality Services - Portland	Client #	PROJ-010935
		Job #	0222-186
Analyst	DBS	# Samples	6 Samples
Parameters	GC/MS SVOA Scan		

Sample ID: **FB-0023A** DF: 1.00

Data File: W2200752.D Final Vol.(mL): 1.00

Tank/Misc ID: 0222-186; IS SVOAPrep446; 0222-816_13172_003

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Styrene	000100-42-5	104	3.48	339,716	12.7	12.7
Diethenylbenzene	001321-74-0	130	4.87	1,156,080	37.3	37.3
Benzoic Acid	000065-85-0	122	5.04	836,320	27.0	27.0

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ethylbenzene	000100-41-4	106	3.29	2,239,664	83.6	83.6
Xylene isomer		106	3.34	1,453,383	54.2	54.2
Trimethylbenzene isomer		120	4.14	400,785	15.0	15.0
Unknown C12 alkene		168	4.48	482,406	18.0	18.0
Unknown C12 alkene		168	4.59	710,497	26.5	26.5
Ethenylethylbenzene isomer		132	4.69	2,127,095	79.4	79.4
Ethylbenzaldehyde isomer / Ethenylbenzaldehyde *	/ 043145-54-6	134 / 132	5.28	441,285	14.2	14.2

* Compounds Co-elute

Company	Montrose Air Quality Services - Portland	Client #	PROJ-010935
		Job #	0222-186
Analyst	DBS	# Samples	6 Samples
Parameters	GC/MS SVOA Scan		

Sample ID: **PB-0023A** DF: 1.00

Data File: W2200754.D Final Vol.(mL): 1.00

Tank/Misc ID: 0222-186; IS SVOAPrep446; 0222-186_13172_004

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ehylcyclohexane	001678-91-7	112	3.15	311,877	10.7	10.7

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ethylbenzene	000100-41-4	106	3.30	2,506,998	86.2	86.2
Xylene isomer		106	3.35	1,650,816	56.8	56.8
Trimethylbenzene isomer		120	4.14	368,615	12.7	12.7
Unknown C12 hydrocarbon		168	4.37	356,531	12.3	12.3
Unknown C12 hydrocarbon		168	4.42	320,696	11.0	11.0
Unknown C12 hydrocarbon		168	4.47	486,253	16.7	16.7
Unknown C12 hydrocarbon		168	4.59	575,101	19.8	19.8
Unknown C12 hydrocarbon		168	4.65	317,213	10.9	10.9
Unknown C12 hydrocarbon		168	4.88	454,237	14.6	14.6

*Contains hydrocarbon fingerprint

Company	Montrose Air Quality Services - Portland	Client #	PROJ-010935
		Job #	0222-186
Analyst	DBS	# Samples	6 Samples
Parameters	GC/MS SVOA Scan		

Sample ID: **RB** DF: 1.00

Data File: W2200756.D Final Vol.(mL): 1.00

Tank/Misc ID: 0222-186; IS SVOAPrep446; 0222-186_13172_005

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ethylcyclohexane	001678-91-7	112	3.15	675,095	28.5	28.5
Benzyl Alcohol	000100-51-6	108	4.36	836,240	35.3	35.3

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Ethylmethylcyclopentane isomer		112	3.08	161,130	6.80	6.80
Propylcyclopentane	000240-96-2	112	3.12	313,894	13.3	13.3
Ethylbenzene	000100-41-4	106	3.30	6,553,812	277	277
Xylene isomer		106	3.36	4,218,064	178	178
3-Methyl 2-butenal /		84 /				
Unknown C10 Hydrocarbon*	000107-86-8	140	3.63	276,247	11.7	11.7
Unknown Hydrocarbon			3.73	151,222	6.38	6.38
Cyclohexane isomer			3.83	215,886	9.11	9.11
Benzaldehyde	000100-52-7	106	3.94	1,220,135	51.5	51.5

* Compounds Co-elute

Company	Montrose Air Quality Services - Portland		Client #	PROJ-010935	
Analyst	DBS		Job #	0222-186	
Parameters	GC/MS SVOA Scan		# Samples	6 Samples	

Sample ID: **Audit Sample** DF: 1.00
Data File: W2200758.D Final Vol.(mL): 1.00
Tank/Misc ID: 0222-186; IS SVOAPrep446; 0222-186_13172_006

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Bis(2-chloroisopropyl) ether	039638-32-9	170	4.46	1,190,570	38.8	38.8
3/4-Methylphenol		108	4.55	1,382,570	45.1	45.1
4-Chloro-3-methylphenol	000059-50-7	142	5.79	1,673,880	36.4	36.4
Bis(2-ethylhexyl) phthalate	000117-81-7	390	12.24	3,791,250	65.0	65.0
Indeno[1,2,3-cd]pyrene	000193-39-5	276	18.47	1,916,980	33.0	33.0

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
2-Methyl-1,3-dinitrobenzene *	000606-20-2	182	6.68	2,336,840	49.9	49.9
4-Bromophenyl-phenyl ether	000101-55-3	248	7.82	3,874,070	74.1	74.1
Chrysene	000218-012-9	228	12.36	2,072,960	35.6	35.6
Benzo[k]fluoranthene	000207-08-9	252	15.52	1,750,080	30.1	30.1
Dibenz(a,h))anthracene	000053-70-3	278	18.50	2,161,430	37.2	37.2

*Synonym: 2,6-Dinitrotoluene

Lab QC

Sample Name	: Audit Sample (LD)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_006
Data File	: W2200759.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-02 02:07:35
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	% Diff	PT Performance Acceptance Limits	Flag *
2-Chlorophenol	0.106	46.2	0.106	46.2	12.9	72.8 - 136	FAIL
1,3-Dichlorobenzene	0.142	ND	0.142	ND		---	PASS
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND		---	PASS
1,2-Dichlorobenzene	0.268	ND	0.268	ND		---	PASS
2,4-Dichlorophenol (CCC)	0.209	65.4	0.209	65.4	12.1	99.1 - 162	FAIL
1,2,4-Trichlorobenzene	0.180	52.5	0.180	52.5	6.2	50.0 - 114	PASS
2,4,6-Trichlorophenol (CCC)	0.211	42.6	0.211	42.6	0.0	69.5 - 111	FAIL
2,4,5-Trichlorophenol	0.251	23.7	0.251	23.7	6.4	35.4 - 54.5	FAIL
2,3,4,6-Tetrachlorophenol	0.342	88.5	0.342	88.5	7.4	104 - 205	FAIL
Hexachlorobenzene	0.321	27.5	0.321	27.5	15.9	23.0 - 43.9	PASS
Pentachlorophenol (CCC)	0.223	ND	0.223	ND		---	PASS

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: Audit Sample (LD)
Sample Info	: 0222-186; IS SVOAPrep446; 0222-816_13172_006
Data File	: W2200759.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-02 02:07:35
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	170,409	4.29	40.0	19.7	PASS
Naphthalene-d8 (I)	613,658	5.36	40.0	16.2	PASS
Acenaphthene-d10 (I)	387,870	6.92	40.0	28.7	PASS
Phenanthrene-d10 (I)	777,738	8.27	40.0	30.1	PASS
Chrysene-d12 (I)	816,662	12.3	40.0	38.8	PASS
Perylene-d12 (I)	814,671	16.4	40.0	33.8	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	30,720	3.30	6.03	6.0	20.0	30.1	PASS
Phenol-d5 (surr)	42,350	3.93	6.71	6.7	20.0	33.6	PASS
Nitrobenzene-d5 (surr)	82,212	4.72	12.7	12.7	20.0	63.7	PASS
2-Fluorobiphenyl (surr)	153,374	6.28	11.8	11.8	20.0	59.1	PASS
Fluorene-d10 (surr)	174,611	7.38	14.3	14.3	20.0	71.7	PASS
2,4,6-Tribromophenol (surr)	18,979	7.62	9.48	9.5	20.0	47.4	PASS
Pyrene-d10 (surr)	323,372	9.91	16.6	16.6	20.0	82.8	PASS
Terphenyl-d14 (surr)	258,218	10.1	15.9	15.9	20.0	79.4	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: MB
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200746.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 19:02:00
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: MB
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200746.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 19:02:00
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	189,321	4.29	40.0	33.0	PASS
Naphthalene-d8 (I)	704,140	5.36	40.0	33.3	PASS
Acenaphthene-d10 (I)	445,192	6.92	40.0	47.7	PASS
Phenanthrene-d10 (I)	878,742	8.27	40.0	47.0	PASS
Chrysene-d12 (I)	901,603	12.3	40.0	53.2	PASS
Perylene-d12 (I)	901,652	16.4	40.0	48.1	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	45,982	3.30	8.12	8.1	20.0	40.6	PASS
Phenol-d5 (surr)	66,126	3.93	9.44	9.4	20.0	47.2	PASS
Nitrobenzene-d5 (surr)	110,781	4.73	15.5	15.5	20.0	77.3	PASS
2-Fluorobiphenyl (surr)	263,345	6.28	17.7	17.7	20.0	88.4	PASS
Fluorene-d10 (surr)	188,843	7.38	13.5	13.5	20.0	67.5	PASS
2,4,6-Tribromophenol (surr)	28,707	7.62	12.7	12.7	20.0	63.5	PASS
Pyrene-d10 (surr)	365,788	9.91	16.6	16.6	20.0	82.9	PASS
Terphenyl-d14 (surr)	445,864	10.1	24.3	24.3	20.0	121	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name : DCM Blank
Sample Info : Lot 212200
Data File : W2200745.D
Dilution : 1
Extract Volume : 1.00
Acquisition Date : 2022-04-01 18:29:16
Instrument Method : RXI-M8270V1.M
Matrix : LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	ND	0.106	ND	
1,3-Dichlorobenzene	0.142	ND	0.142	ND	
1,4-Dichlorobenzene (CCC)	0.235	ND	0.235	ND	
1,2-Dichlorobenzene	0.268	ND	0.268	ND	
2,4-Dichlorophenol (CCC)	0.209	ND	0.209	ND	
1,2,4-Trichlorobenzene	0.180	ND	0.180	ND	
2,4,6-Trichlorophenol (CCC)	0.211	ND	0.211	ND	
2,4,5-Trichlorophenol	0.251	ND	0.251	ND	
2,3,4,6-Tetrachlorophenol	0.342	ND	0.342	ND	
Hexachlorobenzene	0.321	ND	0.321	ND	
Pentachlorophenol (CCC)	0.223	ND	0.223	ND	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: DCM Blank
Sample Info	: Lot 212200
Data File	: W2200745.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 18:29:16
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	162,866	4.29	40.0	14.4	PASS
Naphthalene-d8 (I)	595,107	5.36	40.0	12.7	PASS
Acenaphthene-d10 (I)	354,418	6.92	40.0	17.6	PASS
Phenanthrene-d10 (I)	701,150	8.27	40.0	17.3	PASS
Chrysene-d12 (I)	711,447	12.3	40.0	20.9	PASS
Perylene-d12 (I)	710,522	16.4	40.0	16.7	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: LCS
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200743.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 17:23:44
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	Response	Concentration (ug/mL)	Tag Value (ug/mL)	% Recovery	Flag
2-Chlorophenol	80,800	13.9	20.0	69.4	PASS
1,3-Dichlorobenzene	51,621	7.65	20.0	38.3	FAIL
1,4-Dichlorobenzene (CCC)	57,308	8.20	20.0	41.0	FAIL
1,2-Dichlorobenzene	59,714	9.09	20.0	45.5	FAIL
2,4-Dichlorophenol (CCC)	86,983	17.4	20.0	86.9	PASS
1,2,4-Trichlorobenzene	85,368	15.0	20.0	75.1	PASS
2,4,6-Trichlorophenol (CCC)	85,176	19.0	20.0	94.9	PASS
2,4,5-Trichlorophenol	92,650	18.6	20.0	92.9	PASS
2,3,4,6-Tetrachlorophenol	81,883	20.7	20.0	103.4	PASS
Hexachlorobenzene	107,556	20.2	20.0	101.1	PASS
Pentachlorophenol (CCC)	58,569	19.5	20.0	97.6	PASS

Sample Name	: LCS
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200743.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 17:23:44
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	13.9	0.106	13.9	
1,3-Dichlorobenzene	0.142	7.65	0.142	7.65	
1,4-Dichlorobenzene (CCC)	0.235	8.20	0.235	8.20	m
1,2-Dichlorobenzene	0.268	9.09	0.268	9.09	
2,4-Dichlorophenol (CCC)	0.209	17.4	0.209	17.4	
1,2,4-Trichlorobenzene	0.180	15.0	0.180	15.0	
2,4,6-Trichlorophenol (CCC)	0.211	19.0	0.211	19.0	
2,4,5-Trichlorophenol	0.251	18.6	0.251	18.6	
2,3,4,6-Tetrachlorophenol	0.342	20.7	0.342	20.7	
Hexachlorobenzene	0.321	20.2	0.321	20.2	
Pentachlorophenol (CCC)	0.223	19.5	0.223	19.5	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: LCS
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200743.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 17:23:44
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	189,121	4.29	40.0	32.9	PASS
Naphthalene-d8 (I)	684,814	5.36	40.0	29.6	PASS
Acenaphthene-d10 (I)	437,373	6.92	40.0	45.1	PASS
Phenanthrene-d10 (I)	866,517	8.27	40.0	44.9	PASS
Chrysene-d12 (I)	857,668	12.3	40.0	45.8	PASS
Perylene-d12 (I)	870,300	16.4	40.0	43.0	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	48,482	3.29	8.57	8.6	20.0	42.9	PASS
Phenol-d5 (surr)	74,813	3.93	10.7	10.7	20.0	53.4	PASS
Nitrobenzene-d5 (surr)	120,468	4.73	16.8	16.8	20.0	84.1	PASS
2-Fluorobiphenyl (surr)	300,845	6.28	20.6	20.6	20.0	103	PASS
Fluorene-d10 (surr)	226,393	7.38	16.5	16.5	20.0	82.4	PASS
2,4,6-Tribromophenol (surr)	34,453	7.62	15.5	15.5	20.0	77.3	PASS
Pyrene-d10 (surr)	410,119	9.91	18.9	18.9	20.0	94.3	PASS
Terphenyl-d14 (surr)	458,974	10.1	25.3	25.3	20.0	127	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Sample Name	: LCS conf
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200744.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 17:56:34
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	Response	Concentration (ug/mL)	Tag Value (ug/mL)	% Recovery	Flag
2-Chlorophenol	79,572	15.1	20.0	75.3	PASS
1,3-Dichlorobenzene	50,074	8.19	20.0	40.9	FAIL
1,4-Dichlorobenzene (CCC)	54,582	8.61	20.0	43.1	FAIL
1,2-Dichlorobenzene	59,676	10.0	20.0	50.1	PASS
2,4-Dichlorophenol (CCC)	88,720	18.7	20.0	93.6	PASS
1,2,4-Trichlorobenzene	85,448	15.9	20.0	79.4	PASS
2,4,6-Trichlorophenol (CCC)	80,544	19.6	20.0	98.1	PASS
2,4,5-Trichlorophenol	92,813	20.3	20.0	101.7	PASS
2,3,4,6-Tetrachlorophenol	79,011	21.8	20.0	109.1	PASS
Hexachlorobenzene	108,565	22.4	20.0	111.9	PASS
Pentachlorophenol (CCC)	62,772	22.9	20.0	114.6	PASS

Sample Name	: LCS conf
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200744.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 17:56:34
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Target Compound	MDL (ug/mL)	Concentration (ug/mL)	MDL (ug)	Catch Weight (ug)	Flag *
2-Chlorophenol	0.106	15.1	0.106	15.1	
1,3-Dichlorobenzene	0.142	8.19	0.142	8.19	
1,4-Dichlorobenzene (CCC)	0.235	8.61	0.235	8.61	m
1,2-Dichlorobenzene	0.268	10.0	0.268	10.0	
2,4-Dichlorophenol (CCC)	0.209	18.7	0.209	18.7	
1,2,4-Trichlorobenzene	0.180	15.9	0.180	15.9	
2,4,6-Trichlorophenol (CCC)	0.211	19.6	0.211	19.6	
2,4,5-Trichlorophenol	0.251	20.3	0.251	20.3	
2,3,4,6-Tetrachlorophenol	0.342	21.8	0.342	21.8	
Hexachlorobenzene	0.321	22.4	0.321	22.4	
Pentachlorophenol (CCC)	0.223	22.9	0.223	22.9	

(ND) = Not Detected
*** (J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration**

Sample Name	: LCS conf
Sample Info	: 0222-186; IS SVOAPrep446
Data File	: W2200744.D
Dilution	: 1
Extract Volume	: 1.00
Acquisition Date	: 2022-04-01 17:56:34
Instrument Method	: RXI-M8270V1.M
Matrix	: LIQUID

Internal Standards	Response	Retention Time (min)	Concentration (ug/mL)	% Deviation	Flag *
1,4-Dichlorobenzene-d4 (I)	171,487	4.29	40.0	20.5	PASS
Naphthalene-d8 (I)	648,878	5.36	40.0	22.8	PASS
Acenaphthene-d10 (I)	400,153	6.92	40.0	32.7	PASS
Phenanthrene-d10 (I)	790,828	8.27	40.0	32.3	PASS
Chrysene-d12 (I)	802,253	12.3	40.0	36.3	PASS
Perylene-d12 (I)	812,448	16.4	40.0	33.5	PASS

Surrogates	Response	Retention Time (min)	Concentration (ug/mL)	Catch (ug)	Tag Value (ug)	% Recovery	Flag *
2-Fluorophenol (surr)	45,600	3.29	8.89	8.9	20.0	44.5	PASS
Phenol-d5 (surr)	76,127	3.93	12.0	12.0	20.0	60.0	PASS
Nitrobenzene-d5 (surr)	117,813	4.73	18.1	18.1	20.0	90.7	PASS
2-Fluorobiphenyl (surr)	305,818	6.28	22.8	22.8	20.0	114	PASS
Fluorene-d10 (surr)	223,297	7.38	17.8	17.8	20.0	88.8	PASS
2,4,6-Tribromophenol (surr)	32,605	7.62	16.0	16.0	20.0	80.1	PASS
Pyrene-d10 (surr)	418,282	9.91	21.1	21.1	20.0	105	PASS
Terphenyl-d14 (surr)	461,142	10.1	27.9	27.9	20.0	140	PASS

*** (m) = Manual Integration**
IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Company	Montrose Air Quality Services - Portland	Client #	PROJ-010935
		Job #	0222-186
Analyst	DBS	# Samples	6 Samples
Parameters	GC/MS SVOA Scan		

Sample ID: **MB** DF: 1.00

Data File: W2200746.D Final Vol.(mL): 1.00

Tank/Misc ID: 0222-186; IS SVOAPrep446

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Styrene	000100-42-5	104	3.47	369,076	11.4	11.4
Diethenylbenzene	001321-74-0	130	4.87	579,488	14.6	14.6
Benzoic Acid	000065-85-0	122	5.07	1,350,630	34.0	34.0

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
4-Methyl 4-heptanol	000598-01-6	130	2.56	940,124	29.1	29.1
N,N-dimethylformamide	000068-12-2	73.0	2.68	4,317,190	134	134
4-Hydroxy-4-methyl-2-pentanone	000123-42-2	116.0	3.08	743,088	23.0	23.0
1,4-Benzenedicarboxaldehyde / Diethylbenzene isomer *	000623-27-8 /	134 / 134	5.17	489,271	12.3	12.3
Ethylbenzaldehyde isomer / Ethenylbenzaldehyde *	/ 043145-54-6	134 / 132	5.28	539,554	13.6	13.6
4-Ethylbenzoylchloride / Unknown Carboxylic acid*	016331-45-6 /	168 /	5.88	476,791	12.0	12.0
Unknown carboxylic acid			14.37	734,805	12.6	12.6

* Compounds Co-elute

Company	Montrose Air Quality Services - Portland	Client #	PROJ-010935
		Job #	0222-186
Analyst	DBS	# Samples	6 Samples
Parameters	GC/MS SVOA Scan		

Sample ID: **DCM Blank** DF: 1.00
Data File: W2200745.D Tank DF: 1.00
Tank/Misc ID: Lot 212200

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)
Phenol	000108-95-2	94.0	3.94	27,244	1.02	1.02

Operator's Assessments

Compound	CAS#	MW	Ret. Time (min)	Area	Conc. (ug/mL)	Sample Catch (ug)

Narrative Summary

Enthalpy Analytical Narrative Summary

Company Job No. Client ID.	Montrose Air Quality Services, LLC - Portland 0222-186 EPA Method 29 PROJ-010935 Site: Covanta Marion, Inc.

Custody	Alyssa Miller received the samples on 3/15/22 at 17.4 ºC and 3/21/22 at 15.4 ºC after being relinquished by Montrose Air Quality Services, LLC of Portland. The samples were received in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.

Analysis	The samples were prepared and analyzed for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, phosphorus, selenium, silver, thallium, zinc, aluminum, iron, molybdenum, potassium, vanadium and mercury using the procedures in EPA Method 29, Determination of Metals Emissions from Stationary Sources. Note that aluminum, iron, molybdenum, potassium and vanadium are not scope elements and therefore the results are not accredited / certified. The Inductively Coupled Plasma Mass Spectrometer “X”, the Inductively Coupled Plasma Optical Emission Spectrometer “O”, and the Cold Vapor Atomic Absorbance Spectrometer “Walt Jr.” were used for these analyses.

Calibration	The calibration curves met all method-specified precision criteria.

QC Notes	The analytes of interest were not identified at concentrations greater than the reporting limit in the analyses of the laboratory blanks. All of the analytes of interest for the Laboratory Control Spikes were within the acceptance limits of 80% to 120%. All of the Matrix Spike recoveries were within the acceptance range of 75% to 125%. All of the required duplicate samples had a relative percent difference of 20% or less or were less than five times the limit of quantitation. All of the samples were analyzed at least in duplicate.

Reporting Notes	These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above. The results presented in this report are representative of the sample as provided to the laboratory.

Enthalpy Analytical Narrative Summary

Company Job No. Client ID.	Montrose Air Quality Services, LLC - Portland 0222-186 EPA Method 26A (Chronic H2SO4) PROJ-010935 Site: Covanta Marion, Inc.
Custody	Alyssa Miller received the samples on 3/15/22 at 17.4 °C after being relinquished by Montrose Air Quality Services, LLC - Portland. The samples were received in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.
Analysis	The samples were analyzed for bromide, chloride, and fluoride using the analytical procedures in Section 11.0 of EPA Method 26A, Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method. All sample aliquots and standards are prepared, stored and analyzed using high-density polyethylene containers. Client samples are retained in the container as received. Sample catch weight results were determined using the sample volumes measured by the laboratory. The Dionex Ion Chromatograph "Raphael" equipped with a Conductivity Detector was used for these analyses.
Calibration	The calibration curves are included in the Raw Data section of this report. A quadratic curve type was used instead of the method-specified linear curve.
Chrom. Conditions	The acquisition method 'AS22 ASAP' may be made available upon request.
QC Notes	The samples were analyzed within the 28-day holding time specified by the method. The analyses of the laboratory reagent blanks and client field blanks did not contain bromide, chloride, or fluoride at concentrations greater than the MDL. Duplicate matrix spikes were prepared using aliquots of ***1-26A-Chronic H2SO4*** and met method spike recovery criteria of 80-120%. The analysis of second source standards also served as laboratory control samples and met the laboratory acceptance criteria of ±5% of the tag value.

Enthalpy Analytical Narrative Summary

Company Job No. Client ID.	Montrose Air Quality Services, LLC - Portland 0222-186 EPA Method 26A (Chronic H2SO4) PROJ-010935 Site: Covanta Marion, Inc.

Reporting Notes	The samples were analyzed for bromide, chloride, and fluoride but the results have been reported as hydrogen bromide, hydrogen chloride, and hydrogen fluoride. The results were converted using factors of 1.013, 1.028, and 1.053 respectively to account for the additional hydrogen mass. These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above. The results presented in this report are representative of the samples as provided to the laboratory.

Enthalpy Analytical Narrative Summary

Company Job No. Client ID.	Montrose Air Quality Services, LLC - Portland 0222-186 EPA Method 26A (Chronic NaOH) PROJ-010935 Site: Covanta Marion, Inc.
Custody	Alyssa Miller received the samples on 3/15/22 at 17.4 °C after being relinquished by Montrose Air Quality Services, LLC - Portland. The samples were received in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.
Analysis	The samples were analyzed for chlorine and bromine using the analytical procedures in Section 11.0 of EPA Method 26A, Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method. All sample aliquots and standards are prepared, stored and analyzed using high-density polyethylene containers. Client samples are retained in the container as received. Sample catch weight results were determined using the sample volumes measured by the laboratory. The Dionex Ion Chromatograph "Raphael" equipped with a Conductivity Detector was used for these analyses.
Calibration	The calibration curves are included in the Raw Data section of this report. A quadratic curve type was used instead of the method-specified linear curve.
Chrom. Conditions	The acquisition method 'AS22 ASAP Base' may be made available upon request.
QC Notes	The samples were analyzed within the 28-day holding time specified by the method. The analyses of the laboratory reagent blanks and field reagent blanks did not contain bromine or chlorine at concentrations greater than the MDL. Duplicate matrix spikes were prepared using aliquots of ***1-26A-Chronic NaOH*** and met method spike recovery criteria of 80-120%. The analysis of second source standards also served as laboratory control samples and met the laboratory acceptance criteria of ±5% of the tag value.

Enthalpy Analytical Narrative Summary

Company Job No. Client ID.	Montrose Air Quality Services, LLC - Portland 0222-186 EPA Method 26A (Chronic NaOH) PROJ-010935 Site: Covanta Marion, Inc.

Reporting Notes	The samples were analyzed for bromide and chloride but the results have been reported as bromine and chlorine. No conversion factor was needed as the masses are the same for these forms in solution. These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above. The results presented in this report are representative of the samples as provided to the laboratory.

Enthalpy Analytical Narrative Summary

Company	Montrose Air Quality Services, LLC - Portland	**Client #**	PROJ-010935 / Covanta Marion, Inc.
Analyst	DBS	**Job #**	0222-186
Parameters	EPA Method 8270D & TICs	**# Samples**	6 Samples

Custody

The samples were received at Enthalpy Analytical's Wilmington laboratory on 3/16/22 and 3/17/22 at 4.0°C and 4.6°C after being relinquished by Montrose Air Quality Services, LLC - Portland. The extracts were received at Enthalpy's Durham laboratory on 3/25/22 and logged in by Alyssa Miller after being transported by Dan Ward. All sample extracts were received at -1.0 °C upon log in and were in good condition.

Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.

Analysis

The samples were analyzed for a client requested target compound list and top ten Tentatively Identified Compounds (TICs) using the analytical procedures in EPA Method 8270D; *Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry*.

Each sample was soxhlet extracted for 16 hours in methylene chloride. The soxhlet extracts were concentrated to a 1mL final volume.

The field samples and QC samples were prepared for analysis by spiking a 100-uL aliquot of sample with 5 uL of SV IS (internal standard) solution resulting in an internal standard concentration of 40 ug.

The Agilent Technologies Model 6890N, Gas Chromatograph "Wiley" (S/N CN10244010) was equipped with a 5973N Mass Selective Detector (S/N US21844806) for these analyses.

Calibration

The DFTPP tune analyses associated with the initial and continuing calibrations met acceptance criteria.

The initial calibration (*W022822A-M8270*) met 20% RSD or greater than 0.99 coefficient of determination (R^2) acceptance criteria. Minimum RF criteria were met for the compounds. The initial calibration verification met the 70-130% recovery criteria. The continuing calibration met the 20% RSD criteria. Calibration data has not been included in this Level 2 report but is available upon request.

ENTHALPY ANALYTICAL

Chromatographic Conditions	The acquisition method (***RXI-M8270V1.m***) has not been included in this report, but may be made available upon request.
QC Notes	All internal standard criteria were met for this data set. Most of the surrogates met the recovery criteria. The exceptions include 2-fluorophenol in sample ***1-00023A*** and ***PB-0023A***, 2-fluorophenol and pyrene-d10 in sample ***2-00023A***, and pyrene-d10 in ***FB-0023A***. The BN surrogates were not spiked into samples ***PB-0023A*** and ***RB*** and have not been included in the "Surrogates" section of the quant reports. The samples were analyzed in duplicate to confirm these results. No target analytes were detected in the analysis of the laboratory system blank at concentrations greater than the limit of quantitation (LOQ). No target analytes were detected in the analysis of the method blank (MB) at concentrations greater than the limit of quantitation (LOQ). Phenol was the only TIC detected in the associated laboratory system blank above 1.0 ug/mL. Numerous TICs were present in the method blank at concentrations greater than 1.0 ug/mL. The Laboratory Duplicate (LD) associated with this sample data set met less than 20% difference. The Laboratory Control Sample (LCS) met the 50-150% recovery criteria with the exception of 1,3-dichlorobenzene, 1,4-dichlorobenzene, and 1,2-dichlorobenzene which all failed low. Reanalysis confirmed these results with the exception that 1,2-dichlorobezene passed at 50.1% recovery. All samples were extracted within the 14-day hold time. All sample extracts were analyzed within the 40-day holding time required by the method.
Reporting Notes	On the TIC results spreadsheets the top part of the page details peaks that had sufficiently good spectral matches to be identified by the IUPAC name and CAS number. The bottom part of the page details peaks whose spectra were not good enough to give positive identification using the Agilent Chemstation Software. This section Labeled as "Operator's Assessments" may include both more generic

Reporting Notes (continued)	compound identifications and more specific compounds identifications based on analyst experience and historical instrument response. Compounds with poor spectral match are identified as "unknown". TICs are compared to the National Institute of Standards and Technology (NIST) 2014 compound library. TIC concentrations are calculated using an assumed response factor of 1 for all compounds. Identification of TICs is based upon visual comparison of the sample spectra and best quality library searches. Relative intensities of major ions in the reference spectrum are compared to those in the sample spectrum. Intensities of the major ions should be within 20% of those in the reference spectrum. In some instances, a background subtraction may have been performed on the sample spectrum to remove ions that may be present due to contamination or coeluting peaks. Therefore, due to possible background interferences, ions present in the sample spectrum may not be present in the reference spectrum. The results presented in this report are representative of the samples as provided to the laboratory.

General Reporting Notes

The following are general reporting notes that are applicable to all Enthalpy Analytical, LLC data reports, unless specifically noted otherwise.

- Any analysis which refers to the method as ***"Type"*** represents a planned deviation from the reference method. For instance a Hydrogen Sulfide assay from a Tedlar bag would be labeled as "EPA Method 16-Type" because Tedlar bags are not mentioned as one of the collection options in EPA Method 16.
- The acronym ***MDL*** represents the Minimum Detection Limit. Below this value the laboratory cannot determine the presence of the analyte of interest reliably.
- The acronym ***LOQ*** represents the Limit of Quantification. Below this value the laboratory cannot quantitate the analyte of interest within the criteria of the method.
- The acronym ***ND*** following a value indicates a non-detect or analytical result below the MDL.
- The letter ***J*** in the Qualifier or Flag column in the results indicates that the value is between the MDL and the LOQ. The laboratory can positively identify the analyte of interest as present, but the value should be considered an estimate.
- The letter ***E*** in the Qualifier or Flag column indicates an analytical result exceeding 100% of the highest calibration point. The associated value should be considered as an estimate.
- Sample results are presented 'as measured' for single injection methodologies, or an average value if multiple injections are made. If all injections are below the MDL, the sample is considered non-detect and the ND value is presented. If one, but not all, are below the MDL, the MDL value is used for any injections that are below the MDL. For example, if the MDL is 0.500 and LOQ is 1.00, and the instrument measures 0.355, 0.620, and 0.442 - the result reported is the average of 0.500, 0.620, and 0.500 - - - i.e. 0.540 with a J flag.
- When a spike recovery (Bag Spike, Collocated Spike Train, or liquid matrix spike) is being calculated, the native (unspiked) sample result is used in the calculations, as long as the value is above the MDL. If a sample is ND, then 0 is used as the native amount (not the MDL value).
- The acronym ***DF*** represents Dilution Factor. This number represents dilution of the sample during the preparation and/or analysis process. The analytical result taken from a laboratory instrument is multiplied by the DF to determine the final undiluted sample results.
- The addition of ***MS*** to the Sample ID represents a Matrix Spike. An aliquot of an actual sample is spiked with a known amount of analyte so that a percent recovery value can be determined. The MS analysis indicates what effect the sample matrix may have on the target analyte, i.e. whether or not anything in the sample matrix interferes with the analysis of the analyte(s).

General Reporting Notes
(continued)

- The addition of ***MSD*** to the Sample ID represents a Matrix Spike Duplicate. Prepared in the same manner as a MS, the use of duplicate matrix spikes allows further confirmation of laboratory quality by showing the consistency of results gained by performing the same steps multiple times.

- The addition of ***LD*** to the Sample ID represents a Laboratory Duplicate. The analyst prepares an additional aliquot of sample for testing and the results of the duplicate analysis are compared to the initial result. The result should have a difference value of within 10% of the initial result (if the results of the original analysis are greater than the LOQ).

- The addition of ***AD*** to the Sample ID represents an Alternate Dilution. The analyst prepares an additional aliquot at a different dilution factor (usually double the initial factor). This analysis helps confirm that no additional compound is present and coeluting or sharing absorbance with the analyte of interest, as they would have a different response/absorbance than the analyte of interest.

- The Sample ID ***LCS*** represents a Laboratory Control Sample. Clean matrix, similar to the client sample matrix, prepared and analyzed by the laboratory using the same reagents, spiking standards and procedures used for the client samples. The LCS is used to assess the control of the laboratory's analytical system. Whenever spikes are prepared for our client projects, two spikes are retained as LCSs. The LCSs are labeled with the associated project number and kept in-house at the appropriate temperature conditions. When the project samples are received for analysis, the LCSs are analyzed to confirm that the analyte could be recovered from the media, separate from the samples which were used on the project and which may have been affected by source matrix, sample collection, and/or sample transport.

- **Significant Figures**: Where the reported value is much greater than unity (1.00) in the units expressed, the number is rounded to a whole number of units, rather than to 3 significant figures. For example, a value of 10,456.45 ug catch is rounded to 10,456 ug. There are five significant digits displayed, but no confidence should be placed on more than two significant digits. In the case of small numbers, generally 3 significant figures are presented, but still only 2 should be used with confidence. Many neat materials are only certified to 3 digits, and as the mathematically correct final result is always 1 digit less than all its pre-cursors - 2 significant figures are what are most defensible.

- **Manual Integration**: The data systems used for processing will flag manually integrated peaks with an "M". There are several reasons a peak may be manually integrated. These reasons will be identified by the following two letter designations on sample chromatograms, if provided in the report. The peak was ***not integrated*** by the software **"NI"**, the peak was ***integrated incorrectly*** by the software **"II"** or the ***wrong peak*** was integrated by the software **"WP"**. These codes will accompany the analyst's manual integration stamp placed next to the compound name on the chromatogram.

Sample Custody

MONTROSE AIR QUALITY SERVICES

CHAIN OF CUSTODY

Portland Location
13585 NE Whitaker Way
Portland, OR 97230
Phone (503) 255-5050 | Fax (503) 255-0505

Lab info:
Enthalpy Analytical
Durham, NC

Client / Project: Covanta Marion, Inc.	**Project / Sample Location:** CHRONIC- Unit 2 | Amm3 03.15.22	**Test / Analytical Method:** EPA 26A (halides, halogens)
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Detection Limit / Reporting Instructions:**
Send Analytical Report To: Portland QA/QC: PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	**Sampler or PM Signature:**	HCl, HF, HBr, Cl2, Br2

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-26A-Chronic	3/9/22		1	Container 3 - Impingers 1 & 2 contents, rinses	0.1N H2SO4	
"			1	Container 4 - Impingers 3 & 4 contents and rinses	0.1N NaOH	
2-26A-Chronic	3/9/22		2	Same as Run 1	"	
3-26A-Chronic	3/9/22		2	Same as Run 1	"	
FB-26A-Chronic	3/09/22		2	Field blank - same containers as Run 1	"	
RB-H2SO4-Chronic	3/9/22		1	H2SO4 reagent blank	0.1N H2SO4	
RB-NaOH-Chronic	3/9/22		1	NaOH reagent blank	0.1N NaOH	
RB-DI-Chronic	3/9/22		1	DI reagent blank	DI	
				17.4°C Cooler 2, good condition		
				Amm3 03.15.22		
						Amm3 03.15.22
Total Containers			11			

Relinquished by	Date	Time	Received by	Date	Time	Temp.
	3.14.22	12:00	Alyssa M Mullen	03.15.22	17.4	0930
Relinquished by	Date	Time	Received by	Date	Time	Temp.
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: [KO] = Knockout impinger, "[ ]" denotes an option in the method, FB = Field Blank, RB = Reagent Blank

MONTROSE AIR QUALITY SERVICES

CHAIN OF CUSTODY

Portland Location
13585 NE Whitaker Way
Portland, OR 97230
(503) 255-5050

Lab info:
Enthalpy Analytical
Durham, NC

Client / Project: Covanta Marion, Inc.	**Project / Sample Location:** CHRONIC Unit 2	**Test / Analytical Method:** EPA 29 (multiple metals)
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Reporting Instructions:** Full Suite plus Al, Fe, Mo, K & V
Send Analytical Report To: Portland QA/QC: : PortlandQA-QC@montrose-env.com; pbecker@montrose-env.com	**Sampler or PM Signature:**	

	Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
A	1-29-Chronic	3.9.22	12:55	1	Container 1 - filter	--	
	"	3.9.22	13:00	1	Container 3 - front-half rinse	0.1N HNO3	
	"	3.9.22	13:07	1	Container 4 - [KO], Impingers 1 & 2 contents, rinses	5% HNO3 / 10% H2O2	
	Ammm3 03.15.22 "	3.9.22	13:34	1	Container 5a - Impinger 3 contents and rinse	0.1N HNO3	
B	Ammm3 03.15.22	3.9.22	14:00	1	Container 5b - Impingers 4 & 5 contents and rinses	10% H2SO4 / 4% KMnO4	
	"	3.9.22	14:20	1	Container 5c - Impingers 4 & 5 acid rinse	8N HCl	
B A	2-29 Chronic	3.9.22	18:00	6	Same as Run 1	"	
	3-29-Chronic	3.9.22	21:23	6	Same as Run 1	"	
						(A) RCD C1, C3-5a for all runs	
A	Audit Sample	3.9.22	-	1	metals on filter paper	Ammm3 03.15.22	
	Audit Sample	3.9.22	-	1	Hg on filter paper	17.4°C Raytek 2, good condition Ammm3 03.15.22	
	Audit Sample	3.9.22	-	1	Metals in impinger Solution	(B) Rcd 5b-5b for all runs	
	Audit Sample	3.9.22	-	1	Hg in impinger Solution	15.4°C Raytek 2, good condition Ammm3 03.21.22	
	Total Containers			18			

	Date	Time	Received by	Date	Time	Temp.
Relinquished by			(A) Alyssa Mueller	03.15.22	0930	17.4
Relinquished by	Date	Time	Received by (B) Alyssa Mueller	Date 03.21.22	Time 0830	Temp. 15.4
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: [KO] = Knockout impinger, "[ ]" denotes an option in the method, FB = Field Blank, RB = Reagent Blank

MAQS Chain of Custody Macro-R4

MONTROSE AIR QUALITY SERVICES

CHAIN OF CUSTODY

222-8176

fedex, 776295065290, coolers, on ice, no seals, Traps & semivolatiles & some solvents recd in coolers 1&2. 4.0 good condition

fedex, 776295063265, no seals, good condition, recd in cooler in box 3. 4.6+12, on blue ice - remaining solvents

Portland Location
13585 NE Whitaker Way
Portland, OR 97230
Phone (503) 255-5050 | Fax (503) 255-0505

Lab info:
Enthalpy Analytical
Wilmington, NC

Client / Project:	Project / Sample Location:	Test / Analytical Method:
Covanta Marion	Chronic Unit 1	0023A
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Detection Limit / Reporting Instructions:**
Send Analytical Report To: Portland QA/QC: PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	**Sampler or PM Signature:** Pete Becker	Chlorobenzenes, Chlorophenols & TICs

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-0023A	3.10.22	19:00	1	Container 1 - filter	--	
"	3.10.22	18:55	1	Adsorbent module	XAD-2	
"	3.10.22	19:24	1	Cont. 2 - F1/2 acetone, MeCl2 & toluene rinses	acetone, MeCl2 & toluene	
"	3.10.22	19:38	1	Container 4 - B1/2 acetone, MeCl2 & toluene rinses	acetone, MeCl2 & toluene	
"	3.10.22	19:30	1	impinger water	DI	
2-0023A	3.11.22	16:20	5	Same as Run 1	"	
FB-0023A	3.11.22	15:27	5	Field blank - same containers as Run 1	acetone, MeCl2 & toluene	
PB-0023A	3.10.22	13:30	3	Cont. 2, Cont. 3 and Impinger water	acetone, MeCl2 & toluene	
RB-Acetone	3.10.22	13:35	1	acetone reagent blank	acetone	
RB-MeCl2	3.10.22	13:39	1	MeCl2 reagent blank	MeCl2	
RB-Toluene	3.10.22	13:42	1	toluene reagent blank	toluene	
RB-DI	3.10.22	13:47	1	DI reagent blank	DI	
						3.16.22
Add.t Sample	3.10.22	16:00	4	Semivolatiles on Polyurethane Foam	—	coolers 1 & 2: 4.0 +9
						& box
Total Containers			22			3.17.22, cooler 3

Relinquished by	Date	Time	Received by	Date	Time	Temp.
Pete Becker	3.14.2022	16:00	Meyn Kolb 3.16.22 - cooler 1&2 3.17.22 - cooler in box 3	3.17.22	11:20	4.6 T12
Brieichy Meyn	3/23/22	12:00	Jana Evan	3.25.22	08:41	-18.0 T11
Jana Evan	3.25.22	10:16	[illegible]	3.25.22	10:10	-13

Key: PCDD = Polychlorinated Dibenzo-p-Dioxin, PCDF = Polychlorinated Dibenzofuran, FB = Field Blank, RB = Reagent Blank

Relinq'd [illegible] 3.25.22 12:20 -1°C Rec'd 03.25.22 @1220; -1°C cooler 2 good condition mm3 03.25.22

MAQS Chain of Custody Macro-R4

COPY

Matrix: air	Batch #: 13172			Extraction Cycle Times
Extraction Type: ☑ SDS ☐ SPE ☐ Liq-Liq ☐ SEP		Init.	Date	Start: 14:00 Stop: 9:00 Start Date: 3/22/22 DCM
	Extraction	Bm	3/21/22	Start: Stop: Start Date:
☐ PCDD/F ☐ PCB ☐ PAH ☑ Other: M0010	Clean Up			Start: Stop: Start Date:
	Transfer			Split: ~~1/2~~ ~~1/4~~ Final Volume: 1000 µL

Lab Sample ID	QC Type	Wt. (g)/Vol. (mL)	Extr. Pos.#	Observations	pH
0222-816_13172_001	---	566.5	8	clear	2
0222-816_13172_002	---	606.4	9	clear	2
0222-816_13172_003	---	187.9	10	Clear	6
0222-816_13172_004	---	201.8	—	clear	6
0222-816_13172_005	---	102.0	—	clear	6
(*) 0222-816_13172_006	---	—	11	1 mL of Acid/Base	n/a
MB_13172_PFAS	---	—	6	—	D/a
LCS_13172_PFAS	---	—	7	—	D/a

Bm 3/23/22

MS Parent Sample (if used)

Supply IDs			Supply IDs (Continued)			Equipment IDs	
Item	Supplier	Lot/Prep ID	Item	Supplier	Lot/ Prep ID	Balance	1
Toluene	n/a	n/a	Cl Strips	—	—	Pipettes	P1, P23
Acid Silica	n/a	n/a	pH Strips	Supelco	HC160347	—	P14
Base Silica	n/a	n/a	Sox filter	Millipore	R1KB45348	—	
Silica	—	—	Glass wool	pyrex	14721999		
Florisil	—	—	—	—	—		
Hexane	—	—	Comments:				
CH_2Cl_2	Fisher	214517	(*) sample went dry overnight during extraction. Bm 3/23/22				
Tetradecane	—	—	(A) EE Bm 3/23/22				
Na_2SO_4	—	—					
$AgNO_3$	—	EUPrep (A)					
Hydromatrix	n/a	n/a					
H2SO4	n/a	n/a					

Bm 3/22 3/23

Viewer Initials / Date: _____

COPY

ENTHALPY ANALYTICAL

Spike Profile Sheet

Batch#: 13172

Comments: (*) SIDAQ14 EE Bn 3/22/22
(A) B/N spike only went into sample 006 Bn 3/22/22

NOTE: ALL Ax STANDARDS SOLUTIONS ARE ONLY SPIKED INTO BCS, LCS, OPR AND/OR MS/MSD

PCDD/F

ES: µL @	Ax-A: µL @	Ax-B: µL @	AS: µL @
ID:	ID:	ID:	ID:
Exp.:	Exp.:	Exp.:	Exp.:
Spiker:	Spiker:	Spiker:	Spiker:
Witness: Date:	Witness: Date:	Witness: Date:	Witness: Date:
CS: µL @	**JS:** µL @	µL @	µL @
ID:	ID:	ID:	ID:
Exp.:	Exp.:	Exp.:	Exp.:
Spiker:	Spiker:	Spiker:	Spiker:
Witness: Date:	Witness: Date:	Witness: Date:	Witness: Date:

N/A

PCB

ES: µL @	Ax1668/209: µL @		CS: µL @
ID:	ID:		ID:
Exp.:	Exp.:		Exp.:
Spiker:	Spiker:		Spiker:
Witness: Date:	Witness: Date:		Witness: Date:
JS: µL @	**FS:** µL @	µL @	
ID:	ID:	ID:	
Exp.:	Exp.:	Exp.:	
Spiker:	Spiker:	Spiker:	
Witness: Date:	Witness: Date:	Witness: Date:	

N/A

SV PAH

(A)

Acid Surr: 40 µL @ 500 ng/ml	PAH Surr: 50 µL @ 400 ng/ml	Mega: 20 µL @ 1000 ng/ml	B/N: 80 µL @ 250 ng/ml
ID: SIDAQ13	(*) SIDAQ14	ID: SIDD639	ID: SIDAP81
Exp.: 3/21/23	Exp.: 3/21/23	Exp.: 3/2023	Exp.: 3/1/2023
Spiker: Bn 3/22/22	Spiker: Bn 3/22/22	Spiker: Bn 3/22/22	Spiker: Bn 3/22/22
Witness: Date:	Witness: Date:	Witness: Date:	Witness: Date:
µL @	: µL @		
ID:	ID:		
Exp.:	Exp.:		
Spiker:	Spiker:		
Witness: Date:	Witness: Date:		

Bn 3/22/22

Reviewer Initials / Date: _____

COPY

Air Sample Fraction Observations		13172	
		Init.	Date
Extraction Prep:		iw	3.22.22

Lab Sample ID	XAD	Filter(s)	Rinses	Glasswool	Other
0222-816-001	S, WH and red	BK PM	BK PM	S, WH, BK PM	—
0222-816-002	S, WH, red on top	D, BK PM	BK PM	S, WH	—
0222-816-003	WH, F	WH, D	C	D, WH	—
0222-816-004	—	clear	—	—	—
0222-816-005	—	clear	—	—	—
0222-816-006	(*) BE, S	—	—	—	YW Puff

JBm 3/23/22

COMMON OBSERVATION ABBREVIATIONS
B = BULLSEYE
BE = BEIGE
BK = BLACK
C = CLEAN
D = DRY
F = FREE FLOWING
GY = GREY
M = MOIST
PM = PARTICULATES
S = STICKY
W = WET
WH = WHITE
YW = YELLOW

Comments: 3/22/22
(*) BE EE JBm

0222-816_**MB**
MAQS OR Prof-010935
Prep Date: 03/01/2022
SV PAH

MW 3-22-22

0222-816_**LCS**
MAQS OR Prof-010935
Prep Date: 03/01/2022
SV PAH

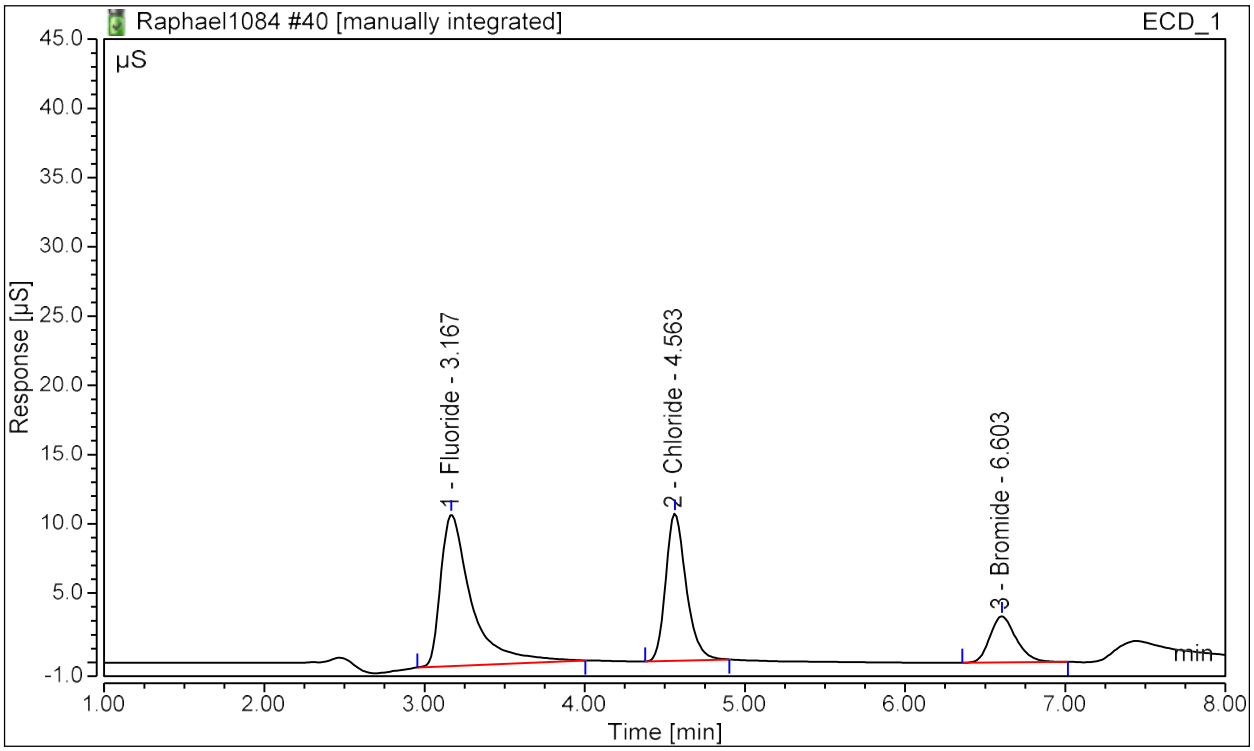
MW 3-22-22

Reviewer Initials / Date: _____

Raw Data

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 04:26**	Run Time:	**14.50**

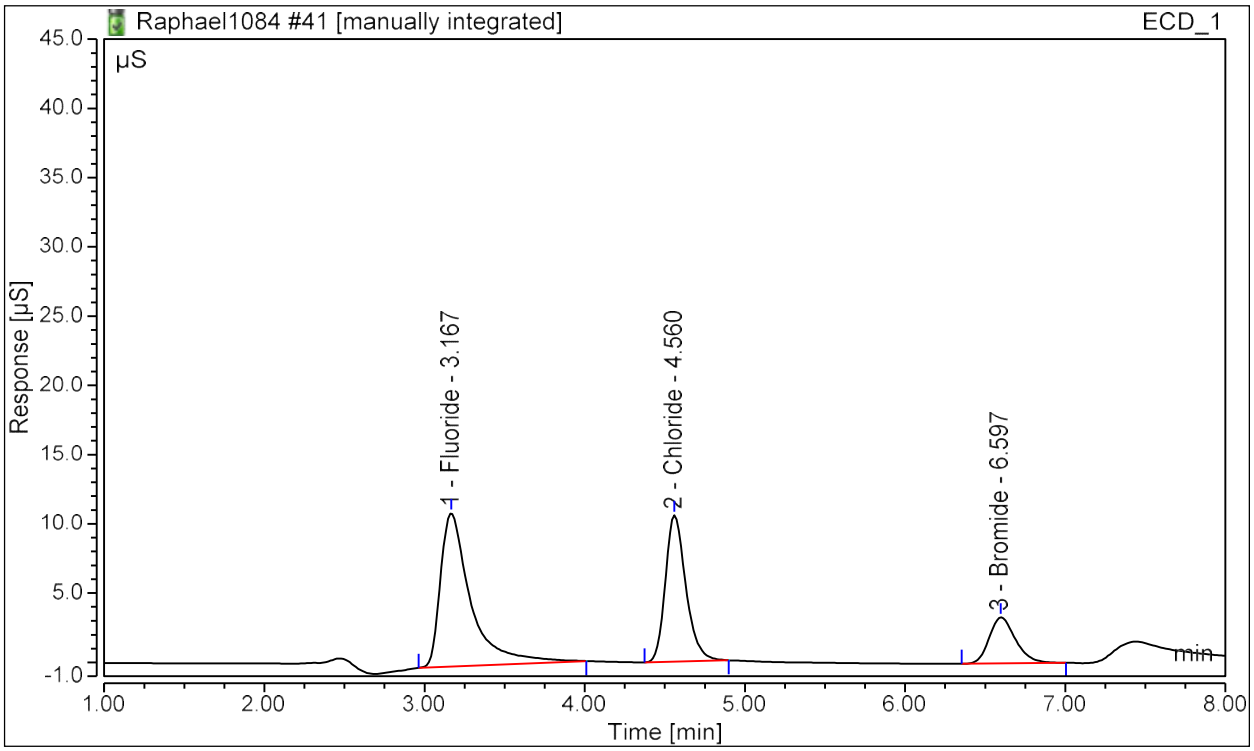


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.444	10.943	10.26444	FALSE	TRUE
2	4.56	Chloride	1.575	10.629	10.19130	FALSE	FALSE
3	6.60	Bromide	0.634	3.339	10.21905	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 04:42**	Run Time:	**14.50**



Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.441	11.090	10.25168	FALSE	TRUE
2	4.56	Chloride	1.568	10.575	10.14949	FALSE	FALSE
3	6.60	Bromide	0.631	3.328	10.17867	FALSE	FALSE

W006AS-010935D-RT-2059R1

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Calibration Table

No.	Injection Name	Inject Time	Pos.	Level	Ref.Amount µg/mL ECD_1 Chloride	Cal Point Status ECD_1 Chloride	Ref.Amount µg/mL ECD_1 Fluoride	Cal Point Status ECD_1 Fluoride	Ref.Amount µg/mL ECD_1 Bromide	Cal Point Status ECD_1 Bromide	Dil.Factor	Volume
4	HPLCStds1291 #6	17/Mar/2022 18:44	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
5	HPLCStds1291 #6	17/Mar/2022 19:00	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
6	HPLCStds1291 #5	17/Mar/2022 19:16	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
7	HPLCStds1291 #5	17/Mar/2022 19:32	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
8	HPLCStds1291 #4	17/Mar/2022 19:48	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
9	HPLCStds1291 #4	17/Mar/2022 20:05	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
10	HPLCStds1291 #3	17/Mar/2022 20:21	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
11	HPLCStds1291 #3	17/Mar/2022 20:37	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
12	HPLCStds1291 #2	17/Mar/2022 20:53	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
13	HPLCStds1291 #2	17/Mar/2022 21:09	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
14	HPLCStds1291 #1	17/Mar/2022 21:25	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00
15	HPLCStds1291 #1	17/Mar/2022 21:42	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00
102	HPLCStds1291 #6	18/Mar/2022 21:09	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
103	HPLCStds1291 #6	18/Mar/2022 21:25	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
104	HPLCStds1291 #5	18/Mar/2022 21:42	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
105	HPLCStds1291 #5	18/Mar/2022 21:58	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
106	HPLCStds1291 #4	18/Mar/2022 22:14	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
107	HPLCStds1291 #4	18/Mar/2022 22:30	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
108	HPLCStds1291 #3	18/Mar/2022 22:46	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
109	HPLCStds1291 #3	18/Mar/2022 23:02	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
110	HPLCStds1291 #2	18/Mar/2022 23:19	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
111	HPLCStds1291 #2	18/Mar/2022 23:35	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
112	HPLCStds1291 #1	18/Mar/2022 23:51	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00
113	HPLCStds1291 #1	19/Mar/2022 00:07	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00

Detection Parameters

Ret. Time min	Param. Name	Param. Value	Inj. Type	Channel
Always	Baseline Noise Auto Range	Off	Any	All Channels
Always	Baseline Noise Start Time	0.778 [min]	Any	All Channels
Always	Baseline Noise End Time	1.508 [min]	Any	All Channels
Always	Cobra Smoothing Width	Auto	Any	All Channels
Always	Consider Void Peak	Off	Any	All Channels
0.000	Maximum Rider Ratio	10 [%]	Any	All Channels
0.000	Tailing Sensitivity Factor	1.000 [%]	Any	All Channels
0.000	Inhibit Integration	On	Any	All Channels
0.000	Minimum Area	Auto	Any	All Channels
2.903	Inhibit Integration	Off	Any	All Channels
4.011	Inhibit Integration	On	Any	All Channels
4.300	Inhibit Integration	Off	Any	All Channels
5.160	Inhibit Integration	On	Any	All Channels
6.173	Inhibit Integration	Off	Any	All Channels
7.045	Inhibit Integration	On	Any	All Channels

Chromeleon (c) Dionex 1996-2009
Version 7.2.8.10783

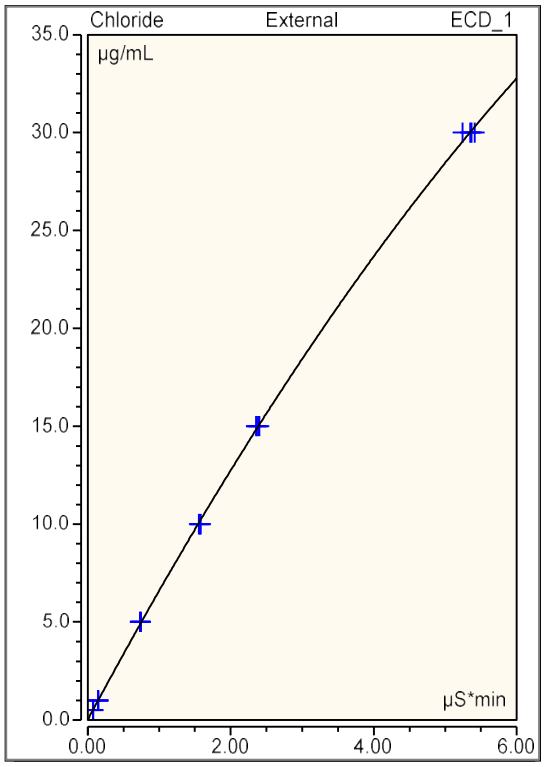
Calibration Batch Report

Sequence:	**Raphael1084**	*Injection Volume:*	**25.00**
Instrument Method:	**AS22 ASAP**	*Operator:*	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 23:35**	*Run Time:*	**14.5**

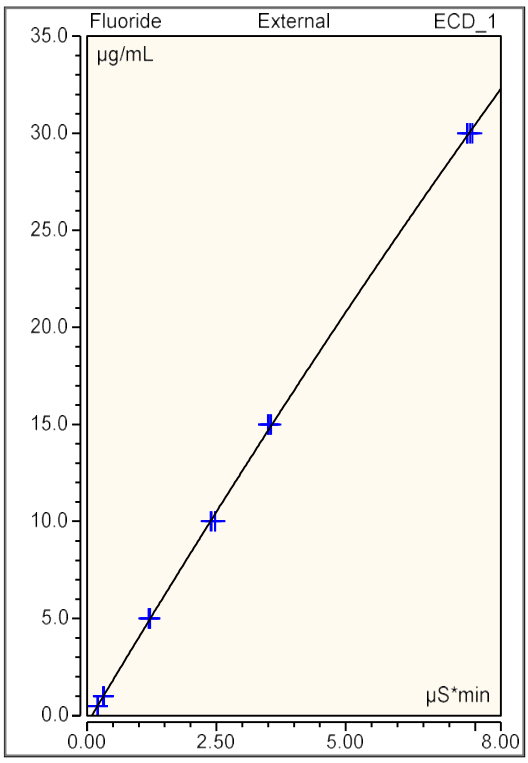
Calibration Summary

Peak Name	Eval.Type	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
Fluoride	Area	Quad, WithOffset, 1/A	24.000	-0.403	4.488	-0.050	99.970
Chloride	Area	Quad, WithOffset, 1/A	24.000	0.003	6.829	-0.228	99.983
Bromide	Area	Quad, WithOffset, 1/A	24.000	0.008	16.571	-0.717	99.970
		AVERAGE:		-0.1307	9.2959	-0.3315	99.9745

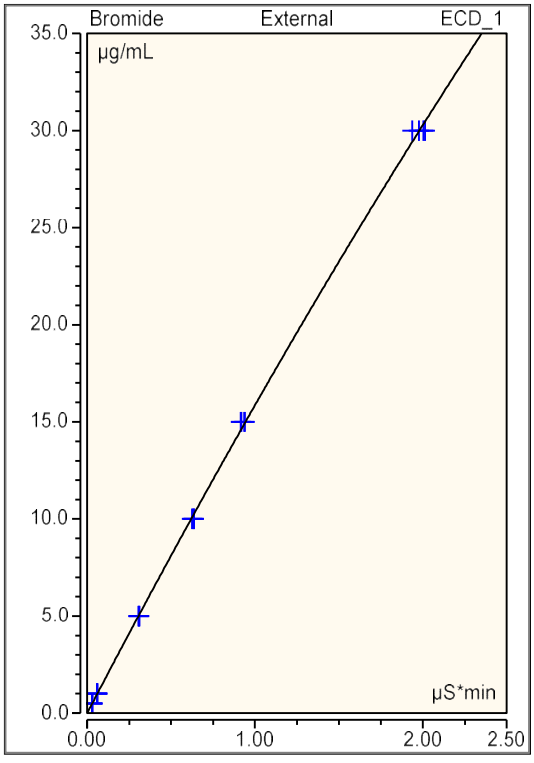
Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Chloride	Chloride	Chloride	Chloride
HPLCStds1291 #6	4.567	5.243	36.496	29.553
HPLCStds1291 #6	4.563	5.348	37.160	30.019
HPLCStds1291 #5	4.553	2.358	16.163	14.843
HPLCStds1291 #5	4.557	2.355	16.129	14.824
HPLCStds1291 #4	4.553	1.553	10.603	10.061
HPLCStds1291 #4	4.553	1.568	10.656	10.149
HPLCStds1291 #3	4.553	0.732	4.915	4.879
HPLCStds1291 #3	4.550	0.733	4.919	4.884
HPLCStds1291 #2	4.550	0.145	0.940	0.987
HPLCStds1291 #2	4.550	0.145	0.943	0.986
HPLCStds1291 #1	4.553	0.074	0.473	0.506
HPLCStds1291 #1	4.553	0.073	0.471	0.503
HPLCStds1291 #6	4.563	5.367	37.155	30.099
HPLCStds1291 #6	4.563	5.410	37.440	30.290
HPLCStds1291 #5	4.557	2.397	16.286	15.062
HPLCStds1291 #5	4.557	2.381	16.203	14.971
HPLCStds1291 #4	4.557	1.580	10.640	10.223
HPLCStds1291 #4	4.557	1.579	10.623	10.219
HPLCStds1291 #3	4.550	0.742	4.911	4.943
HPLCStds1291 #3	4.553	0.744	4.923	4.956
HPLCStds1291 #2	4.550	0.146	0.942	0.996
HPLCStds1291 #2	4.553	0.146	0.940	0.993
HPLCStds1291 #1	4.550	0.074	0.469	0.507
HPLCStds1291 #1	4.553	0.075	0.476	0.515



Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Fluoride	Fluoride	Fluoride	Fluoride
HPLCStds1291 #6	3.180	7.345	32.378	29.861
HPLCStds1291 #6	3.180	7.445	33.462	30.238
HPLCStds1291 #5	3.170	3.494	14.509	14.667
HPLCStds1291 #5	3.170	3.504	14.763	14.707
HPLCStds1291 #4	3.167	2.389	9.706	10.035
HPLCStds1291 #4	3.167	2.405	9.877	10.100
HPLCStds1291 #3	3.167	1.184	4.412	4.838
HPLCStds1291 #3	3.167	1.202	4.494	4.919
HPLCStds1291 #2	3.187	0.311	0.876	0.987
HPLCStds1291 #2	3.187	0.321	0.897	1.033
HPLCStds1291 #1	3.203	0.200	0.504	0.495
HPLCStds1291 #1	3.200	0.199	0.505	0.489
HPLCStds1291 #6	3.177	7.355	41.354	29.900
HPLCStds1291 #6	3.177	7.408	41.650	30.100
HPLCStds1291 #5	3.163	3.559	19.069	14.937
HPLCStds1291 #5	3.167	3.539	18.999	14.851
HPLCStds1291 #4	3.163	2.478	12.574	10.410
HPLCStds1291 #4	3.163	2.473	12.557	10.390
HPLCStds1291 #3	3.160	1.222	5.607	5.007
HPLCStds1291 #3	3.160	1.216	5.613	4.980
HPLCStds1291 #2	3.170	0.314	1.060	1.000
HPLCStds1291 #2	3.170	0.306	1.049	0.965
HPLCStds1291 #1	3.180	0.204	0.584	0.511
HPLCStds1291 #1	3.180	0.206	0.587	0.517

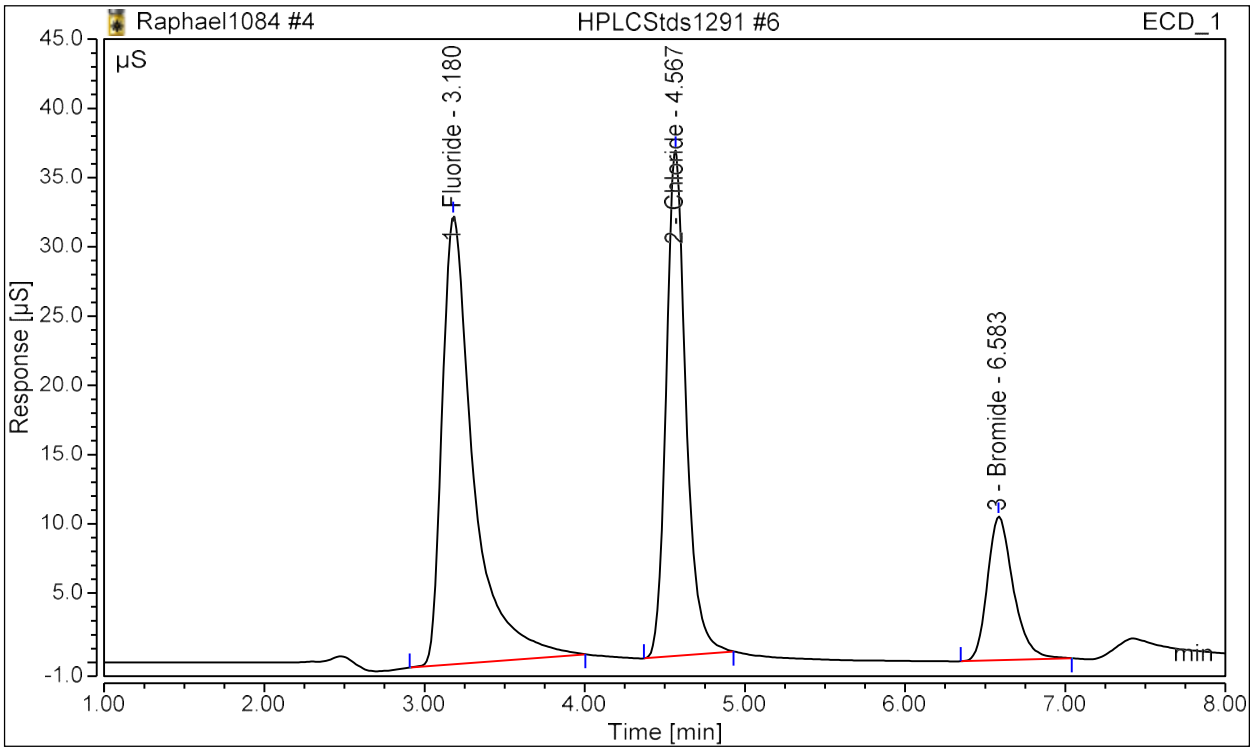


Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Bromide	Bromide	Bromide	Bromide
HPLCStds1291 #6	6.583	1.937	10.376	29.420
HPLCStds1291 #6	6.577	1.976	10.544	29.956
HPLCStds1291 #5	6.580	0.918	4.907	14.620
HPLCStds1291 #5	6.583	0.916	4.897	14.581
HPLCStds1291 #4	6.583	0.624	3.328	10.069
HPLCStds1291 #4	6.583	0.628	3.347	10.124
HPLCStds1291 #3	6.587	0.306	1.617	5.005
HPLCStds1291 #3	6.583	0.305	1.618	5.002
HPLCStds1291 #2	6.590	0.059	0.311	0.981
HPLCStds1291 #2	6.590	0.059	0.313	0.985
HPLCStds1291 #1	6.590	0.030	0.157	0.497
HPLCStds1291 #1	6.593	0.030	0.158	0.506
HPLCStds1291 #6	6.577	2.003	10.650	30.319
HPLCStds1291 #6	6.577	2.013	10.735	30.455
HPLCStds1291 #5	6.583	0.940	4.983	14.951
HPLCStds1291 #5	6.580	0.935	4.969	14.869
HPLCStds1291 #4	6.587	0.635	3.360	10.241
HPLCStds1291 #4	6.587	0.635	3.355	10.247
HPLCStds1291 #3	6.583	0.309	1.625	5.062
HPLCStds1291 #3	6.587	0.309	1.627	5.059
HPLCStds1291 #2	6.587	0.060	0.314	0.993
HPLCStds1291 #2	6.590	0.060	0.313	0.992
HPLCStds1291 #1	6.587	0.030	0.157	0.499
HPLCStds1291 #1	6.590	0.030	0.159	0.505



Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 18:44**	Run Time:	**14.50**

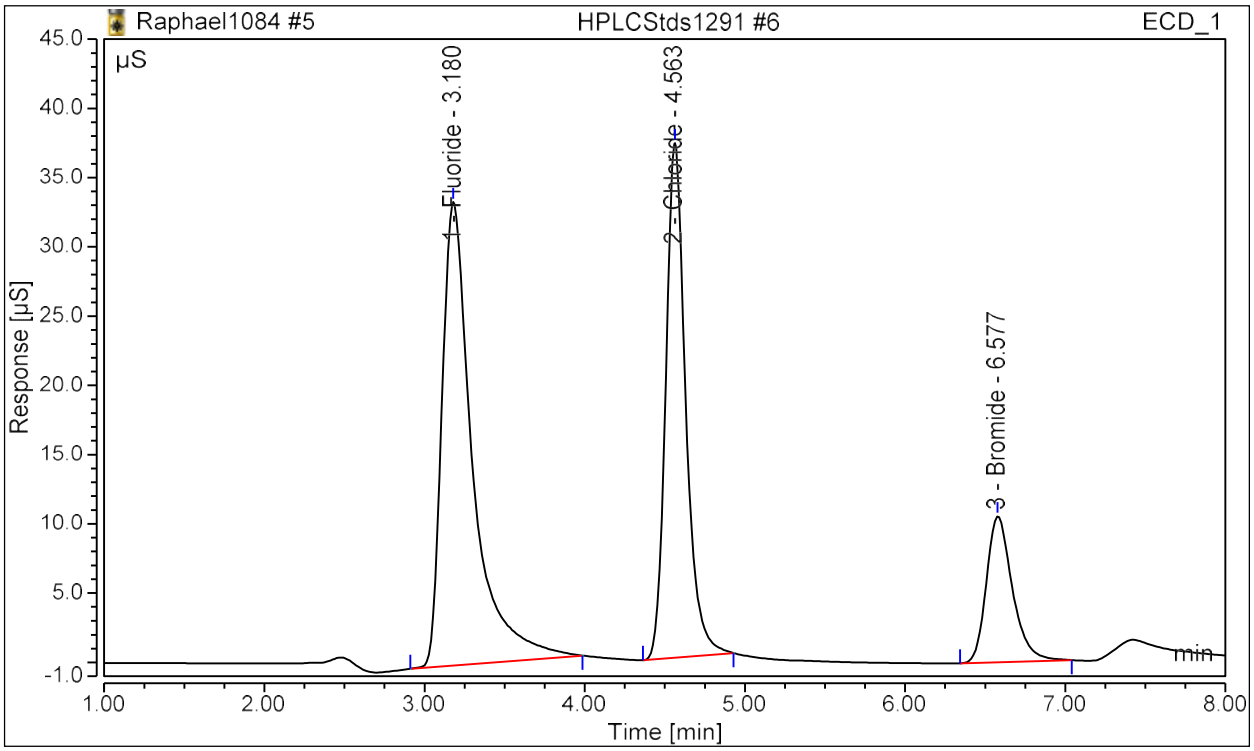


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.345	32.378	29.86077	FALSE	FALSE
2	4.57	Chloride	5.243	36.496	29.55293	FALSE	FALSE
3	6.58	Bromide	1.937	10.376	29.42006	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:00**	Run Time:	**14.50**

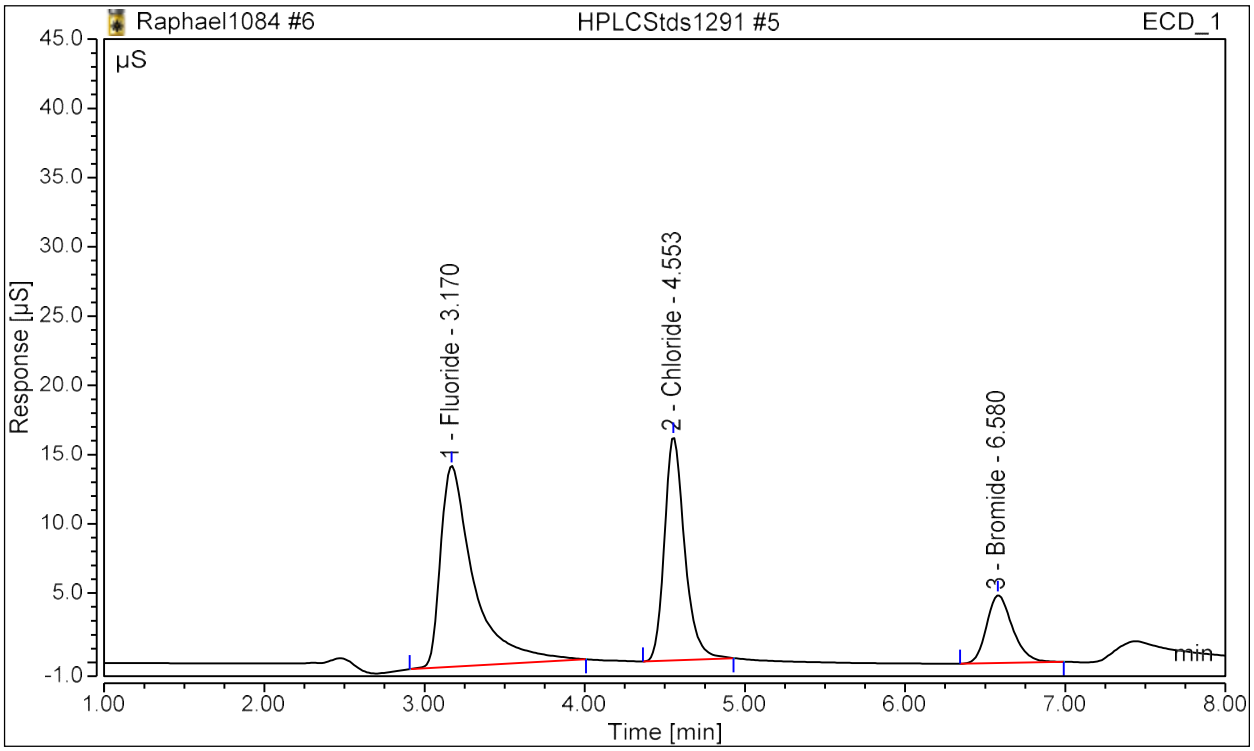


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.445	33.462	30.23818	FALSE	FALSE
2	4.56	Chloride	5.348	37.160	30.01872	FALSE	FALSE
3	6.58	Bromide	1.976	10.544	29.95596	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:16**	Run Time:	**14.50**

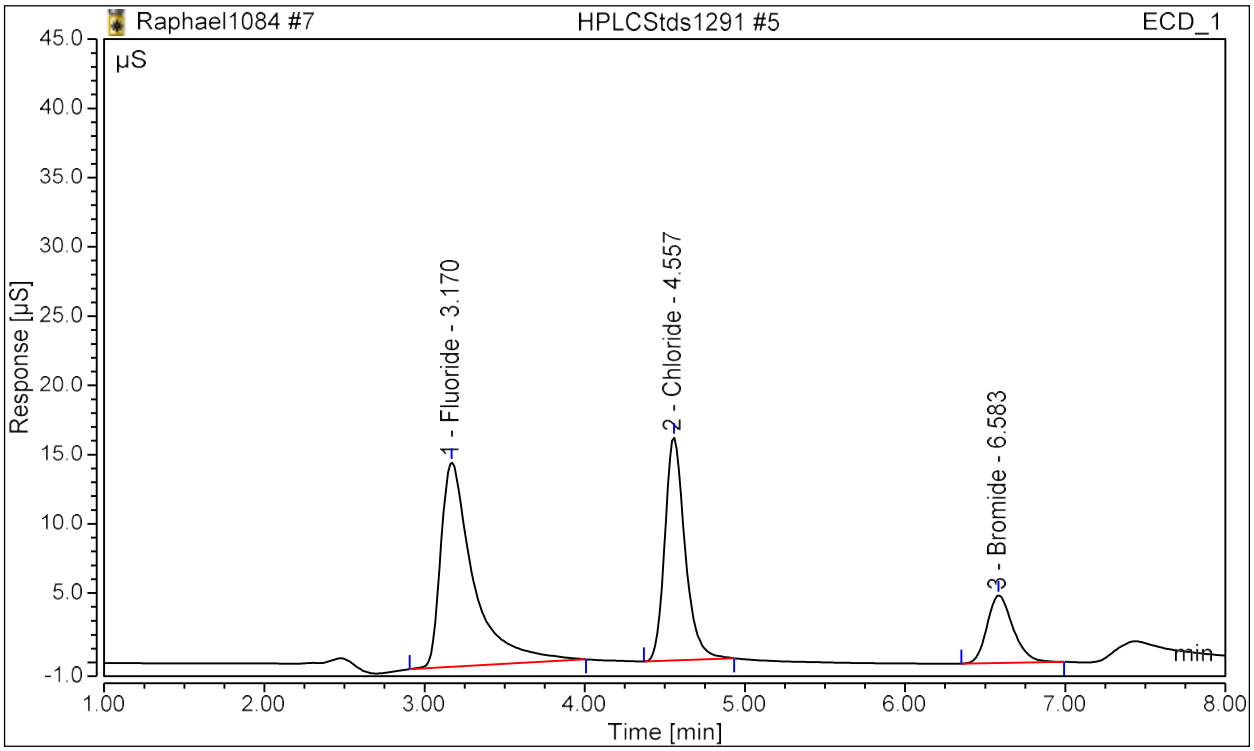


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	3.494	14.509	14.66707	FALSE	FALSE
2	4.55	Chloride	2.358	16.163	14.84332	FALSE	FALSE
3	6.58	Bromide	0.918	4.907	14.62043	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:32**	Run Time:	**14.50**

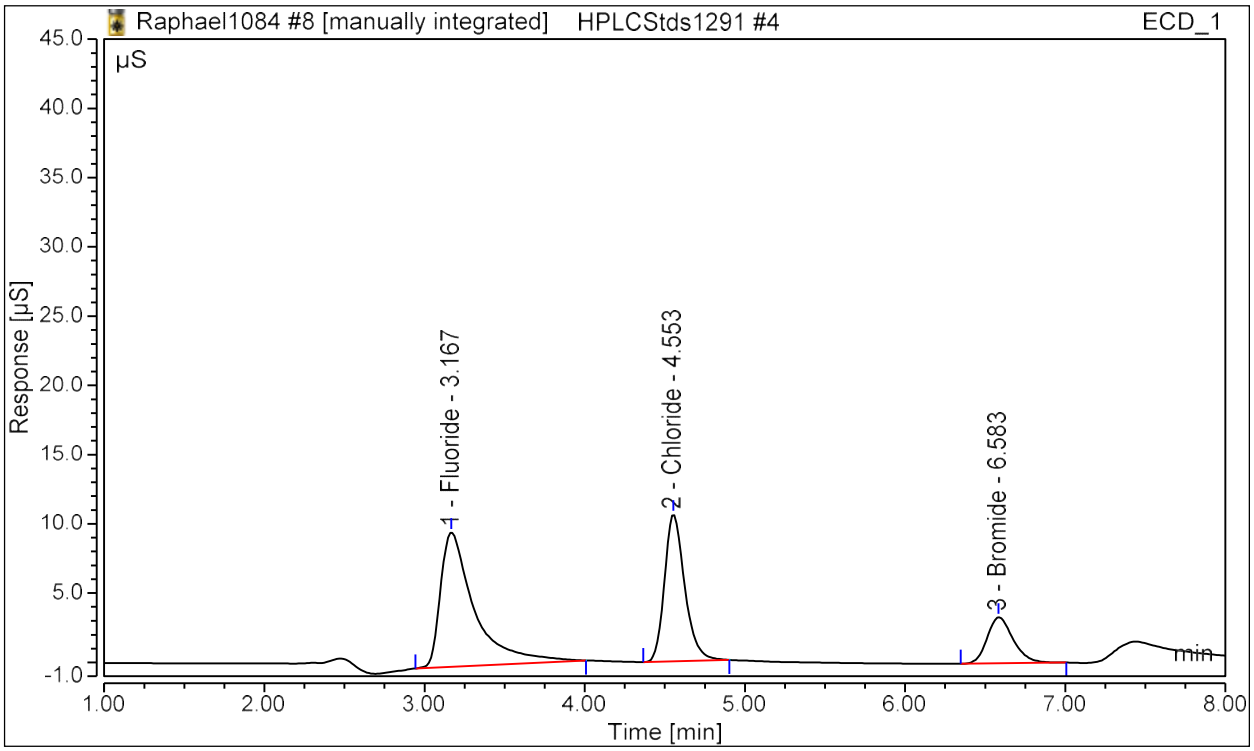


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	3.504	14.763	14.70715	FALSE	FALSE
2	4.56	Chloride	2.355	16.129	14.82390	FALSE	FALSE
3	6.58	Bromide	0.916	4.897	14.58109	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:48**	Run Time:	**14.50**

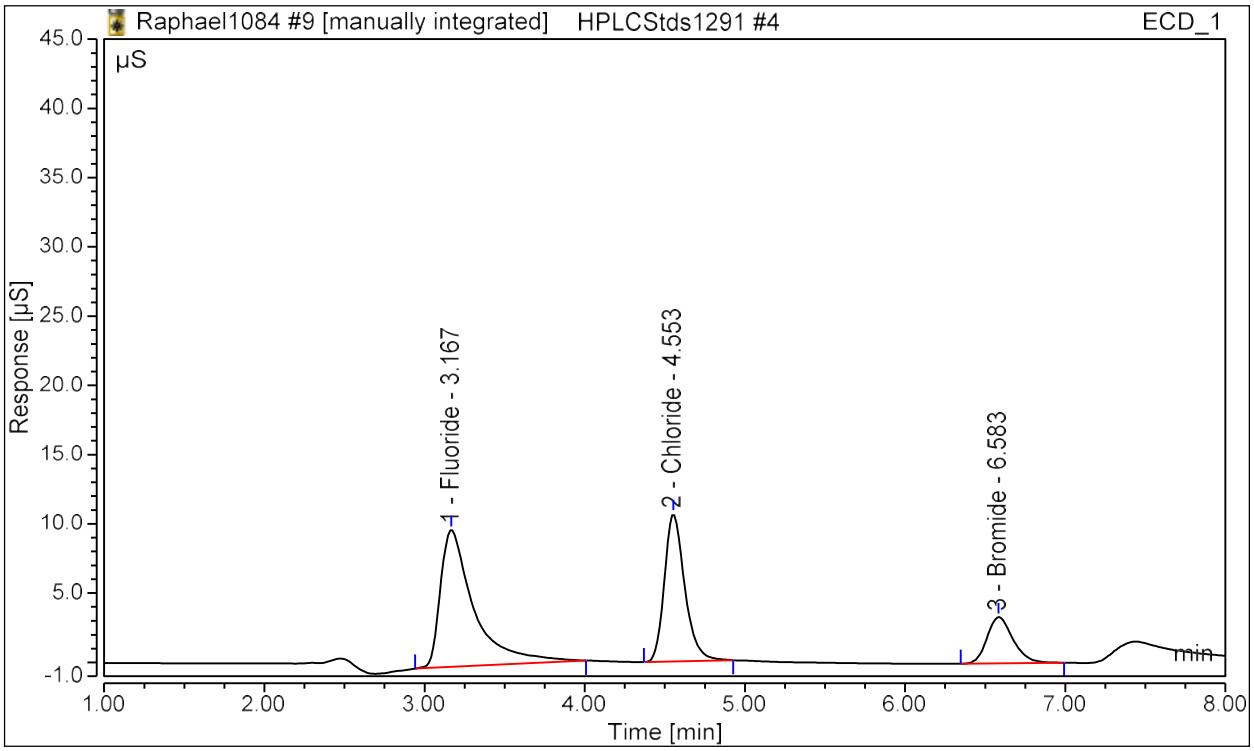


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.389	9.706	10.03458	FALSE	TRUE
2	4.55	Chloride	1.553	10.603	10.06076	FALSE	FALSE
3	6.58	Bromide	0.624	3.328	10.06938	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:05**	Run Time:	**14.50**

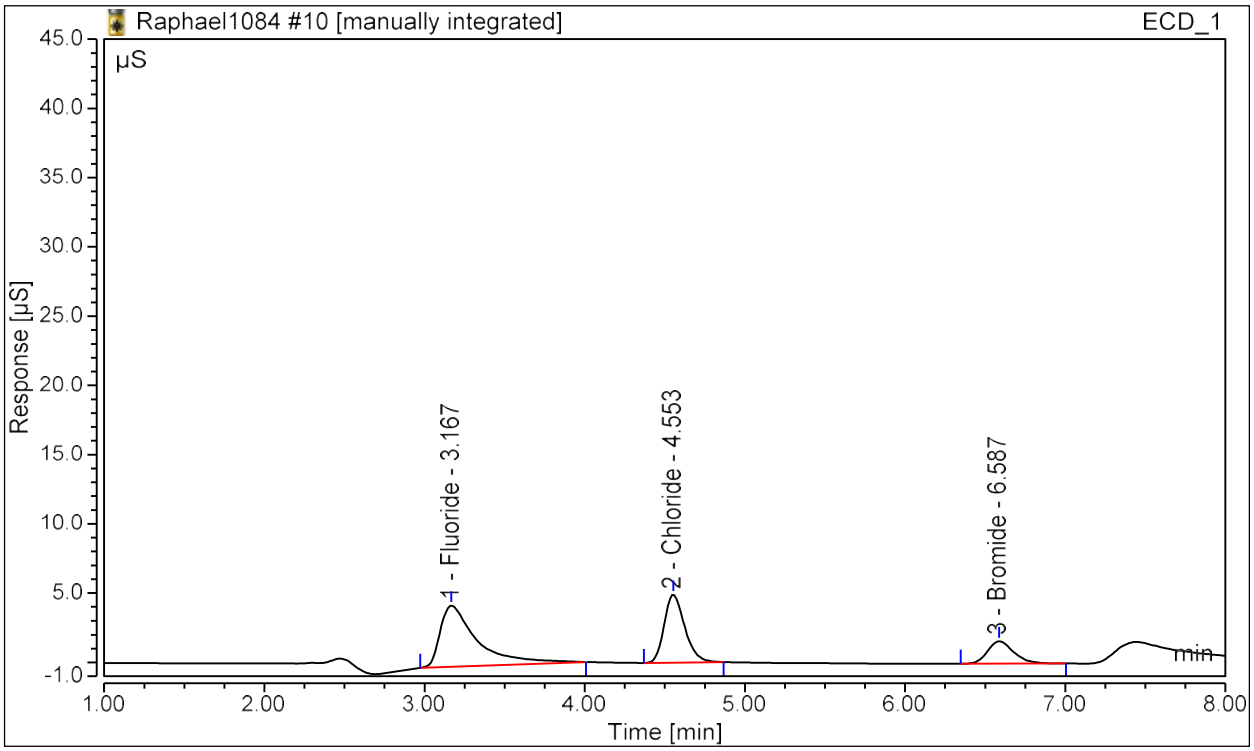


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.405	9.877	10.09991	FALSE	TRUE
2	4.55	Chloride	1.568	10.656	10.14864	FALSE	FALSE
3	6.58	Bromide	0.628	3.347	10.12424	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:21**	Run Time:	**14.50**

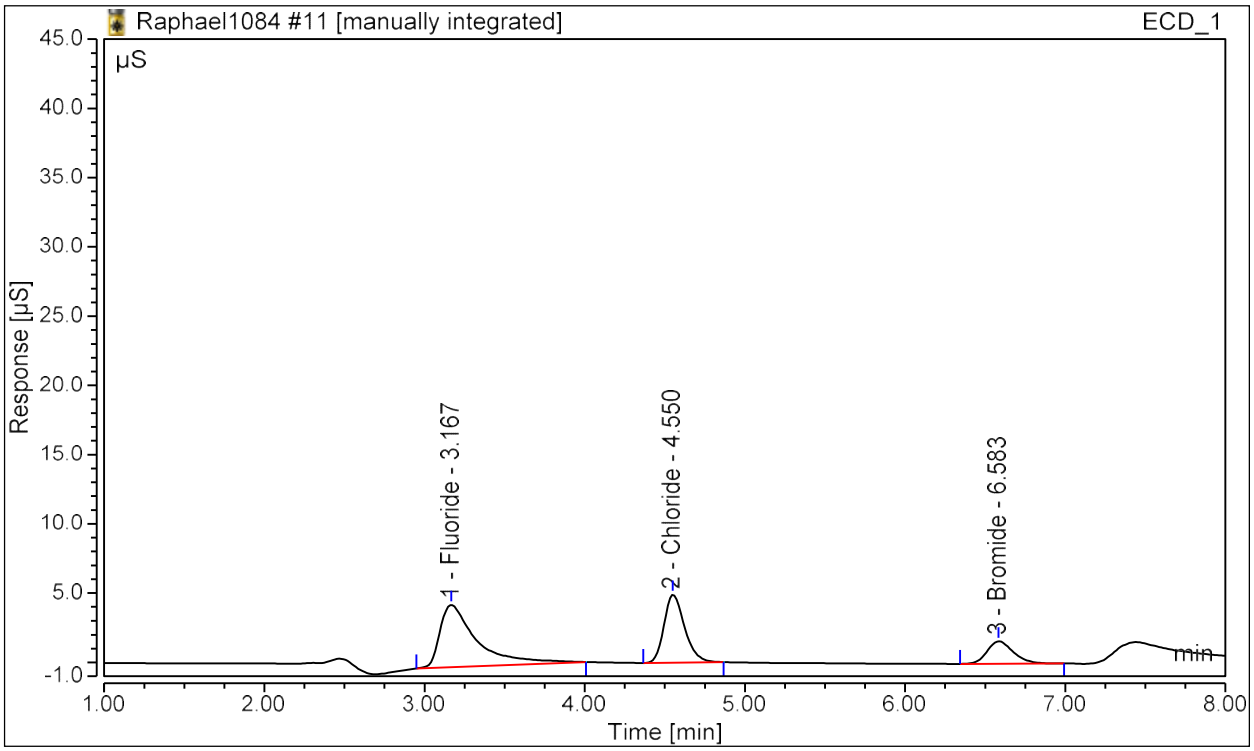


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	1.184	4.412	4.83841	FALSE	TRUE
2	4.55	Chloride	0.732	4.915	4.87893	FALSE	FALSE
3	6.59	Bromide	0.306	1.617	5.00496	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:37**	Run Time:	**14.50**

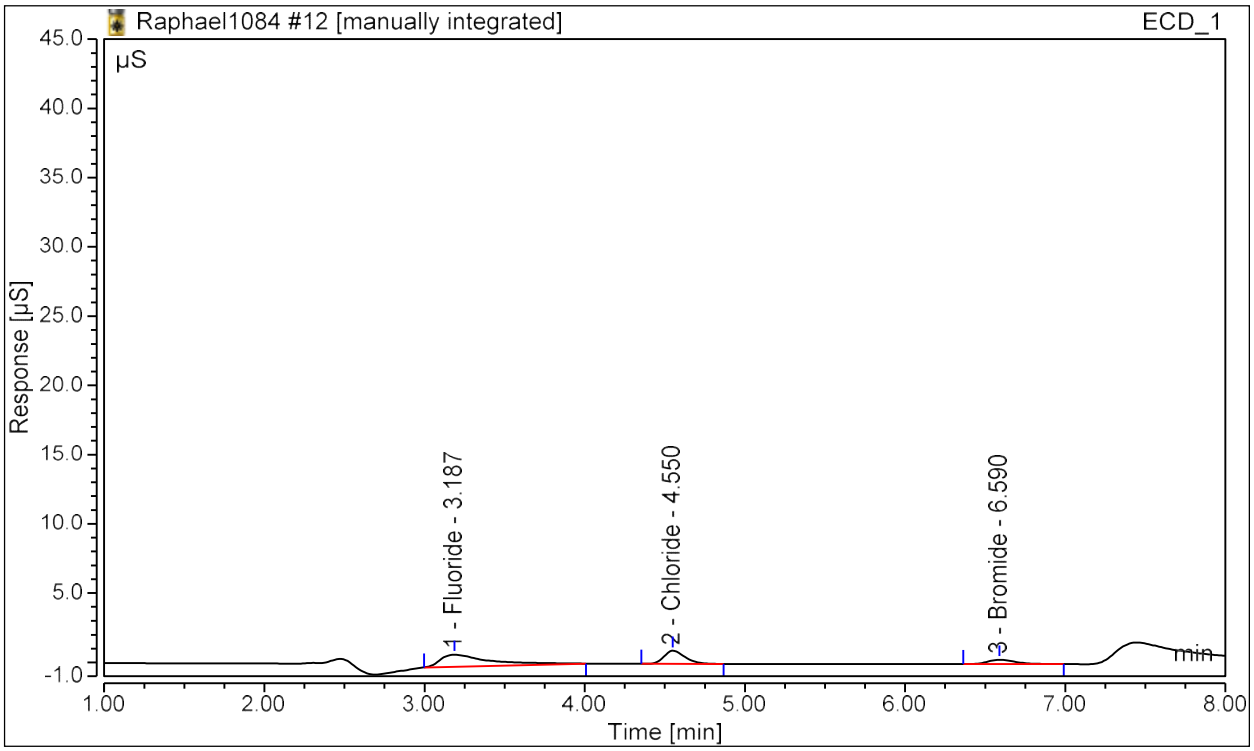


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	1.202	4.494	4.91873	FALSE	TRUE
2	4.55	Chloride	0.733	4.919	4.88426	FALSE	FALSE
3	6.58	Bromide	0.305	1.618	5.00243	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:53**	Run Time:	**14.50**

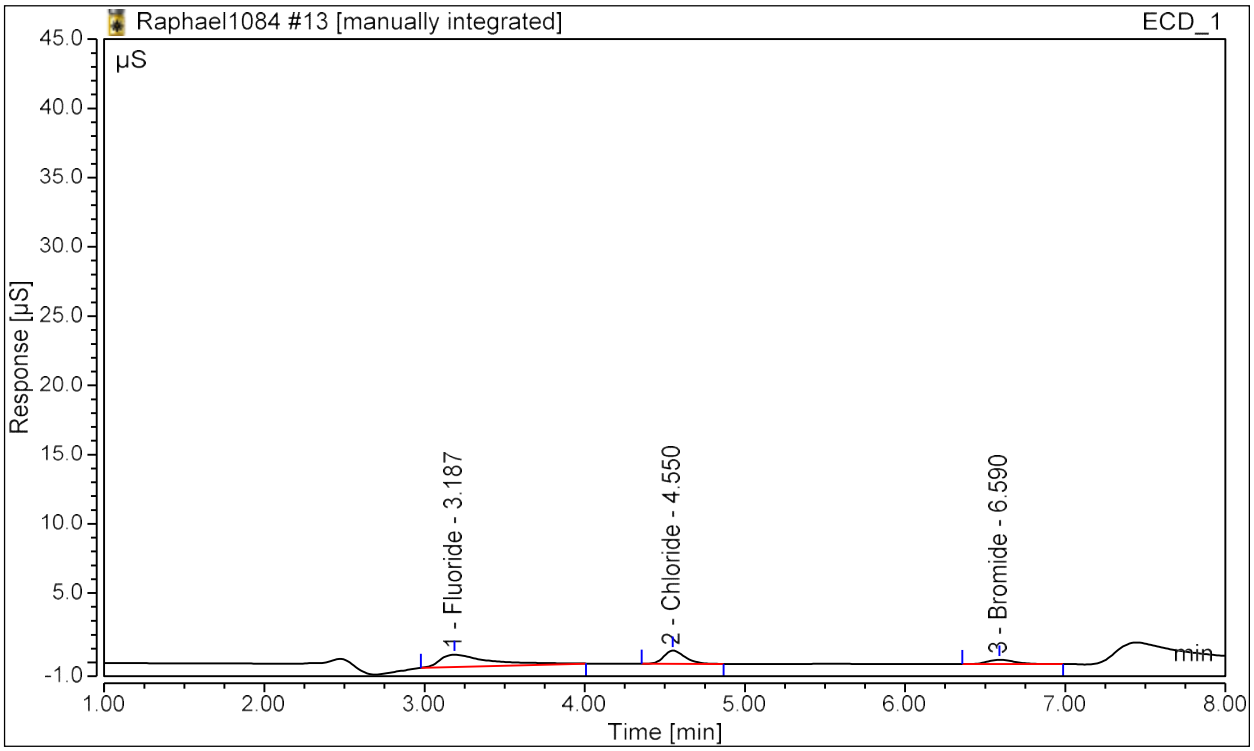


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.19	Fluoride	0.311	0.876	0.98687	FALSE	TRUE
2	4.55	Chloride	0.145	0.940	0.98667	FALSE	FALSE
3	6.59	Bromide	0.059	0.311	0.98094	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:09**	Run Time:	**14.50**

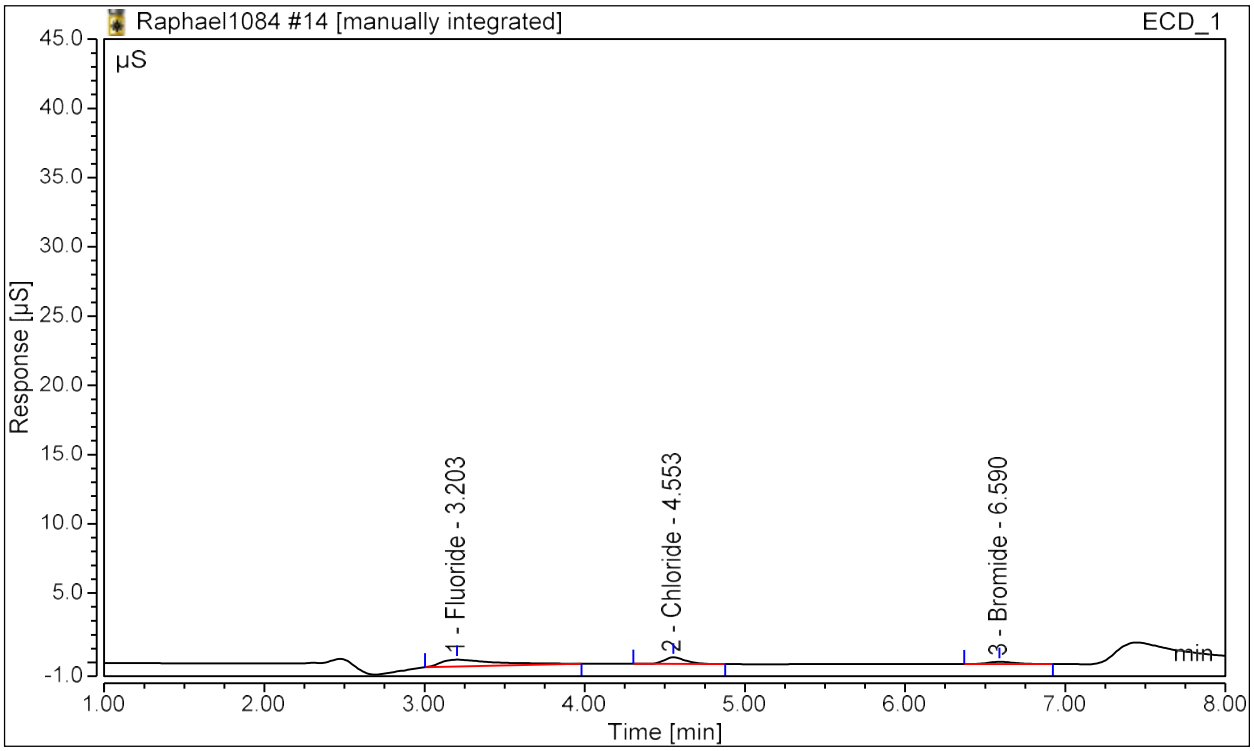


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.19	Fluoride	0.321	0.897	1.03336	FALSE	TRUE
2	4.55	Chloride	0.145	0.943	0.98583	FALSE	FALSE
3	6.59	Bromide	0.059	0.313	0.98488	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:25**	Run Time:	**14.50**

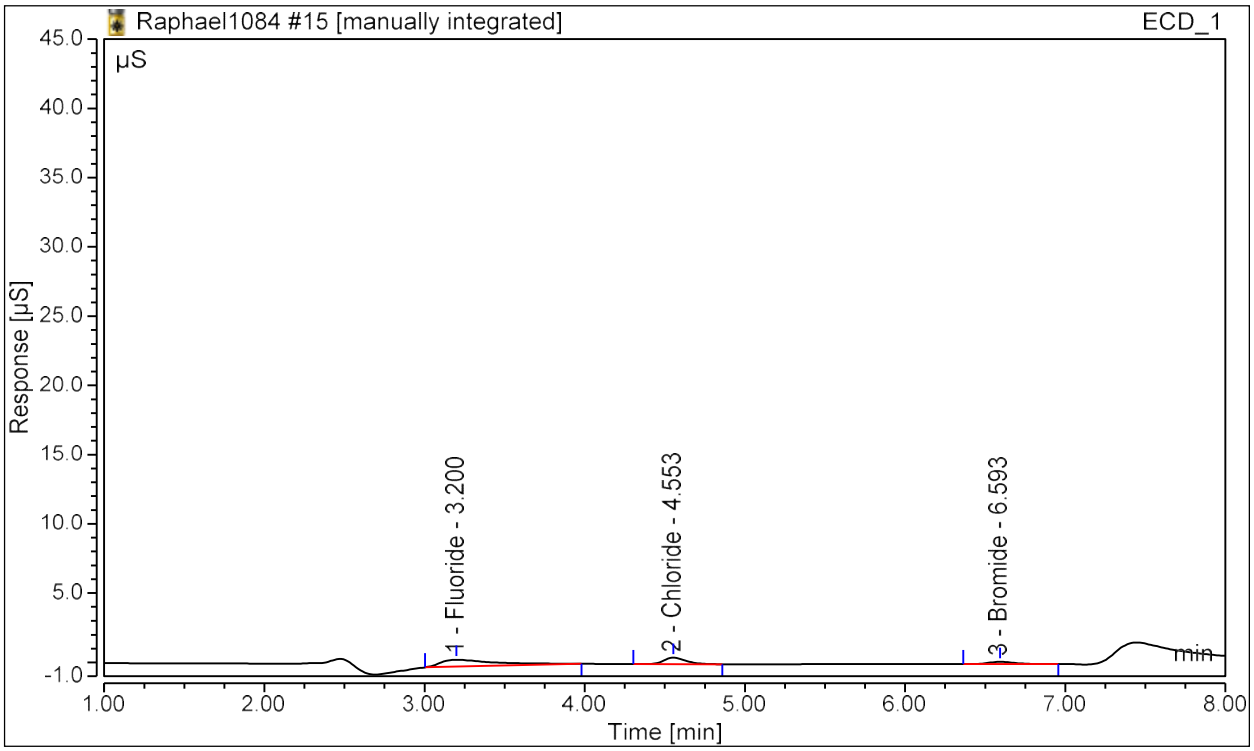


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.20	Fluoride	0.200	0.504	0.49474	FALSE	TRUE
2	4.55	Chloride	0.074	0.473	0.50648	FALSE	FALSE
3	6.59	Bromide	0.030	0.157	0.49696	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:42**	Run Time:	**14.50**

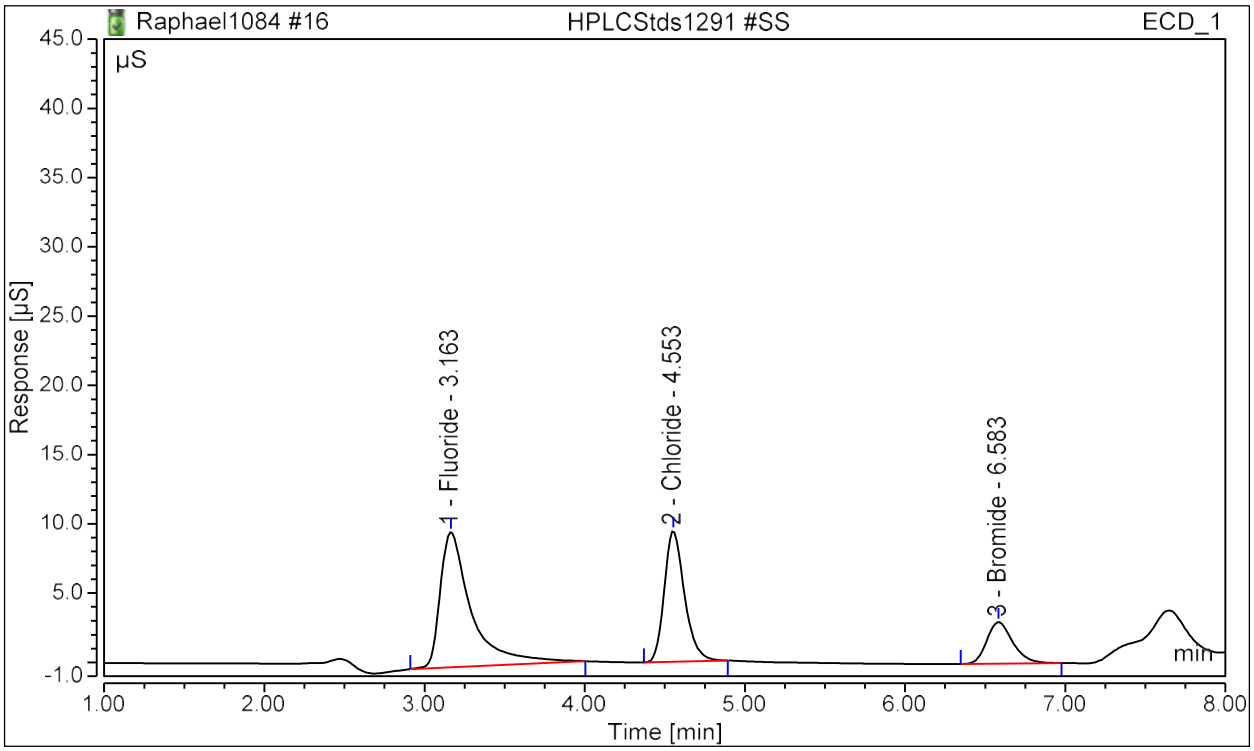


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.20	Fluoride	0.199	0.505	0.48934	FALSE	TRUE
2	4.55	Chloride	0.073	0.471	0.50330	FALSE	FALSE
3	6.59	Bromide	0.030	0.158	0.50582	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:58**	Run Time:	**14.50**

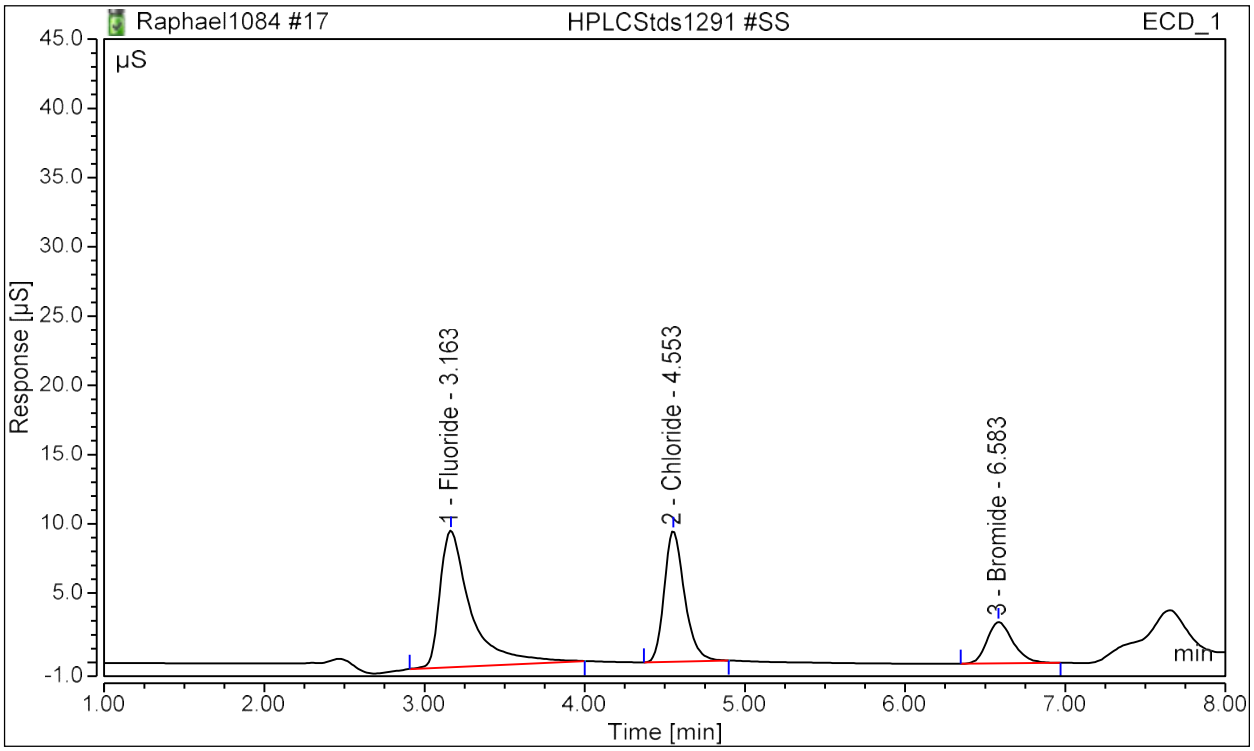


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.201	9.754	9.23078	FALSE	FALSE
2	4.55	Chloride	1.386	9.459	9.03325	FALSE	FALSE
3	6.58	Bromide	0.560	2.993	9.06837	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 22:14**	Run Time:	**14.50**

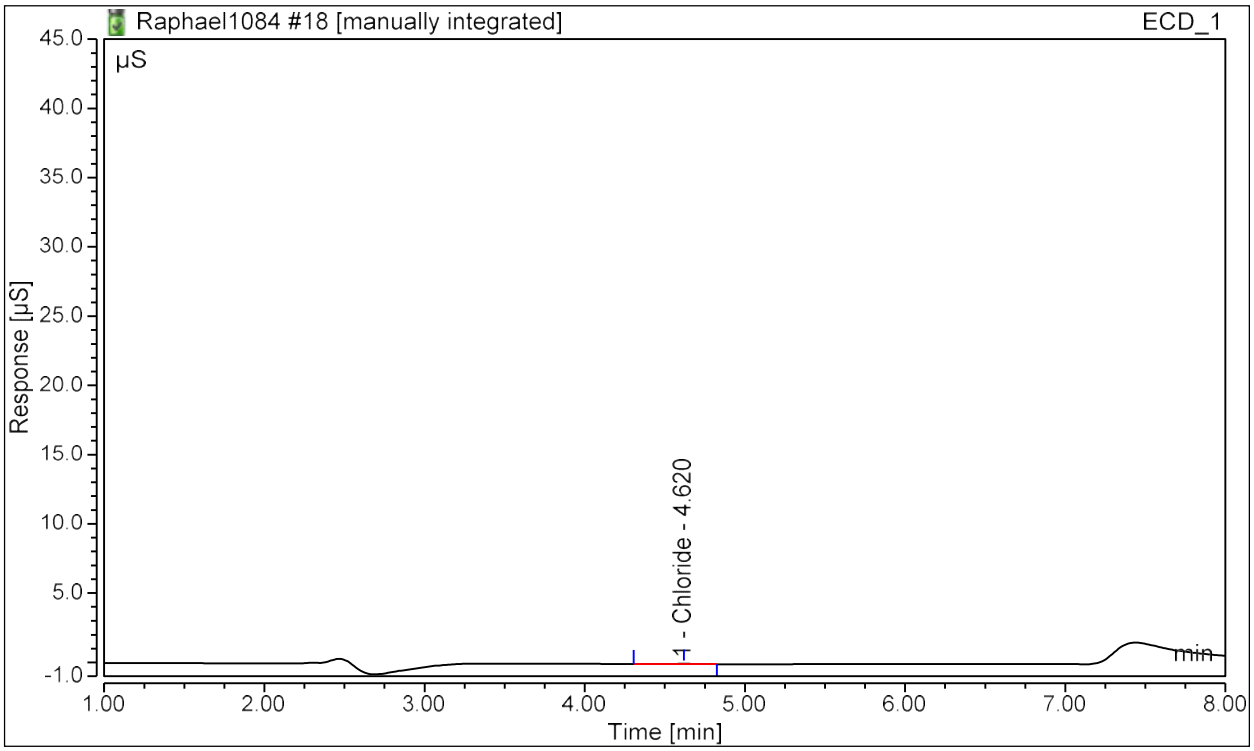


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.210	9.858	9.26880	FALSE	FALSE
2	4.55	Chloride	1.388	9.446	9.04483	FALSE	FALSE
3	6.58	Bromide	0.560	2.987	9.06416	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 22:30**	Run Time:	**14.50**

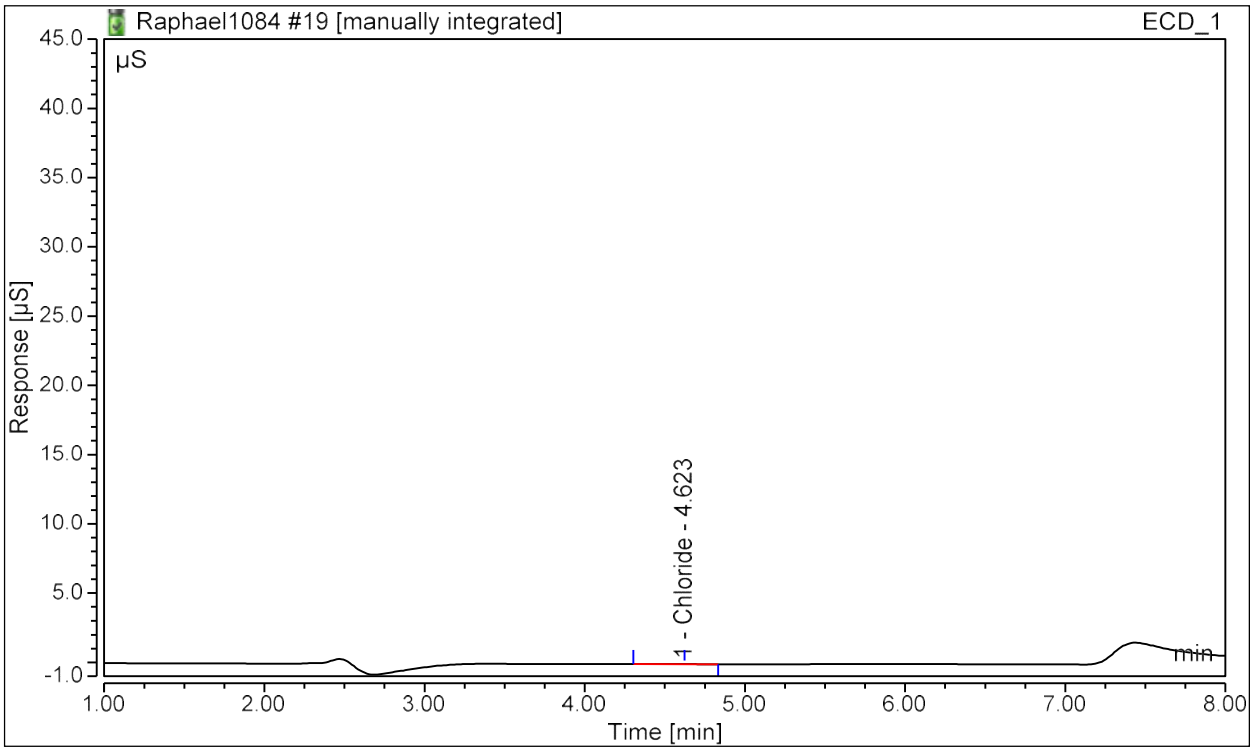


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.62	Chloride	0.003	0.017	0.02367	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1291 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 22:46**	Run Time:	**14.50**

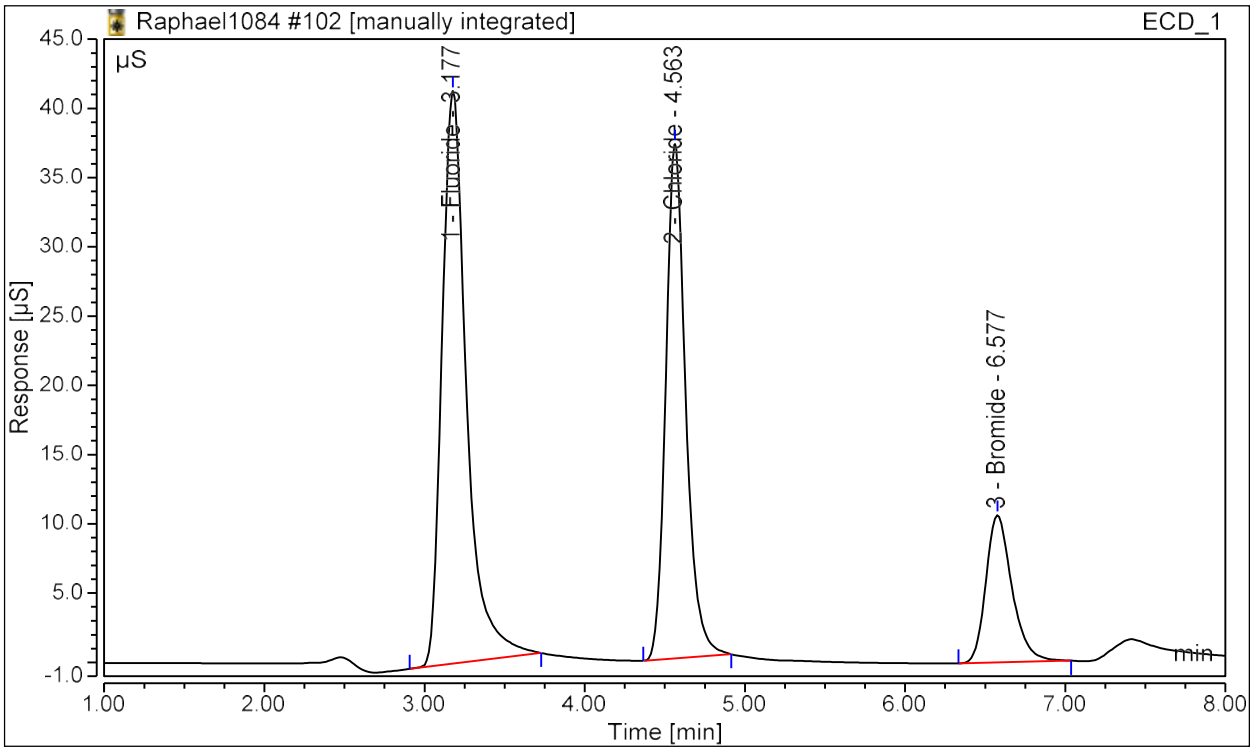


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.62	Chloride	0.003	0.018	0.02490	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:09**	Run Time:	**14.50**

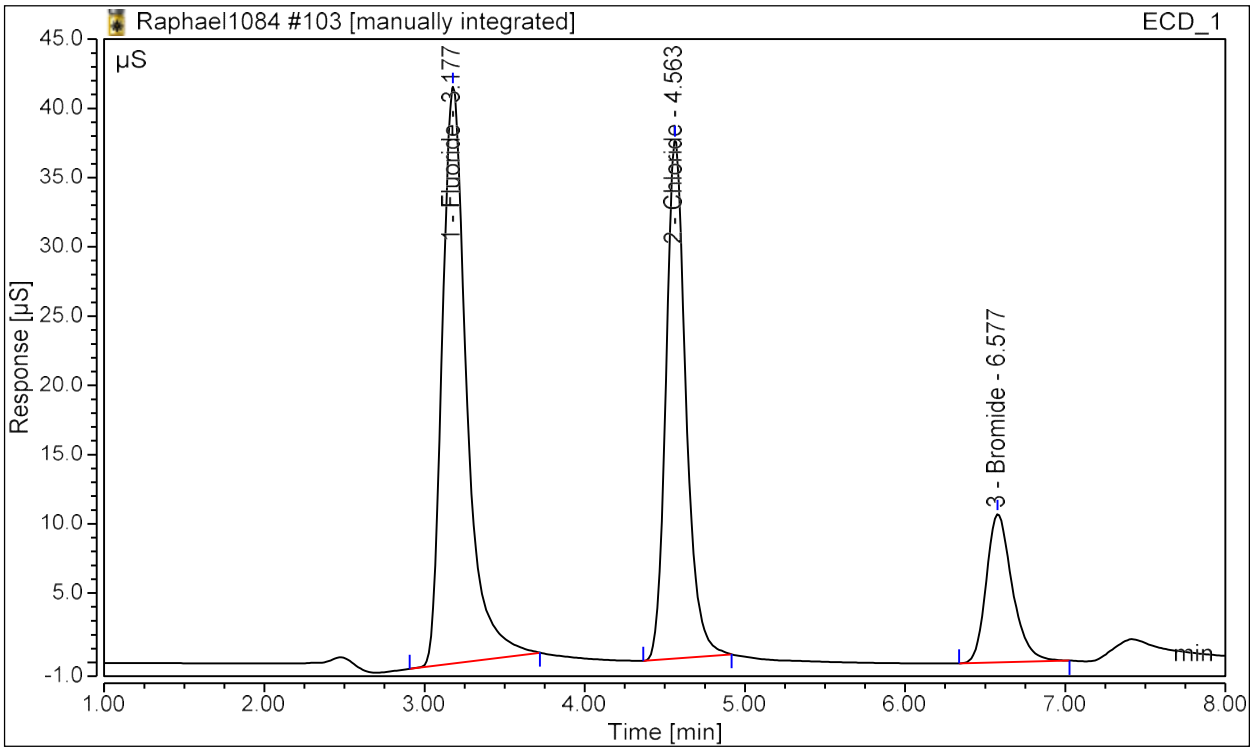


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.355	41.354	29.90000	FALSE	FALSE
2	4.56	Chloride	5.367	37.155	30.09892	FALSE	FALSE
3	6.58	Bromide	2.003	10.650	30.31886	FALSE	TRUE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:25**	Run Time:	**14.50**

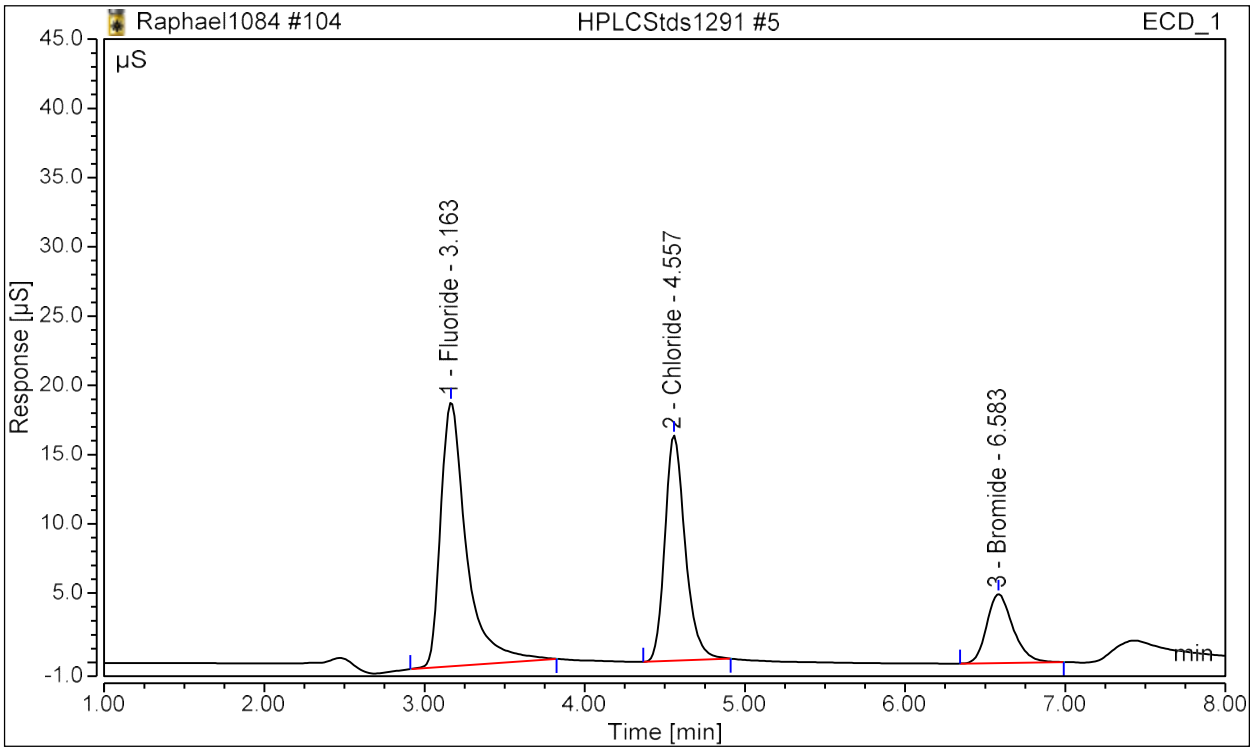


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.408	41.650	30.10007	FALSE	FALSE
2	4.56	Chloride	5.410	37.440	30.29005	FALSE	FALSE
3	6.58	Bromide	2.013	10.735	30.45477	FALSE	TRUE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:42**	Run Time:	**14.50**

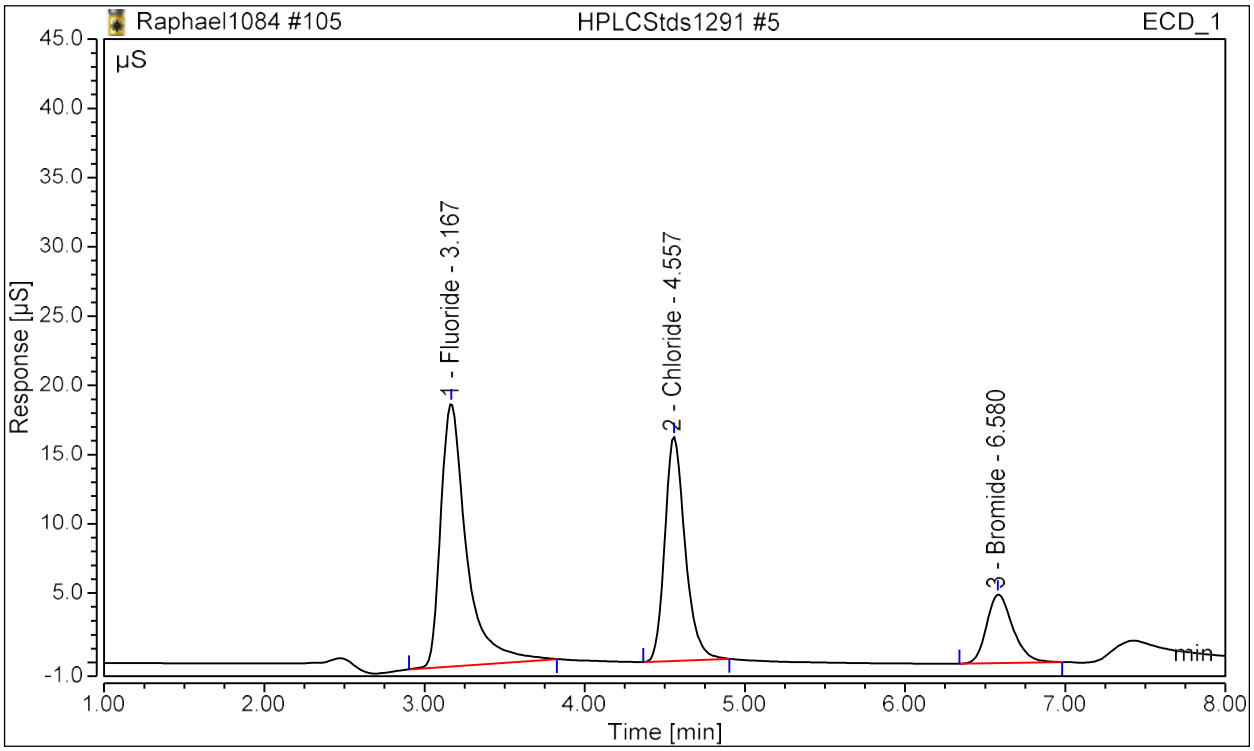


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	3.559	19.069	14.93708	FALSE	FALSE
2	4.56	Chloride	2.397	16.286	15.06222	FALSE	FALSE
3	6.58	Bromide	0.940	4.983	14.95055	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:58**	Run Time:	**14.50**

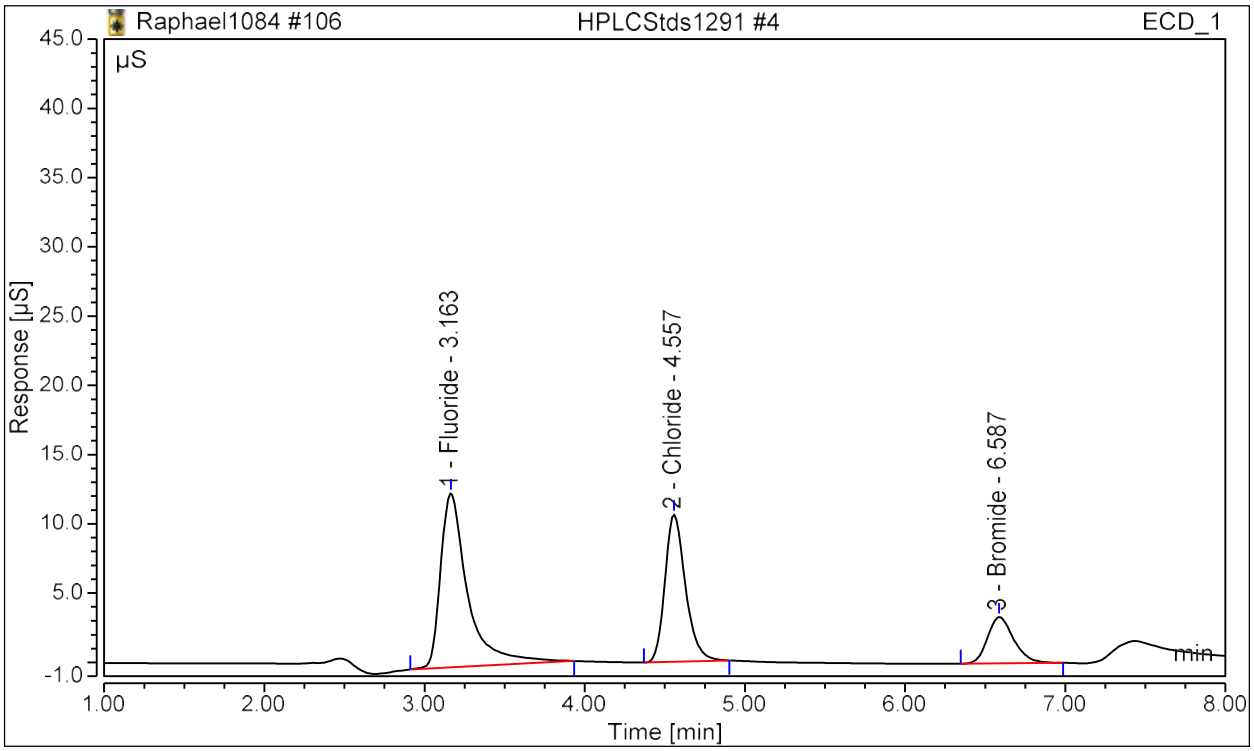


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	3.539	18.999	14.85114	FALSE	FALSE
2	4.56	Chloride	2.381	16.203	14.97089	FALSE	FALSE
3	6.58	Bromide	0.935	4.969	14.86867	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 22:14**	Run Time:	**14.50**

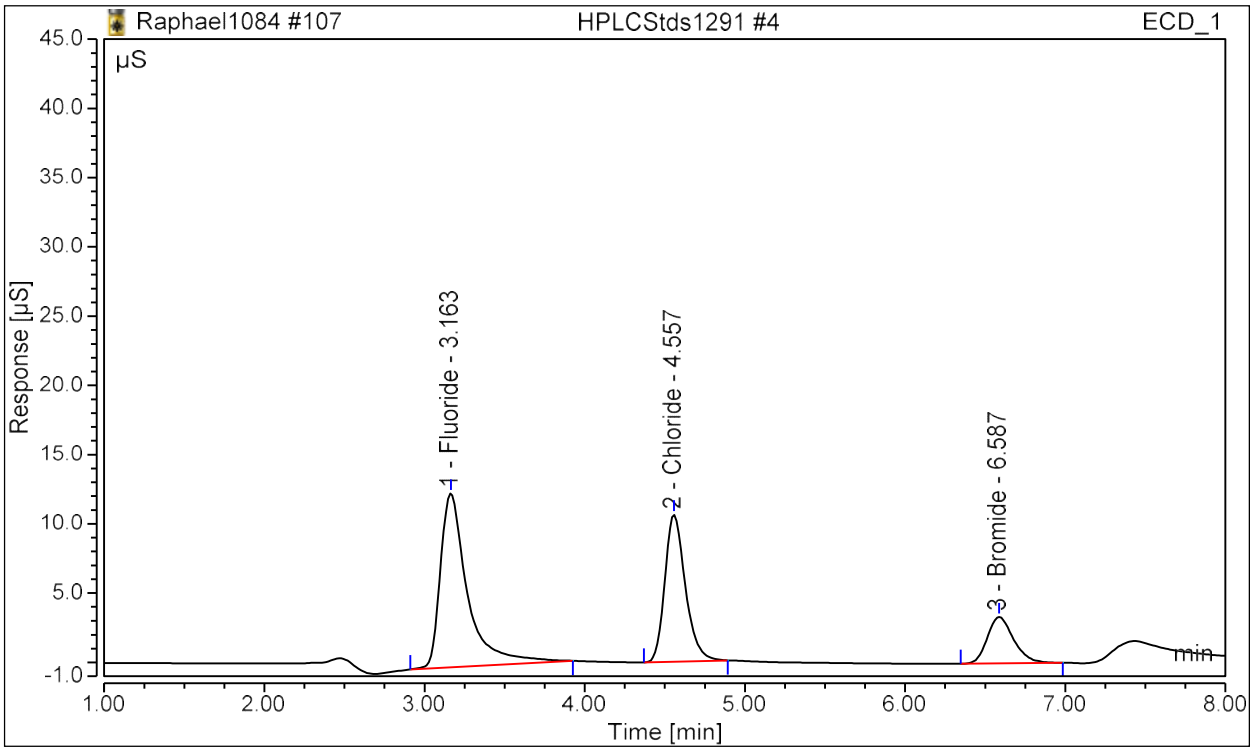


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.478	12.574	10.41026	FALSE	FALSE
2	4.56	Chloride	1.580	10.640	10.22272	FALSE	FALSE
3	6.59	Bromide	0.635	3.360	10.24051	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 22:30**	Run Time:	**14.50**

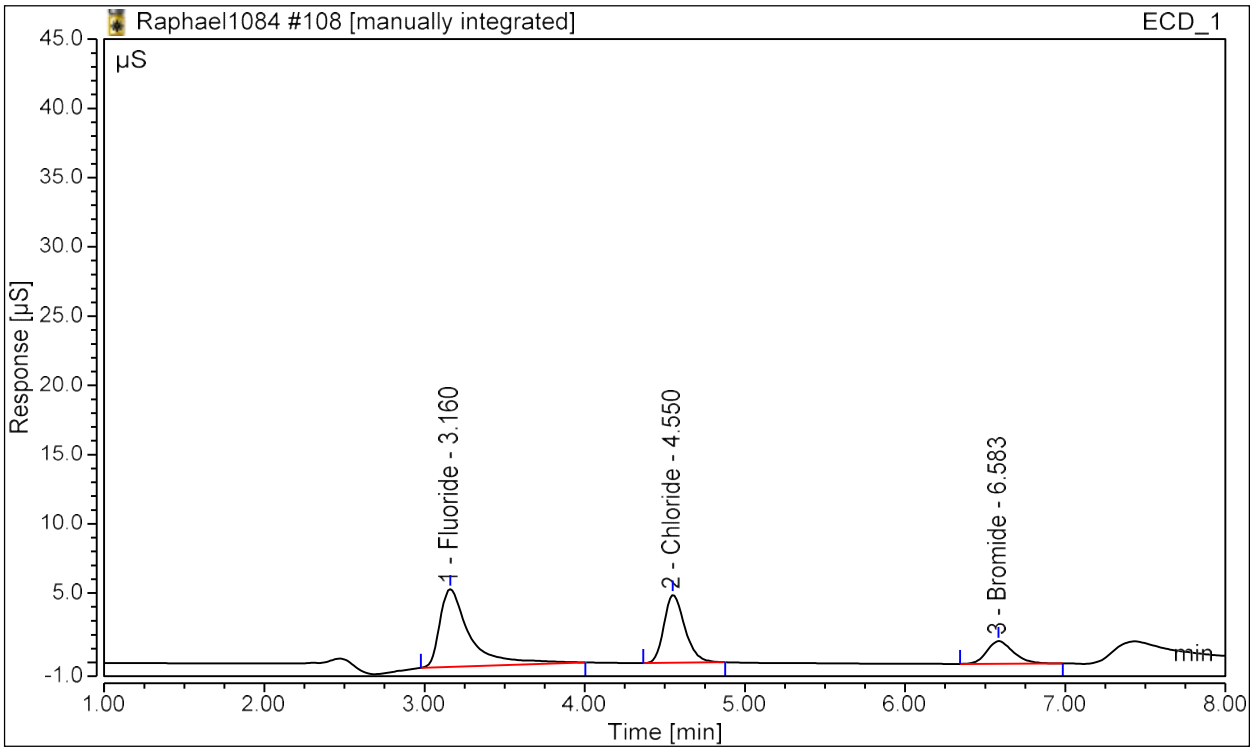


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.473	12.557	10.38996	FALSE	FALSE
2	4.56	Chloride	1.579	10.623	10.21853	FALSE	FALSE
3	6.59	Bromide	0.635	3.355	10.24715	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 22:46**	Run Time:	**14.50**

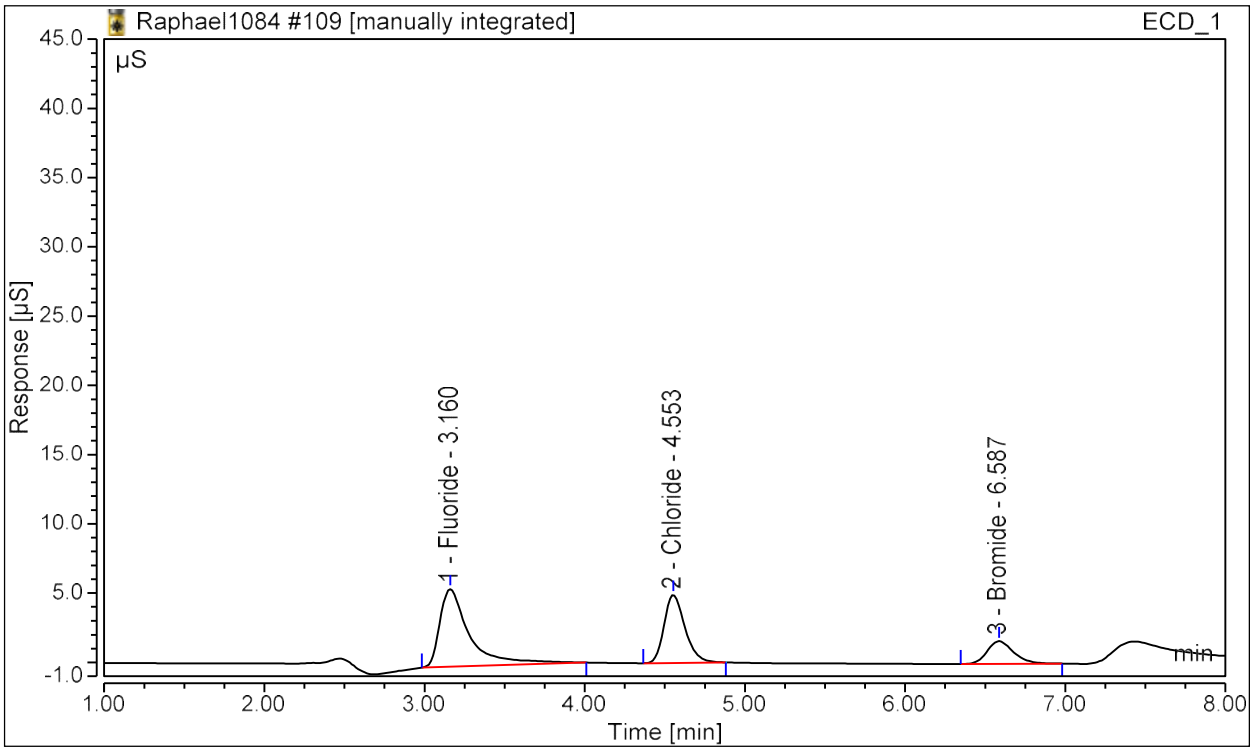


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	1.222	5.607	5.00739	FALSE	TRUE
2	4.55	Chloride	0.742	4.911	4.94295	FALSE	FALSE
3	6.58	Bromide	0.309	1.625	5.06228	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:02**	Run Time:	**14.50**

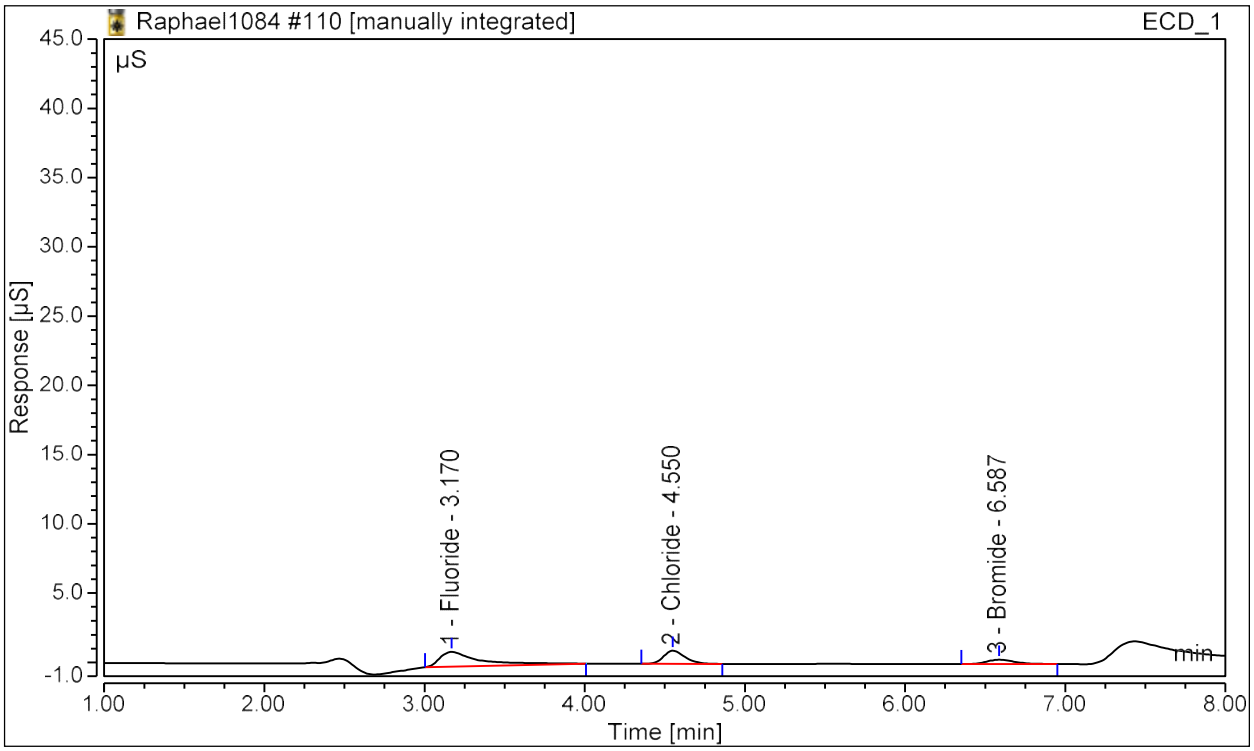


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	1.216	5.613	4.98023	FALSE	TRUE
2	4.55	Chloride	0.744	4.923	4.95591	FALSE	FALSE
3	6.59	Bromide	0.309	1.627	5.05928	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:19**	Run Time:	**14.50**

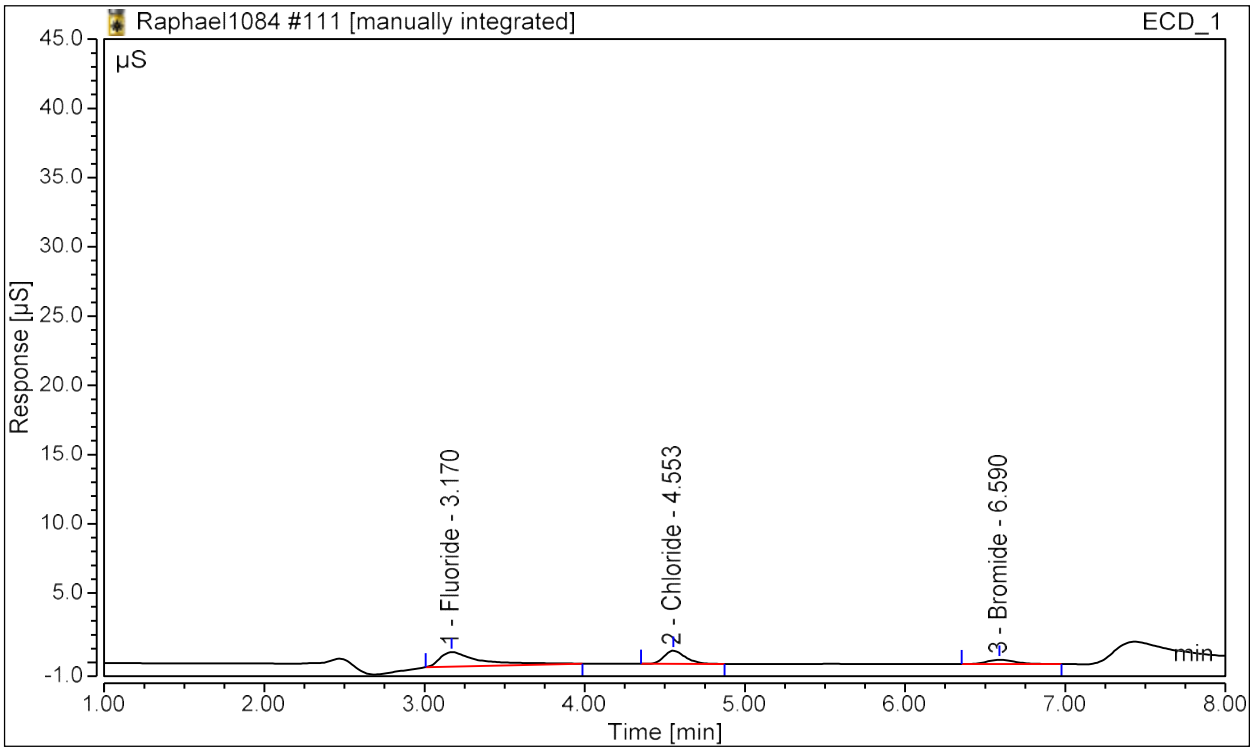


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	0.314	1.060	1.00003	FALSE	TRUE
2	4.55	Chloride	0.146	0.942	0.99574	FALSE	FALSE
3	6.59	Bromide	0.060	0.314	0.99349	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:35**	Run Time:	**14.50**

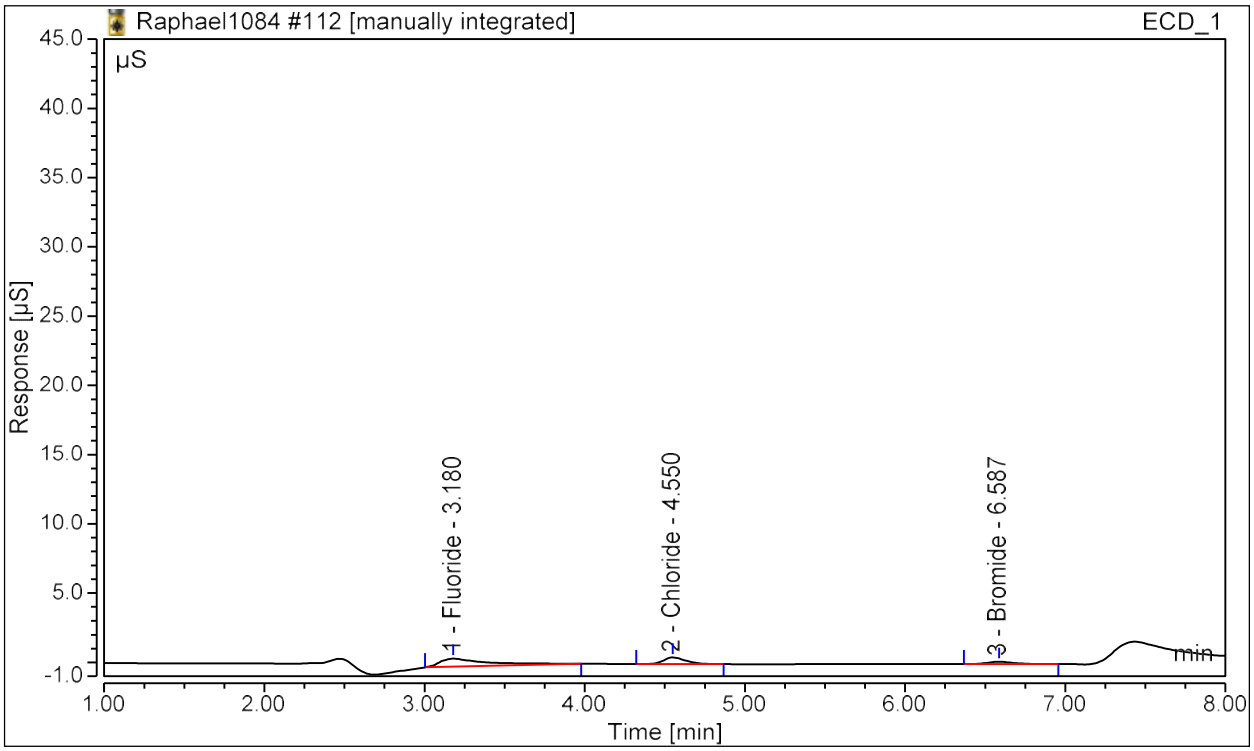


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	0.306	1.049	0.96475	FALSE	TRUE
2	4.55	Chloride	0.146	0.940	0.99294	FALSE	FALSE
3	6.59	Bromide	0.060	0.313	0.99226	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:51**	Run Time:	**14.50**

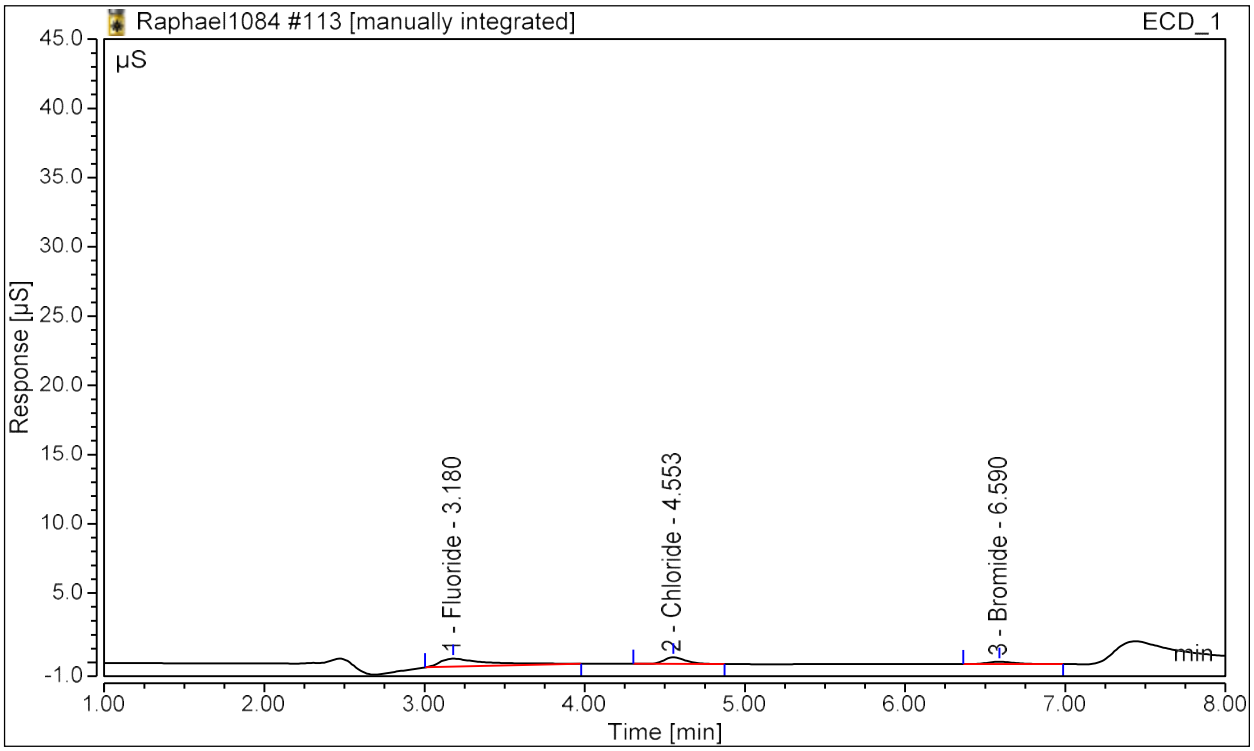


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	0.204	0.584	0.51124	FALSE	TRUE
2	4.55	Chloride	0.074	0.469	0.50677	FALSE	FALSE
3	6.59	Bromide	0.030	0.157	0.49941	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**19-Mar-2022 / 00:07**	Run Time:	**14.50**

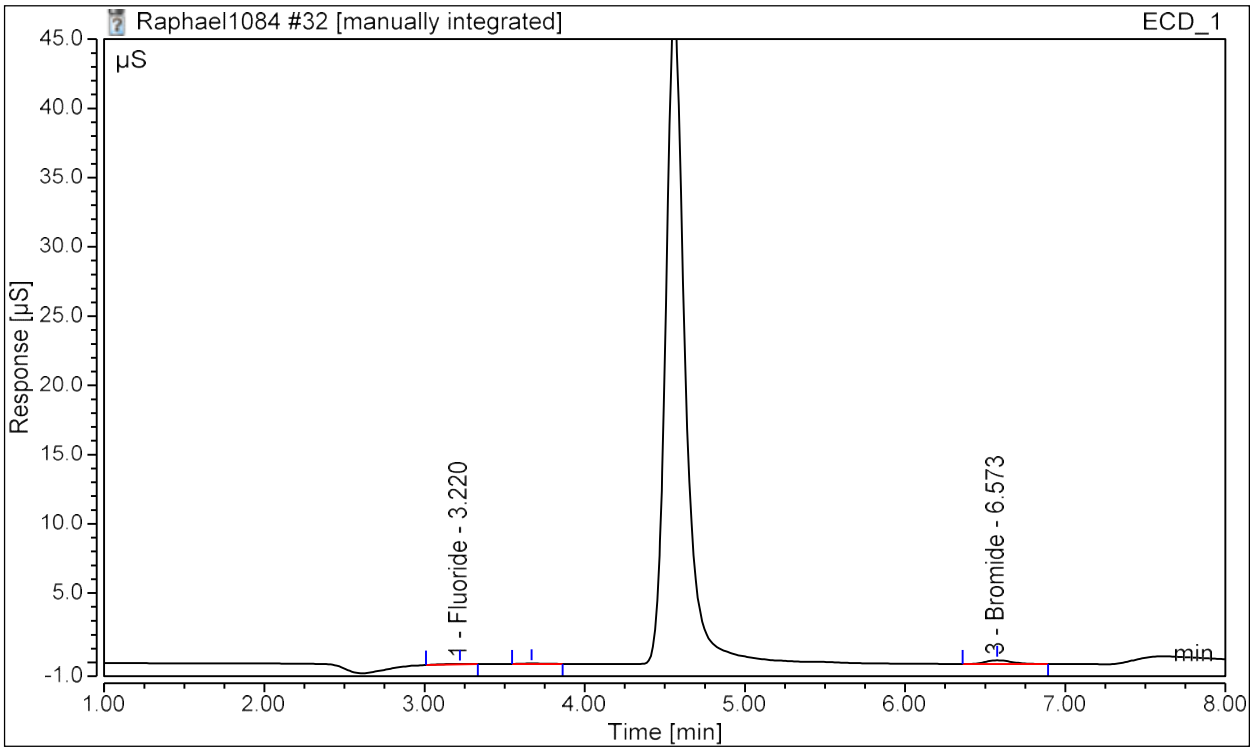


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	0.206	0.587	0.51723	FALSE	TRUE
2	4.55	Chloride	0.075	0.476	0.51477	FALSE	FALSE
3	6.59	Bromide	0.030	0.159	0.50521	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 02:17**	Run Time:	**14.50**

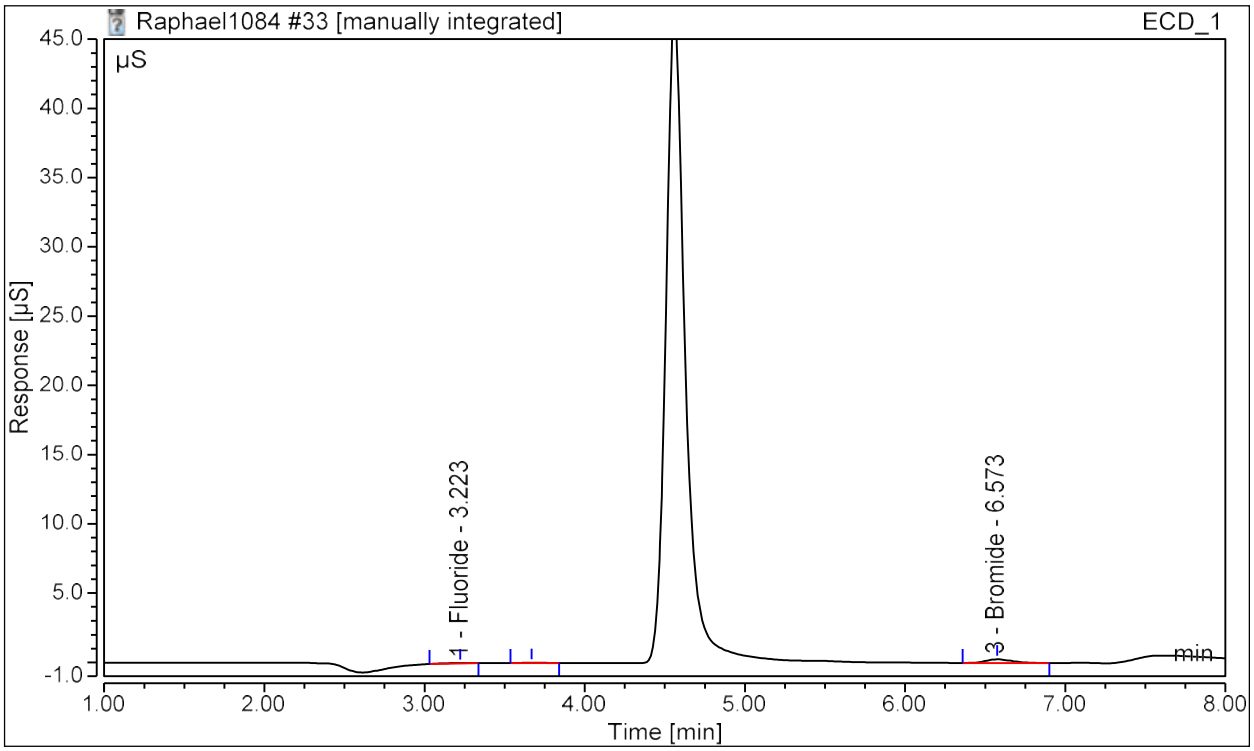


Analyst Comment: II DLM 3/18/22 dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.22	Fluoride	0.006	0.026	n.a.	FALSE	TRUE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.57	Bromide	0.050	0.271	0.83051	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 02:33**	Run Time:	**14.50**

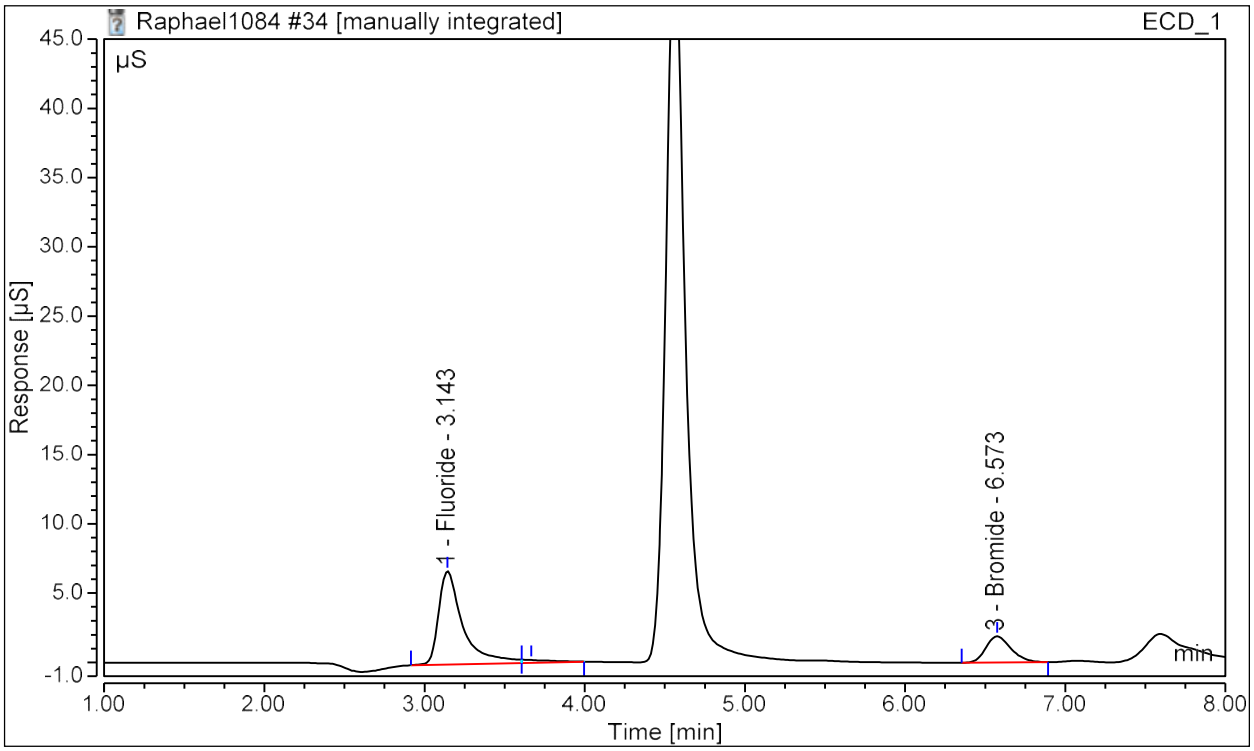


Analyst Comment: II DLM 3/18/22 dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.22	Fluoride	0.005	0.022	n.a.	FALSE	TRUE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.57	Bromide	0.050	0.271	0.82916	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.MS-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 02:49**	Run Time:	**14.50**

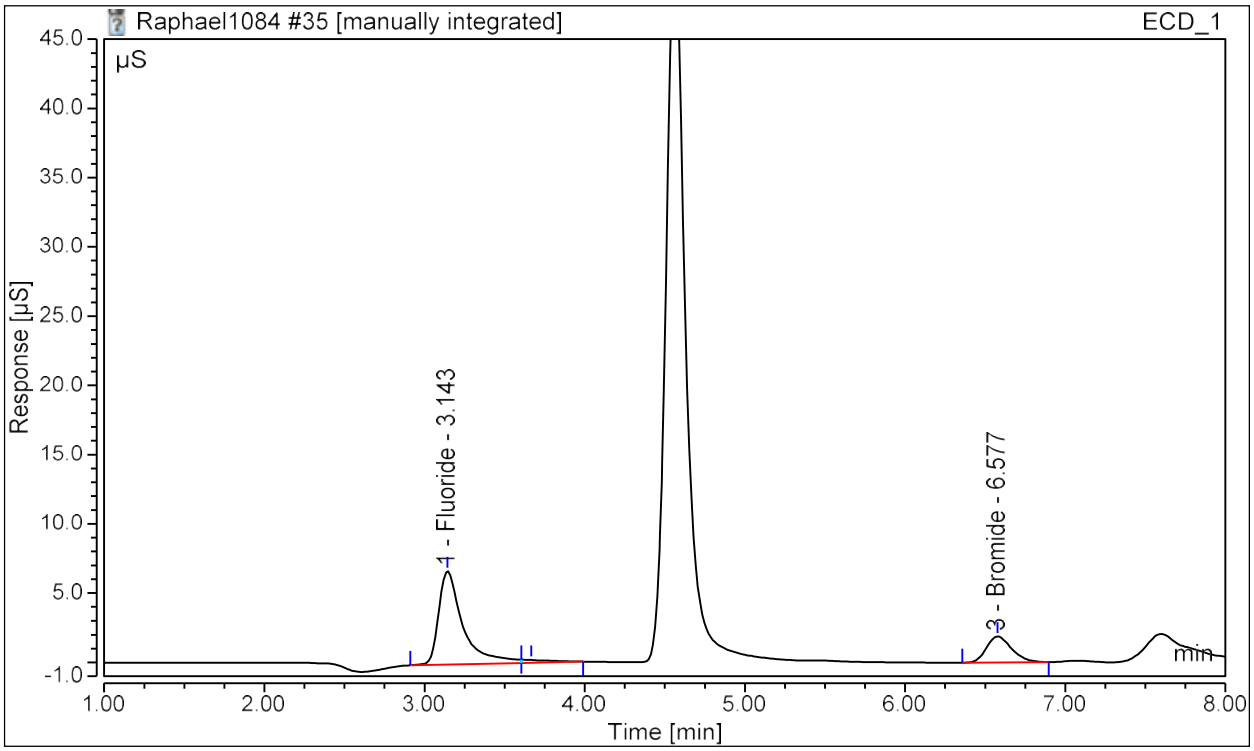


Analyst Comment: dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.14	Fluoride	1.173	6.729	4.79377	FALSE	FALSE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.57	Bromide	0.347	1.898	5.66475	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.MS-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 03:05**	Run Time:	**14.50**

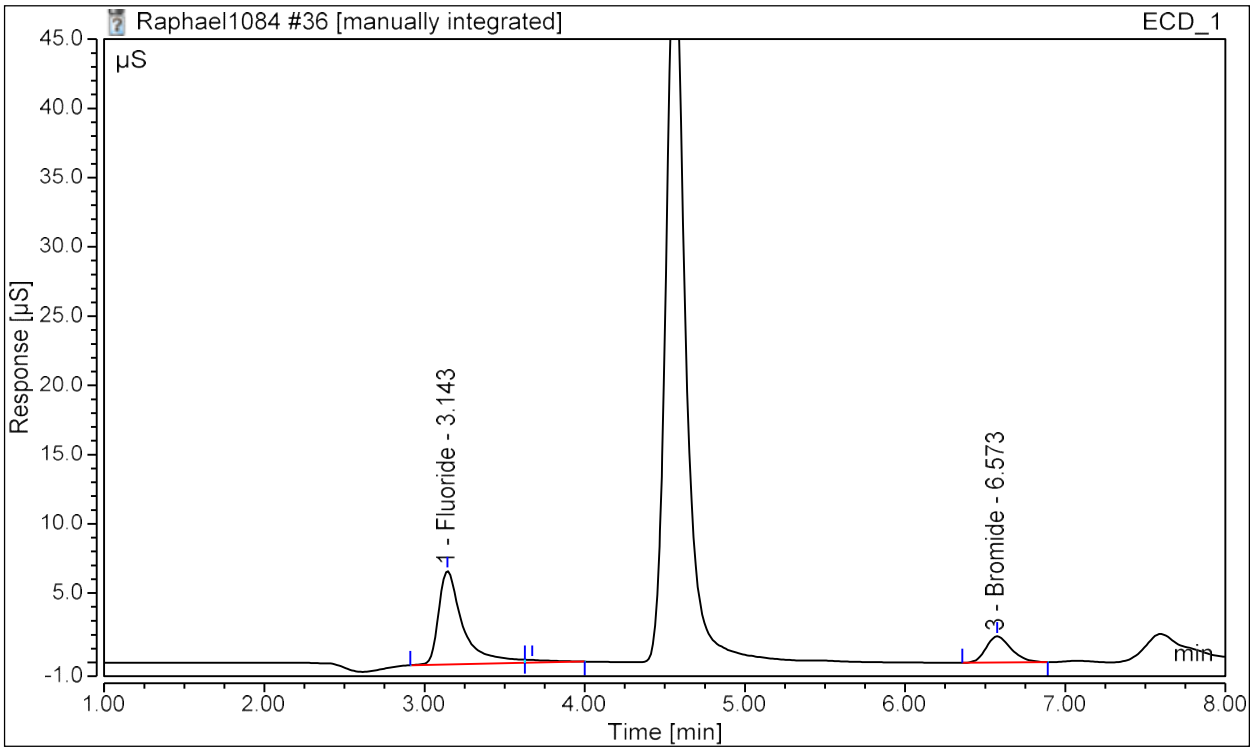


Analyst Comment: dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.14	Fluoride	1.174	6.730	4.79638	FALSE	FALSE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.58	Bromide	0.344	1.885	5.62964	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.MSD-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 03:21**	Run Time:	**14.50**

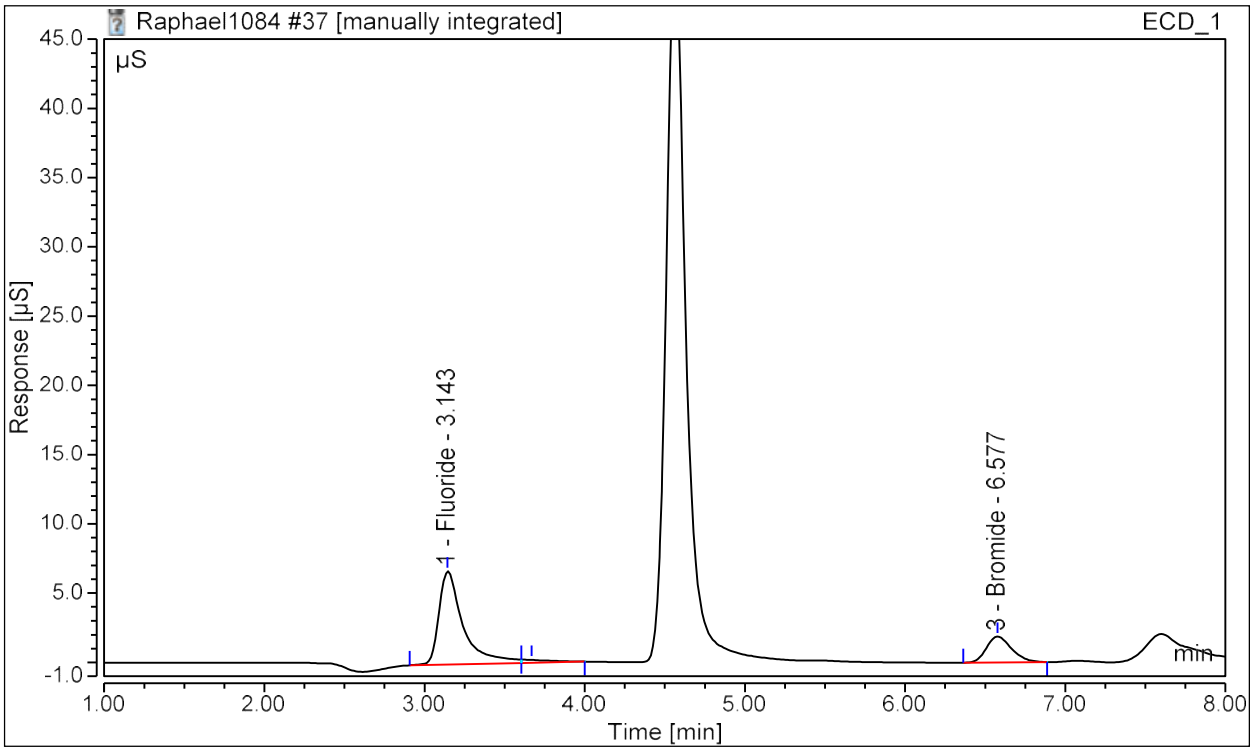


Analyst Comment: dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.14	Fluoride	1.184	6.743	4.84011	FALSE	FALSE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.57	Bromide	0.345	1.890	5.63857	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.MSD-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 03:37**	Run Time:	**14.50**

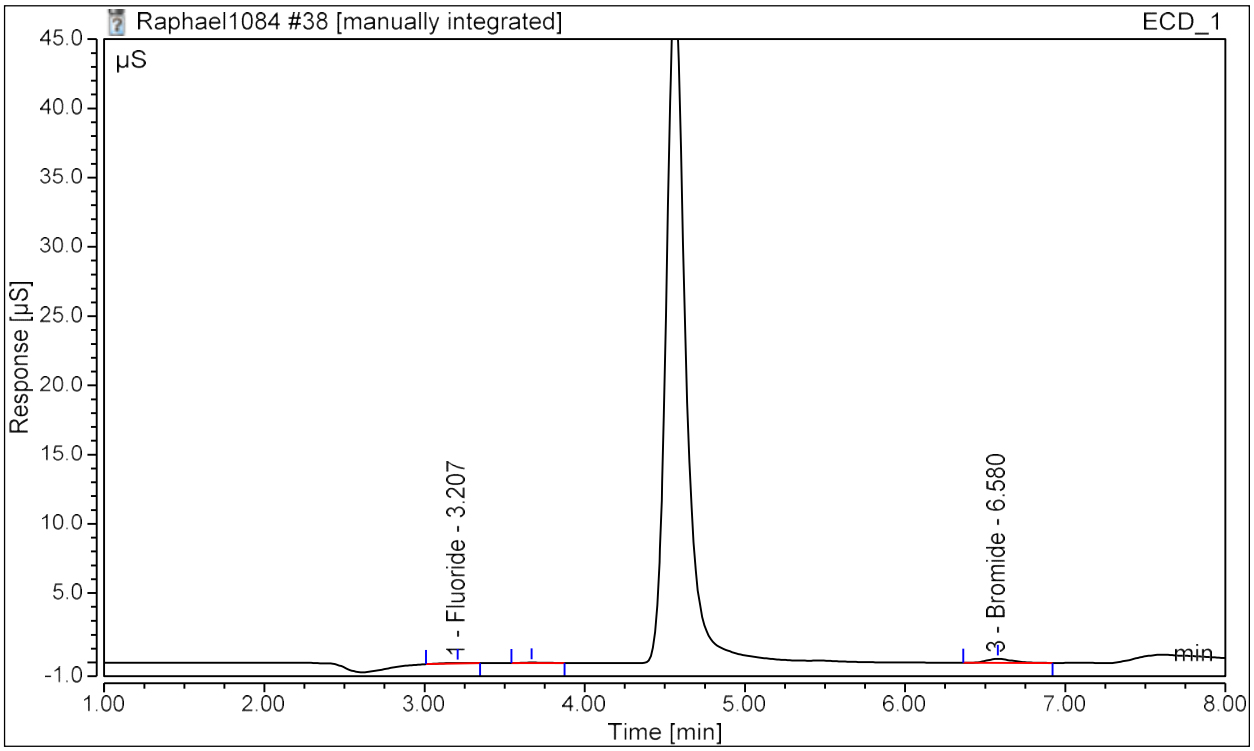


Analyst Comment: dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.14	Fluoride	1.172	6.720	4.78610	FALSE	FALSE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.58	Bromide	0.343	1.880	5.60396	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R2-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 03:54**	Run Time:	**14.50**

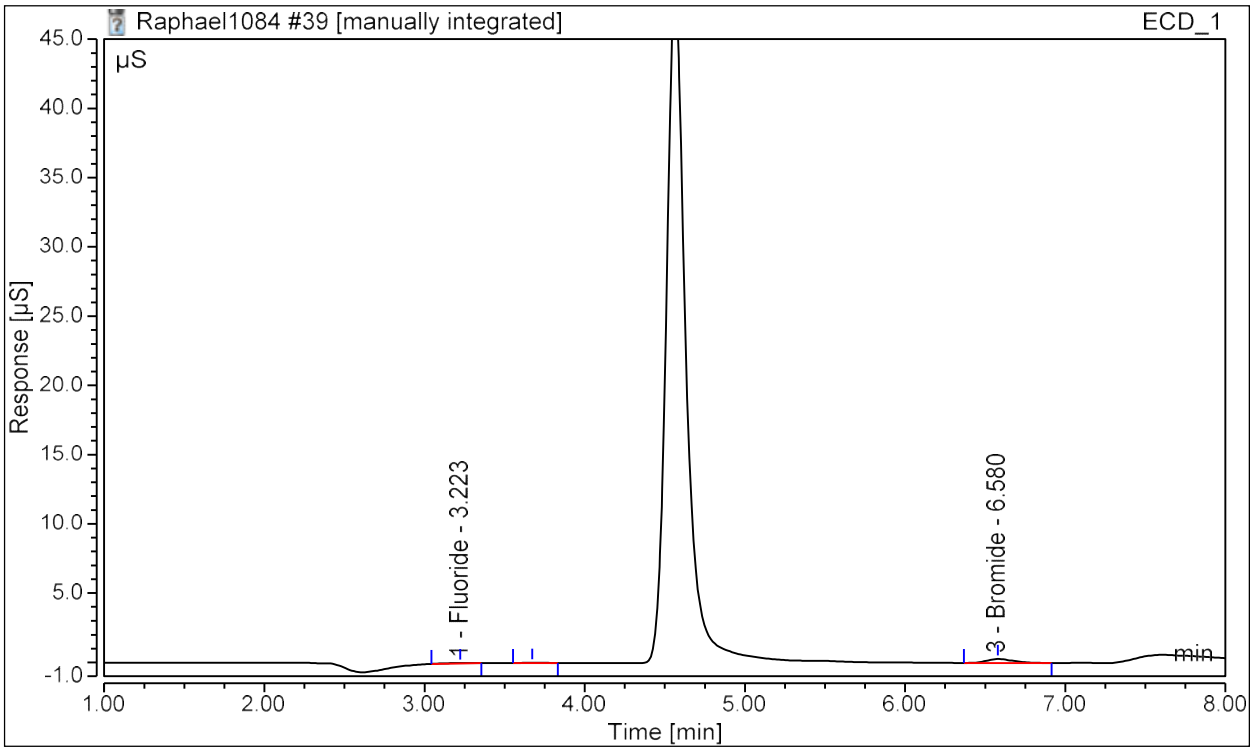


Analyst Comment: II DLM 3/18/22 dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.21	Fluoride	0.008	0.036	n.a.	FALSE	TRUE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.58	Bromide	0.055	0.298	0.91383	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R2-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 04:10**	Run Time:	**14.50**

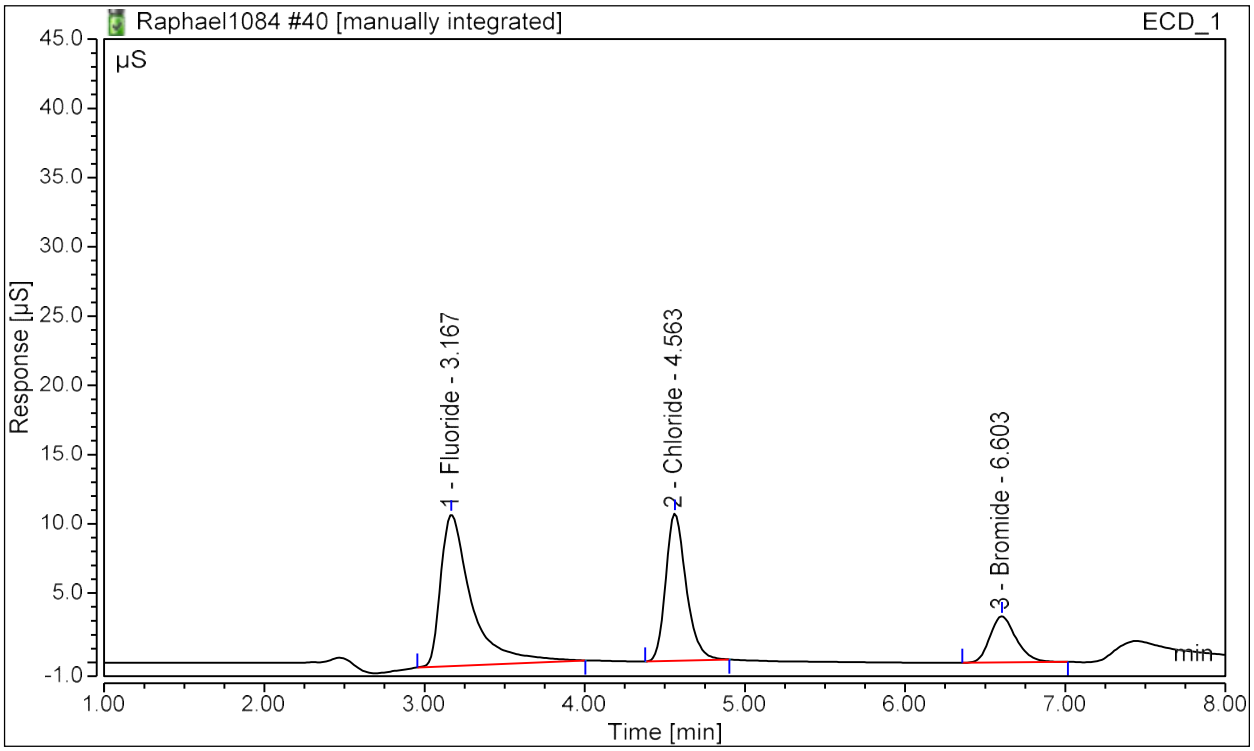


Analyst Comment: II DLM 3/18/22 dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.22	Fluoride	0.005	0.024	n.a.	FALSE	TRUE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.58	Bromide	0.054	0.296	0.90785	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 04:26**	Run Time:	**14.50**

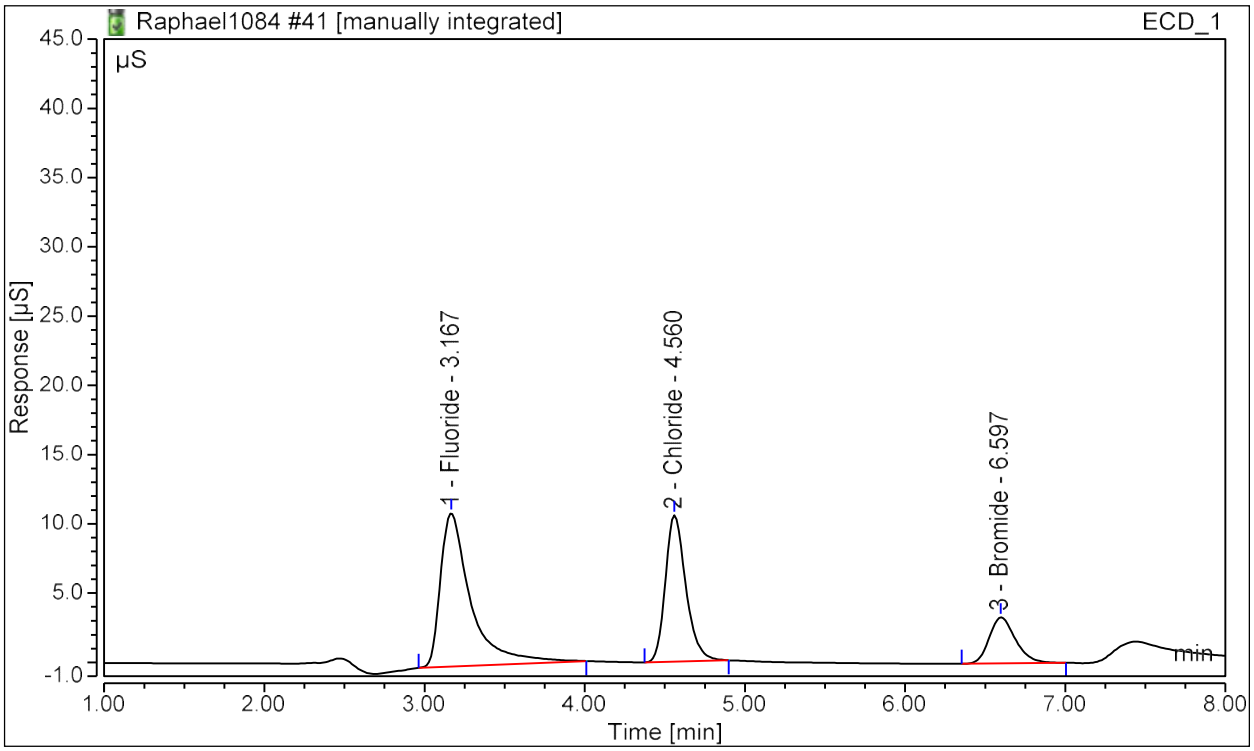


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.444	10.943	10.26444	FALSE	TRUE
2	4.56	Chloride	1.575	10.629	10.19130	FALSE	FALSE
3	6.60	Bromide	0.634	3.339	10.21905	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 04:42**	Run Time:	**14.50**

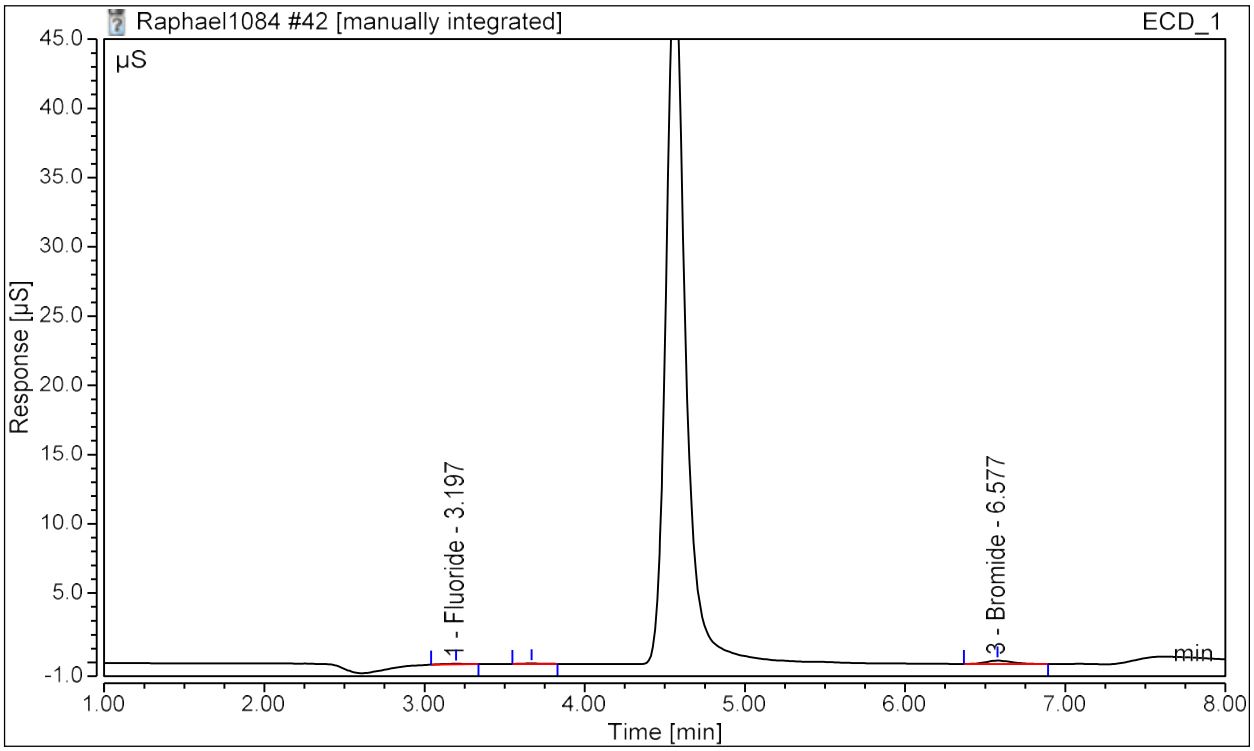


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.441	11.090	10.25168	FALSE	TRUE
2	4.56	Chloride	1.568	10.575	10.14949	FALSE	FALSE
3	6.60	Bromide	0.631	3.328	10.17867	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R3-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 04:58**	Run Time:	**14.50**

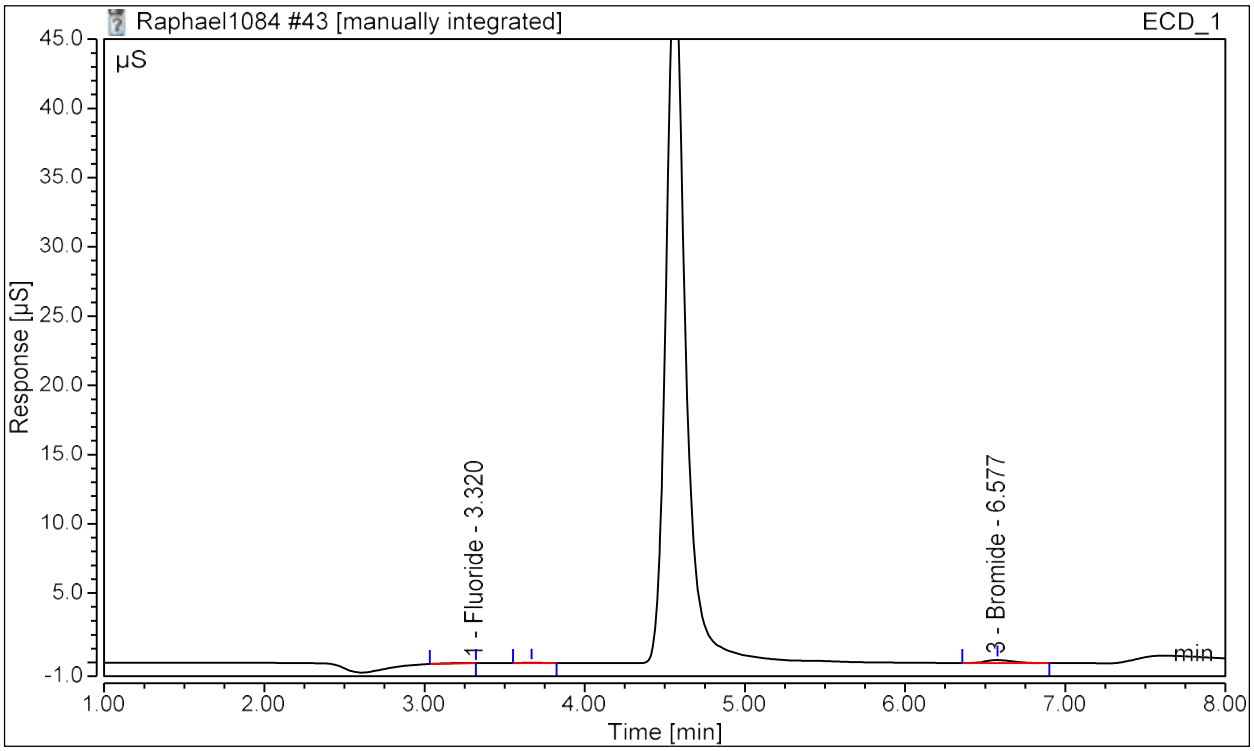


Analyst Comment: II DLM 3/18/22 dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.20	Fluoride	0.005	0.030	n.a.	FALSE	TRUE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.58	Bromide	0.042	0.228	0.69669	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R3-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 05:15**	Run Time:	**14.50**

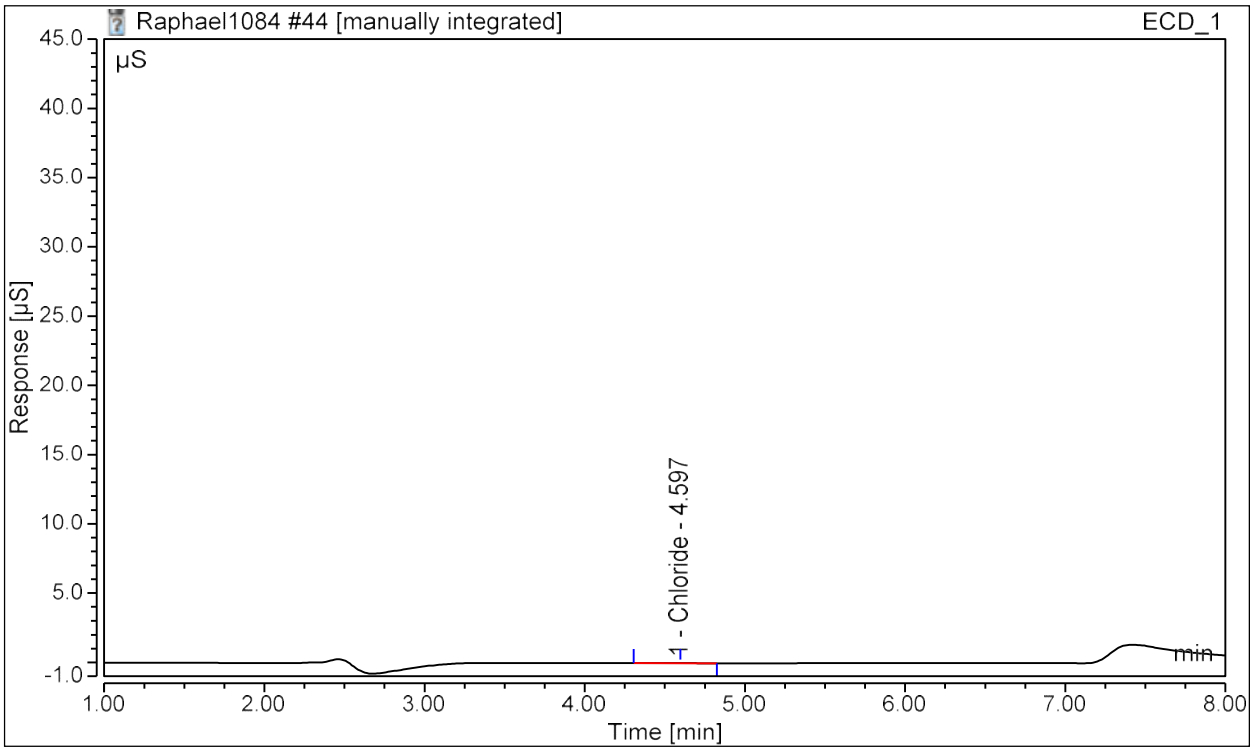


Analyst Comment: II DLM 3/18/22 dilute for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.32	Fluoride	0.004	0.000	n.a.	FALSE	TRUE
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	n.a.
3	6.58	Bromide	0.042	0.229	0.70665	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.FB-H2SO4.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 05:31**	Run Time:	**14.50**

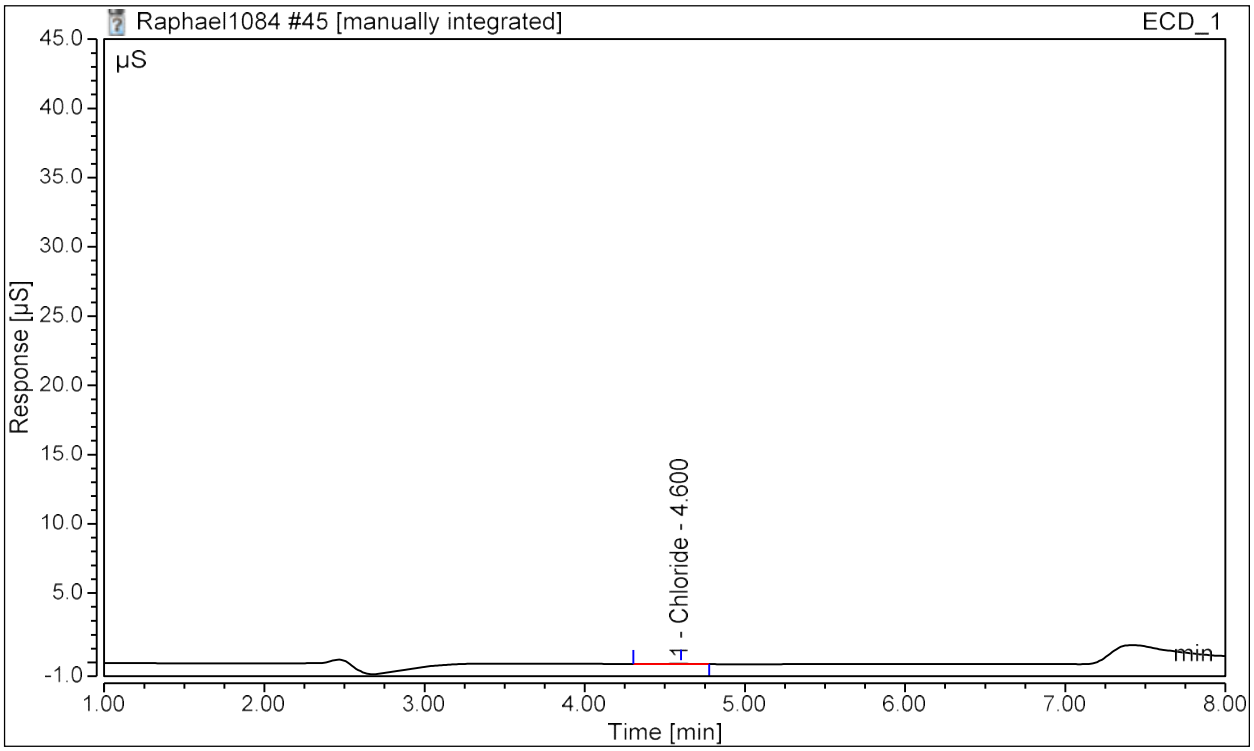


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.60	Chloride	0.005	0.024	0.03710	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.FB-H2SO4.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 05:47**	Run Time:	**14.50**

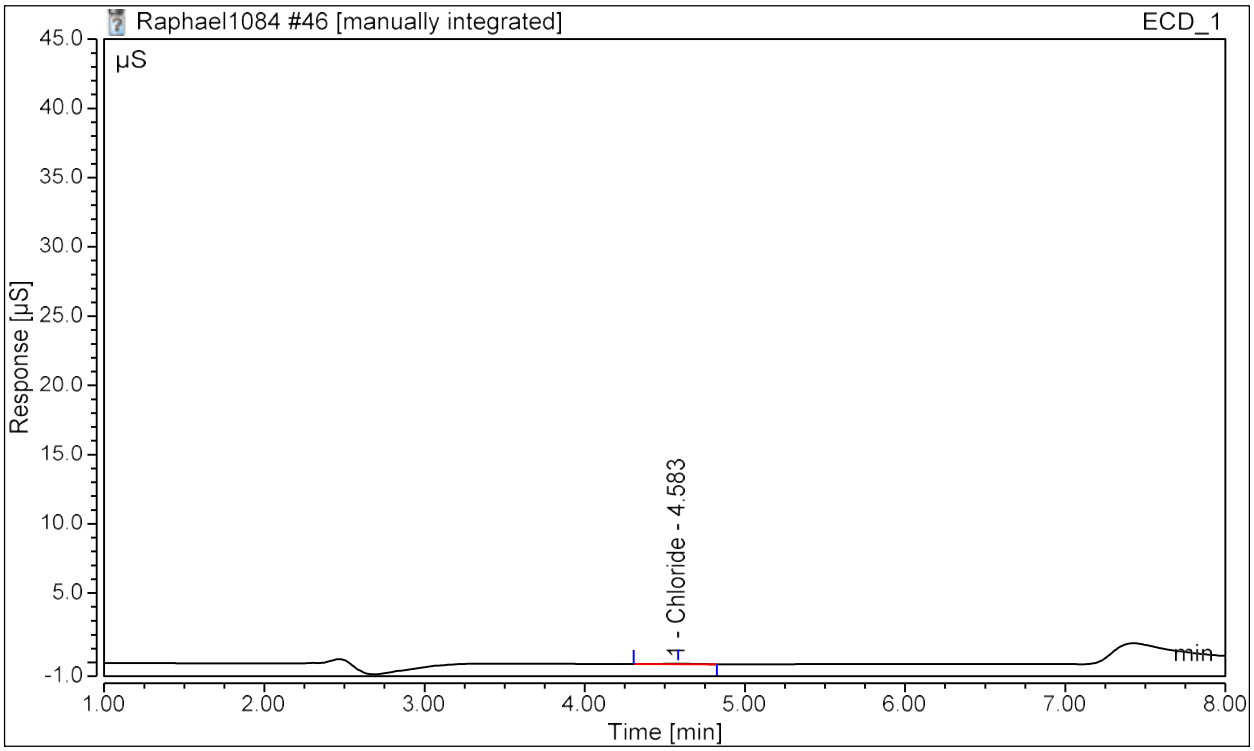


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.60	Chloride	0.004	0.019	0.02752	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.RB-H2SO4.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 06:03**	Run Time:	**14.50**

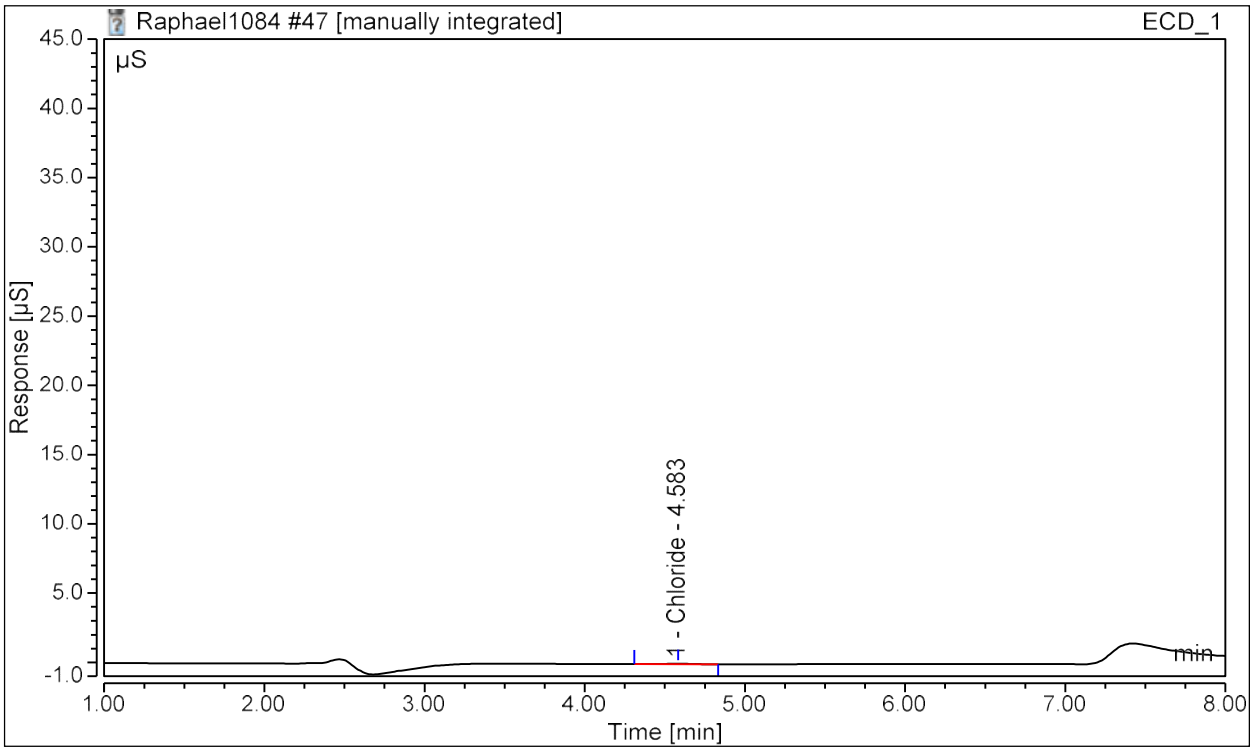


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.58	Chloride	0.006	0.028	0.04184	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.RB-H2SO4.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 06:19**	Run Time:	**14.50**

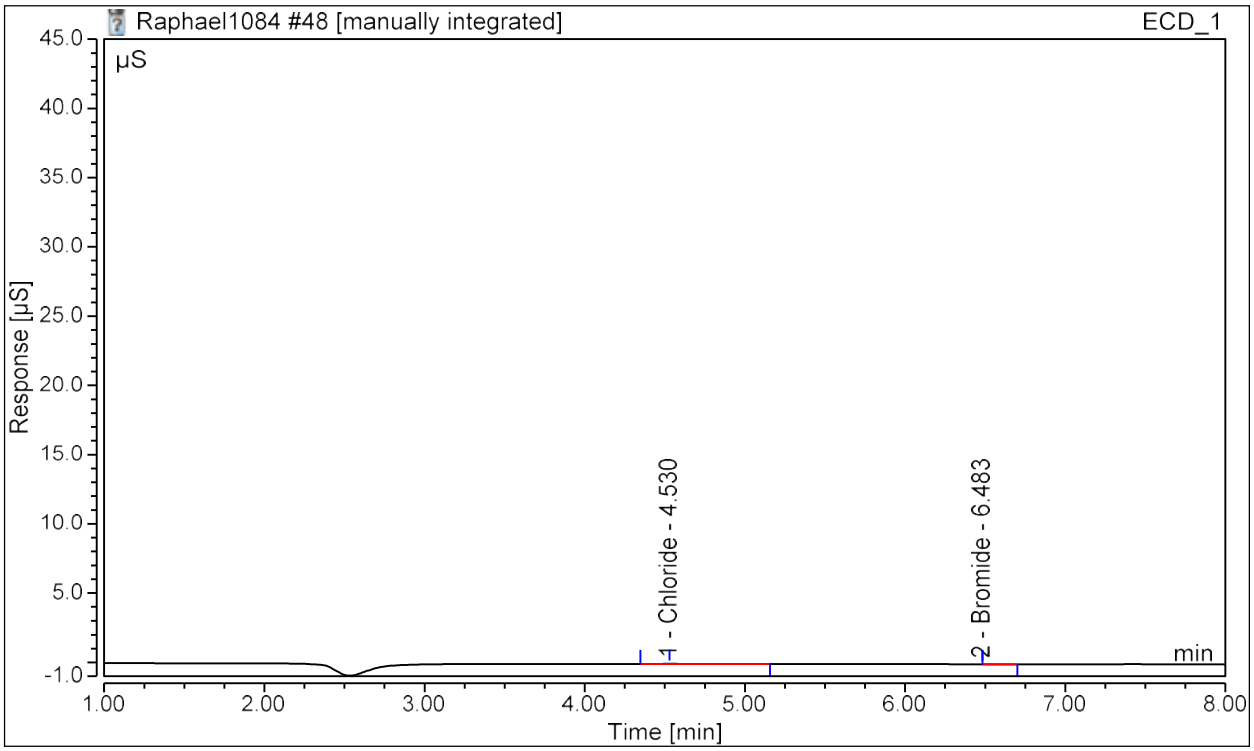


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.58	Chloride	0.005	0.027	0.03967	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.RB-DIH2O.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 06:35**	Run Time:	**14.50**

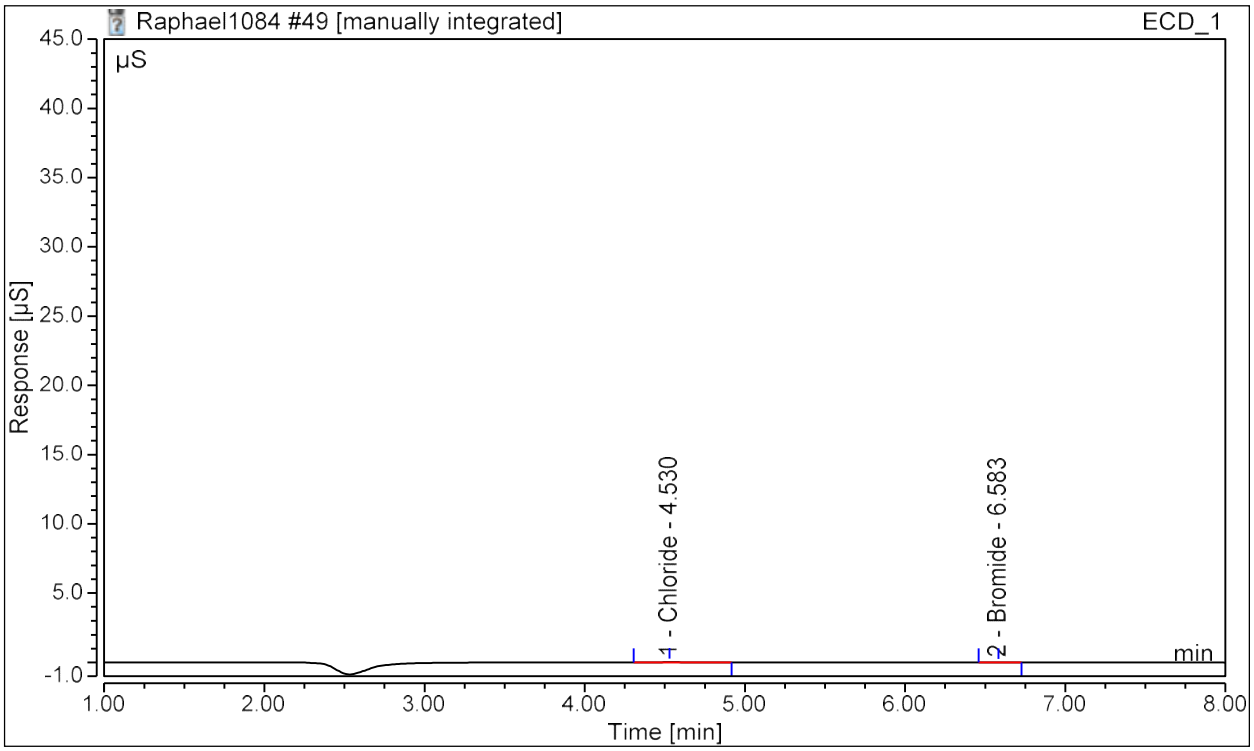


Analyst Comment: NI DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.53	Chloride	0.003	0.016	0.02326	FALSE	FALSE
2	6.48	Bromide	0.000	0.000	0.00834	FALSE	TRUE

Peak Analysis Report

Sample Name:	**0222-186.RB-DIH2O.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 06:52**	Run Time:	**14.50**

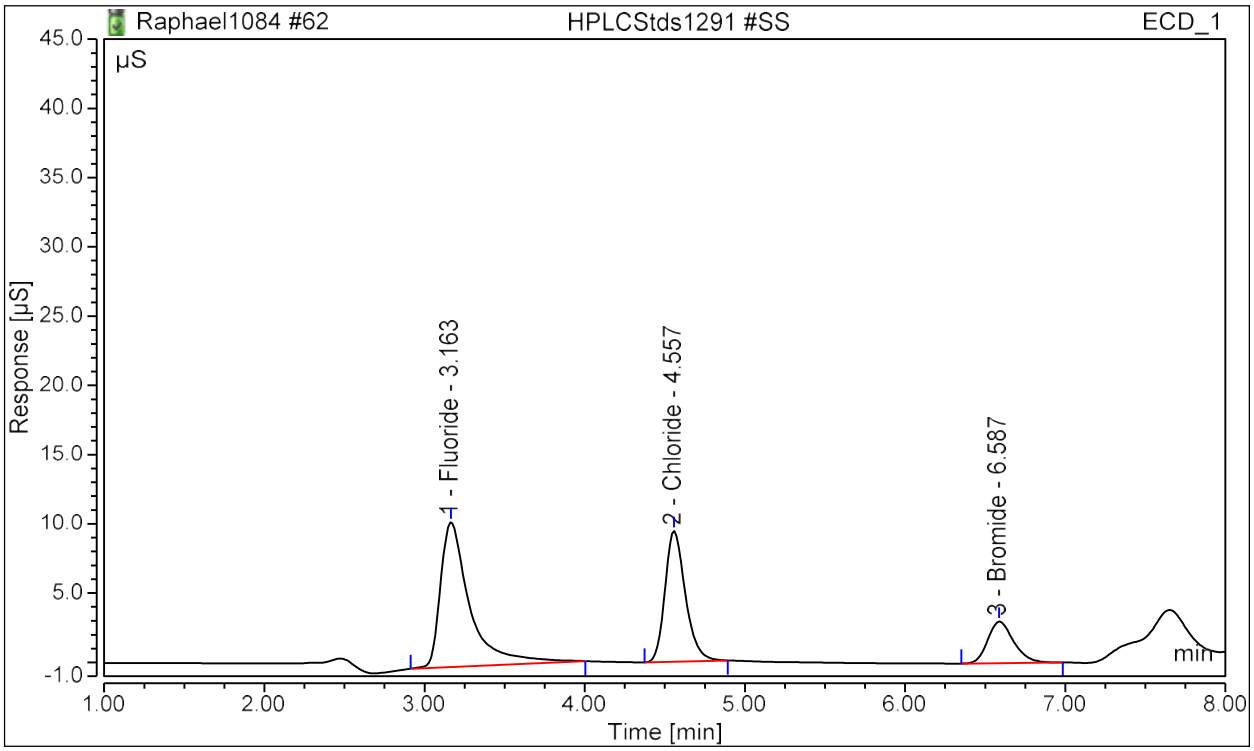


Analyst Comment: NI DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.53	Chloride	0.003	0.015	0.02043	FALSE	FALSE
2	6.58	Bromide	0.000	0.001	0.00910	FALSE	TRUE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 10:22**	Run Time:	**14.50**

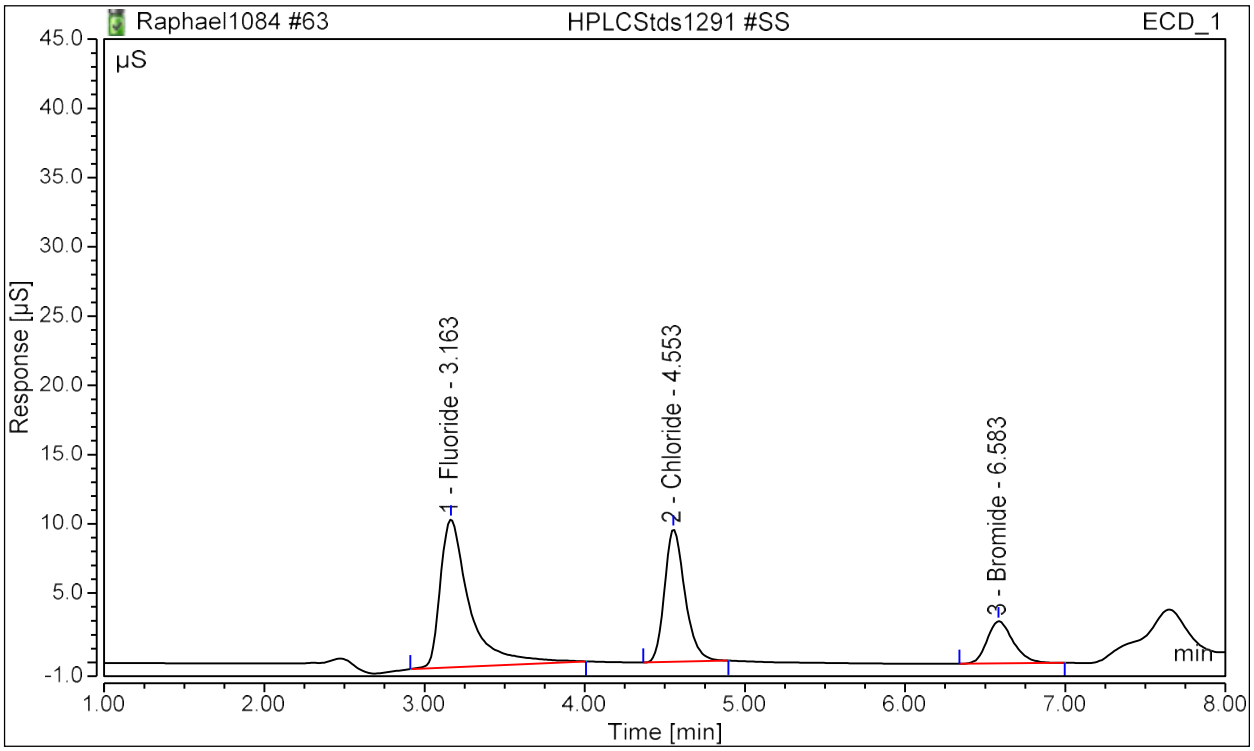


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.232	10.467	9.36419	FALSE	FALSE
2	4.56	Chloride	1.392	9.445	9.06885	FALSE	FALSE
3	6.59	Bromide	0.564	3.002	9.12511	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 10:38**	Run Time:	**14.50**

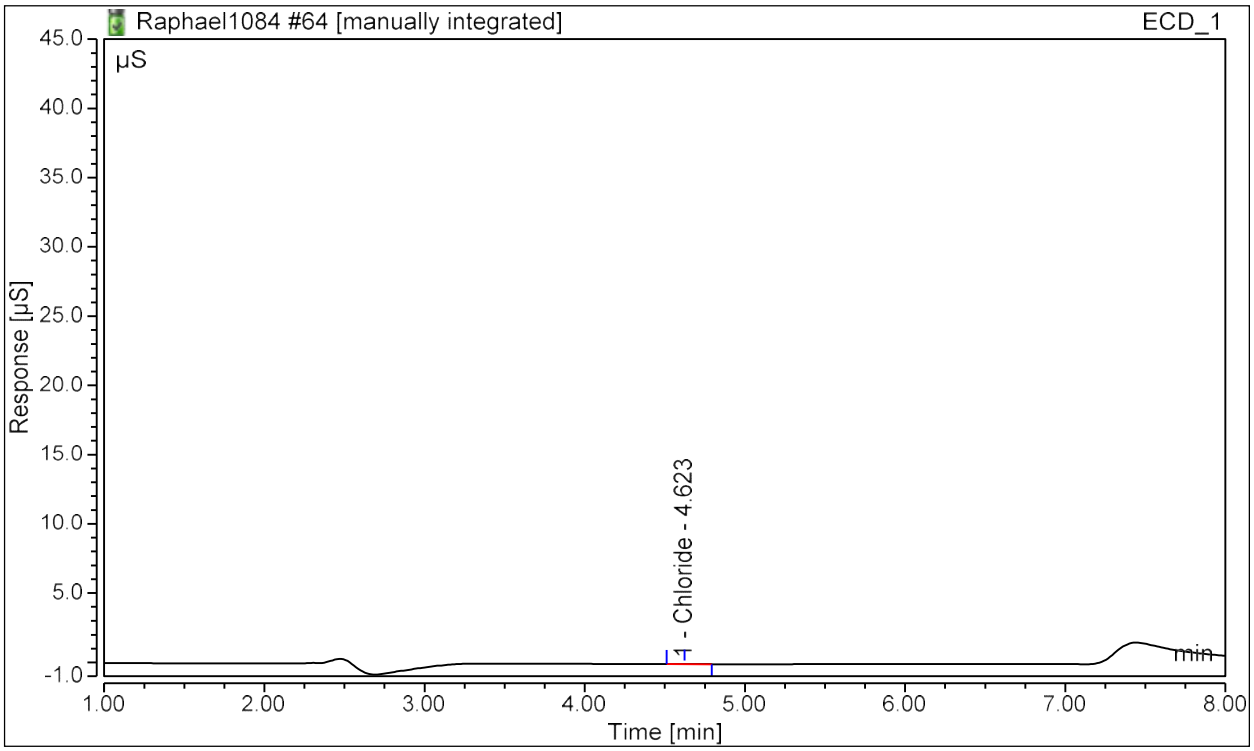


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.274	10.688	9.54381	FALSE	FALSE
2	4.55	Chloride	1.415	9.579	9.21266	FALSE	FALSE
3	6.58	Bromide	0.574	3.047	9.28917	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 10:54**	Run Time:	**14.50**

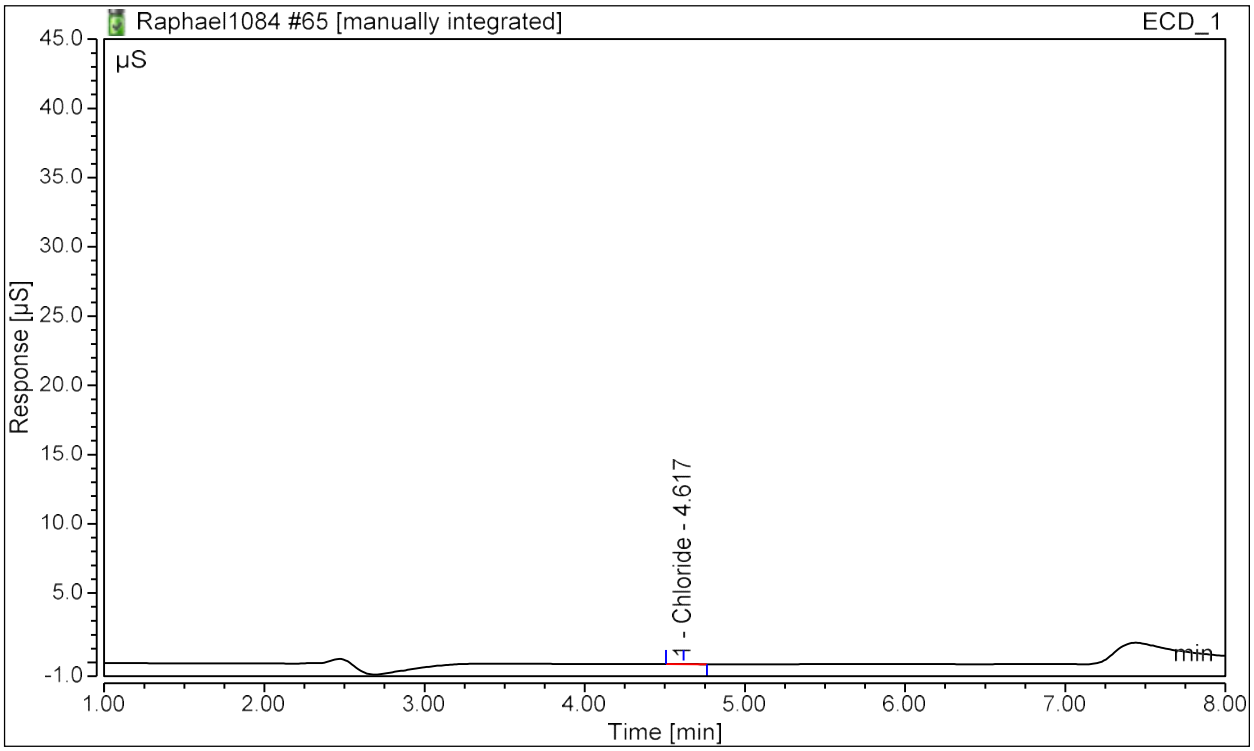


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.62	Chloride	0.002	0.014	0.01542	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1291 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 11:10**	Run Time:	**14.50**

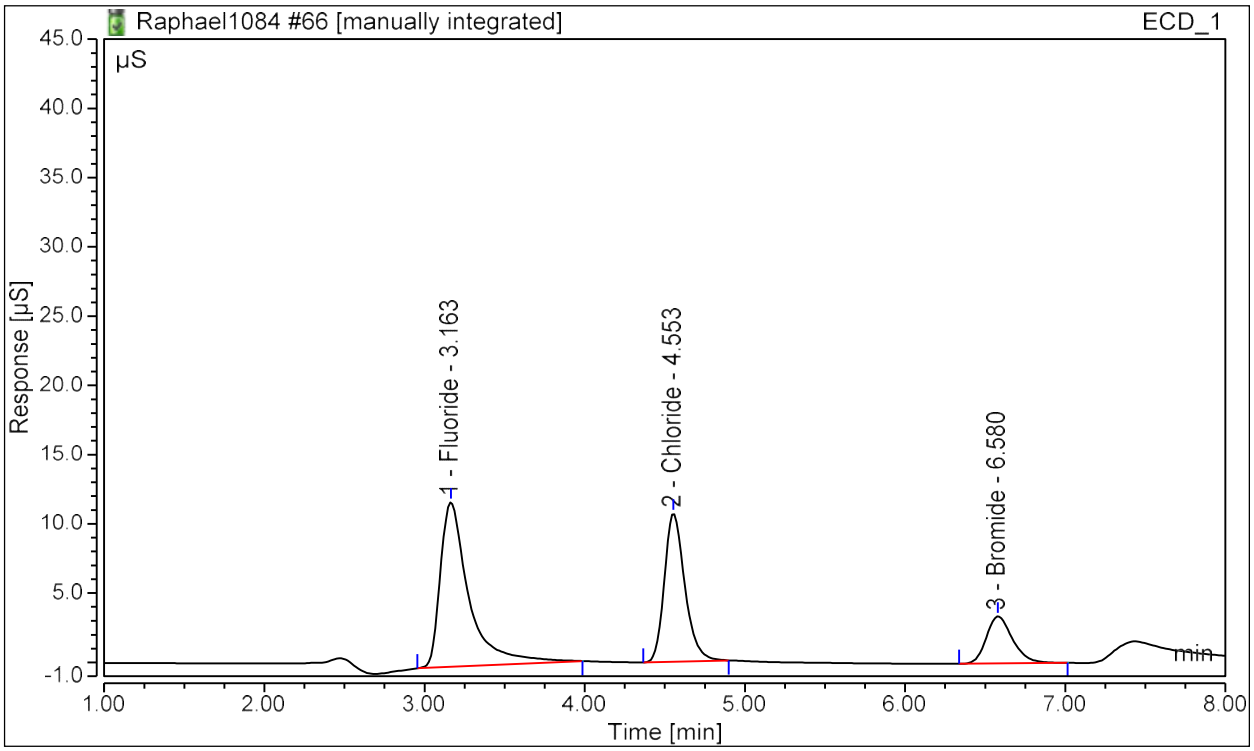


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.62	Chloride	0.002	0.014	0.01525	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 11:27**	Run Time:	**14.50**

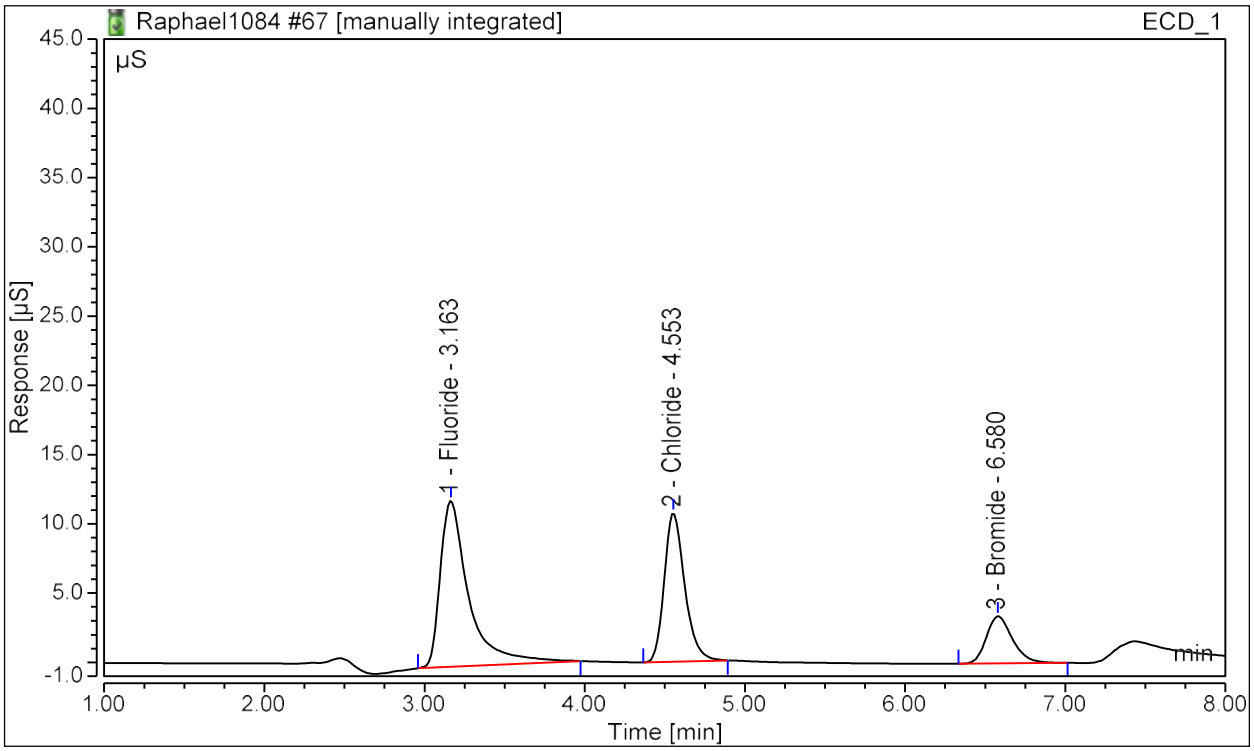


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.473	11.887	10.38994	FALSE	TRUE
2	4.55	Chloride	1.587	10.721	10.26583	FALSE	FALSE
3	6.58	Bromide	0.641	3.394	10.32913	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 11:43**	Run Time:	**14.50**

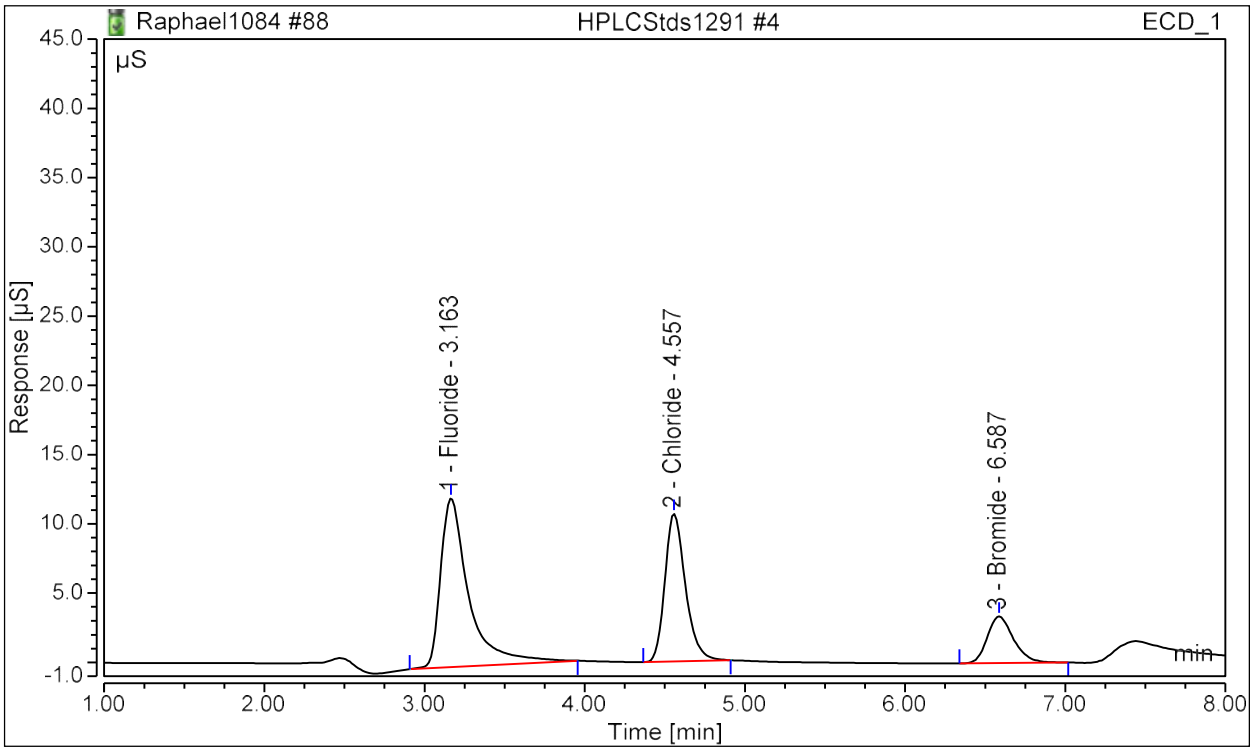


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.472	11.975	10.38537	FALSE	TRUE
2	4.55	Chloride	1.588	10.745	10.27448	FALSE	FALSE
3	6.58	Bromide	0.641	3.400	10.34052	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 17:23**	Run Time:	**14.50**

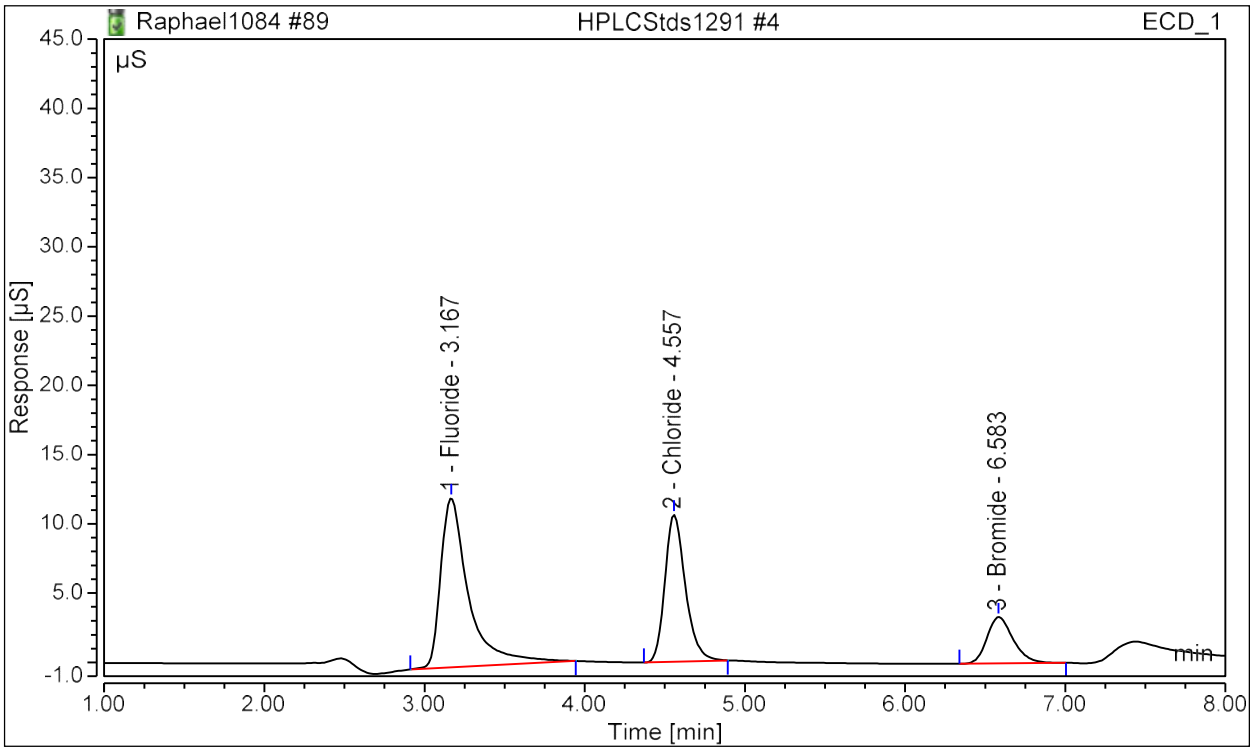


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.490	12.201	10.46073	FALSE	FALSE
2	4.56	Chloride	1.587	10.684	10.26795	FALSE	FALSE
3	6.59	Bromide	0.640	3.374	10.31327	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 17:39**	Run Time:	**14.50**

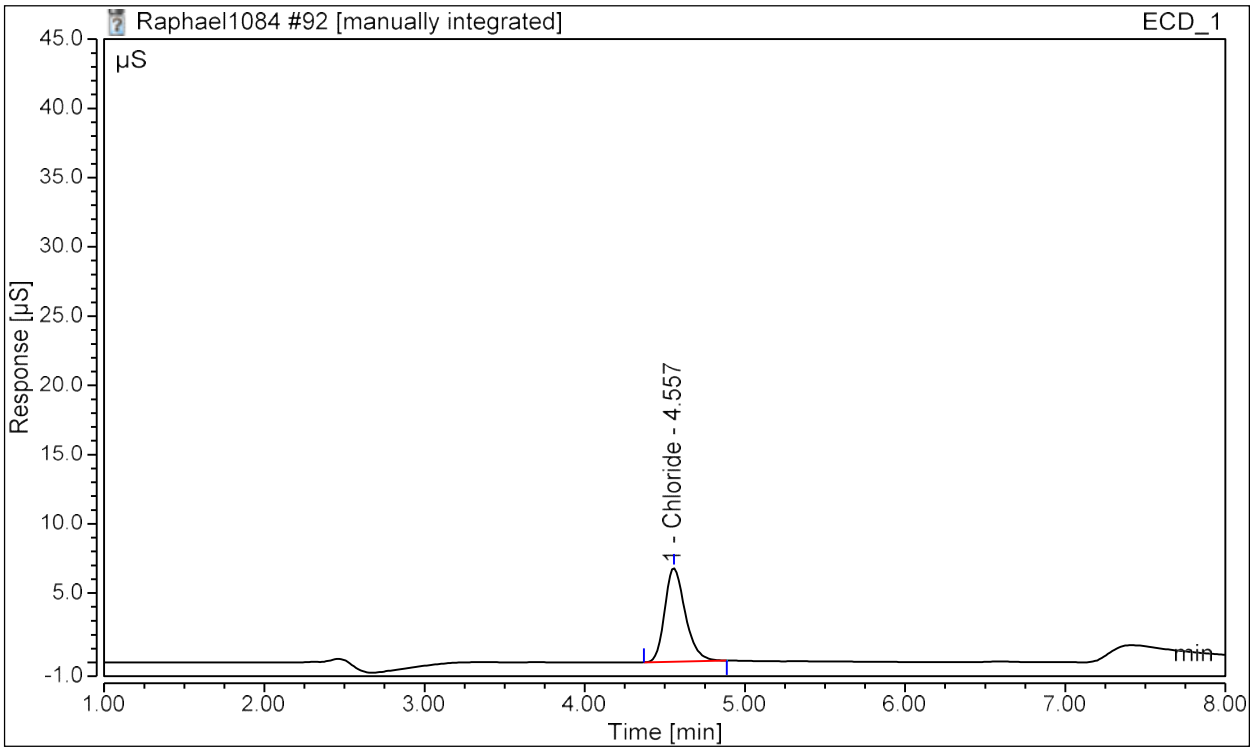


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.474	12.232	10.39190	FALSE	FALSE
2	4.56	Chloride	1.574	10.624	10.18742	FALSE	FALSE
3	6.58	Bromide	0.635	3.355	10.24225	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**5.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 18:27**	Run Time:	**14.50**

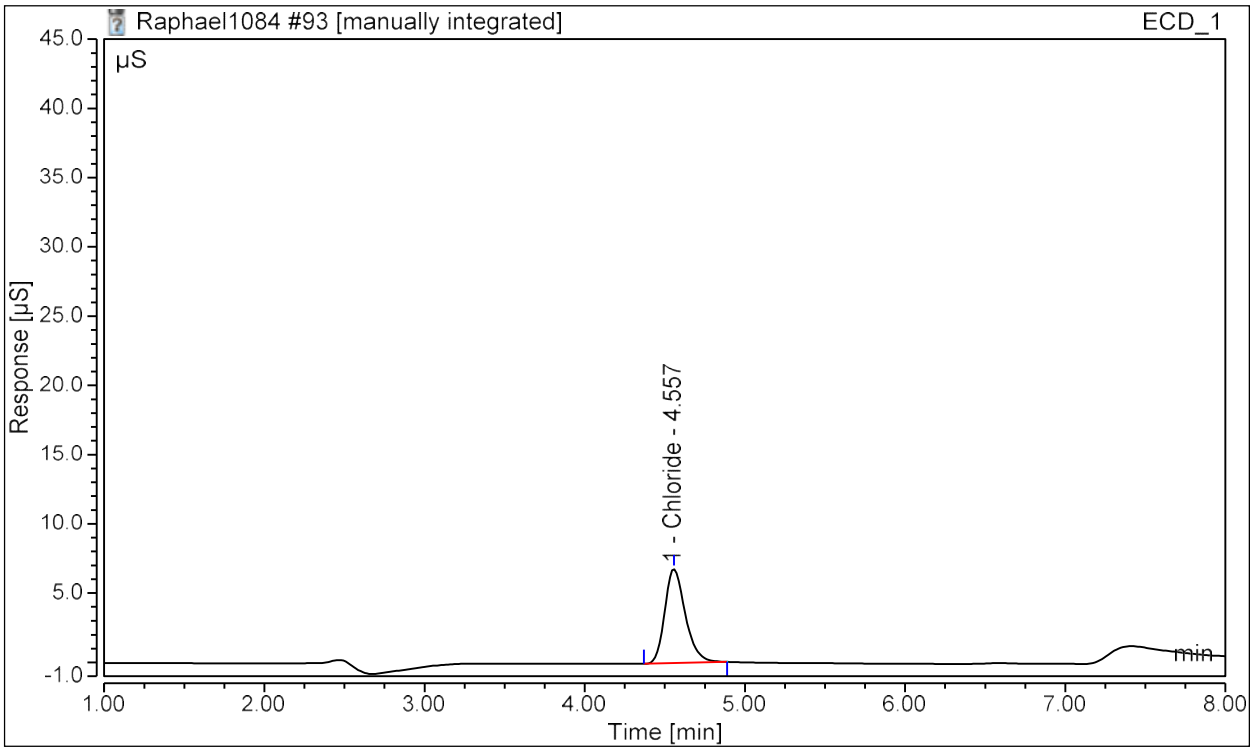


Analyst Comment: use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.56	Chloride	1.004	6.764	6.63001	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**5.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 18:44**	Run Time:	**14.50**

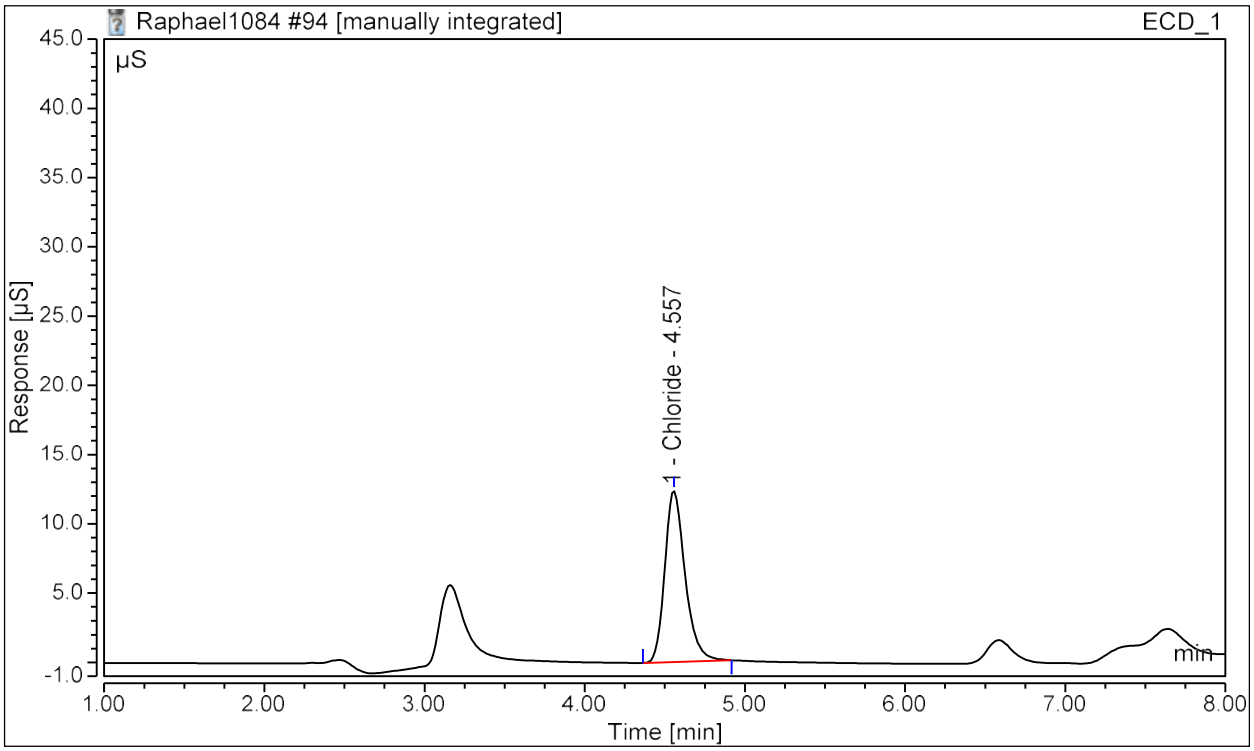


Analyst Comment: use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.56	Chloride	1.012	6.803	6.68380	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.MS-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 19:00**	Run Time:	**14.50**

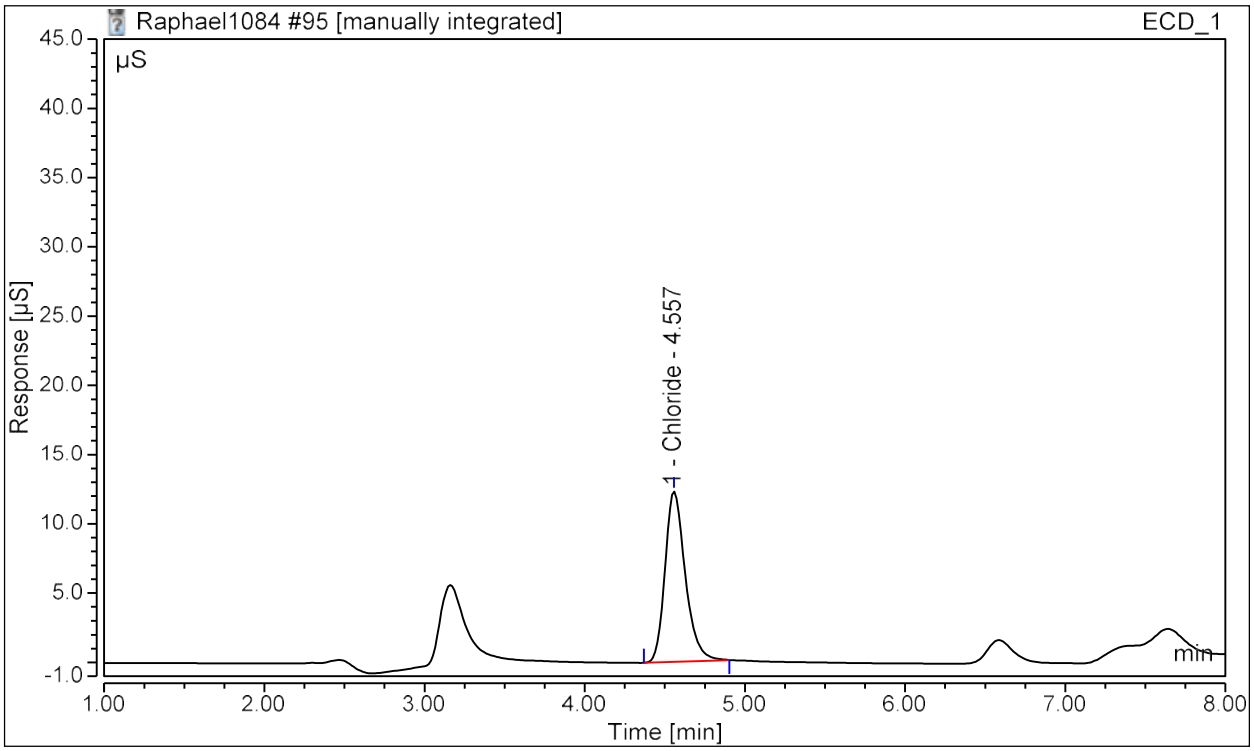


Analyst Comment: @ *5 use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.56	Chloride	1.815	12.369	11.65040	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.MS-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 19:16**	Run Time:	**14.50**

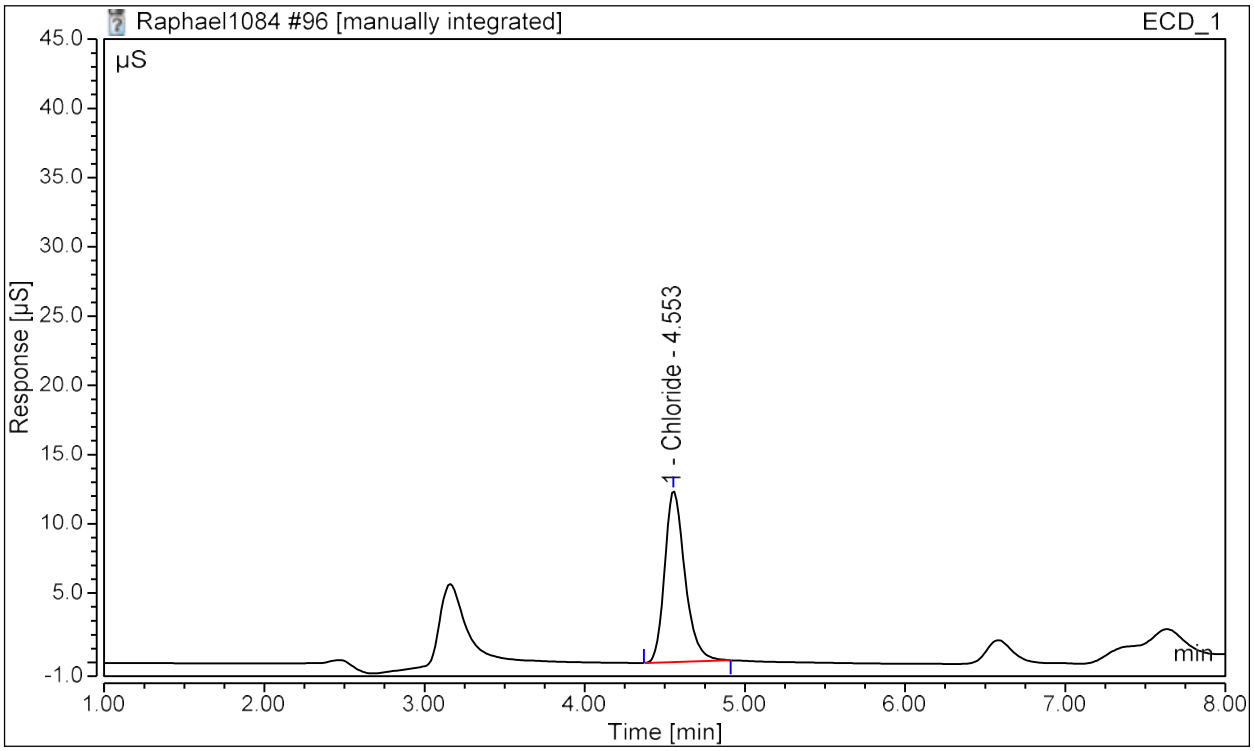


Analyst Comment: @ *5 use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.56	Chloride	1.801	12.312	11.56649	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.MSD-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 19:32**	Run Time:	**14.50**

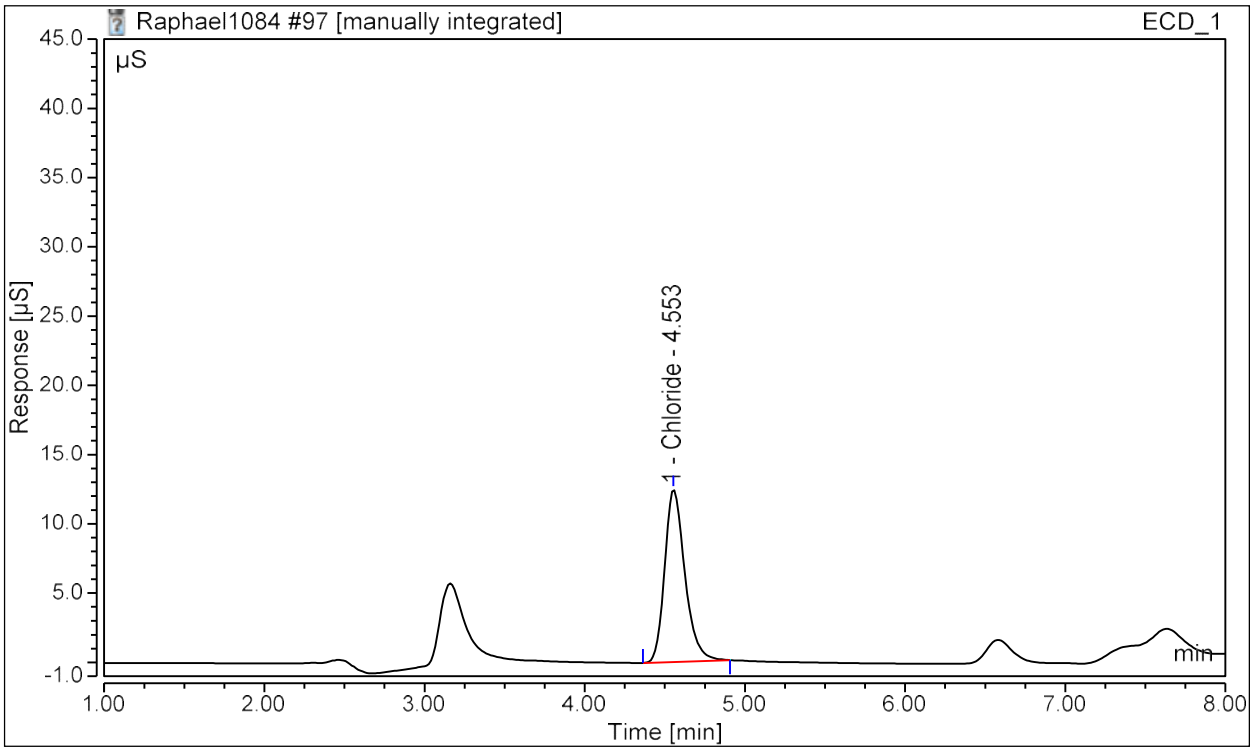


Analyst Comment: @ *5 use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.55	Chloride	1.812	12.362	11.62933	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.MSD-R1-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 19:48**	Run Time:	**14.50**

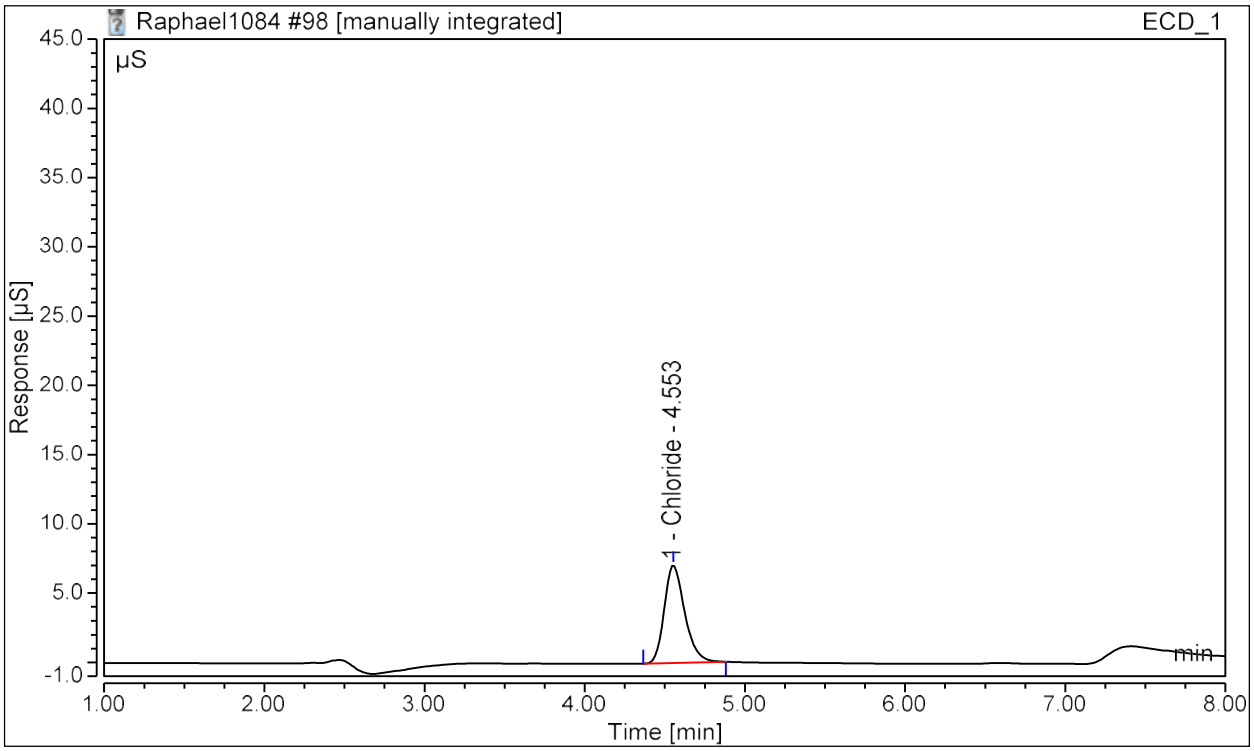


Analyst Comment: @ *5 use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.55	Chloride	1.822	12.436	11.68935	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R2-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**5.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 20:04**	Run Time:	**14.50**

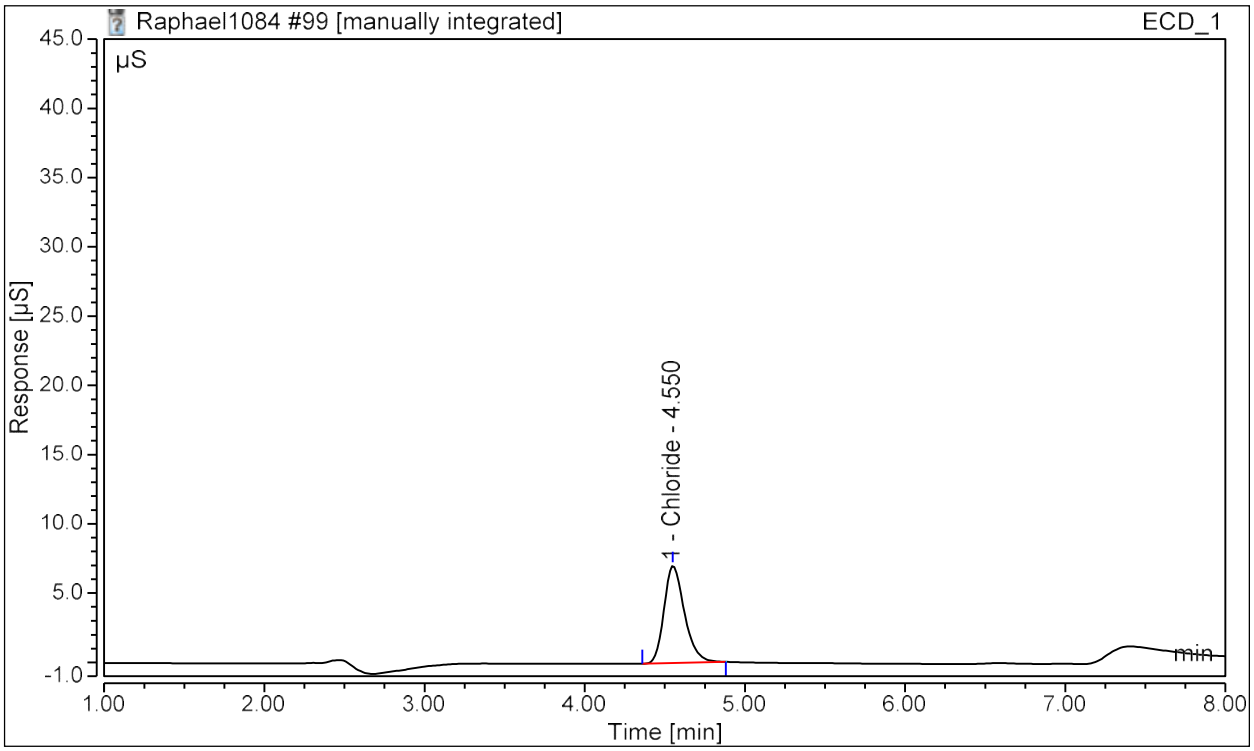


Analyst Comment: use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.55	Chloride	1.047	7.045	6.90509	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R2-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**5.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 20:21**	Run Time:	**14.50**

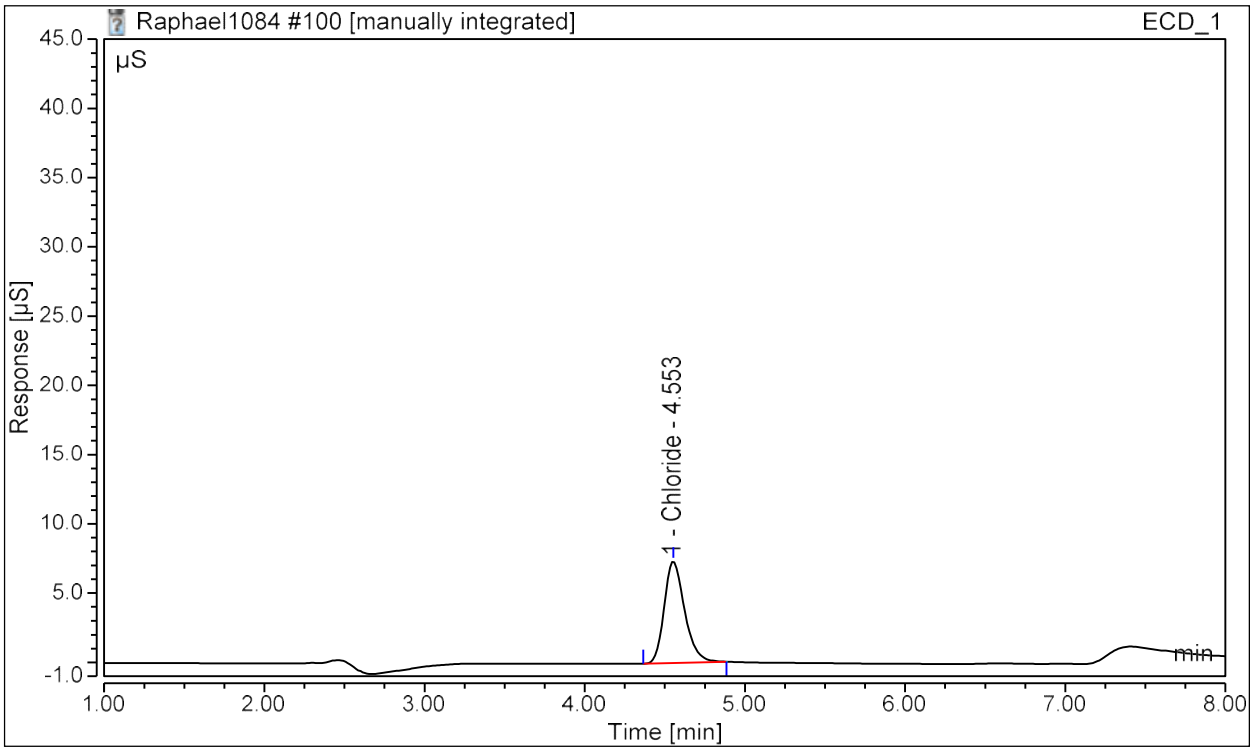


Analyst Comment: use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.55	Chloride	1.042	7.019	6.86886	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R3-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**5.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 20:37**	Run Time:	**14.50**

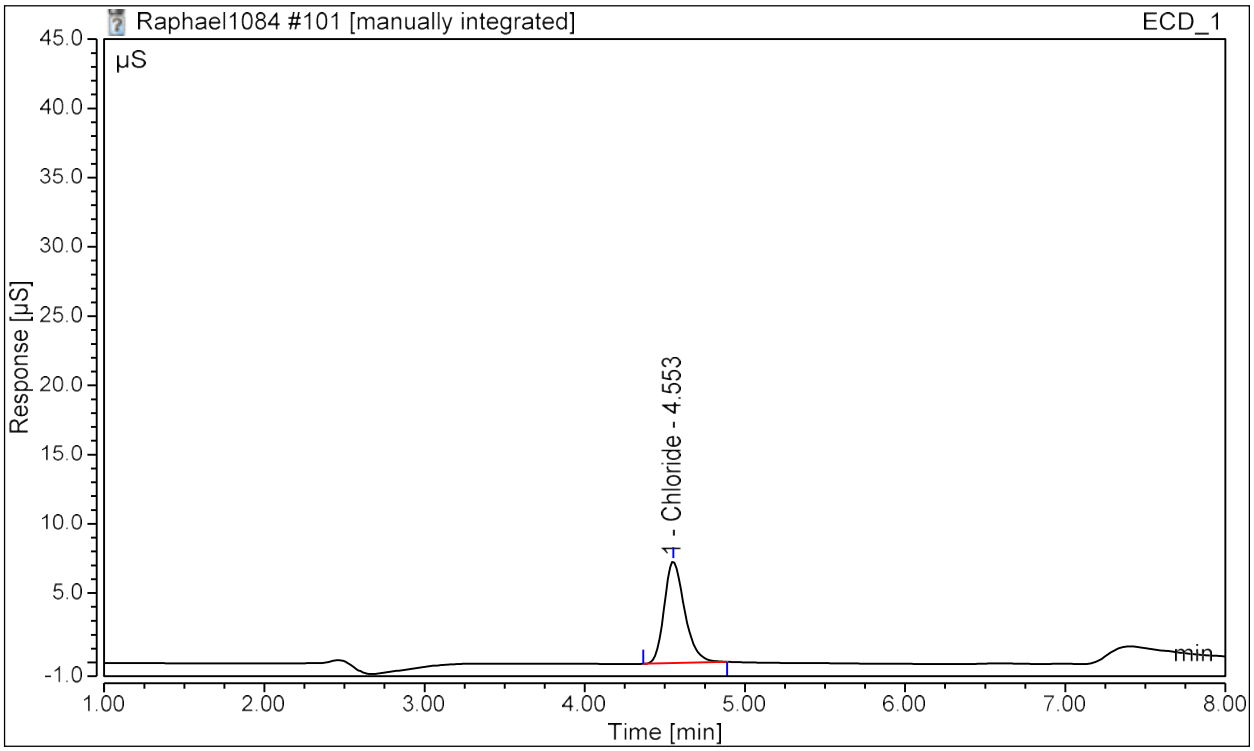


Analyst Comment: use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.55	Chloride	1.087	7.338	7.15992	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R3-Chronic.H2SO4**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**5.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 20:53**	Run Time:	**14.50**



Analyst Comment: use for Cl

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.55	Chloride	1.088	7.338	7.16377	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

W006AS-010935D-RT-2059R1

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Calibration Table

No.	Injection Name	Inject Time	Pos.	Level	Ref.Amount µg/mL ECD_1 Chloride	Cal Point Status ECD_1 Chloride	Ref.Amount µg/mL ECD_1 Fluoride	Cal Point Status ECD_1 Fluoride	Ref.Amount µg/mL ECD_1 Bromide	Cal Point Status ECD_1 Bromide	Dil.Factor	Volume
4	HPLCStds1291 #6	17/Mar/2022 18:44	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
5	HPLCStds1291 #6	17/Mar/2022 19:00	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
6	HPLCStds1291 #5	17/Mar/2022 19:16	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
7	HPLCStds1291 #5	17/Mar/2022 19:32	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
8	HPLCStds1291 #4	17/Mar/2022 19:48	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
9	HPLCStds1291 #4	17/Mar/2022 20:05	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
10	HPLCStds1291 #3	17/Mar/2022 20:21	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
11	HPLCStds1291 #3	17/Mar/2022 20:37	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
12	HPLCStds1291 #2	17/Mar/2022 20:53	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
13	HPLCStds1291 #2	17/Mar/2022 21:09	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
14	HPLCStds1291 #1	17/Mar/2022 21:25	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00
15	HPLCStds1291 #1	17/Mar/2022 21:42	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00
102	HPLCStds1291 #6	18/Mar/2022 21:09	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
103	HPLCStds1291 #6	18/Mar/2022 21:25	GA6	06	30.0000	Ok	30.0000	Ok	30.0000	Ok	1.0000	25.00
104	HPLCStds1291 #5	18/Mar/2022 21:42	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
105	HPLCStds1291 #5	18/Mar/2022 21:58	GA5	05	15.0000	Ok	15.0000	Ok	15.0000	Ok	1.0000	25.00
106	HPLCStds1291 #4	18/Mar/2022 22:14	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
107	HPLCStds1291 #4	18/Mar/2022 22:30	GA4	04	10.0000	Ok	10.0000	Ok	10.0000	Ok	1.0000	25.00
108	HPLCStds1291 #3	18/Mar/2022 22:46	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
109	HPLCStds1291 #3	18/Mar/2022 23:02	GA3	03	5.0000	Ok	5.0000	Ok	5.0000	Ok	1.0000	25.00
110	HPLCStds1291 #2	18/Mar/2022 23:19	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
111	HPLCStds1291 #2	18/Mar/2022 23:35	GA2	02	1.0000	Ok	1.0000	Ok	1.0000	Ok	1.0000	25.00
112	HPLCStds1291 #1	18/Mar/2022 23:51	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00
113	HPLCStds1291 #1	19/Mar/2022 00:07	GA1	01	0.5000	Ok	0.5000	Ok	0.5000	Ok	1.0000	25.00

Detection Parameters

Ret. Time min	Param. Name	Param. Value	Inj. Type	Channel
Always	Baseline Noise Auto Range	Off	Any	All Channels
Always	Baseline Noise Start Time	0.778 [min]	Any	All Channels
Always	Baseline Noise End Time	1.508 [min]	Any	All Channels
Always	Cobra Smoothing Width	Auto	Any	All Channels
Always	Consider Void Peak	Off	Any	All Channels
0.000	Maximum Rider Ratio	10 [%]	Any	All Channels
0.000	Tailing Sensitivity Factor	1.000 [%]	Any	All Channels
0.000	Inhibit Integration	On	Any	All Channels
0.000	Minimum Area	Auto	Any	All Channels
2.903	Inhibit Integration	Off	Any	All Channels
4.011	Inhibit Integration	On	Any	All Channels
4.300	Inhibit Integration	Off	Any	All Channels
5.160	Inhibit Integration	On	Any	All Channels
6.173	Inhibit Integration	Off	Any	All Channels
7.045	Inhibit Integration	On	Any	All Channels

Chromeleon (c) Dionex 1996-2009
Version 7.2.8.10783

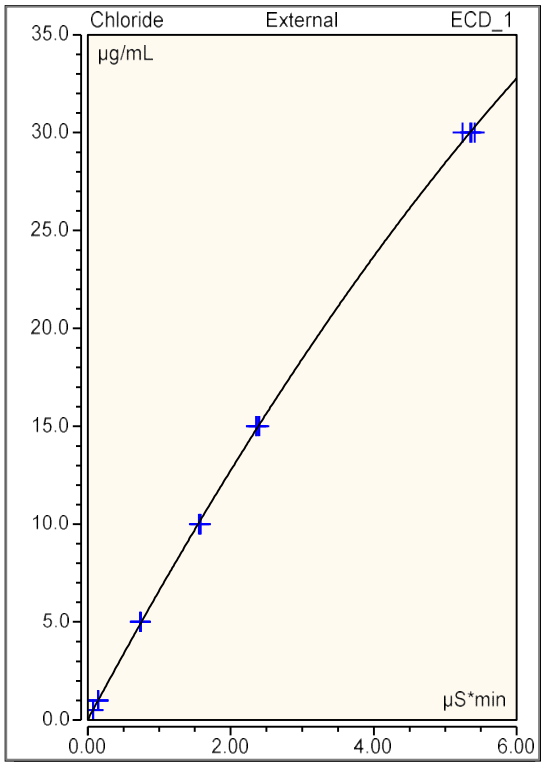
Calibration Batch Report

Sequence:	**Raphael1084**	*Injection Volume:*	**25.00**
Instrument Method:	**AS22 ASAP**	*Operator:*	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 23:35**	*Run Time:*	**14.5**

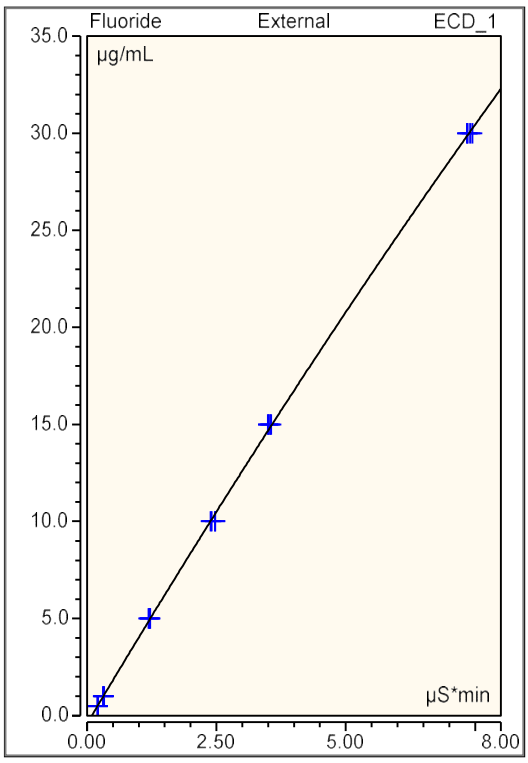
Calibration Summary

Peak Name	Eval.Type	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
Fluoride	Area	Quad, WithOffset, 1/A	24.000	-0.403	4.488	-0.050	99.970
Chloride	Area	Quad, WithOffset, 1/A	24.000	0.003	6.829	-0.228	99.983
Bromide	Area	Quad, WithOffset, 1/A	24.000	0.008	16.571	-0.717	99.970
		AVERAGE:		-0.1307	9.2959	-0.3315	99.9745

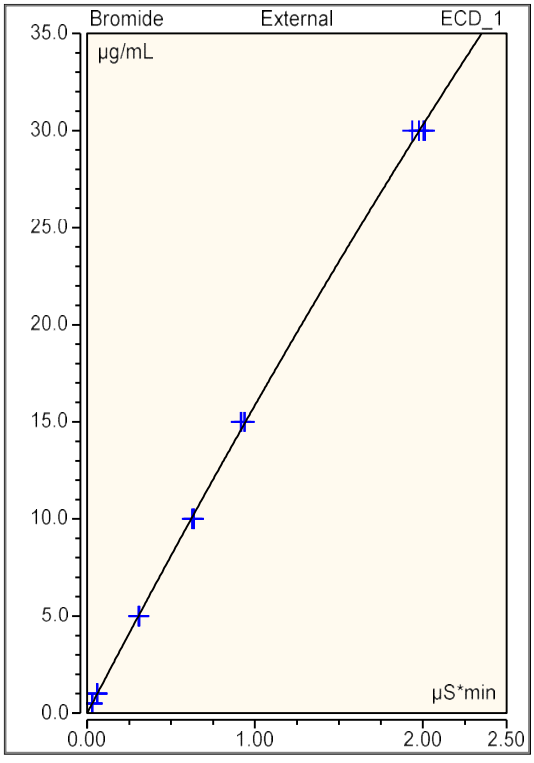
Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Chloride	Chloride	Chloride	Chloride
HPLCStds1291 #6	4.567	5.243	36.496	29.553
HPLCStds1291 #6	4.563	5.348	37.160	30.019
HPLCStds1291 #5	4.553	2.358	16.163	14.843
HPLCStds1291 #5	4.557	2.355	16.129	14.824
HPLCStds1291 #4	4.553	1.553	10.603	10.061
HPLCStds1291 #4	4.553	1.568	10.656	10.149
HPLCStds1291 #3	4.553	0.732	4.915	4.879
HPLCStds1291 #3	4.550	0.733	4.919	4.884
HPLCStds1291 #2	4.550	0.145	0.940	0.987
HPLCStds1291 #2	4.550	0.145	0.943	0.986
HPLCStds1291 #1	4.553	0.074	0.473	0.506
HPLCStds1291 #1	4.553	0.073	0.471	0.503
HPLCStds1291 #6	4.563	5.367	37.155	30.099
HPLCStds1291 #6	4.563	5.410	37.440	30.290
HPLCStds1291 #5	4.557	2.397	16.286	15.062
HPLCStds1291 #5	4.557	2.381	16.203	14.971
HPLCStds1291 #4	4.557	1.580	10.640	10.223
HPLCStds1291 #4	4.557	1.579	10.623	10.219
HPLCStds1291 #3	4.550	0.742	4.911	4.943
HPLCStds1291 #3	4.553	0.744	4.923	4.956
HPLCStds1291 #2	4.550	0.146	0.942	0.996
HPLCStds1291 #2	4.553	0.146	0.940	0.993
HPLCStds1291 #1	4.550	0.074	0.469	0.507
HPLCStds1291 #1	4.553	0.075	0.476	0.515



Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Fluoride	Fluoride	Fluoride	Fluoride
HPLCStds1291 #6	3.180	7.345	32.378	29.861
HPLCStds1291 #6	3.180	7.445	33.462	30.238
HPLCStds1291 #5	3.170	3.494	14.509	14.667
HPLCStds1291 #5	3.170	3.504	14.763	14.707
HPLCStds1291 #4	3.167	2.389	9.706	10.035
HPLCStds1291 #4	3.167	2.405	9.877	10.100
HPLCStds1291 #3	3.167	1.184	4.412	4.838
HPLCStds1291 #3	3.167	1.202	4.494	4.919
HPLCStds1291 #2	3.187	0.311	0.876	0.987
HPLCStds1291 #2	3.187	0.321	0.897	1.033
HPLCStds1291 #1	3.203	0.200	0.504	0.495
HPLCStds1291 #1	3.200	0.199	0.505	0.489
HPLCStds1291 #6	3.177	7.355	41.354	29.900
HPLCStds1291 #6	3.177	7.408	41.650	30.100
HPLCStds1291 #5	3.163	3.559	19.069	14.937
HPLCStds1291 #5	3.167	3.539	18.999	14.851
HPLCStds1291 #4	3.163	2.478	12.574	10.410
HPLCStds1291 #4	3.163	2.473	12.557	10.390
HPLCStds1291 #3	3.160	1.222	5.607	5.007
HPLCStds1291 #3	3.160	1.216	5.613	4.980
HPLCStds1291 #2	3.170	0.314	1.060	1.000
HPLCStds1291 #2	3.170	0.306	1.049	0.965
HPLCStds1291 #1	3.180	0.204	0.584	0.511
HPLCStds1291 #1	3.180	0.206	0.587	0.517

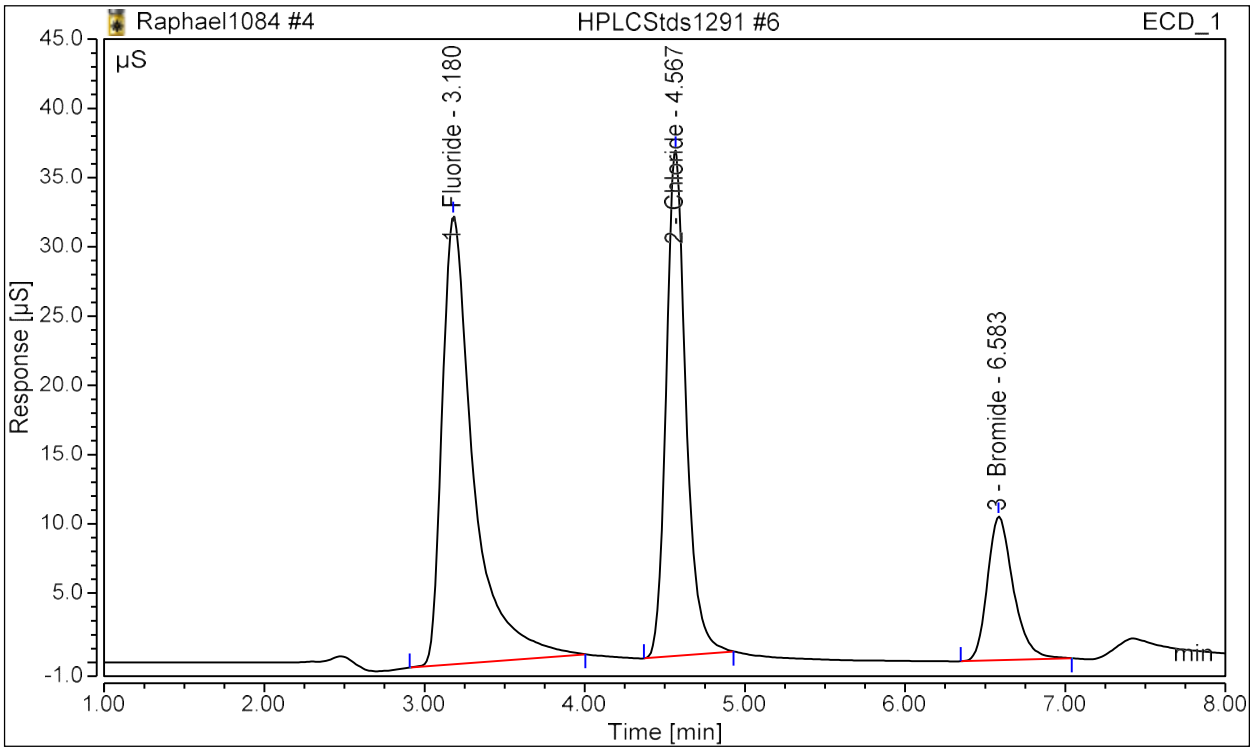


Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Bromide	Bromide	Bromide	Bromide
HPLCStds1291 #6	6.583	1.937	10.376	29.420
HPLCStds1291 #6	6.577	1.976	10.544	29.956
HPLCStds1291 #5	6.580	0.918	4.907	14.620
HPLCStds1291 #5	6.583	0.916	4.897	14.581
HPLCStds1291 #4	6.583	0.624	3.328	10.069
HPLCStds1291 #4	6.583	0.628	3.347	10.124
HPLCStds1291 #3	6.587	0.306	1.617	5.005
HPLCStds1291 #3	6.583	0.305	1.618	5.002
HPLCStds1291 #2	6.590	0.059	0.311	0.981
HPLCStds1291 #2	6.590	0.059	0.313	0.985
HPLCStds1291 #1	6.590	0.030	0.157	0.497
HPLCStds1291 #1	6.593	0.030	0.158	0.506
HPLCStds1291 #6	6.577	2.003	10.650	30.319
HPLCStds1291 #6	6.577	2.013	10.735	30.455
HPLCStds1291 #5	6.583	0.940	4.983	14.951
HPLCStds1291 #5	6.580	0.935	4.969	14.869
HPLCStds1291 #4	6.587	0.635	3.360	10.241
HPLCStds1291 #4	6.587	0.635	3.355	10.247
HPLCStds1291 #3	6.583	0.309	1.625	5.062
HPLCStds1291 #3	6.587	0.309	1.627	5.059
HPLCStds1291 #2	6.587	0.060	0.314	0.993
HPLCStds1291 #2	6.590	0.060	0.313	0.992
HPLCStds1291 #1	6.587	0.030	0.157	0.499
HPLCStds1291 #1	6.590	0.030	0.159	0.505



Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 18:44**	Run Time:	**14.50**

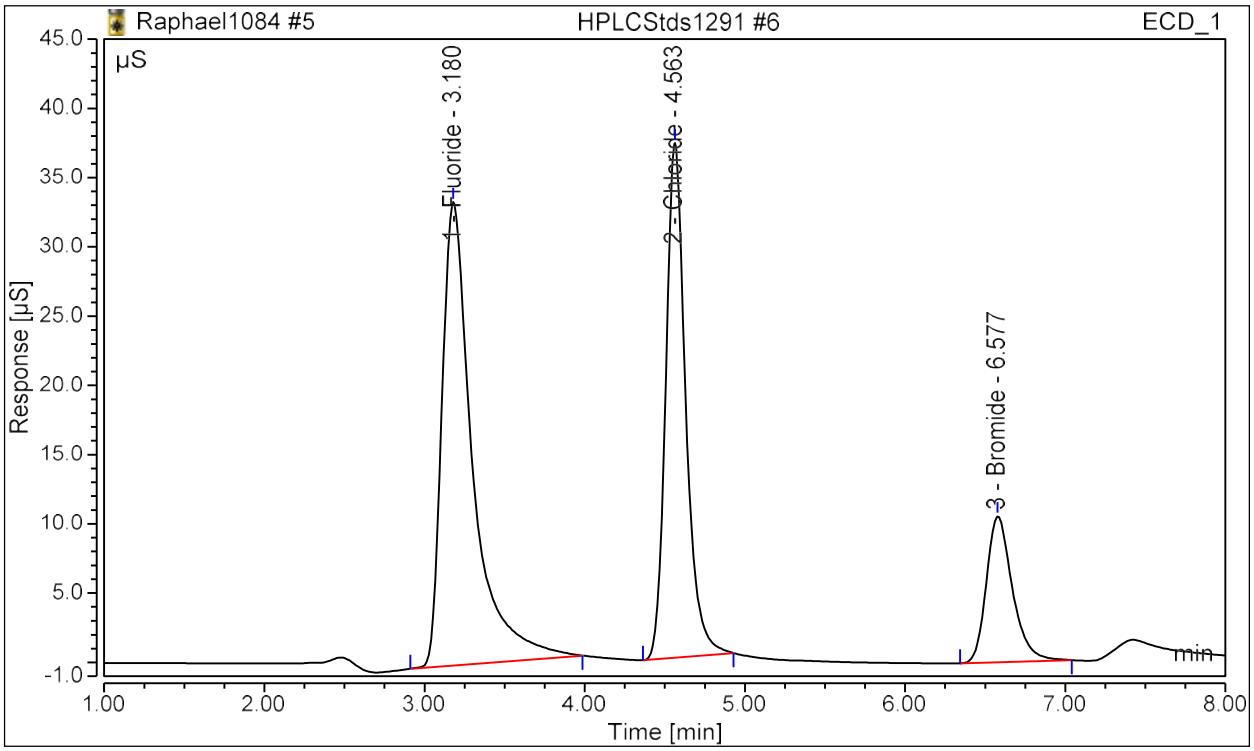


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.345	32.378	29.86077	FALSE	FALSE
2	4.57	Chloride	5.243	36.496	29.55293	FALSE	FALSE
3	6.58	Bromide	1.937	10.376	29.42006	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:00**	Run Time:	**14.50**

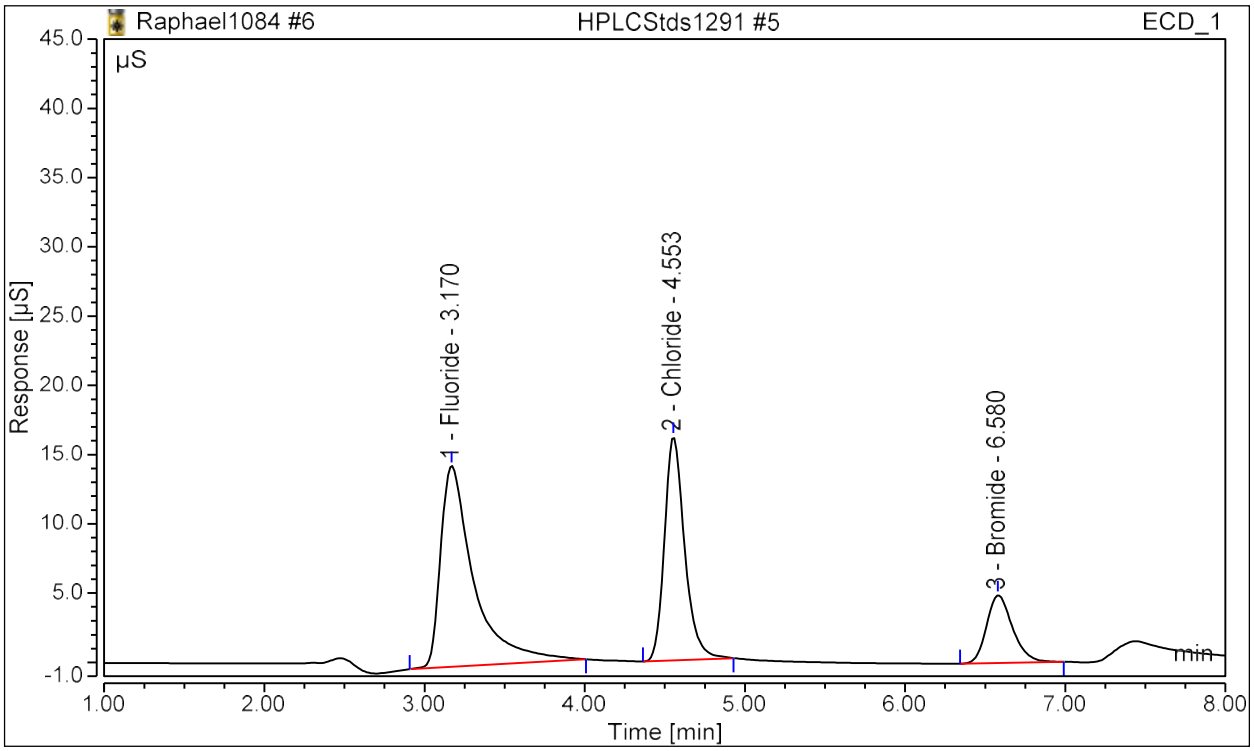


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.445	33.462	30.23818	FALSE	FALSE
2	4.56	Chloride	5.348	37.160	30.01872	FALSE	FALSE
3	6.58	Bromide	1.976	10.544	29.95596	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:16**	Run Time:	**14.50**

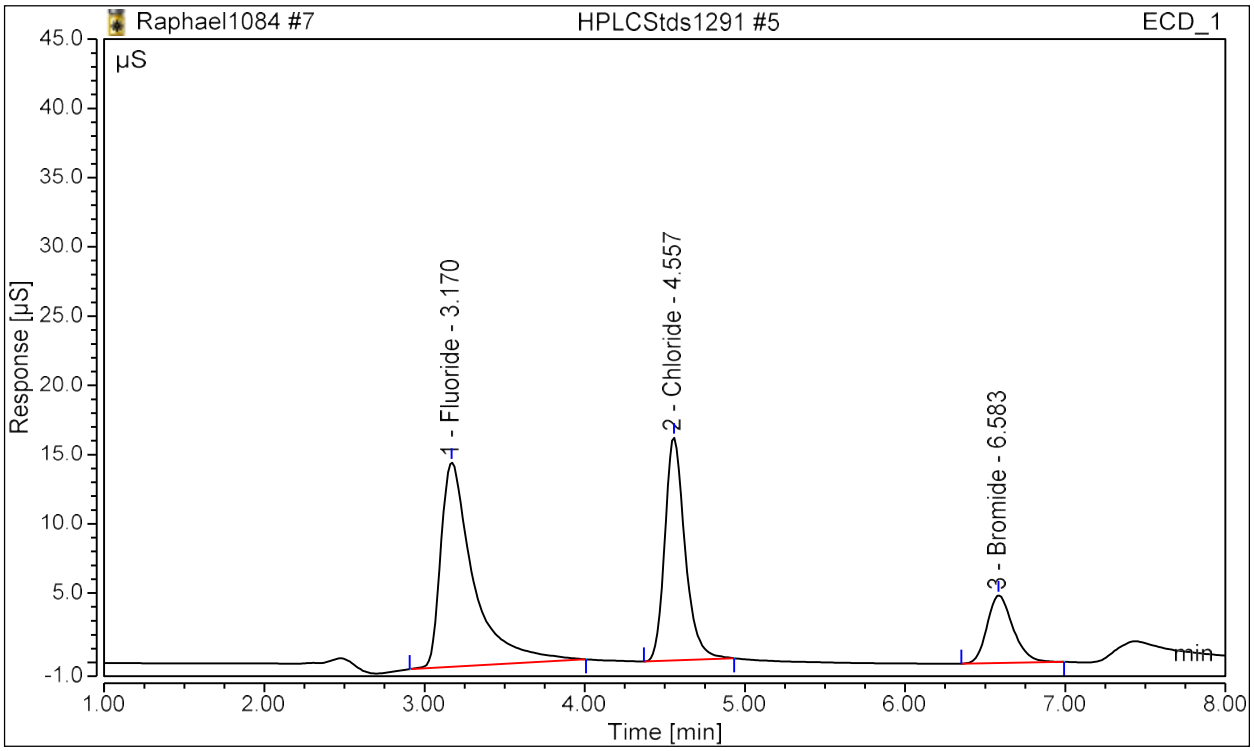


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	3.494	14.509	14.66707	FALSE	FALSE
2	4.55	Chloride	2.358	16.163	14.84332	FALSE	FALSE
3	6.58	Bromide	0.918	4.907	14.62043	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:32**	Run Time:	**14.50**

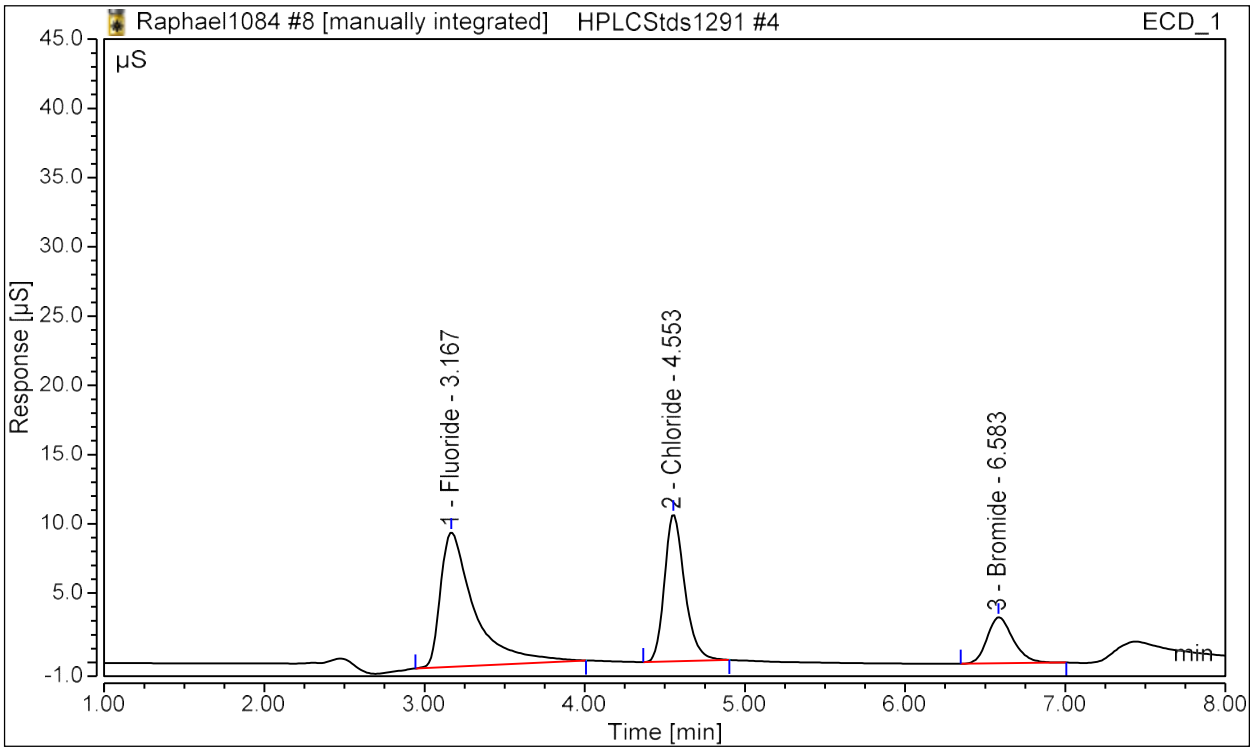


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	3.504	14.763	14.70715	FALSE	FALSE
2	4.56	Chloride	2.355	16.129	14.82390	FALSE	FALSE
3	6.58	Bromide	0.916	4.897	14.58109	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 19:48**	Run Time:	**14.50**

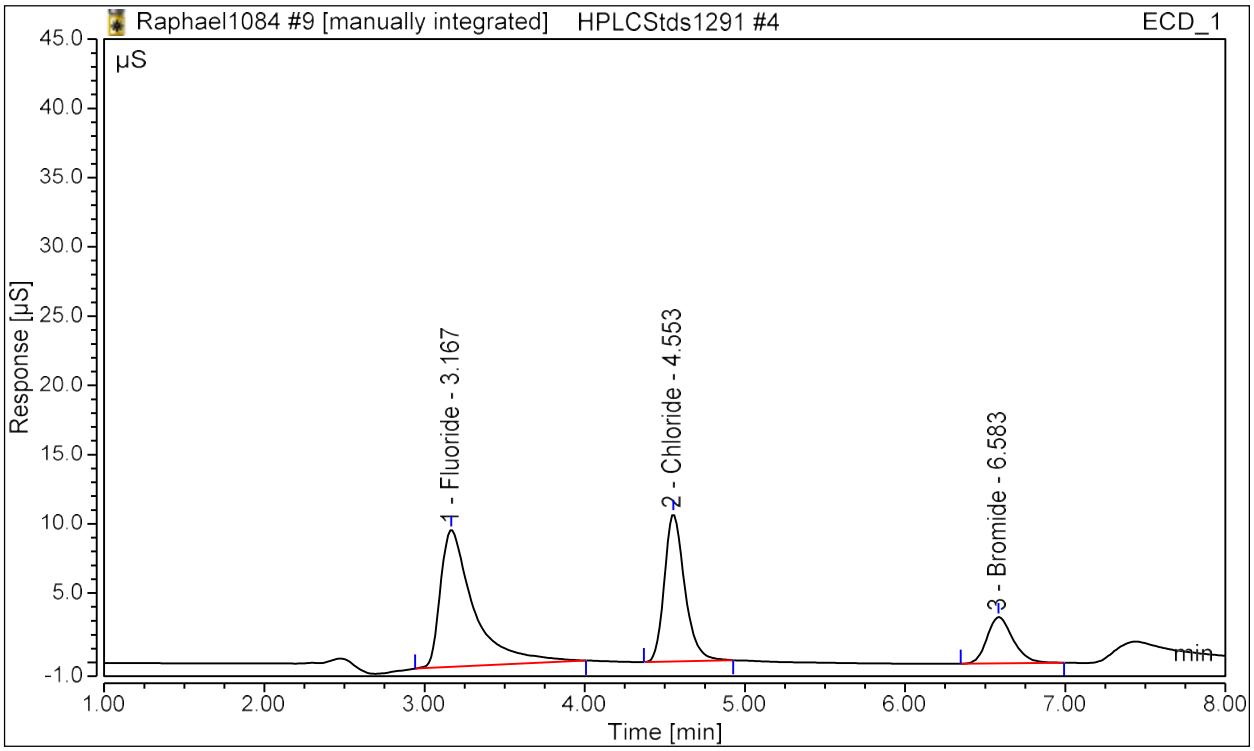


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.389	9.706	10.03458	FALSE	TRUE
2	4.55	Chloride	1.553	10.603	10.06076	FALSE	FALSE
3	6.58	Bromide	0.624	3.328	10.06938	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:05**	Run Time:	**14.50**

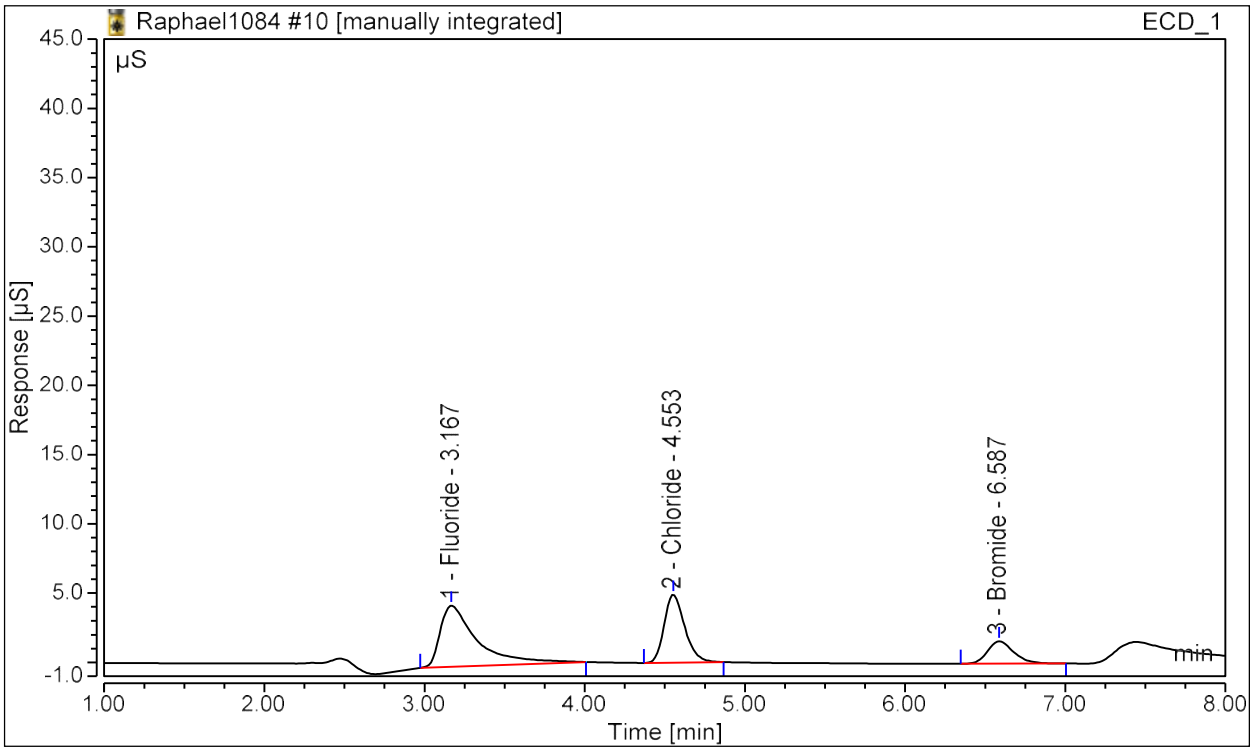


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	2.405	9.877	10.09991	FALSE	TRUE
2	4.55	Chloride	1.568	10.656	10.14864	FALSE	FALSE
3	6.58	Bromide	0.628	3.347	10.12424	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:21**	Run Time:	**14.50**

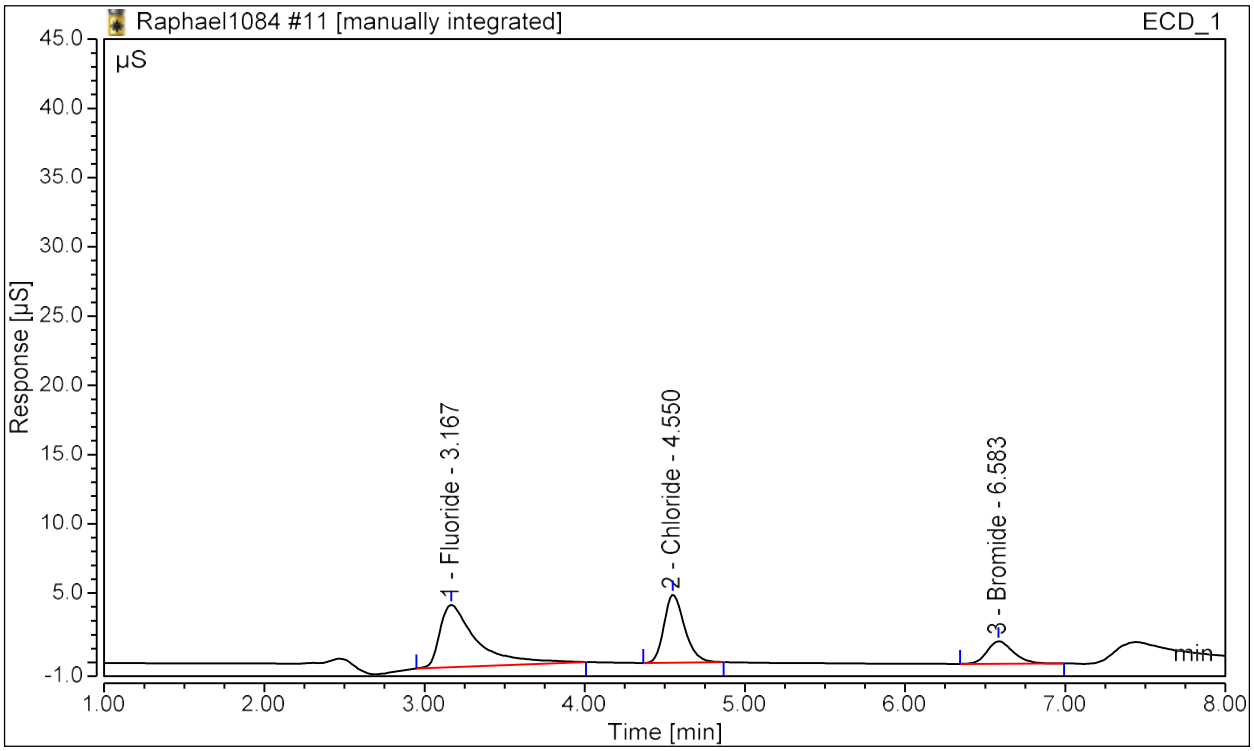


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	1.184	4.412	4.83841	FALSE	TRUE
2	4.55	Chloride	0.732	4.915	4.87893	FALSE	FALSE
3	6.59	Bromide	0.306	1.617	5.00496	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:37**	Run Time:	**14.50**

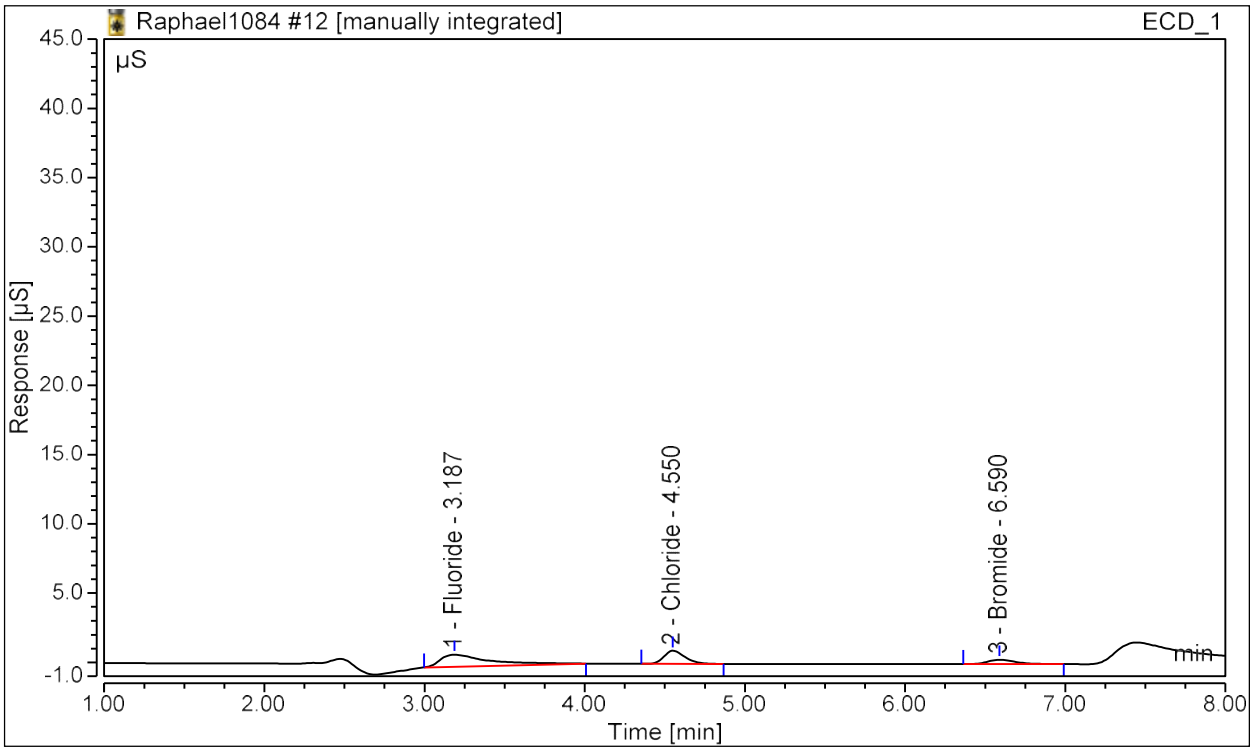


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	1.202	4.494	4.91873	FALSE	TRUE
2	4.55	Chloride	0.733	4.919	4.88426	FALSE	FALSE
3	6.58	Bromide	0.305	1.618	5.00243	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 20:53**	Run Time:	**14.50**

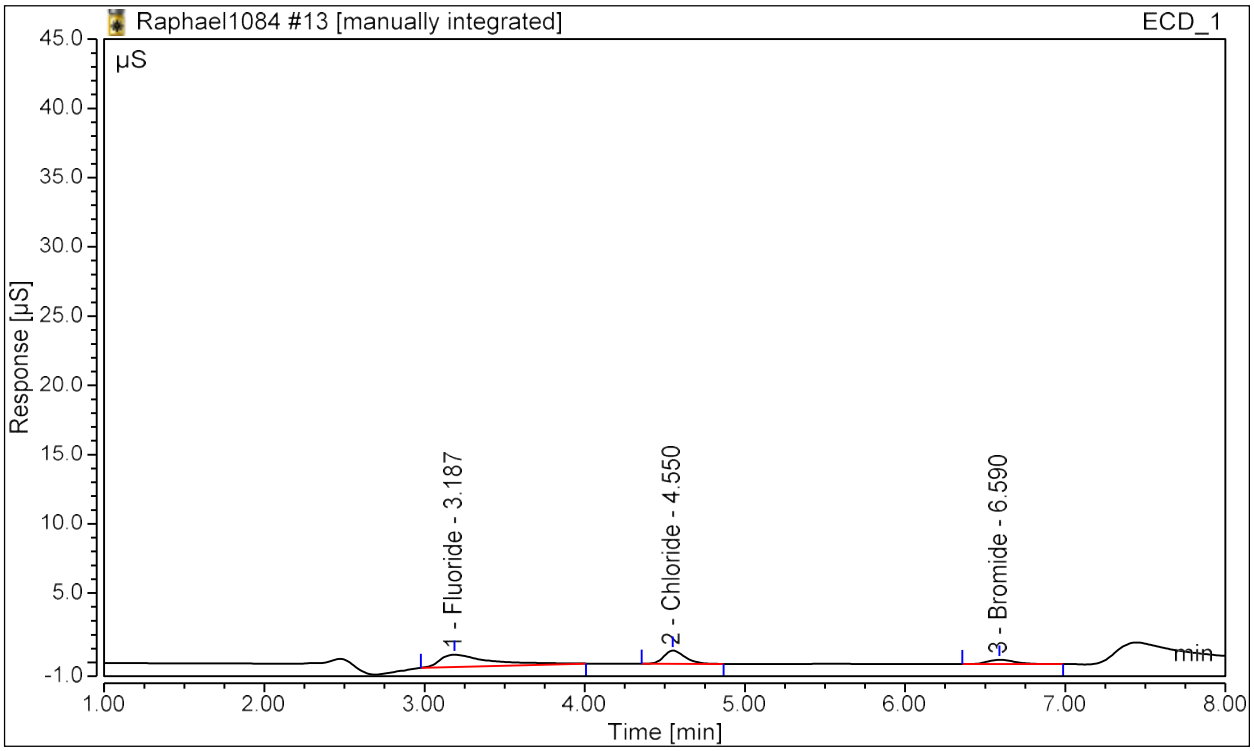


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.19	Fluoride	0.311	0.876	0.98687	FALSE	TRUE
2	4.55	Chloride	0.145	0.940	0.98667	FALSE	FALSE
3	6.59	Bromide	0.059	0.311	0.98094	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:09**	Run Time:	**14.50**

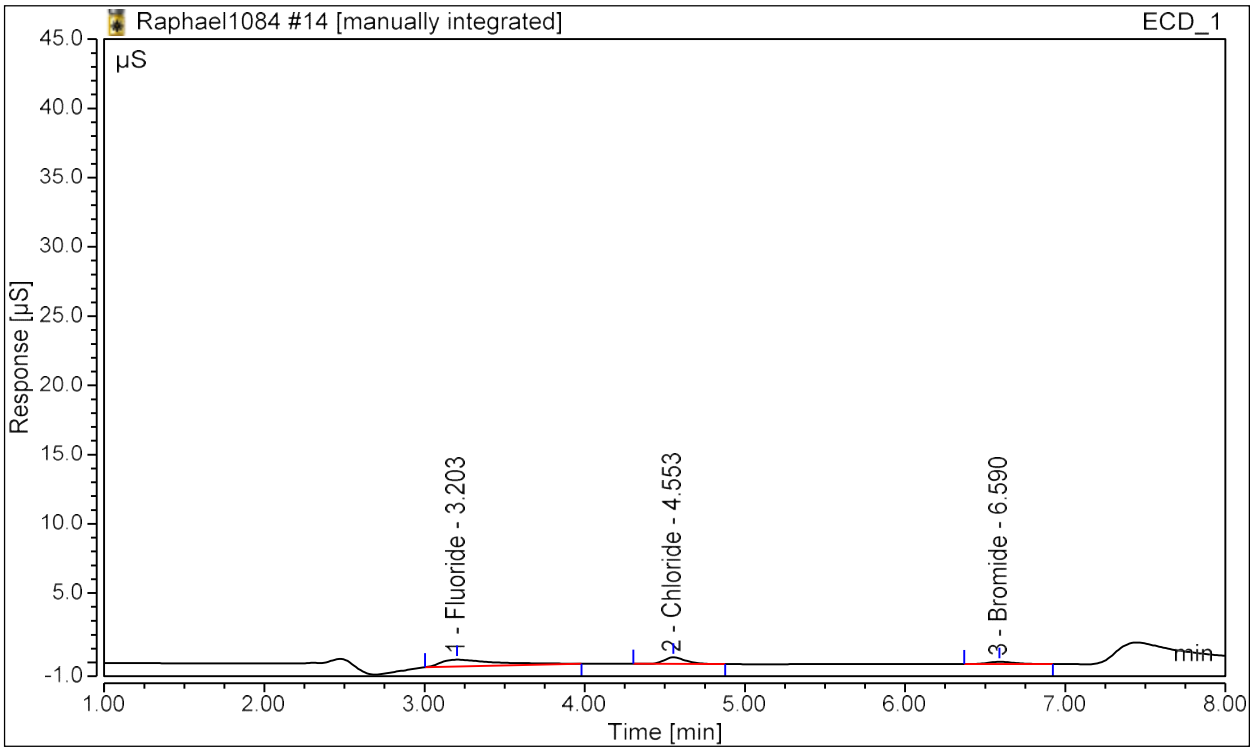


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.19	Fluoride	0.321	0.897	1.03336	FALSE	TRUE
2	4.55	Chloride	0.145	0.943	0.98583	FALSE	FALSE
3	6.59	Bromide	0.059	0.313	0.98488	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:25**	Run Time:	**14.50**

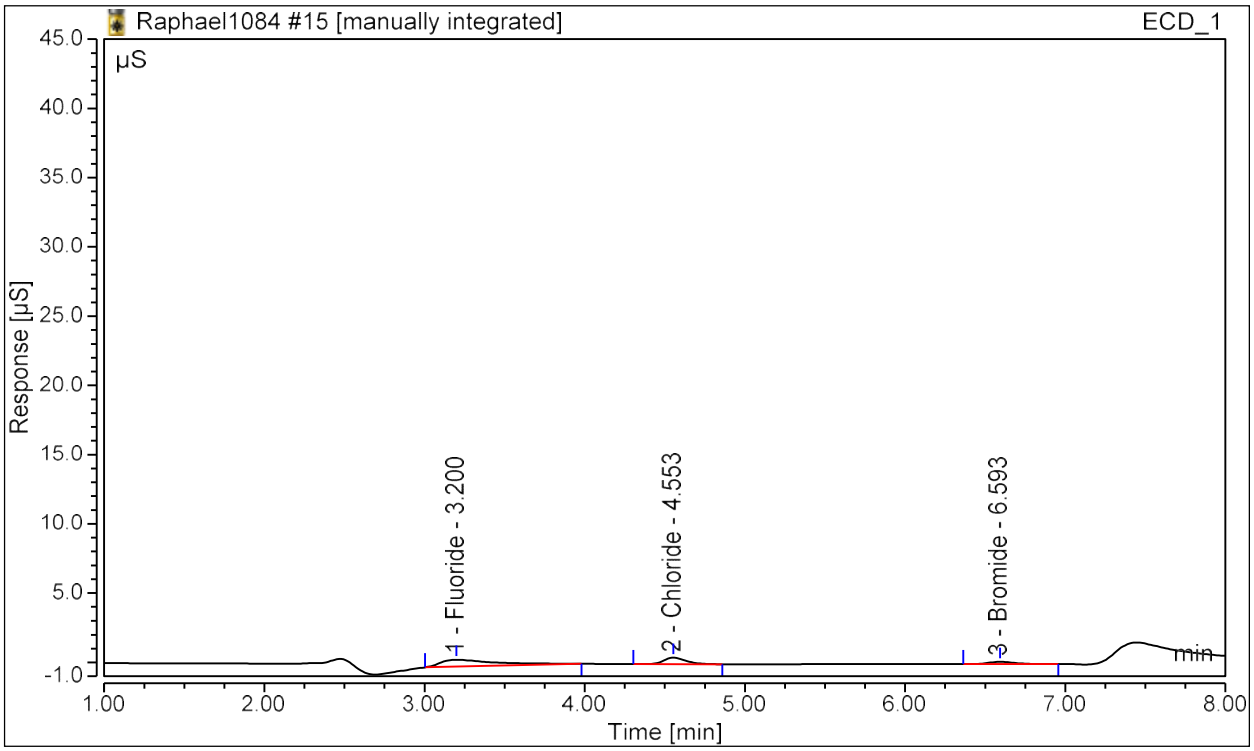


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.20	Fluoride	0.200	0.504	0.49474	FALSE	TRUE
2	4.55	Chloride	0.074	0.473	0.50648	FALSE	FALSE
3	6.59	Bromide	0.030	0.157	0.49696	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:42**	Run Time:	**14.50**

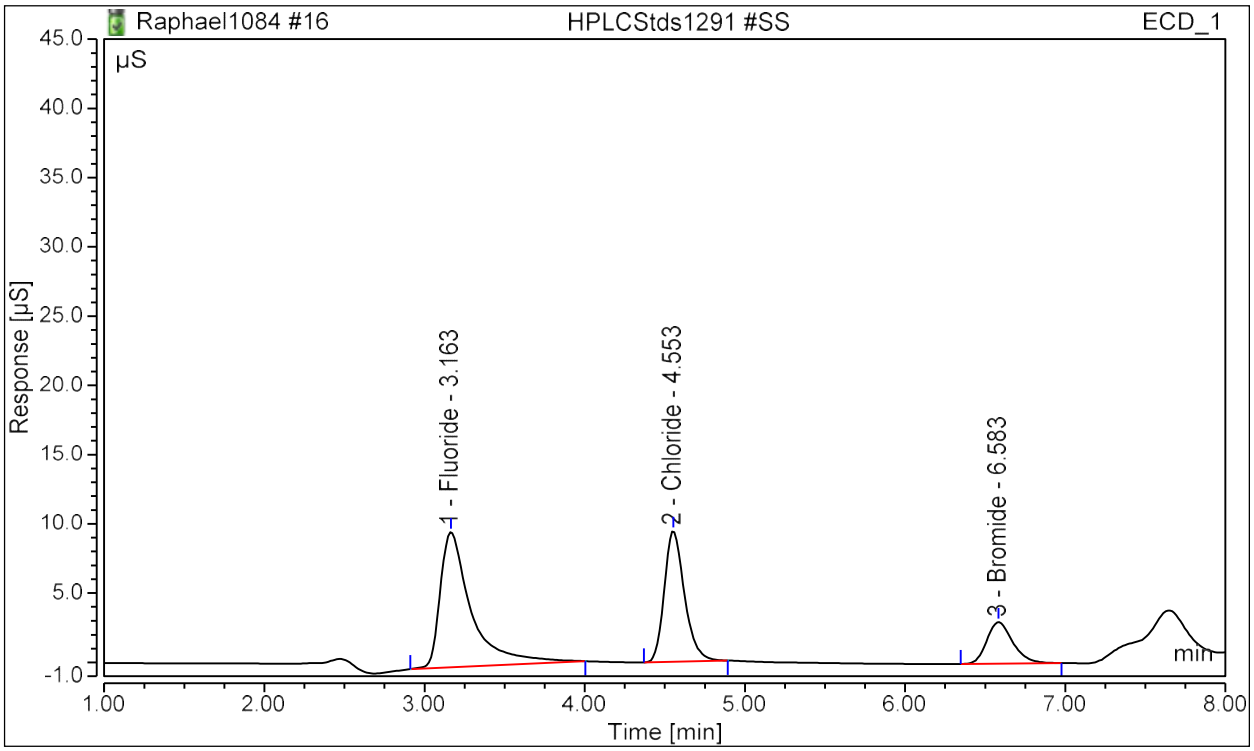


Analyst Comment: II DLM 3/18/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.20	Fluoride	0.199	0.505	0.48934	FALSE	TRUE
2	4.55	Chloride	0.073	0.471	0.50330	FALSE	FALSE
3	6.59	Bromide	0.030	0.158	0.50582	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 21:58**	Run Time:	**14.50**

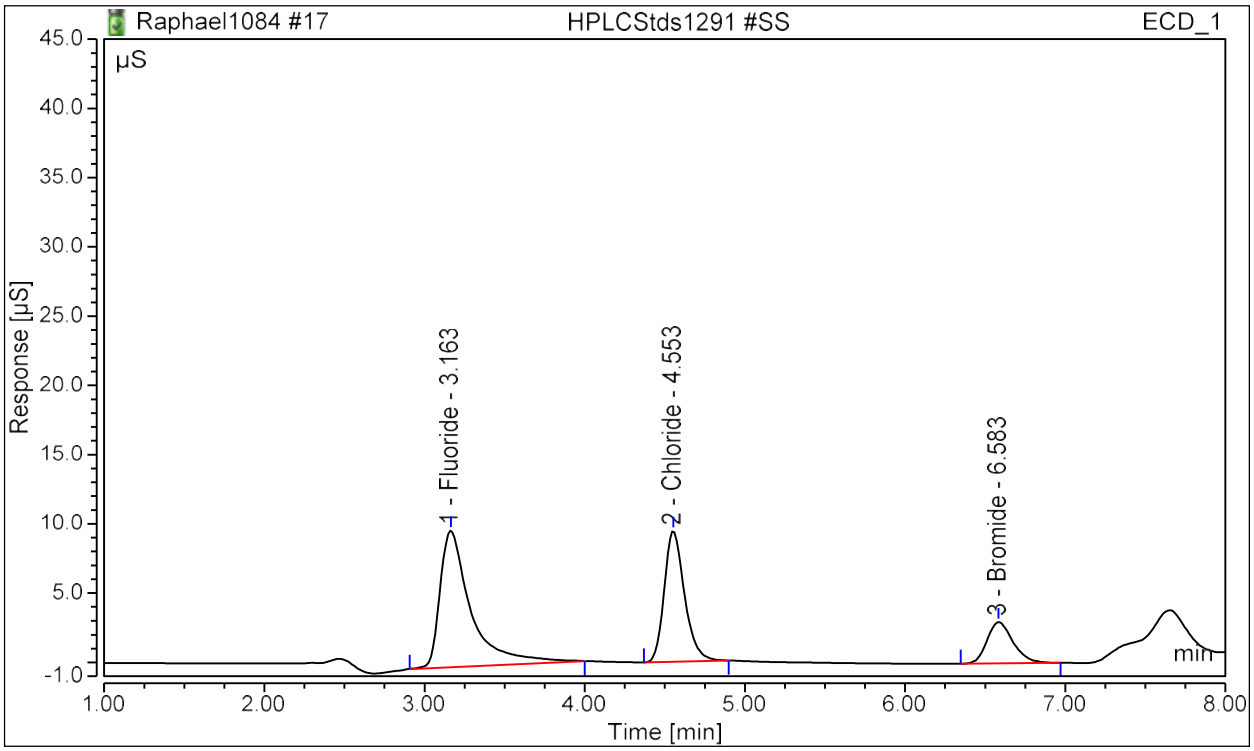


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.201	9.754	9.23078	FALSE	FALSE
2	4.55	Chloride	1.386	9.459	9.03325	FALSE	FALSE
3	6.58	Bromide	0.560	2.993	9.06837	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 22:14**	Run Time:	**14.50**

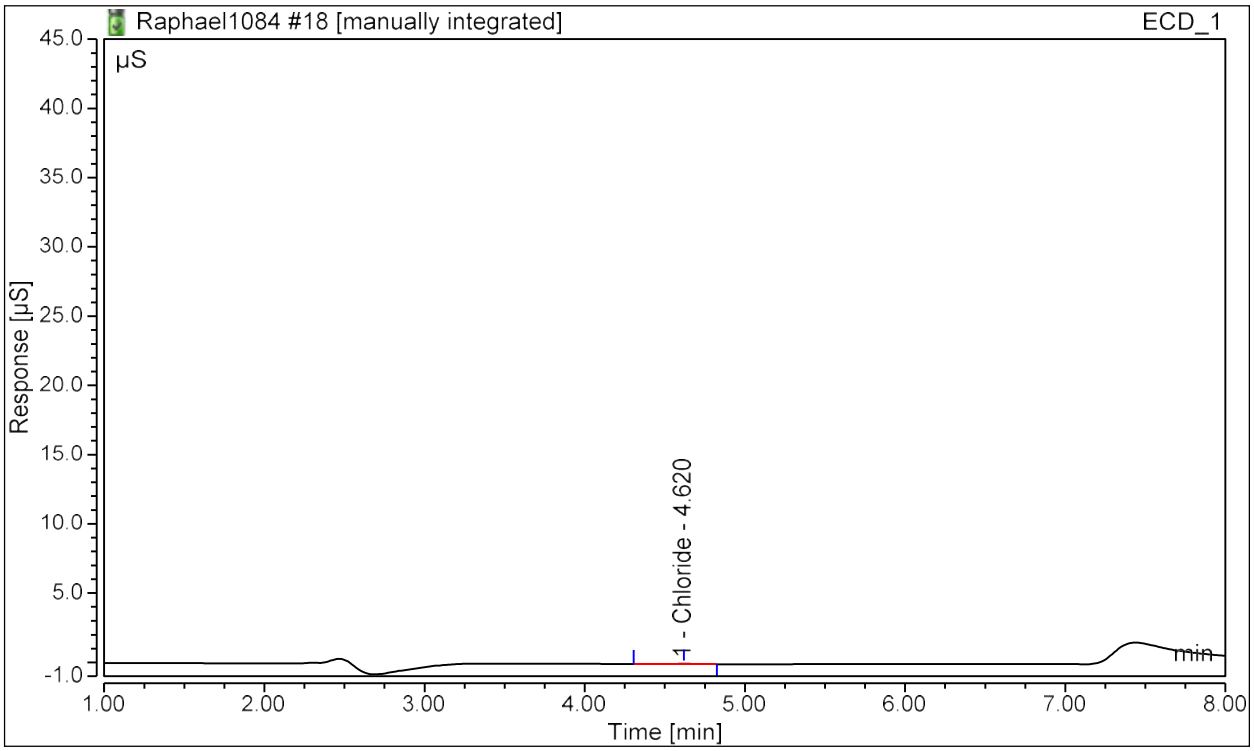


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.210	9.858	9.26880	FALSE	FALSE
2	4.55	Chloride	1.388	9.446	9.04483	FALSE	FALSE
3	6.58	Bromide	0.560	2.987	9.06416	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 22:30**	Run Time:	**14.50**

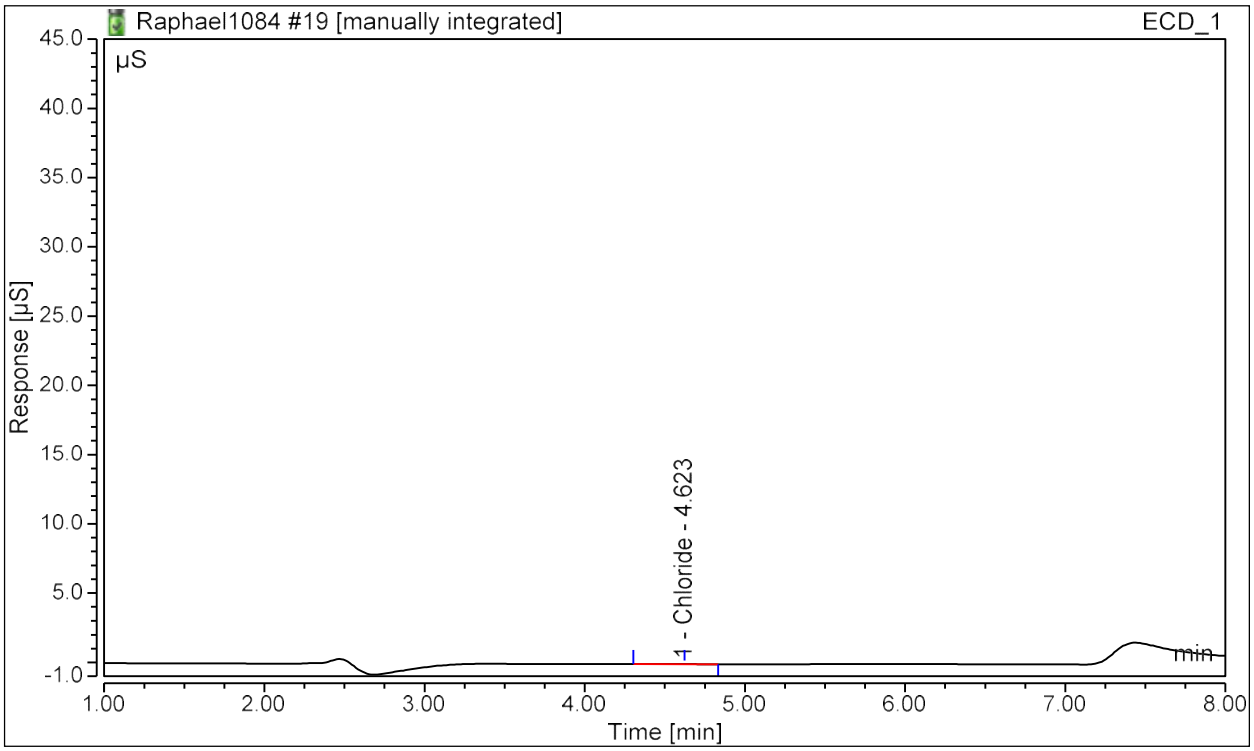


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.62	Chloride	0.003	0.017	0.02367	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1291 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**17-Mar-2022 / 22:46**	Run Time:	**14.50**

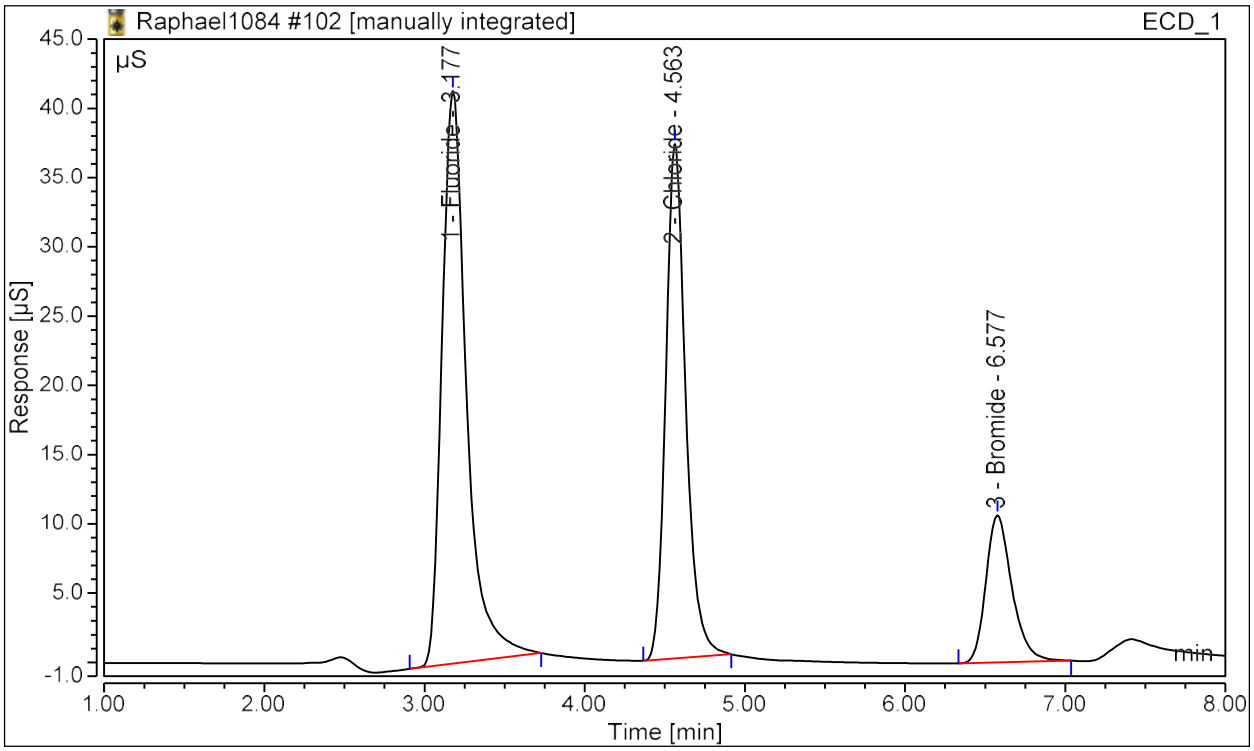


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	n.a.
1	4.62	Chloride	0.003	0.018	0.02490	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:09**	Run Time:	**14.50**

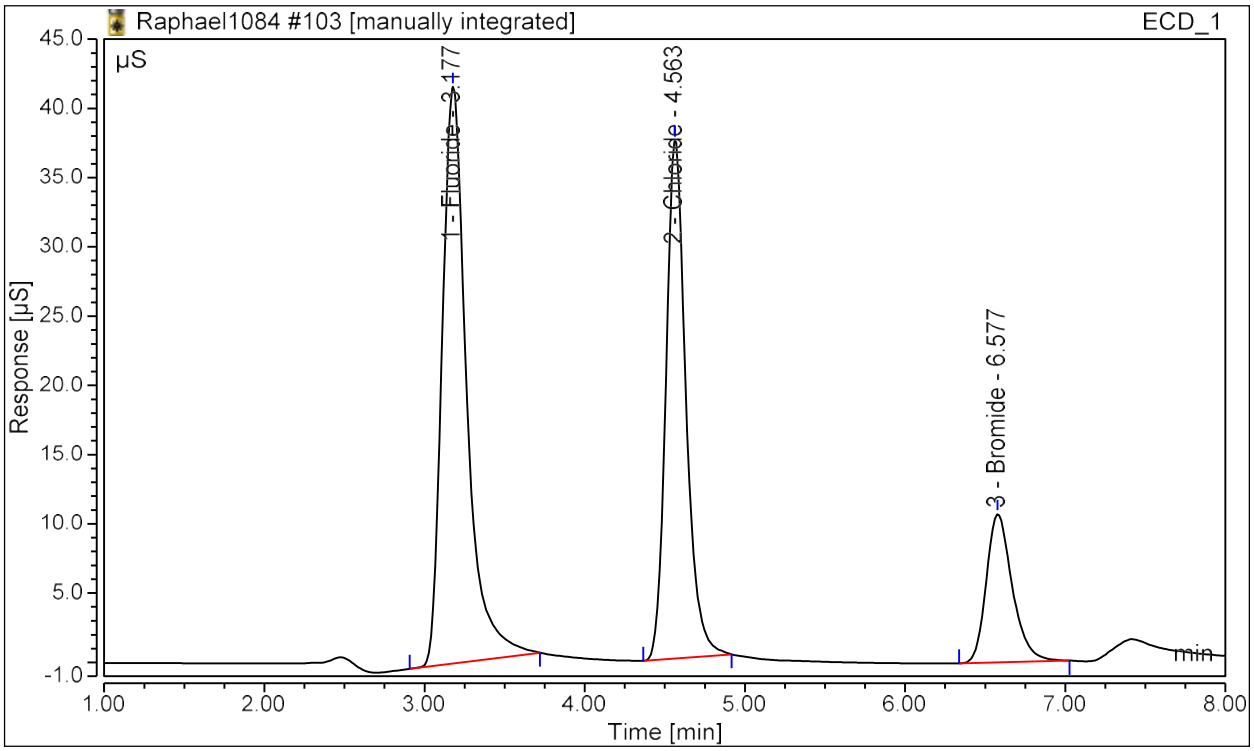


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.355	41.354	29.90000	FALSE	FALSE
2	4.56	Chloride	5.367	37.155	30.09892	FALSE	FALSE
3	6.58	Bromide	2.003	10.650	30.31886	FALSE	TRUE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:25**	Run Time:	**14.50**

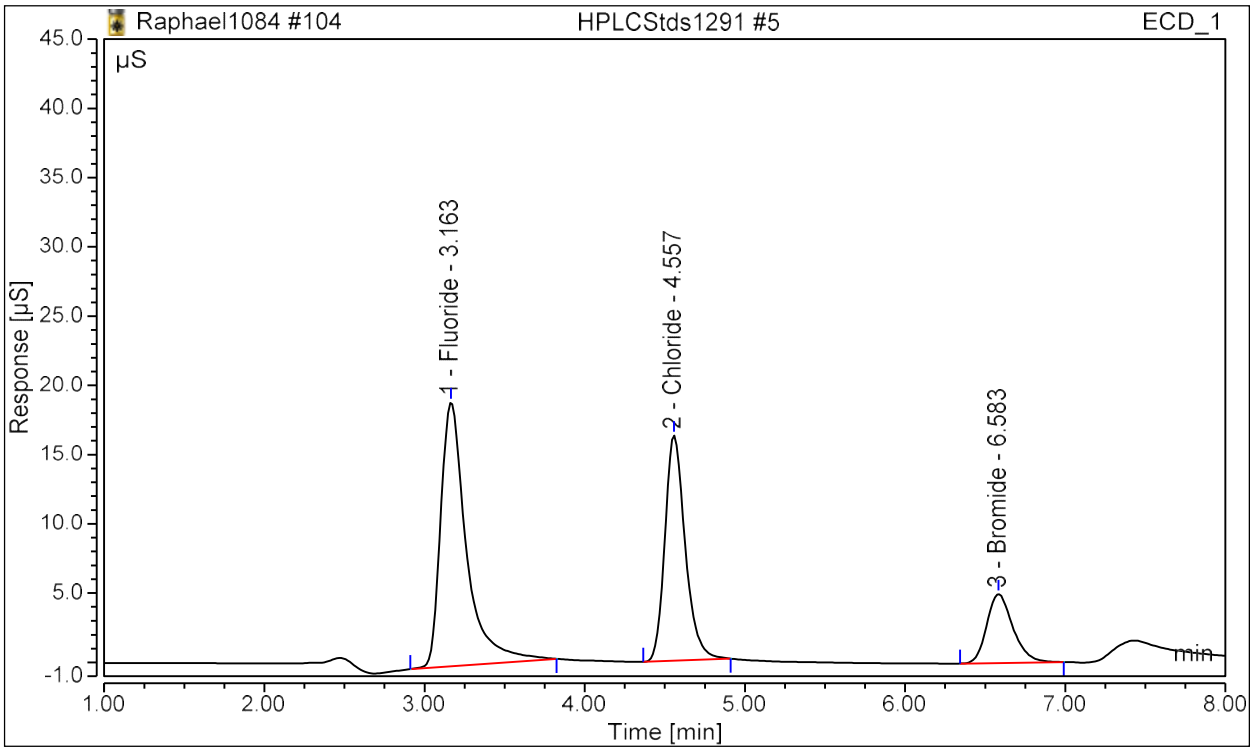


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	7.408	41.650	30.10007	FALSE	FALSE
2	4.56	Chloride	5.410	37.440	30.29005	FALSE	FALSE
3	6.58	Bromide	2.013	10.735	30.45477	FALSE	TRUE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:42**	Run Time:	**14.50**

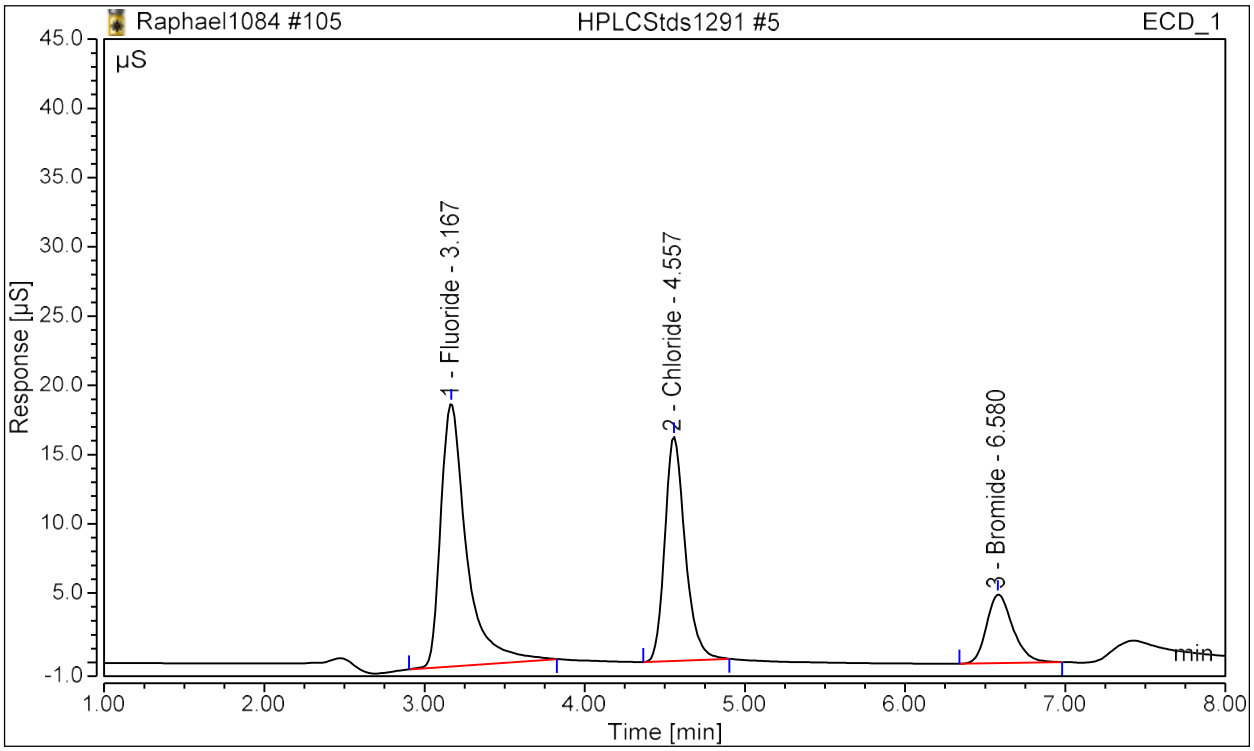


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	3.559	19.069	14.93708	FALSE	FALSE
2	4.56	Chloride	2.397	16.286	15.06222	FALSE	FALSE
3	6.58	Bromide	0.940	4.983	14.95055	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 21:58**	Run Time:	**14.50**

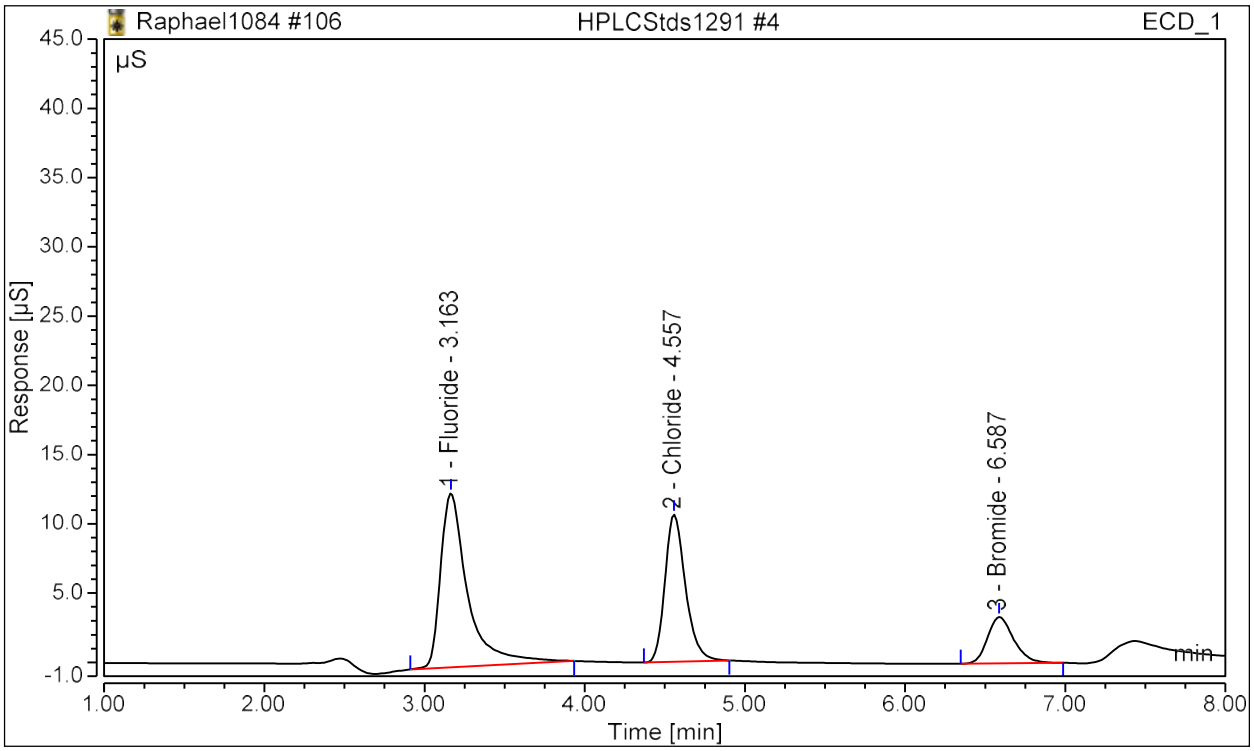


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	3.539	18.999	14.85114	FALSE	FALSE
2	4.56	Chloride	2.381	16.203	14.97089	FALSE	FALSE
3	6.58	Bromide	0.935	4.969	14.86867	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 22:14**	Run Time:	**14.50**

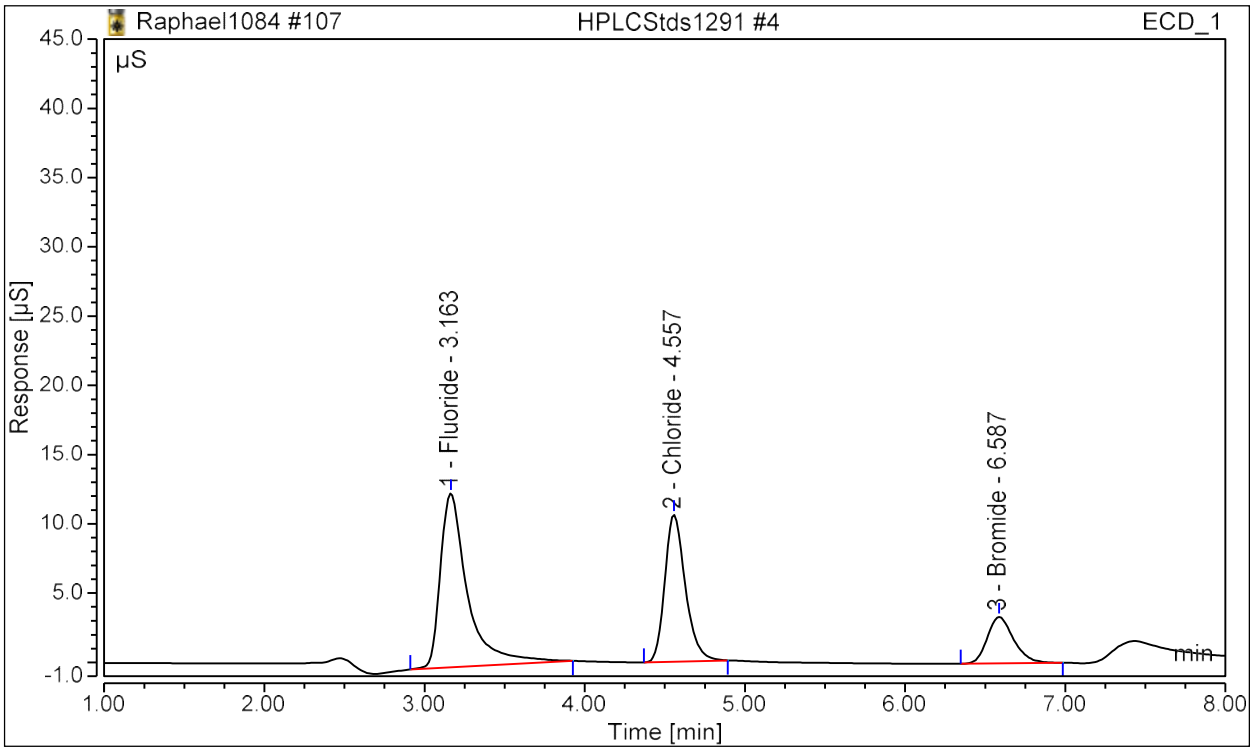


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.478	12.574	10.41026	FALSE	FALSE
2	4.56	Chloride	1.580	10.640	10.22272	FALSE	FALSE
3	6.59	Bromide	0.635	3.360	10.24051	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 22:30**	Run Time:	**14.50**

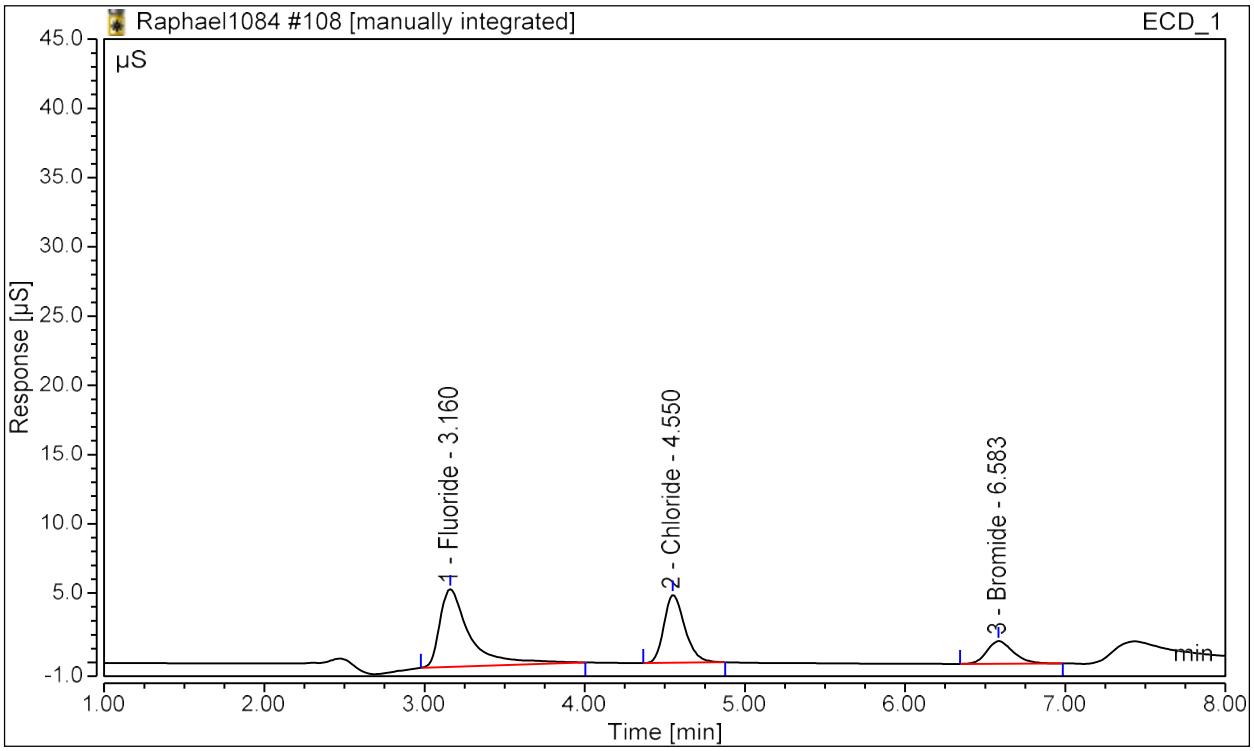


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	2.473	12.557	10.38996	FALSE	FALSE
2	4.56	Chloride	1.579	10.623	10.21853	FALSE	FALSE
3	6.59	Bromide	0.635	3.355	10.24715	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 22:46**	Run Time:	**14.50**

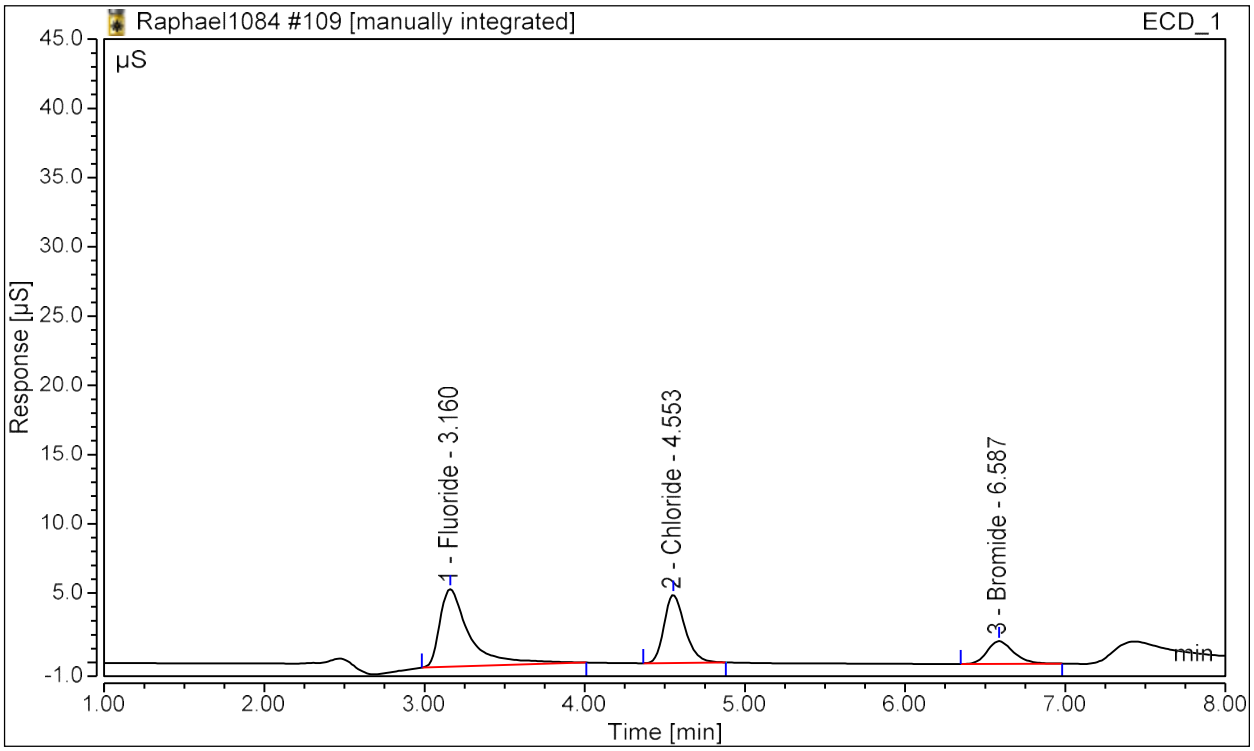


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	1.222	5.607	5.00739	FALSE	TRUE
2	4.55	Chloride	0.742	4.911	4.94295	FALSE	FALSE
3	6.58	Bromide	0.309	1.625	5.06228	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:02**	Run Time:	**14.50**

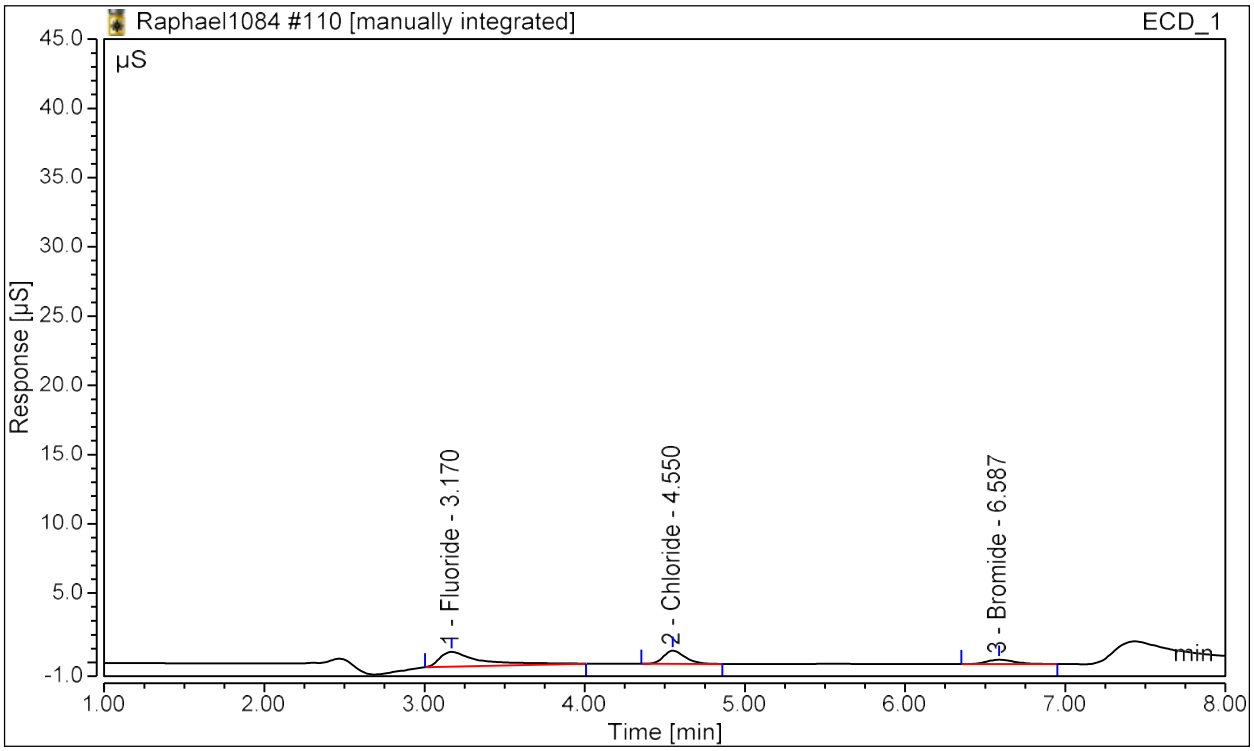


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.16	Fluoride	1.216	5.613	4.98023	FALSE	TRUE
2	4.55	Chloride	0.744	4.923	4.95591	FALSE	FALSE
3	6.59	Bromide	0.309	1.627	5.05928	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:19**	Run Time:	**14.50**

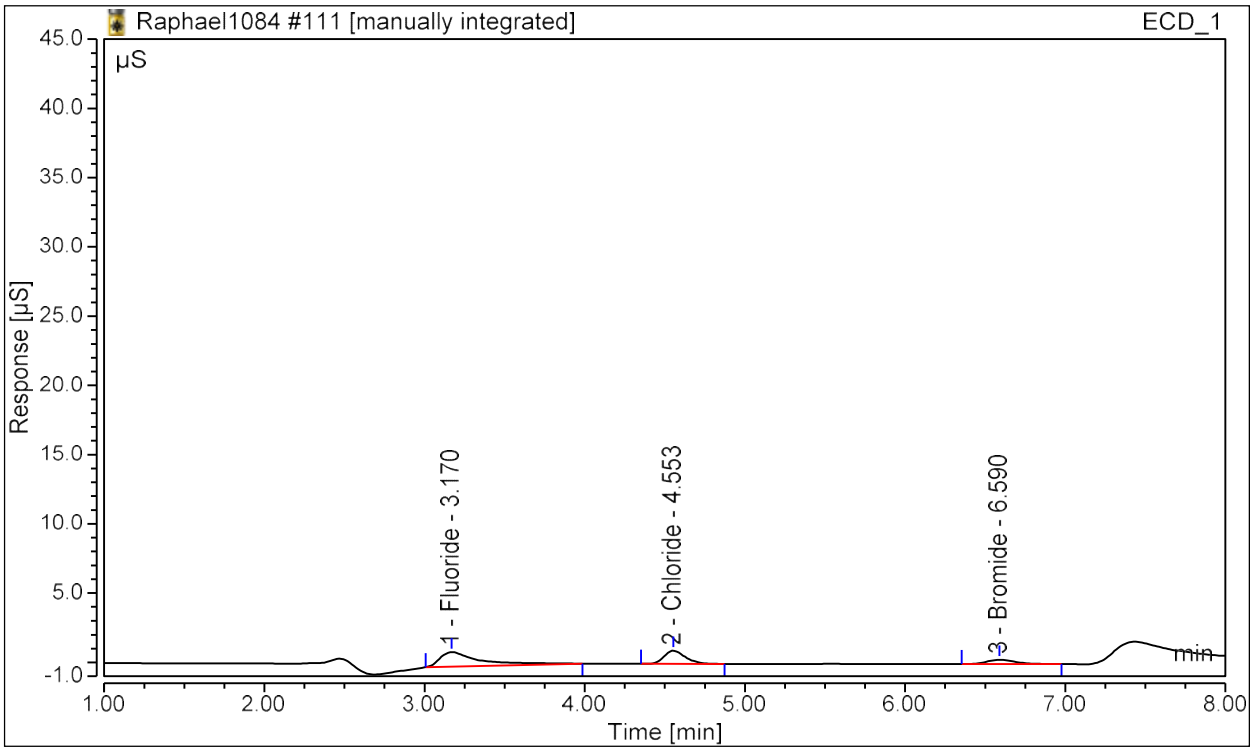


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	0.314	1.060	1.00003	FALSE	TRUE
2	4.55	Chloride	0.146	0.942	0.99574	FALSE	FALSE
3	6.59	Bromide	0.060	0.314	0.99349	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:35**	Run Time:	**14.50**

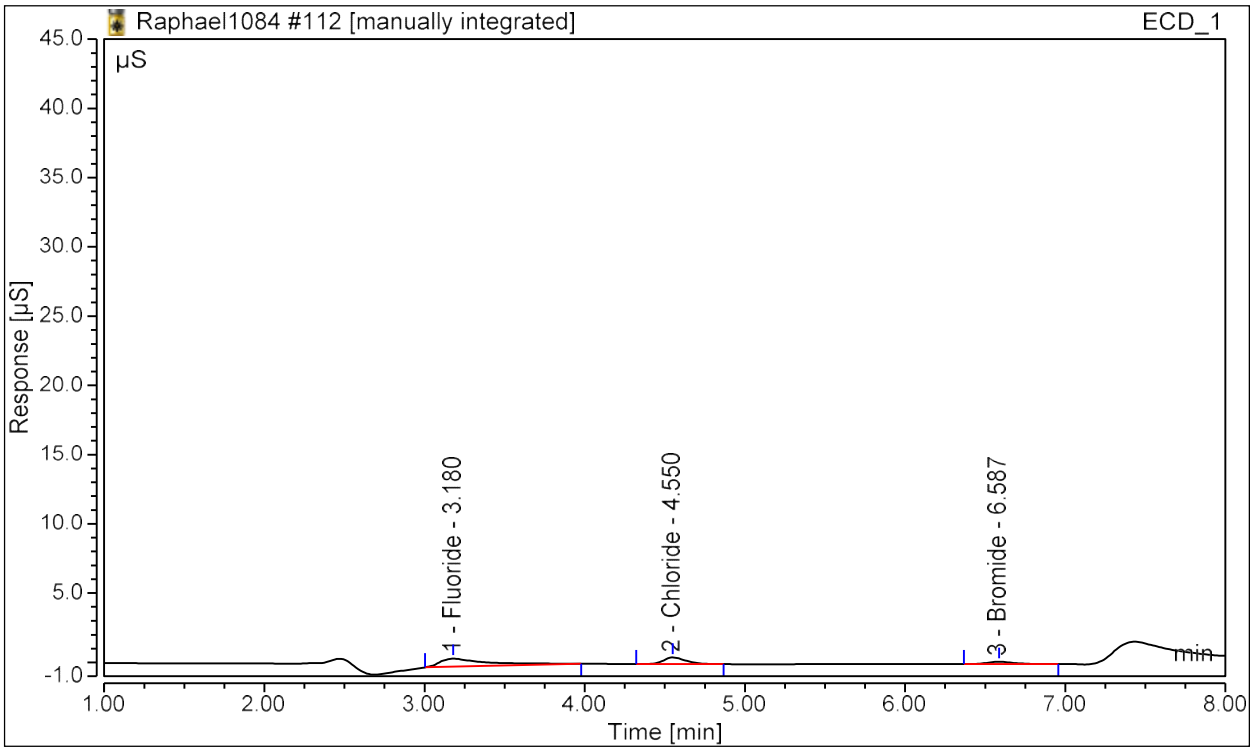


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.17	Fluoride	0.306	1.049	0.96475	FALSE	TRUE
2	4.55	Chloride	0.146	0.940	0.99294	FALSE	FALSE
3	6.59	Bromide	0.060	0.313	0.99226	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**18-Mar-2022 / 23:51**	Run Time:	**14.50**

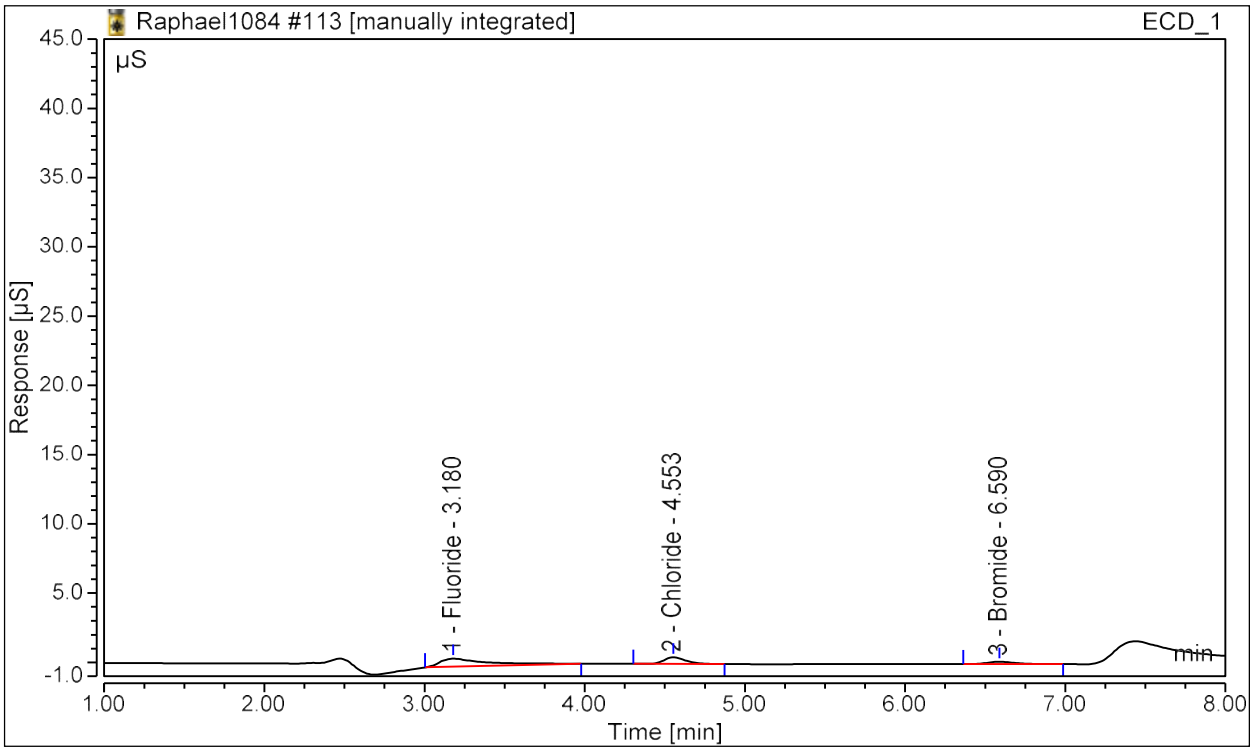


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	0.204	0.584	0.51124	FALSE	TRUE
2	4.55	Chloride	0.074	0.469	0.50677	FALSE	FALSE
3	6.59	Bromide	0.030	0.157	0.49941	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1291 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP**	Operator:	**dlmckee**
Inj. Date / Time:	**19-Mar-2022 / 00:07**	Run Time:	**14.50**

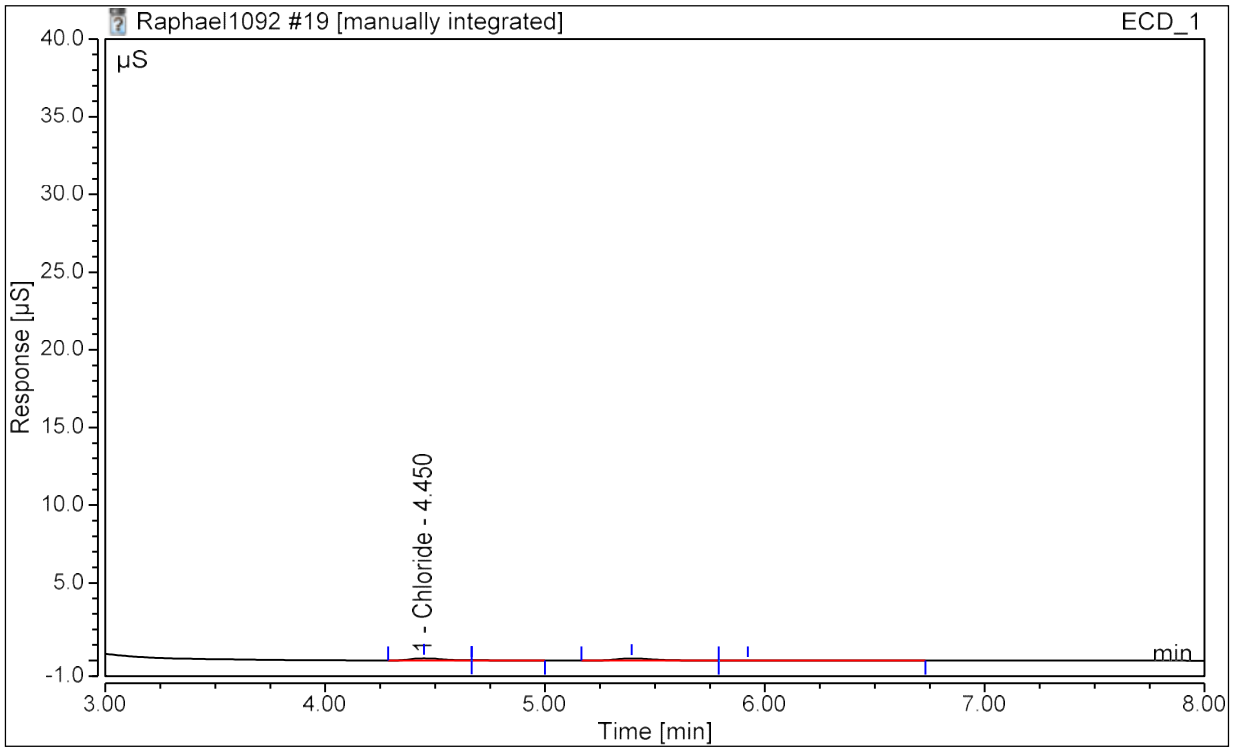


Analyst Comment: II DLM 3/21/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	3.18	Fluoride	0.206	0.587	0.51723	FALSE	TRUE
2	4.55	Chloride	0.075	0.476	0.51477	FALSE	FALSE
3	6.59	Bromide	0.030	0.159	0.50521	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R1-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**10.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 01:55**	Run Time:	**28.00**

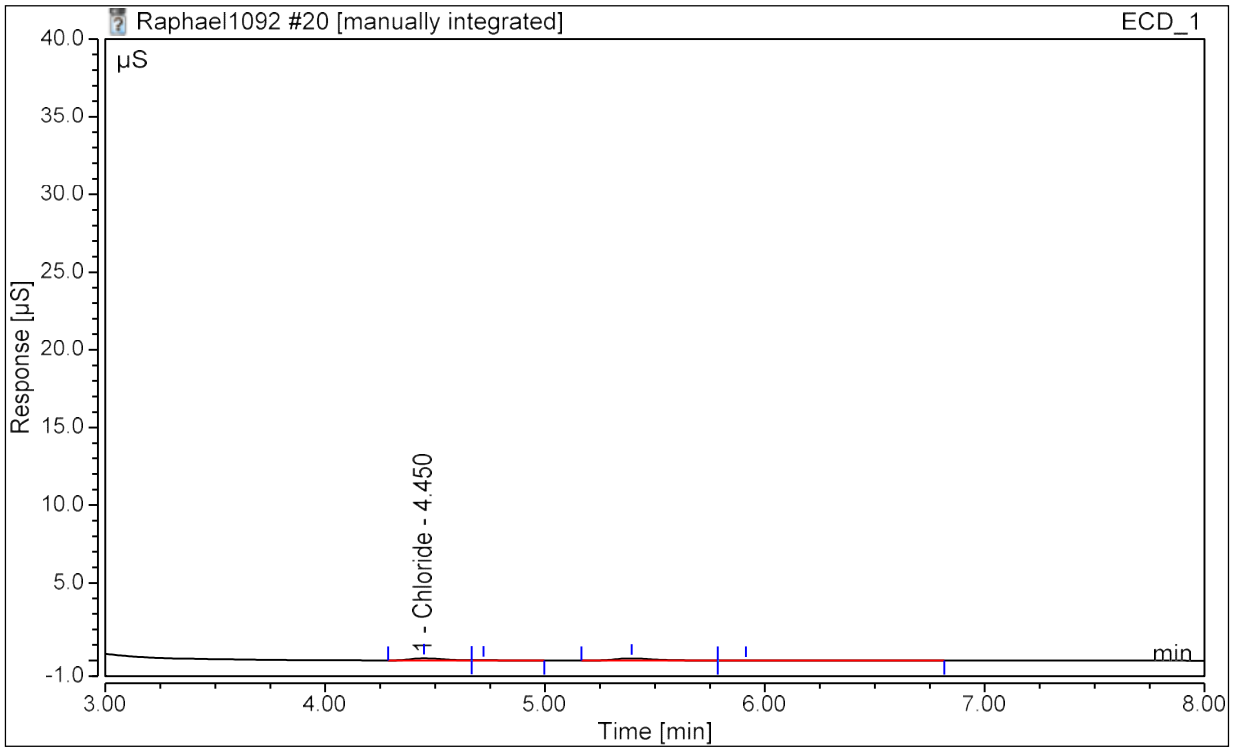


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.023	0.145	0.05237	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R1-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**10.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 02:25**	Run Time:	**28.00**

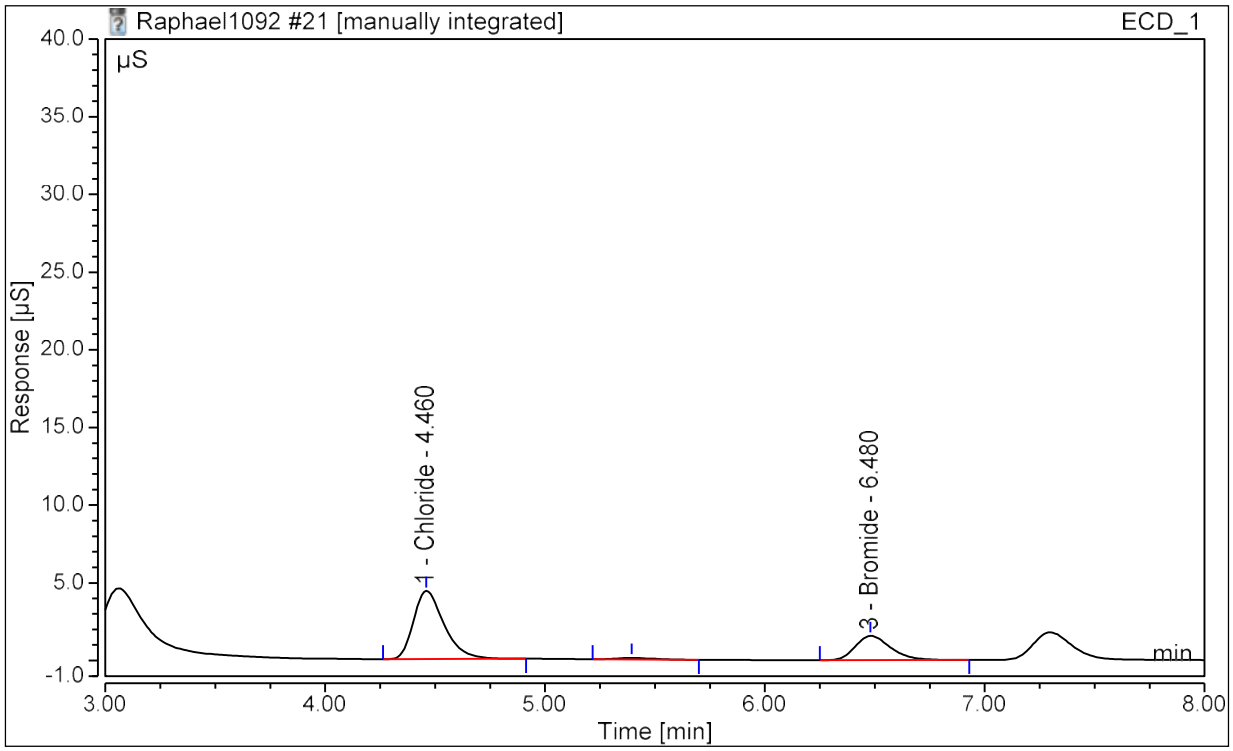


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.023	0.147	0.05595	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.MS-R1-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 02:55**	Run Time:	**28.00**

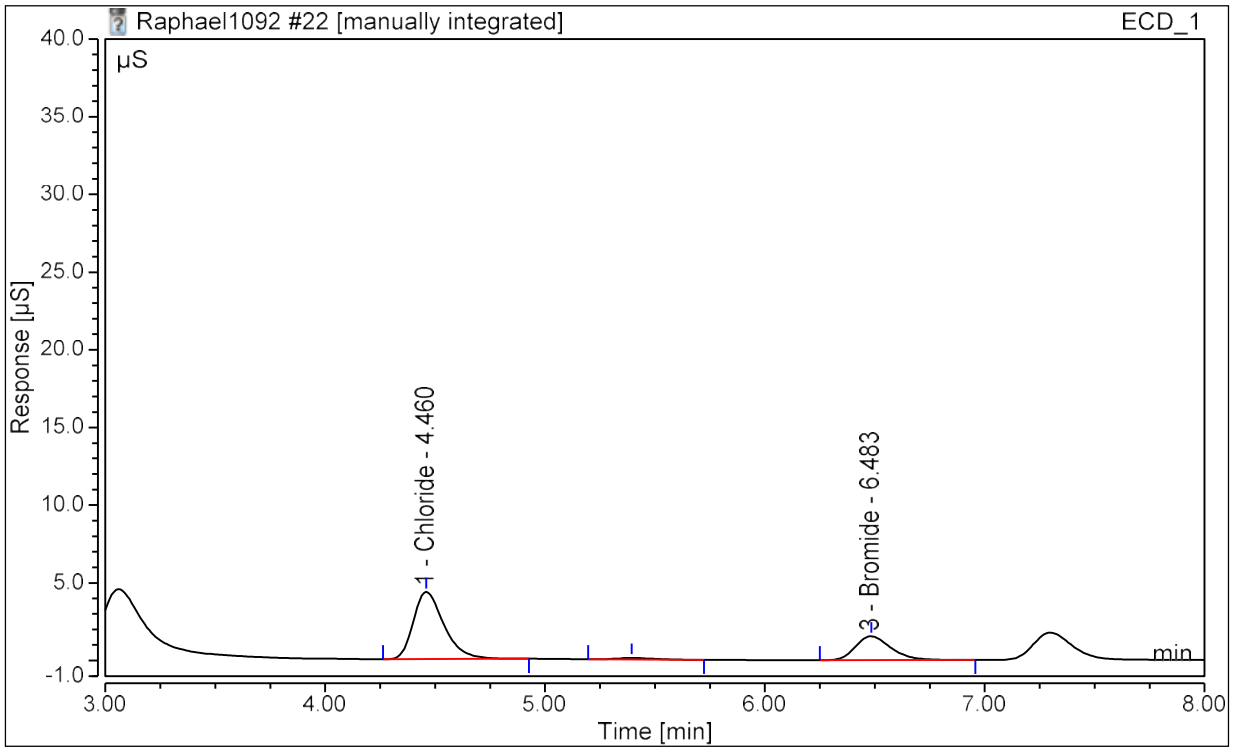


Analyst Comment: @ *10 II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	0.712	4.397	4.66909	FALSE	TRUE
3	6.48	Bromide	0.294	1.571	4.85263	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.MS-R1-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 03:25**	Run Time:	**28.00**

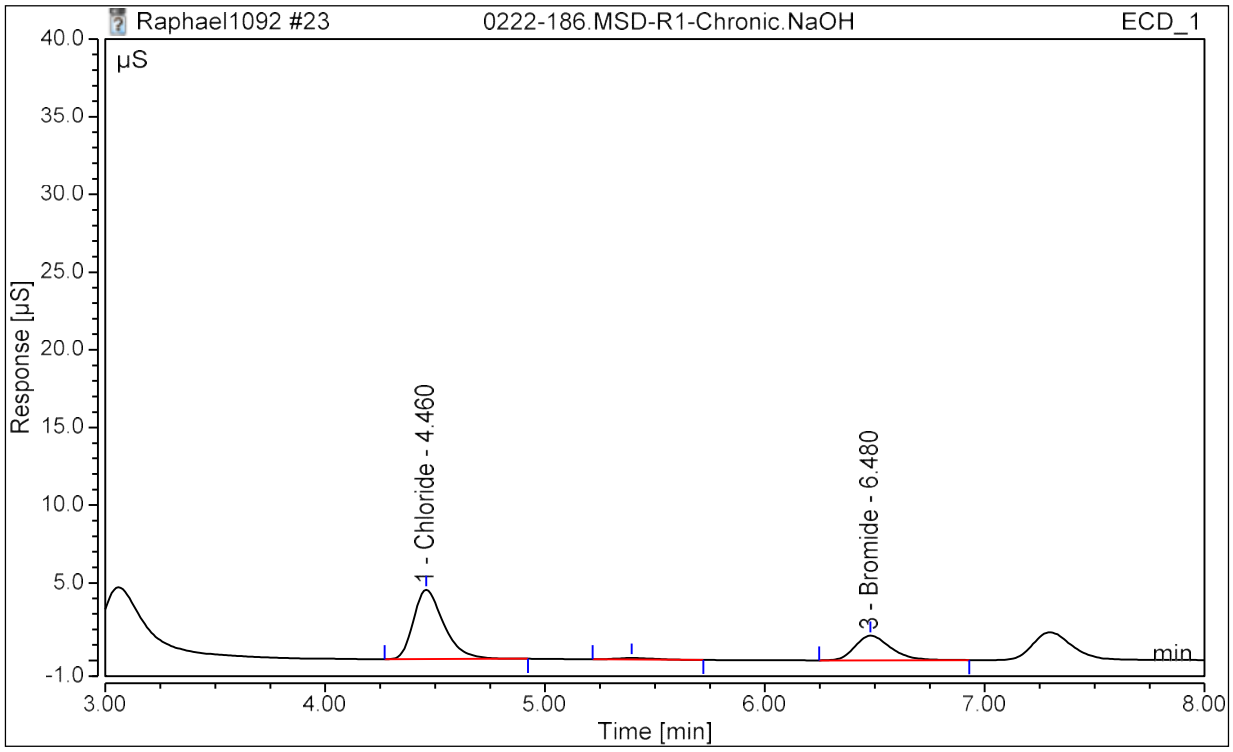


Analyst Comment: @ *10 II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	0.704	4.339	4.61514	FALSE	TRUE
3	6.48	Bromide	0.291	1.548	4.79318	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.MSD-R1-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 03:54**	Run Time:	**28.00**

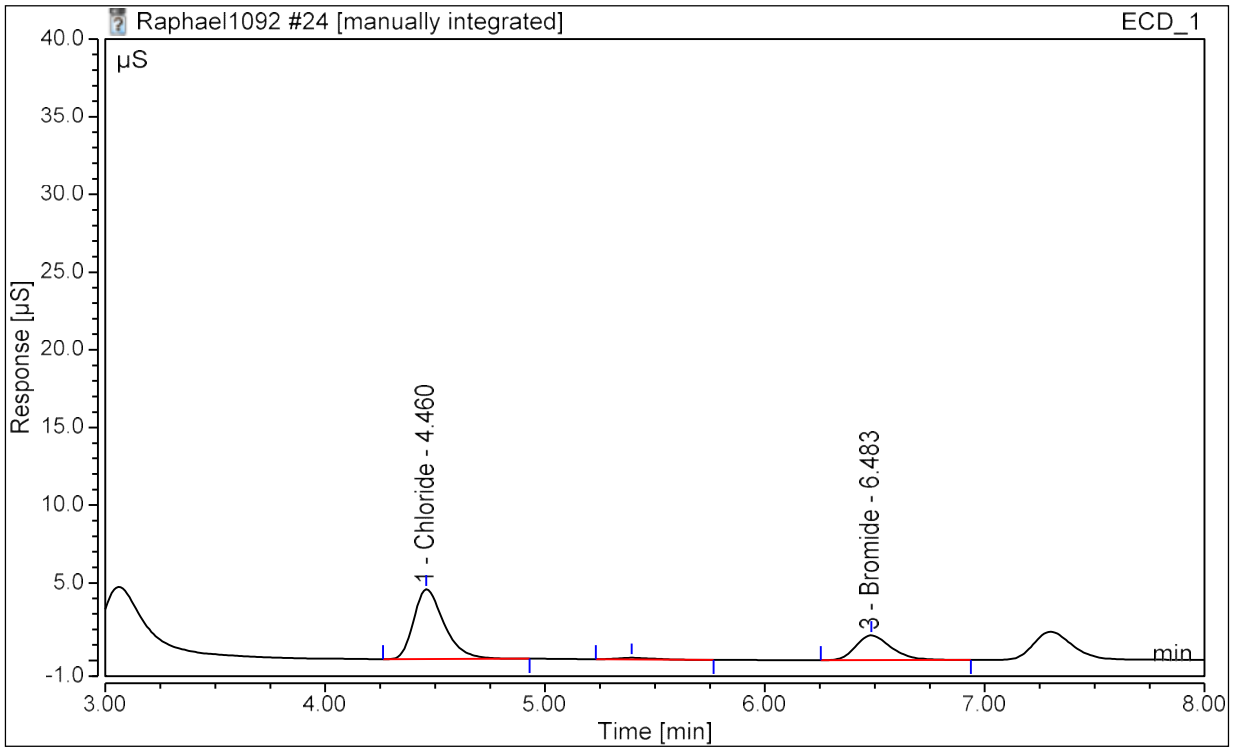


Analyst Comment: @ *10

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	0.718	4.467	4.70502	FALSE	FALSE
3	6.48	Bromide	0.297	1.582	4.88807	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.MSD-R1-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 04:24**	Run Time:	**28.00**

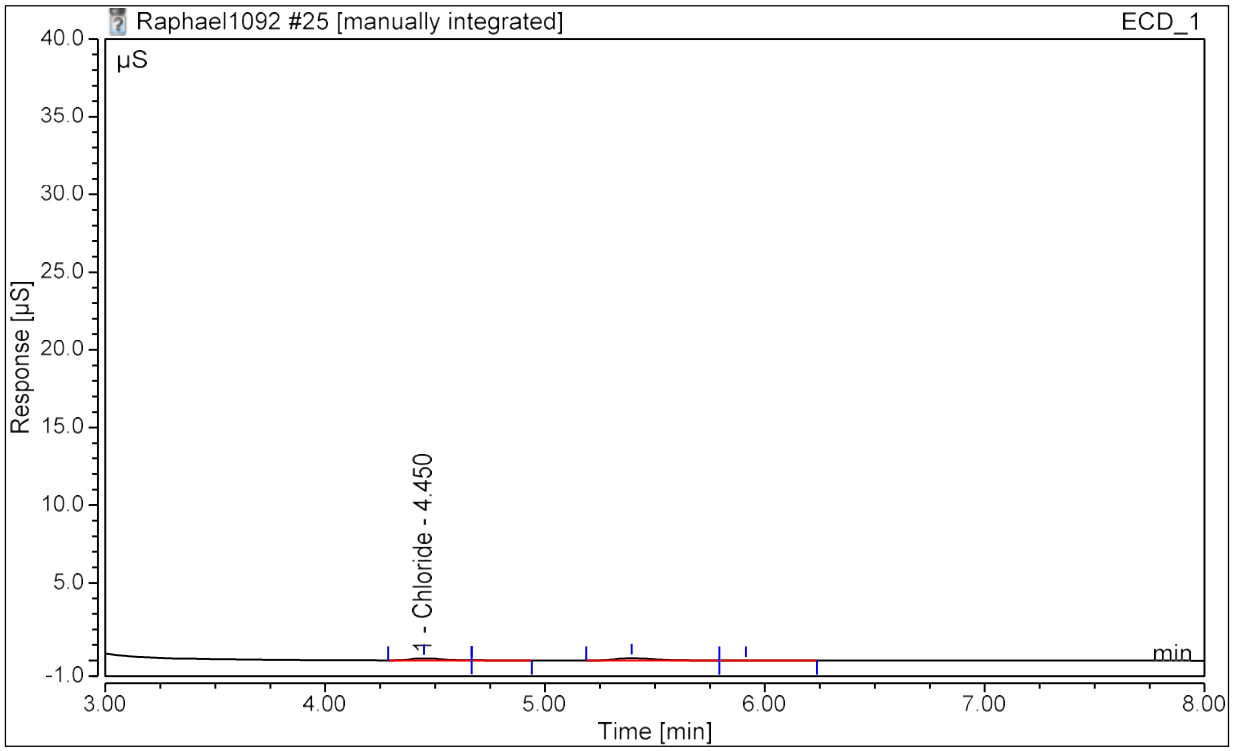


Analyst Comment: @ *10 II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	0.725	4.489	4.75133	FALSE	TRUE
3	6.48	Bromide	0.299	1.597	4.92796	FALSE	FALSE

Peak Analysis Report

Sample Name:	**0222-186.R2-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**10.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 04:54**	Run Time:	**28.00**

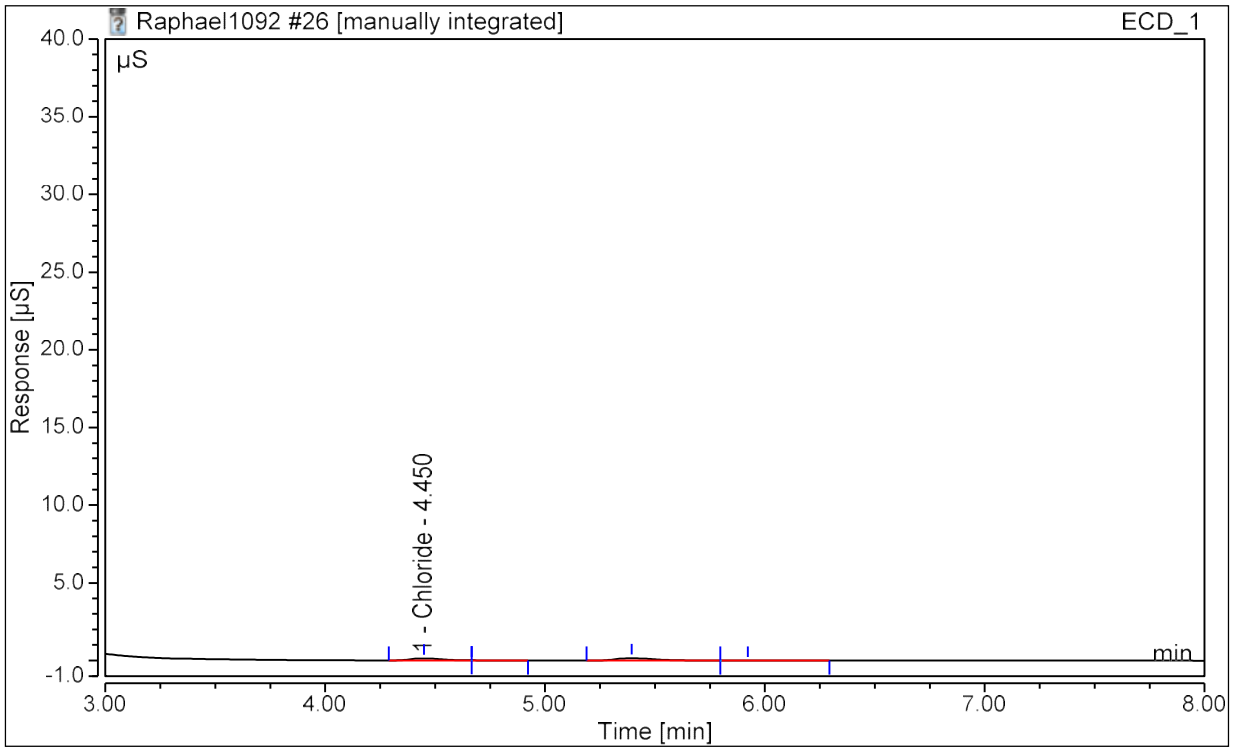


Analyst Comment: II DLM 4/7/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.021	0.137	0.04349	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R2-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**10.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 05:23**	Run Time:	**28.00**

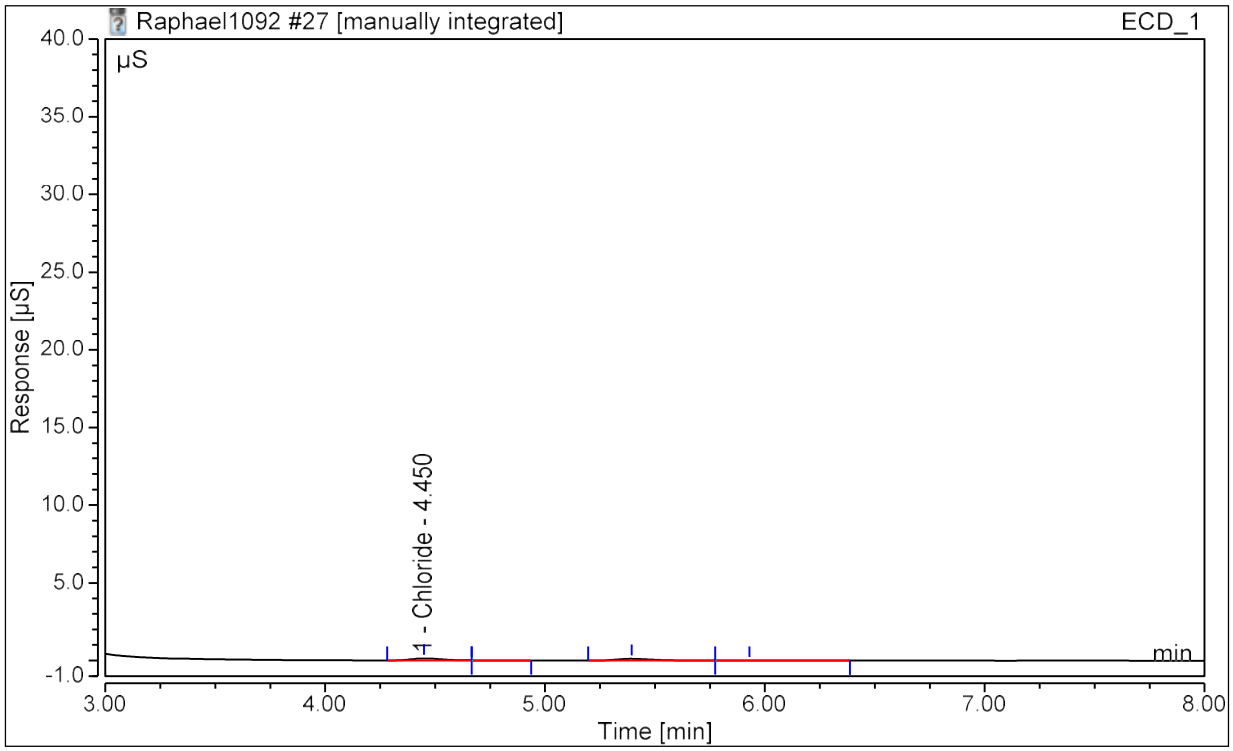


Analyst Comment: II DLM 4/7/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.022	0.139	0.04413	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R3-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**10.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 05:53**	Run Time:	**28.00**

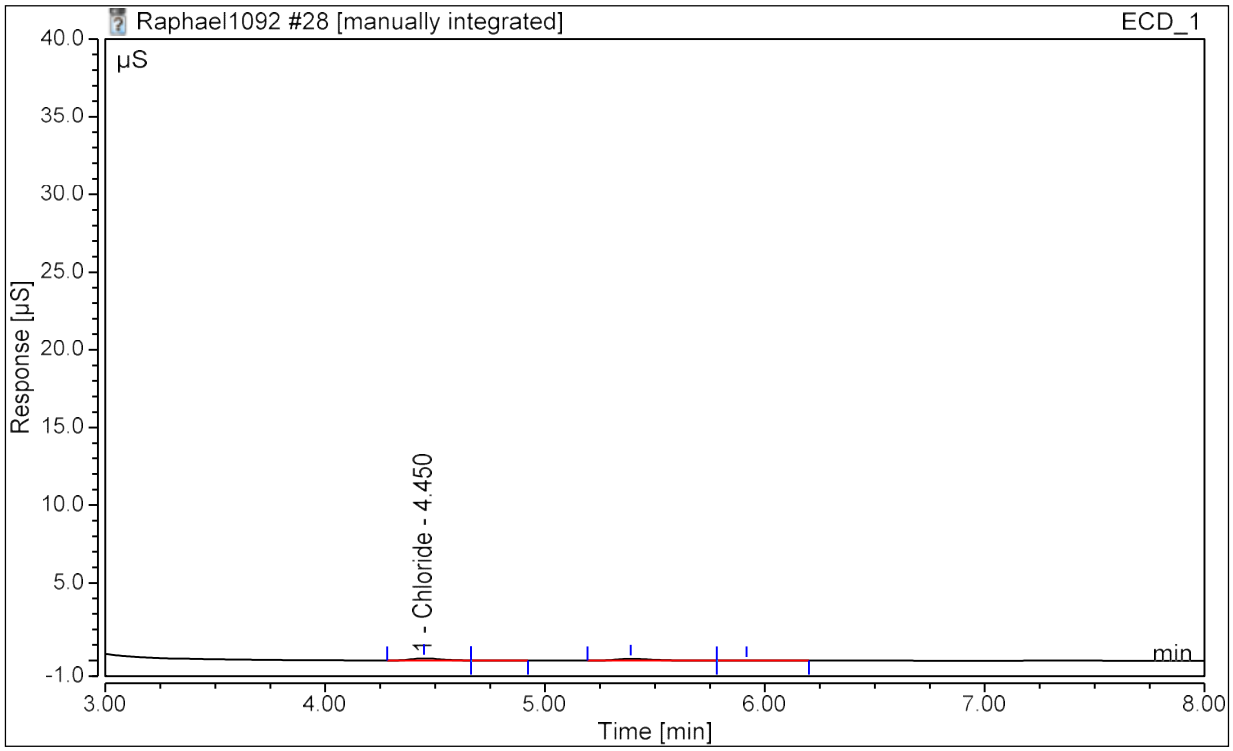


Analyst Comment: II DLM 4/7/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.020	0.134	0.03698	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.R3-Chronic.NaOH**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**10.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 06:23**	Run Time:	**28.00**

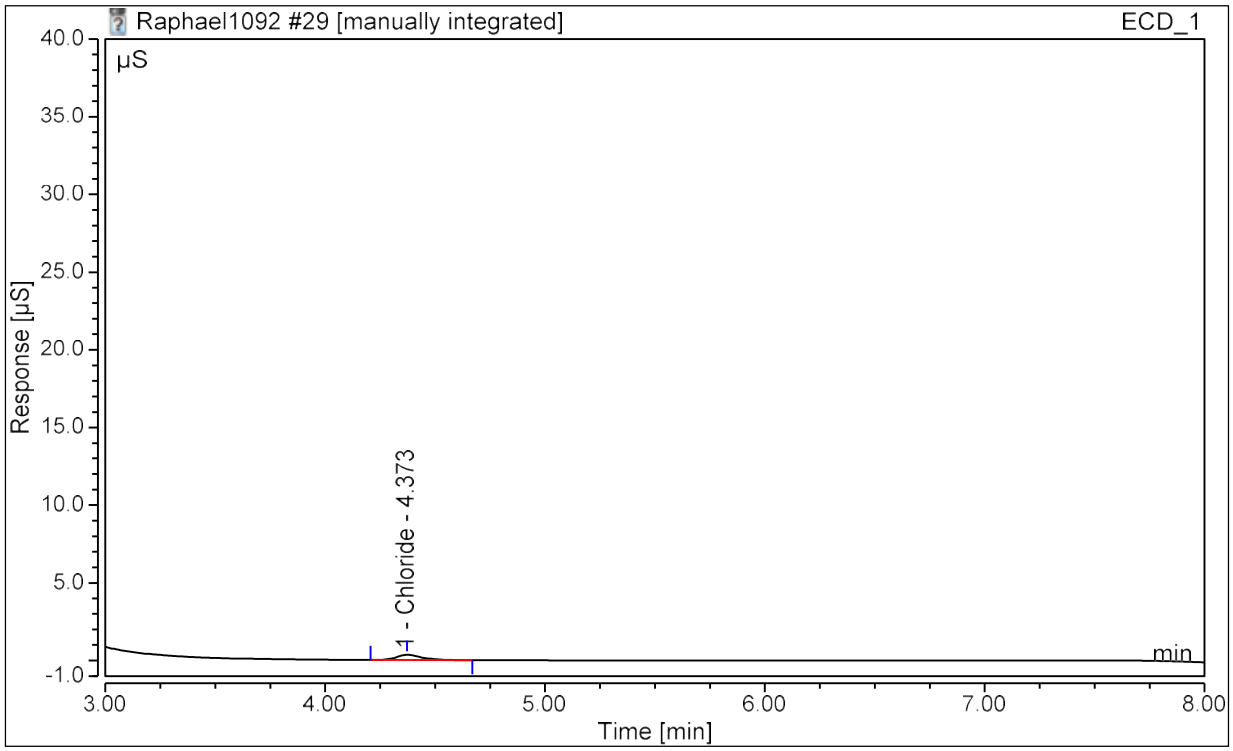


Analyst Comment: II DLM 4/7/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.020	0.133	0.03553	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.FB-NaOH.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 06:52**	Run Time:	**28.00**

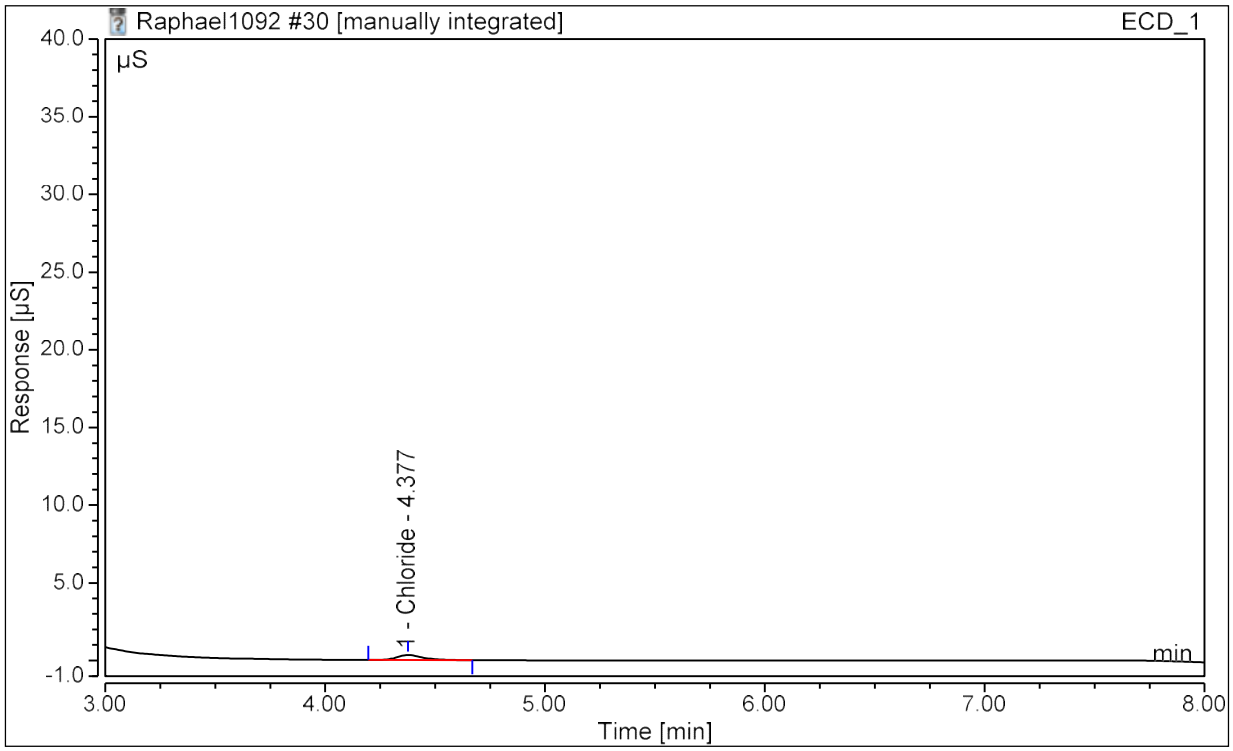


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.37	Chloride	0.046	0.339	0.21348	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.FB-NaOH.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 07:22**	Run Time:	**28.00**

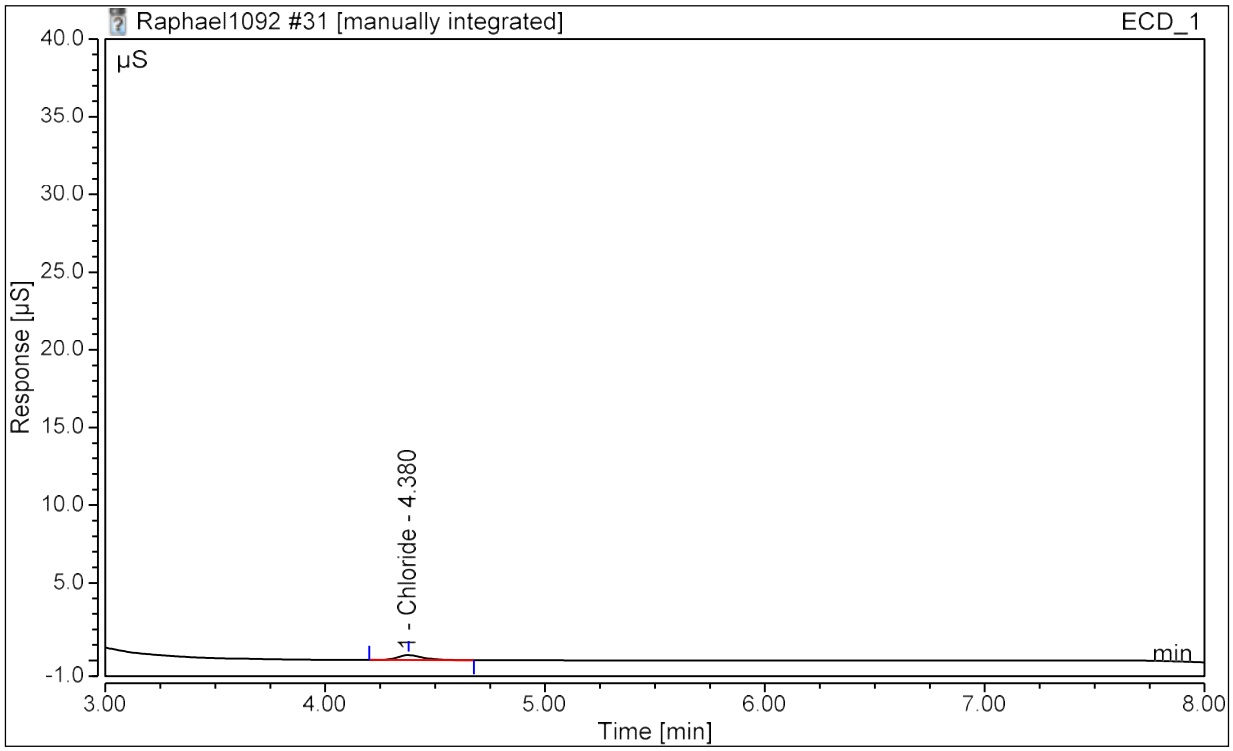


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.38	Chloride	0.045	0.326	0.20665	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.RB-NaOH.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 07:52**	Run Time:	**28.00**

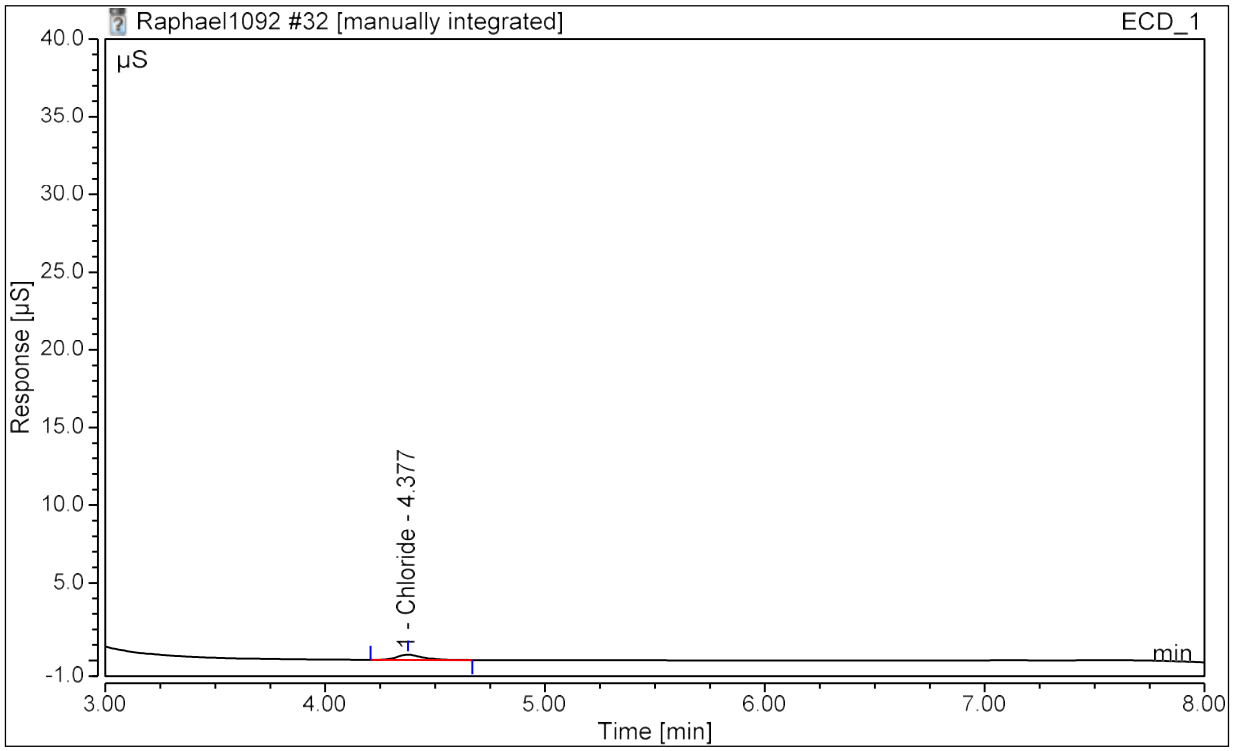


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.38	Chloride	0.045	0.320	0.20204	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.RB-NaOH.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 08:21**	Run Time:	**28.00**

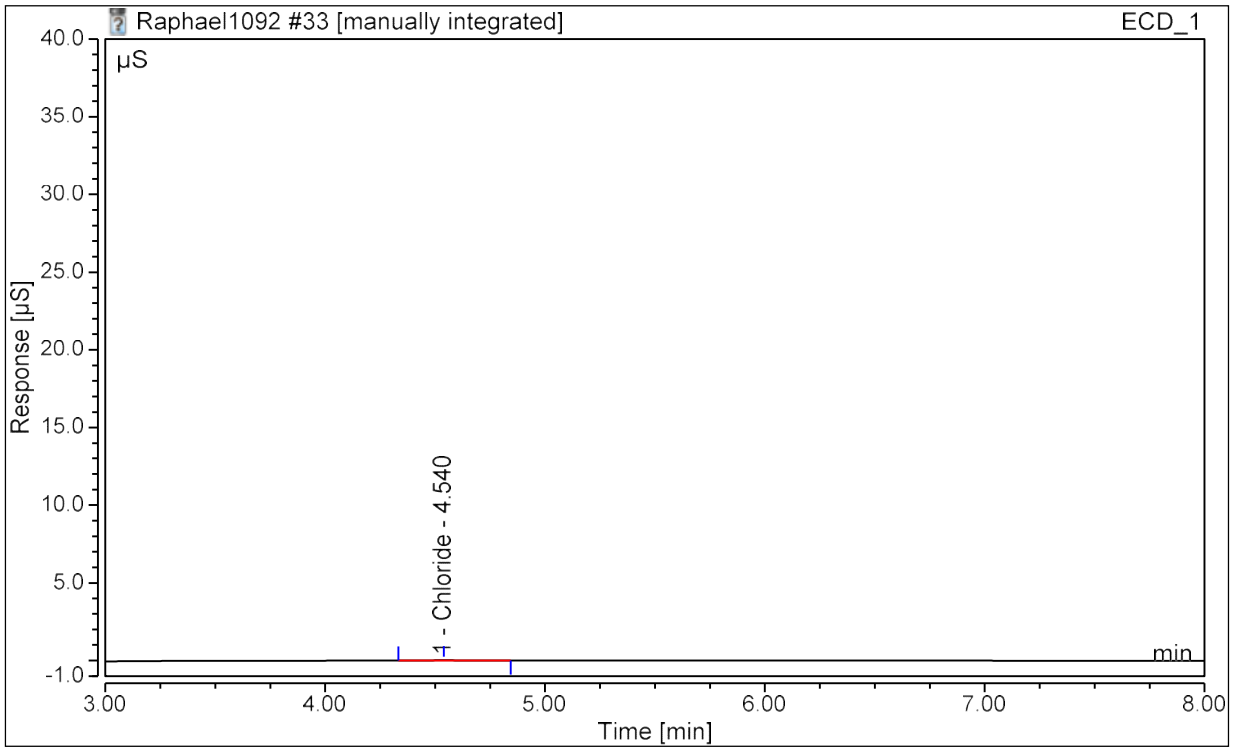


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.38	Chloride	0.046	0.333	0.21416	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.RB-DIH2O.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 08:51**	Run Time:	**28.00**

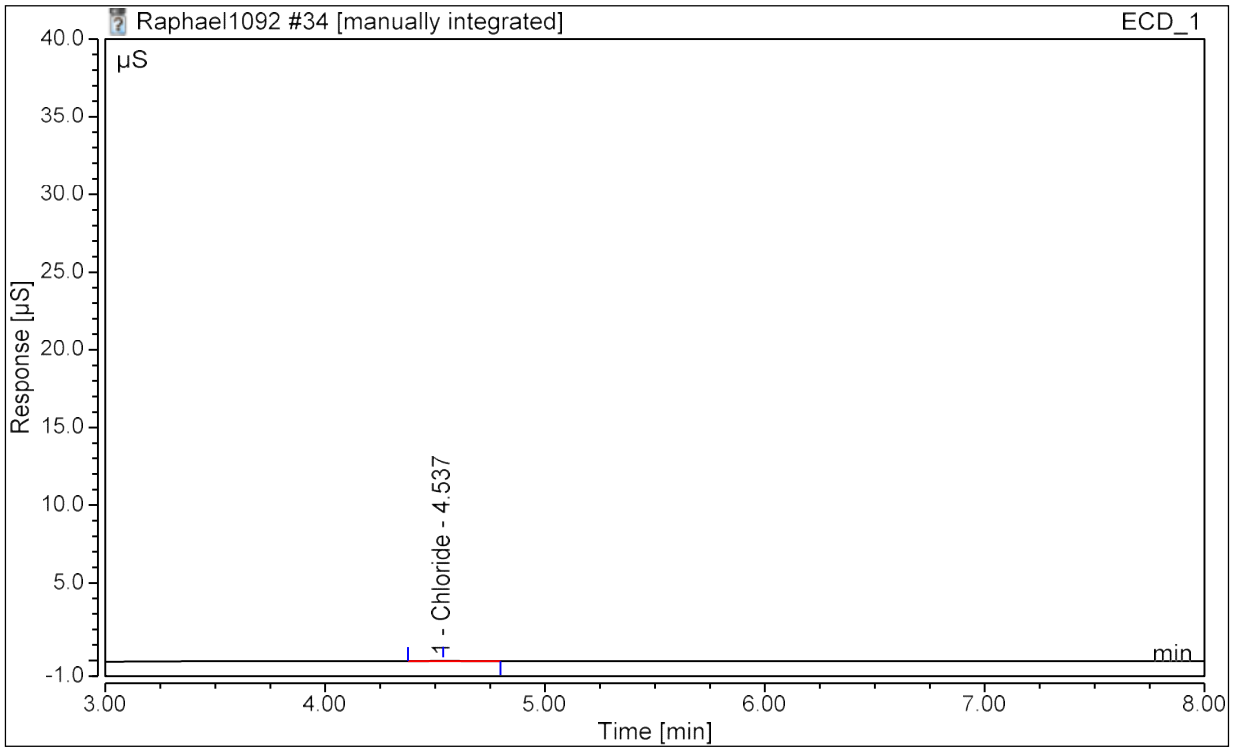


Analyst Comment: NI DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.54	Chloride	0.003	0.023	n.a.	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**0222-186.RB-DIH2O.BLK**	Injection Volume:	**25.00**
Injection Type:	**Unknown**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 09:21**	Run Time:	**28.00**



Analyst Comment: NI DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.54	Chloride	0.003	0.023	n.a.	FALSE	TRUE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Calibration Table

No.	Injection Name	Inject Time	Pos.	Level	Ref.Amount µg/mL ECD_1 Chloride	Calibration Point Status ECD_1 Chloride	Ref.Amount µg/mL ECD_1 Bromide	Calibration Point Status ECD_1 Bromide	Dil.Factor	Volume
3	HPLCStds1290 #6	04/Apr/2022 18:01	BA6	06	30.0000	Ok	30.0000	Ok	1.0000	25.00
4	HPLCStds1290 #6	04/Apr/2022 18:30	BA6	06	30.0000	Ok	30.0000	Ok	1.0000	25.00
5	HPLCStds1290 #5	04/Apr/2022 19:00	BA5	05	15.0000	Ok	15.0000	Ok	1.0000	25.00
6	HPLCStds1290 #5	04/Apr/2022 19:30	BA5	05	15.0000	Ok	15.0000	Ok	1.0000	25.00
7	HPLCStds1290 #4	04/Apr/2022 19:59	BA4	04	10.0000	Ok	10.0000	Ok	1.0000	25.00
8	HPLCStds1290 #4	04/Apr/2022 20:29	BA4	04	10.0000	Ok	10.0000	Ok	1.0000	25.00
9	HPLCStds1290 #3	04/Apr/2022 20:59	BA3	03	5.0000	Ok	5.0000	Ok	1.0000	25.00
10	HPLCStds1290 #3	04/Apr/2022 21:28	BA3	03	5.0000	Ok	5.0000	Ok	1.0000	25.00
11	HPLCStds1290 #2	04/Apr/2022 21:58	BA2	02	1.0000	Ok	1.0000	Ok	1.0000	25.00
12	HPLCStds1290 #2	04/Apr/2022 22:28	BA2	02	1.0000	Ok	1.0000	Ok	1.0000	25.00
13	HPLCStds1290 #1	04/Apr/2022 22:57	BA1	01	0.5000	Ok	0.5000	Ok	1.0000	25.00
14	HPLCStds1290 #1	04/Apr/2022 23:27	BA1	01	0.5000	Ok	0.5000	Ok	1.0000	25.00
35	HPLCStds1290 #6	05/Apr/2022 09:50	BA6	06	30.0000	Ok	30.0000	Ok	1.0000	25.00
36	HPLCStds1290 #6	05/Apr/2022 10:20	BA6	06	30.0000	Ok	30.0000	Ok	1.0000	25.00
37	HPLCStds1290 #5	05/Apr/2022 10:50	BA5	05	15.0000	Ok	15.0000	Ok	1.0000	25.00
38	HPLCStds1290 #5	05/Apr/2022 11:19	BA5	05	15.0000	Ok	15.0000	Ok	1.0000	25.00
39	HPLCStds1290 #4	05/Apr/2022 11:49	BA4	04	10.0000	Ok	10.0000	Ok	1.0000	25.00
40	HPLCStds1290 #4	05/Apr/2022 12:19	BA4	04	10.0000	Ok	10.0000	Ok	1.0000	25.00
41	HPLCStds1290 #3	05/Apr/2022 12:49	BA3	03	5.0000	Ok	5.0000	Ok	1.0000	25.00
42	HPLCStds1290 #3	05/Apr/2022 13:18	BA3	03	5.0000	Ok	5.0000	Ok	1.0000	25.00
43	HPLCStds1290 #2	05/Apr/2022 13:48	BA2	02	1.0000	Ok	1.0000	Ok	1.0000	25.00
44	HPLCStds1290 #2	05/Apr/2022 14:18	BA2	02	1.0000	Ok	1.0000	Ok	1.0000	25.00
45	HPLCStds1290 #1	05/Apr/2022 14:47	BA1	01	0.5000	Ok	0.5000	Ok	1.0000	25.00
46	HPLCStds1290 #1	05/Apr/2022 15:17	BA1	01	0.5000	Ok	0.5000	Ok	1.0000	25.00

Detection Parameters

Ret. Time min	Param. Name	Param. Value	Inj. Type	Channel
Always	Baseline Noise Auto Range	Off	Any	All Channels
Always	Baseline Noise Start Time	17.512 [min]	Any	All Channels
Always	Baseline Noise End Time	21.382 [min]	Any	All Channels
Always	Cobra Smoothing Width	Auto	Any	All Channels
Always	Consider Void Peak	Off	Any	All Channels
0.000	Maximum Rider Ratio	10 [%]	Any	All Channels
0.000	Tailing Sensitivity Factor	0.500 [%]	Any	All Channels
0.000	Inhibit Integration	On	Any	All Channels
0.000	Minimum Area	Auto	Any	All Channels
4.250	Inhibit Integration	Off	Any	All Channels
7.131	Inhibit Integration	On	Any	All Channels

Chromeleon (c) Dionex 1996-2009
Version 7.2.8.10783

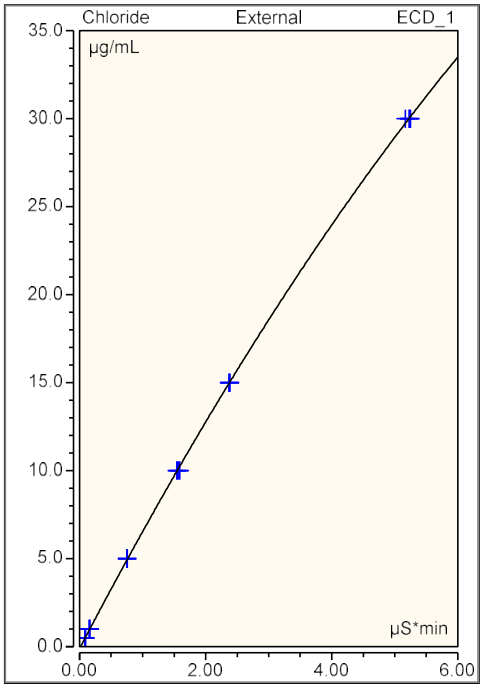
Calibration Batch Report

Sequence:	**Raphael1092**	*Injection Volume:*	**25.00**
Instrument Method:	**AS22 ASAP Base**	*Operator:*	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 09:21**	*Run Time:*	**28**

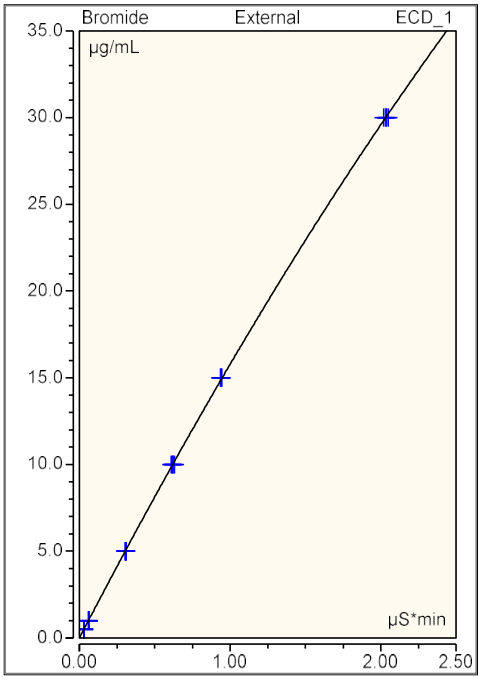
Calibration Summary

Peak Name	Eval.Type	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
Chloride	Area	Quad, WithOffset, 1/A	24.000	-0.103	6.849	-0.208	99.991
Bromide	Area	Quad, WithOffset, 1/A	24.000	0.000	16.771	-0.988	99.992
		AVERAGE:		-0.0519	11.8099	-0.5980	99.9914

Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Chloride	Chloride	Chloride	Chloride
HPLCStds1290 #6	4.460	5.228	35.027	30.025
HPLCStds1290 #6	4.457	5.229	34.899	30.032
HPLCStds1290 #5	4.450	2.382	15.473	15.034
HPLCStds1290 #5	4.450	2.384	15.406	15.044
HPLCStds1290 #4	4.450	1.541	9.873	9.960
HPLCStds1290 #4	4.450	1.572	10.064	10.147
HPLCStds1290 #3	4.447	0.751	4.797	4.920
HPLCStds1290 #3	4.443	0.752	4.792	4.929
HPLCStds1290 #2	4.443	0.158	1.012	0.971
HPLCStds1290 #2	4.443	0.159	1.019	0.979
HPLCStds1290 #1	4.443	0.090	0.577	0.510
HPLCStds1290 #1	4.443	0.090	0.581	0.514
HPLCStds1290 #6	4.467	5.169	34.540	29.751
HPLCStds1290 #6	4.467	5.248	34.603	30.118
HPLCStds1290 #5	4.457	2.369	15.399	14.953
HPLCStds1290 #5	4.457	2.373	15.570	14.982
HPLCStds1290 #4	4.450	1.547	10.151	9.997
HPLCStds1290 #4	4.450	1.588	10.390	10.250
HPLCStds1290 #3	4.450	0.750	4.836	4.917
HPLCStds1290 #3	4.447	0.756	4.892	4.953
HPLCStds1290 #2	4.443	0.159	1.027	0.983
HPLCStds1290 #2	4.443	0.159	1.024	0.980
HPLCStds1290 #1	4.443	0.091	0.586	0.519
HPLCStds1290 #1	4.440	0.090	0.581	0.512

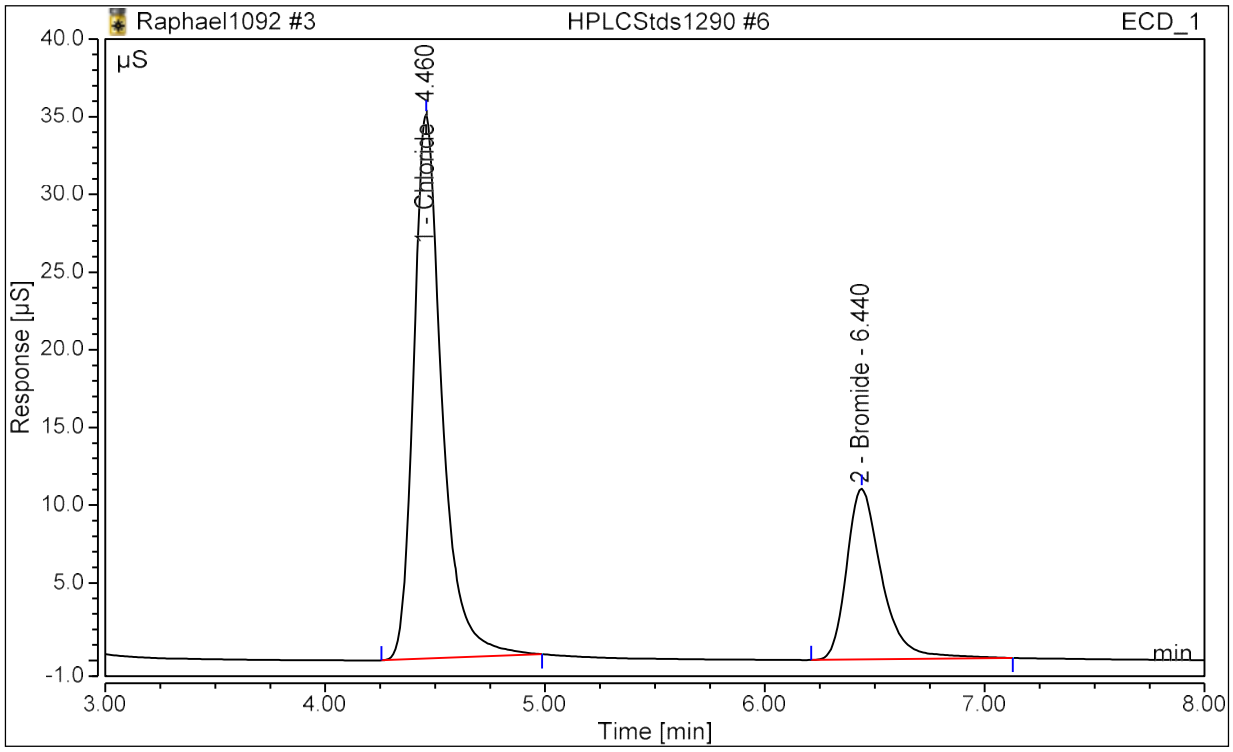


Injection Name	Ret.Time min ECD_1	Area µS*min ECD_1	Height µS ECD_1	Amount µg/mL ECD_1
	Bromide	Bromide	Bromide	Bromide
HPLCStds1290 #6	6.440	2.035	10.987	30.039
HPLCStds1290 #6	6.440	2.036	10.941	30.048
HPLCStds1290 #5	6.440	0.940	5.063	14.884
HPLCStds1290 #5	6.440	0.941	5.064	14.901
HPLCStds1290 #4	6.447	0.610	3.346	9.859
HPLCStds1290 #4	6.447	0.620	3.401	10.016
HPLCStds1290 #3	6.447	0.305	1.662	5.025
HPLCStds1290 #3	6.447	0.307	1.663	5.050
HPLCStds1290 #2	6.450	0.060	0.323	0.994
HPLCStds1290 #2	6.447	0.060	0.325	0.996
HPLCStds1290 #1	6.450	0.030	0.160	0.494
HPLCStds1290 #1	6.447	0.029	0.160	0.492
HPLCStds1290 #6	6.460	2.018	10.882	29.821
HPLCStds1290 #6	6.460	2.049	11.020	30.208
HPLCStds1290 #5	6.450	0.936	5.088	14.838
HPLCStds1290 #5	6.453	0.944	5.112	14.958
HPLCStds1290 #4	6.440	0.619	3.436	10.000
HPLCStds1290 #4	6.443	0.632	3.510	10.204
HPLCStds1290 #3	6.447	0.306	1.692	5.045
HPLCStds1290 #3	6.443	0.310	1.708	5.107
HPLCStds1290 #2	6.443	0.060	0.331	0.998
HPLCStds1290 #2	6.437	0.060	0.330	1.002
HPLCStds1290 #1	6.440	0.030	0.166	0.507
HPLCStds1290 #1	6.440	0.030	0.163	0.496



Peak Analysis Report

Sample Name:	**HPLCStds1290 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 18:01**	Run Time:	**28.00**

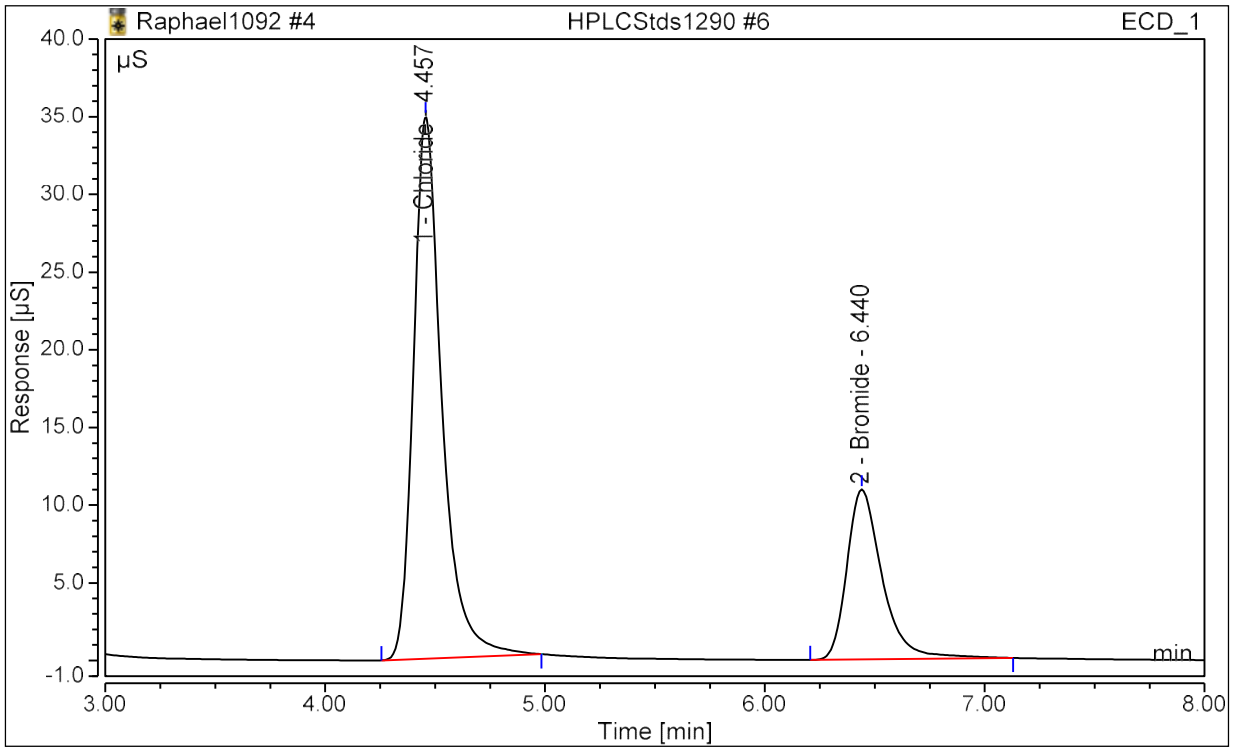


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	5.228	35.027	30.02483	FALSE	FALSE
2	6.44	Bromide	2.035	10.987	30.03900	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 18:30**	Run Time:	**28.00**

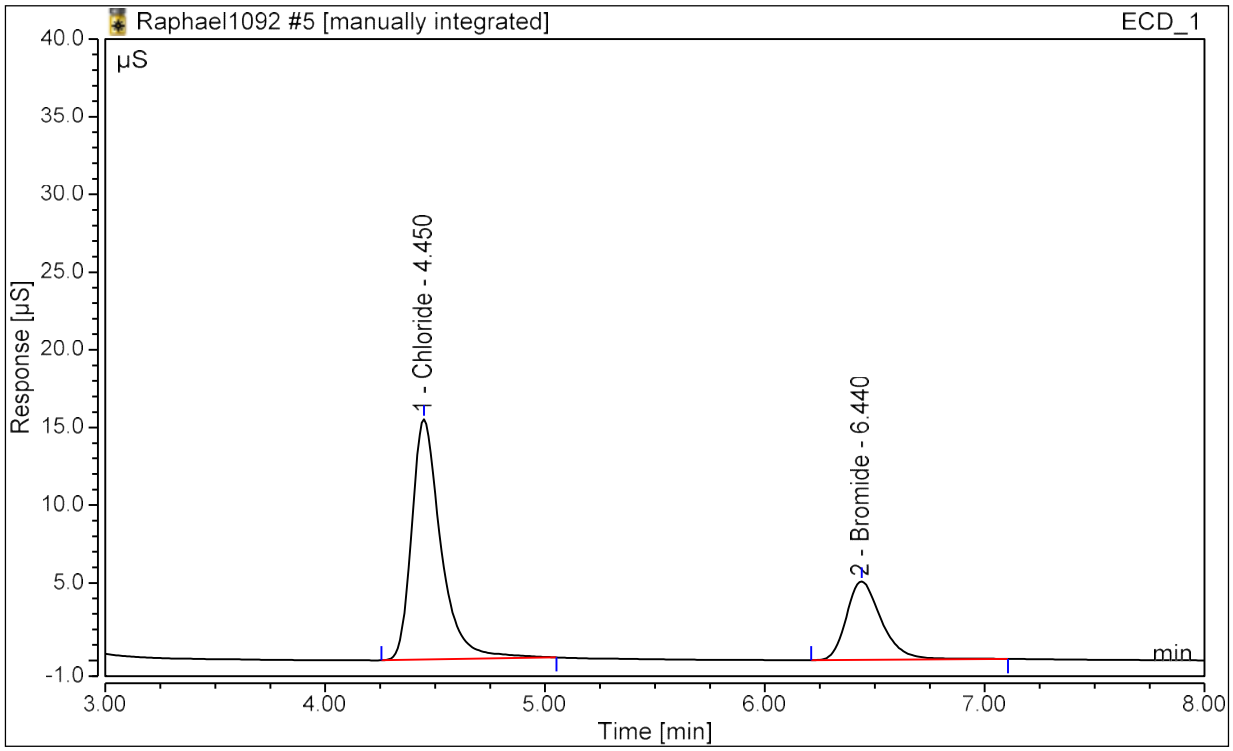


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	5.229	34.899	30.03168	FALSE	FALSE
2	6.44	Bromide	2.036	10.941	30.04754	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 19:00**	Run Time:	**28.00**

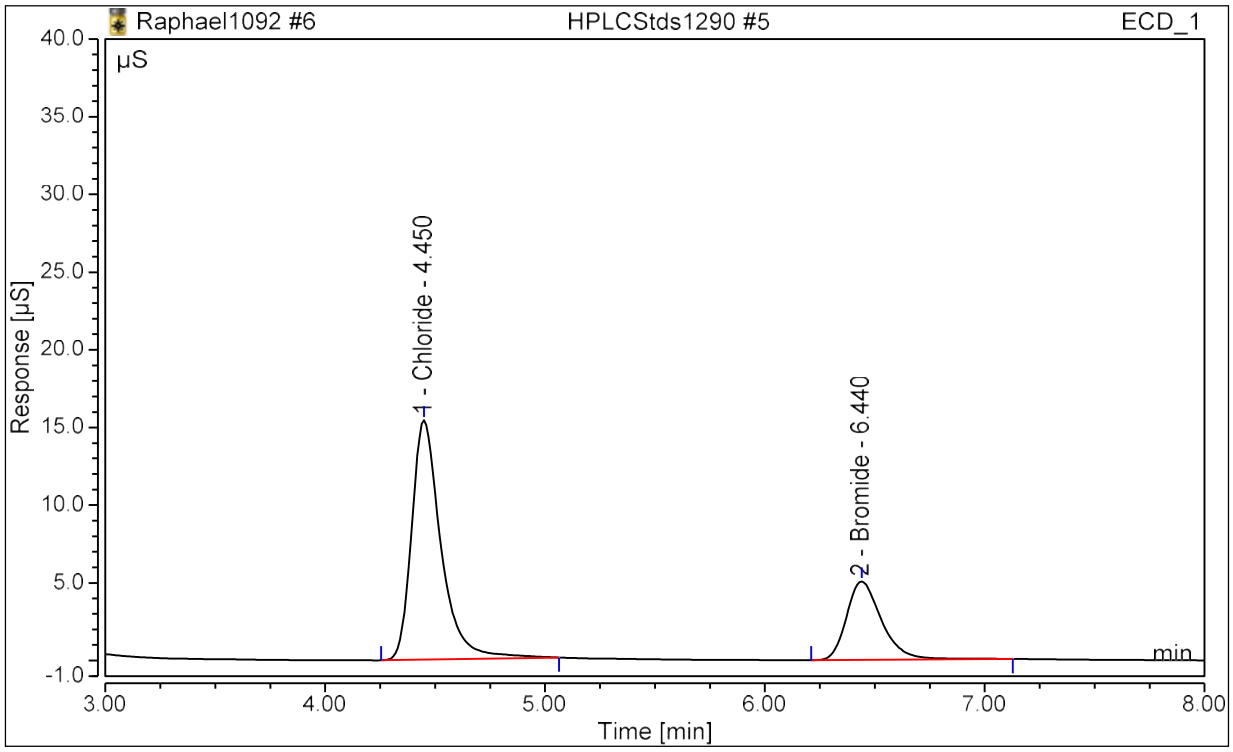


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	2.382	15.473	15.03450	FALSE	FALSE
2	6.44	Bromide	0.940	5.063	14.88421	FALSE	TRUE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 19:30**	Run Time:	**28.00**

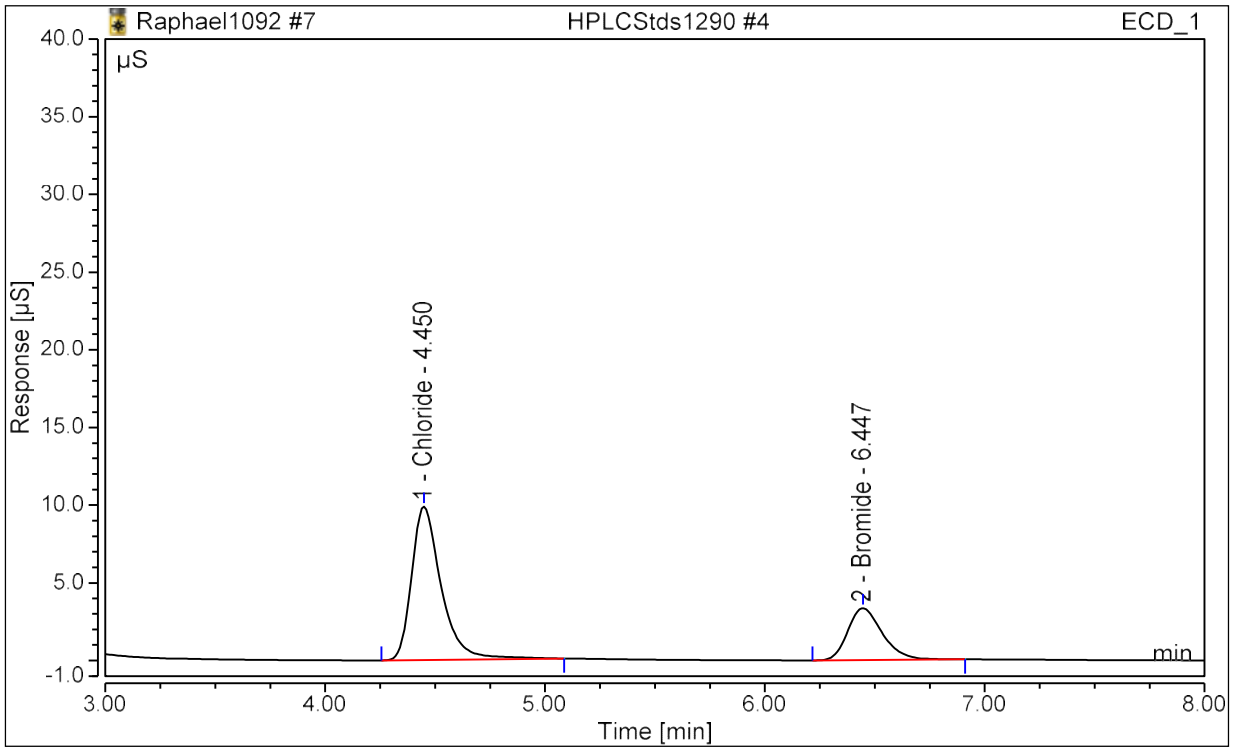


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	2.384	15.406	15.04429	FALSE	FALSE
2	6.44	Bromide	0.941	5.064	14.90121	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 19:59**	Run Time:	**28.00**

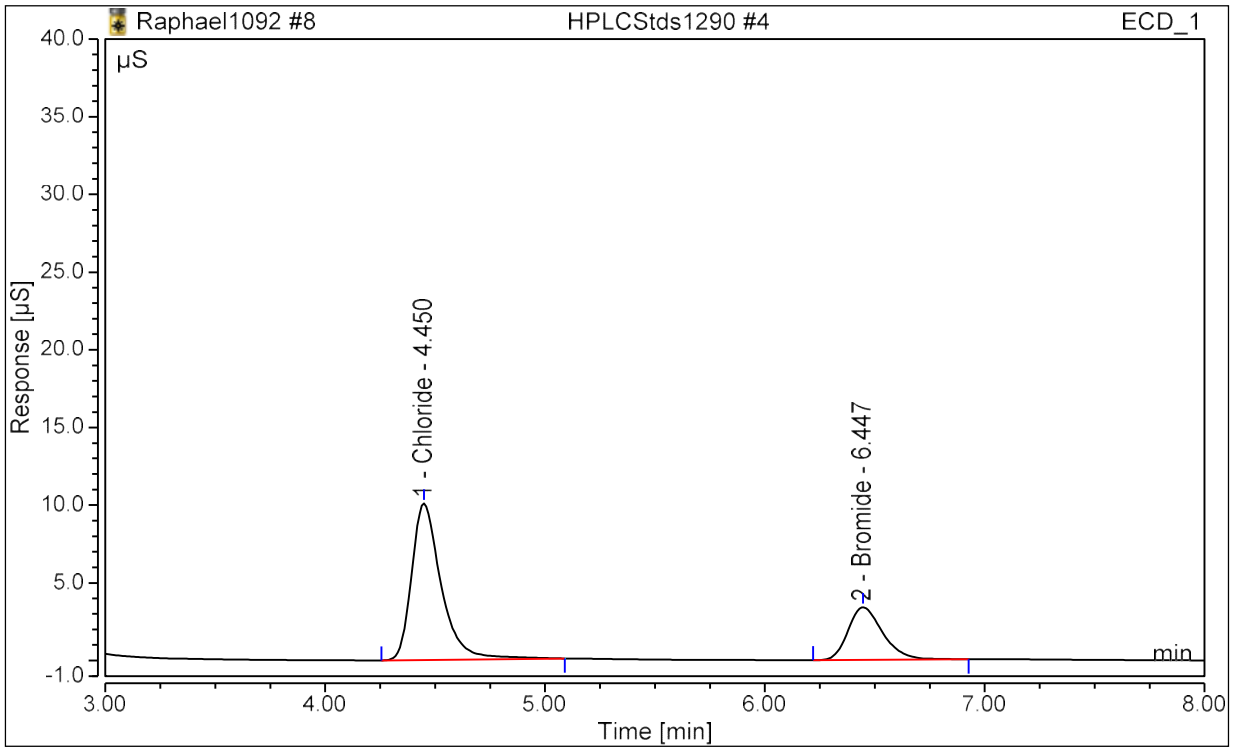


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	1.541	9.873	9.96020	FALSE	FALSE
2	6.45	Bromide	0.610	3.346	9.85916	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 20:29**	Run Time:	**28.00**

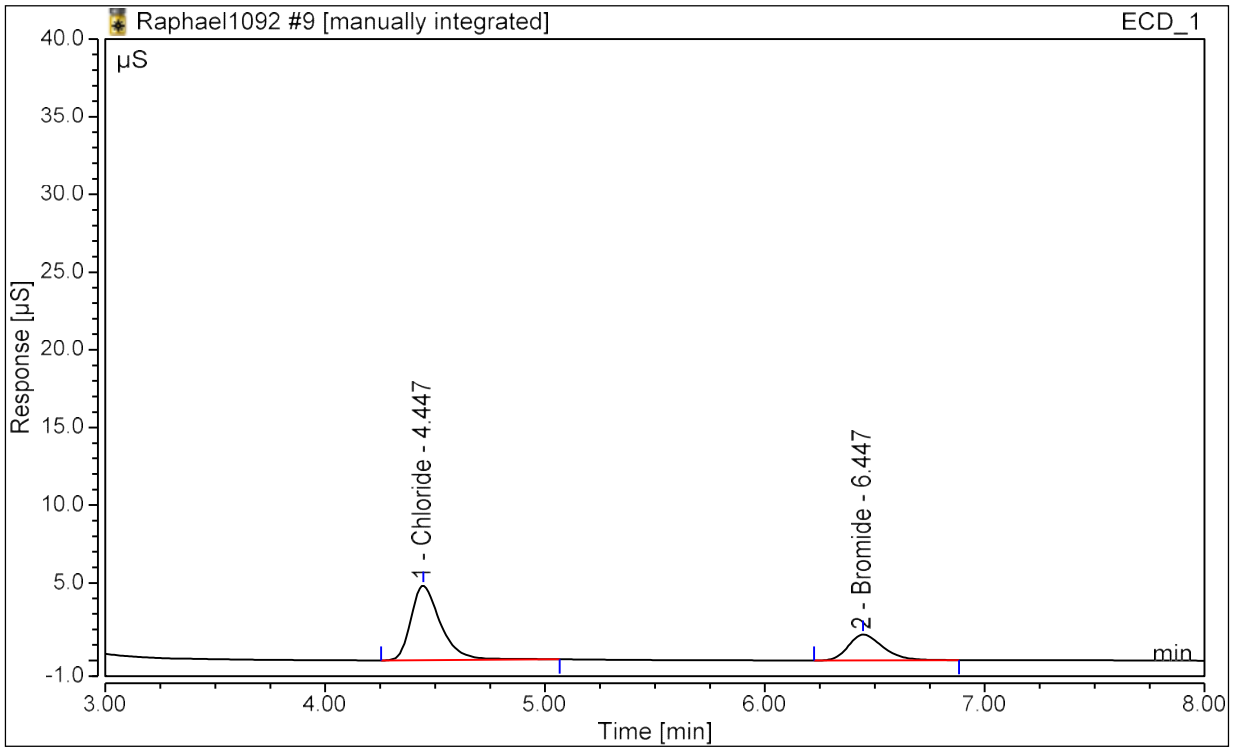


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	1.572	10.064	10.14703	FALSE	FALSE
2	6.45	Bromide	0.620	3.401	10.01566	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 20:59**	Run Time:	**28.00**

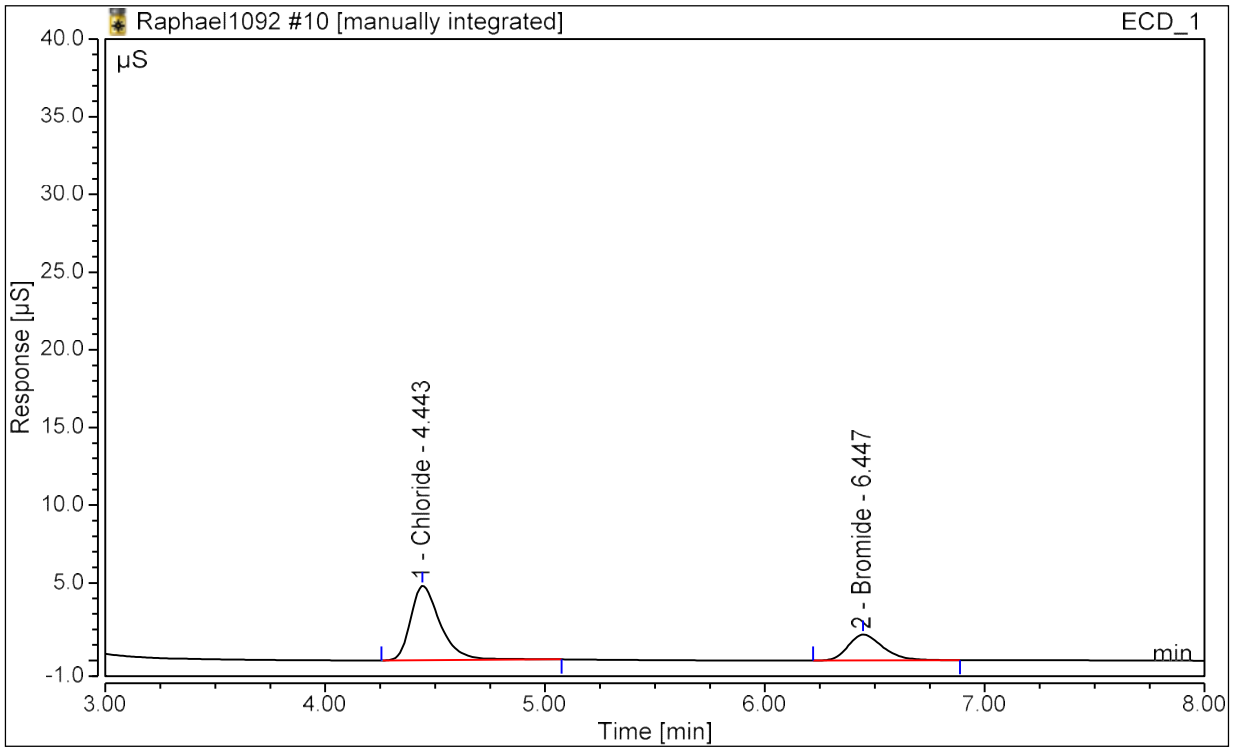


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.751	4.797	4.92024	FALSE	TRUE
2	6.45	Bromide	0.305	1.662	5.02510	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 21:28**	Run Time:	**28.00**

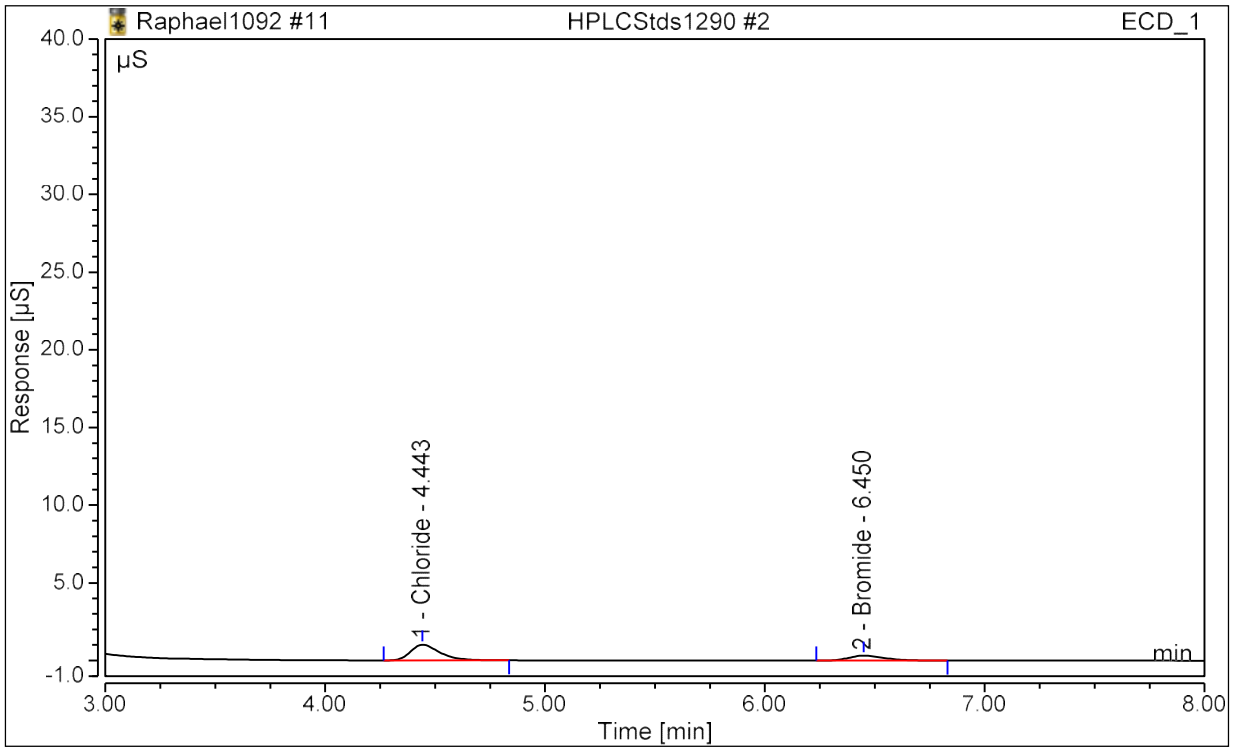


Analyst Comment: II DLM 4/5/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.752	4.792	4.92913	FALSE	TRUE
2	6.45	Bromide	0.307	1.663	5.05028	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 21:58**	Run Time:	**28.00**

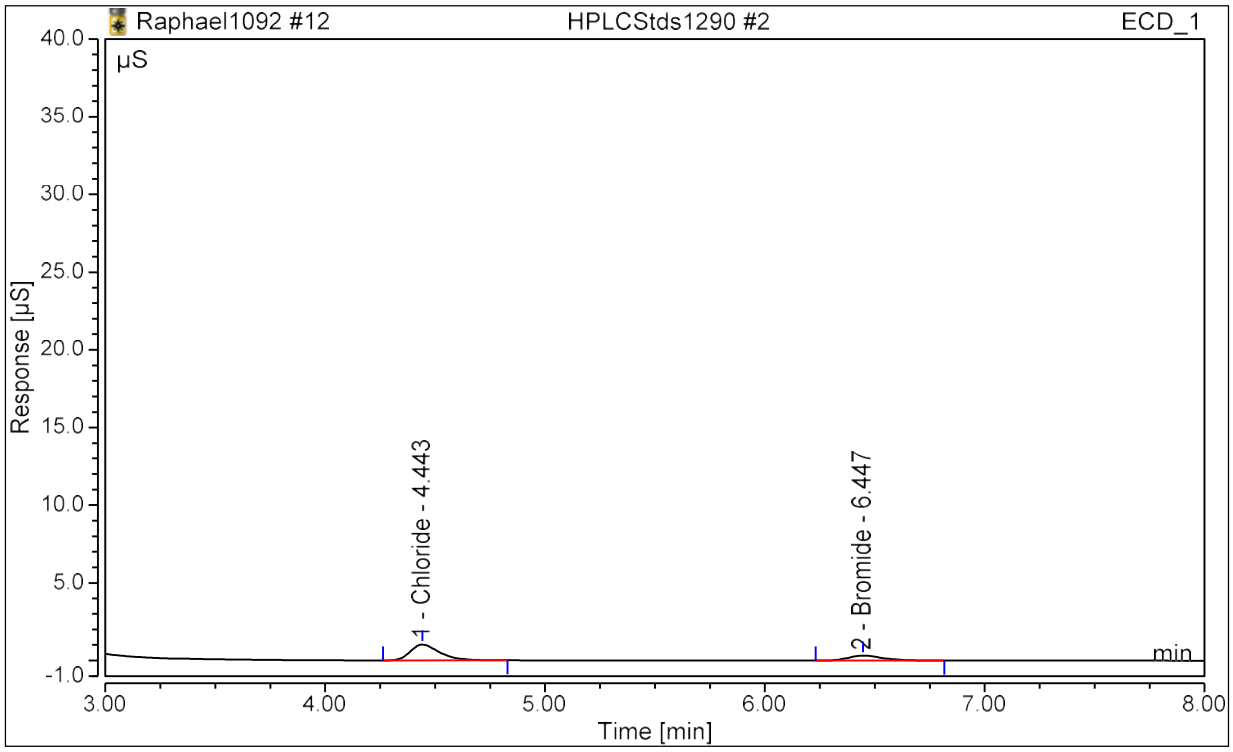


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.158	1.012	0.97093	FALSE	FALSE
2	6.45	Bromide	0.060	0.323	0.99427	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 22:28**	Run Time:	**28.00**

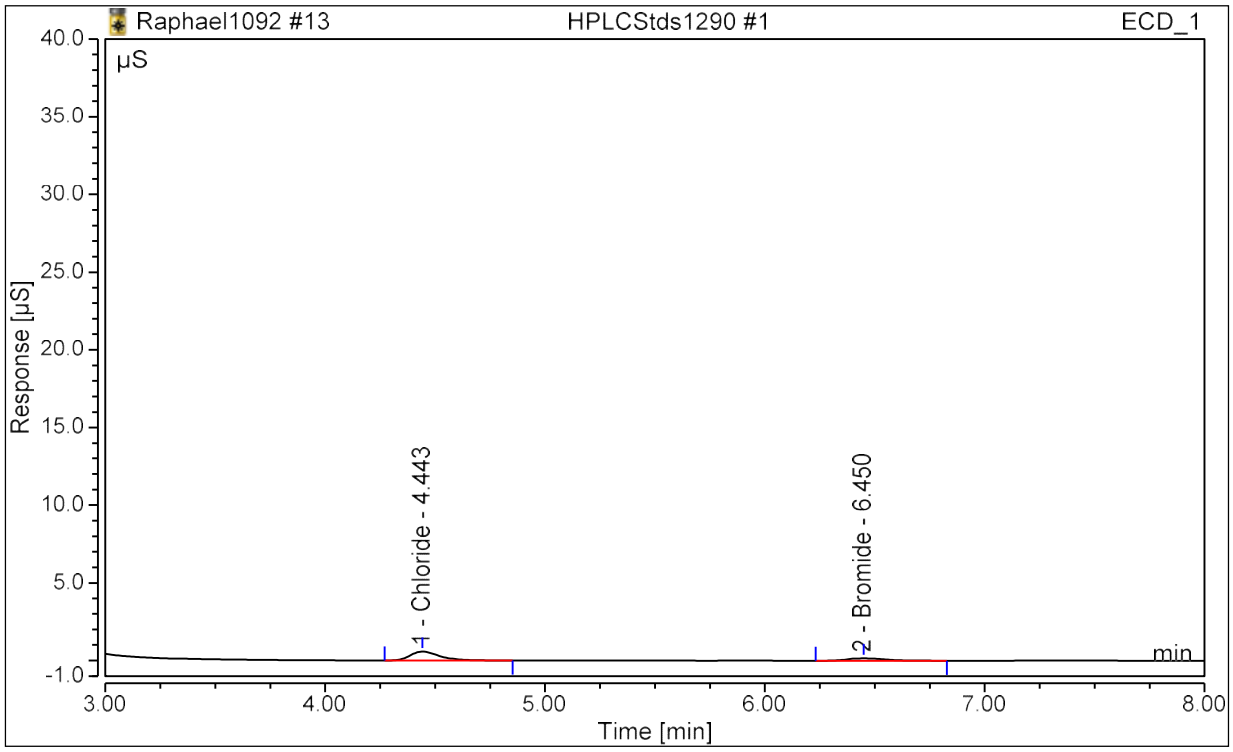


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.159	1.019	0.97919	FALSE	FALSE
2	6.45	Bromide	0.060	0.325	0.99585	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 22:57**	Run Time:	**28.00**

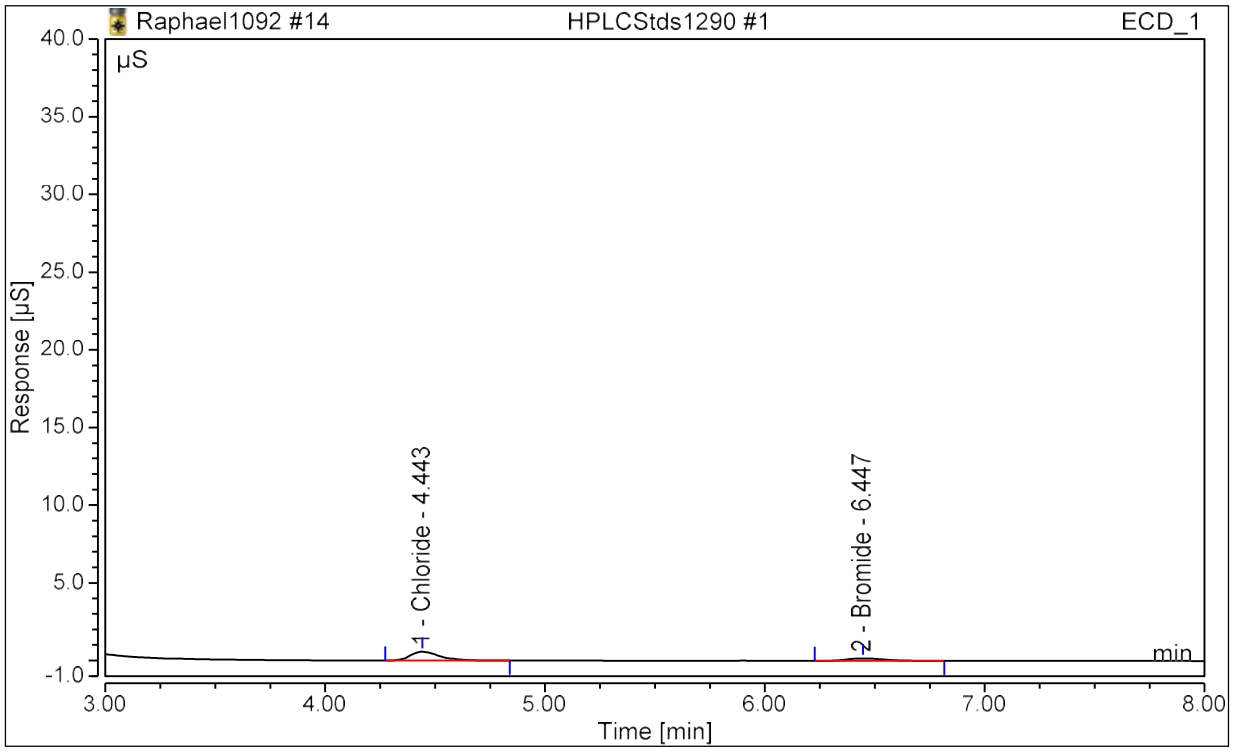


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.090	0.577	0.50982	FALSE	FALSE
2	6.45	Bromide	0.030	0.160	0.49422	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 23:27**	Run Time:	**28.00**

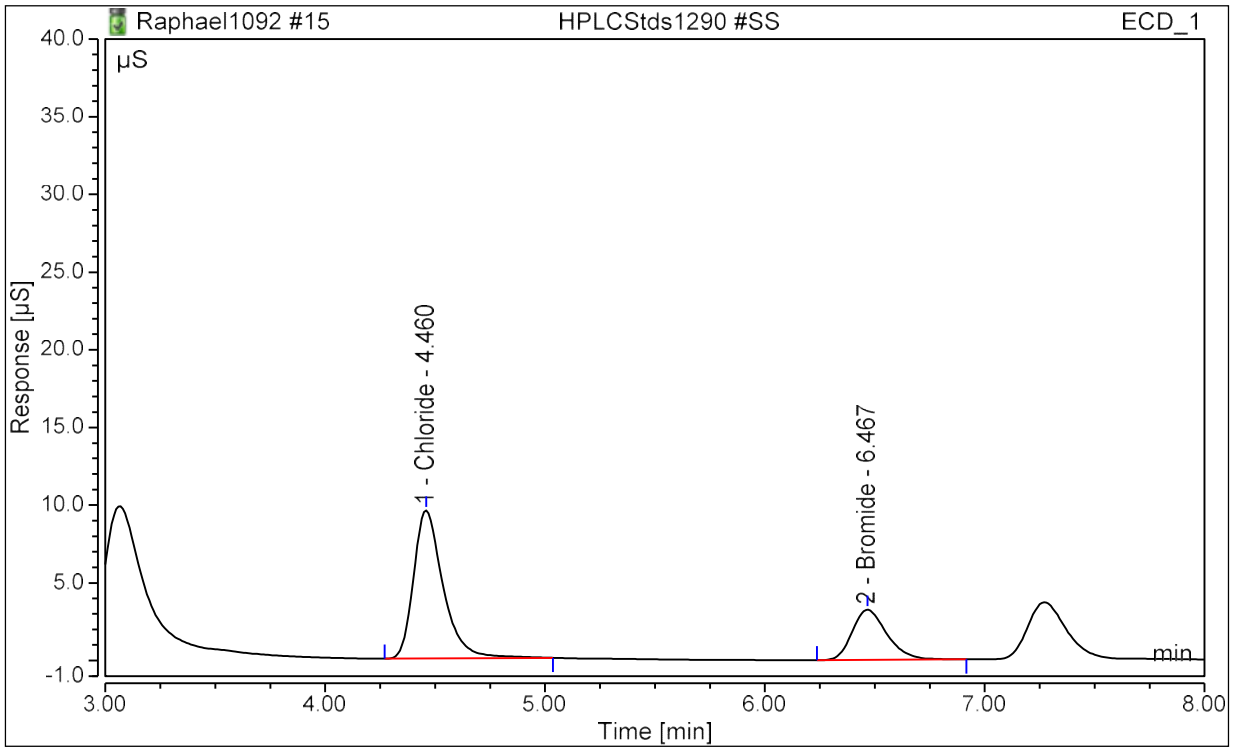


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.090	0.581	0.51396	FALSE	FALSE
2	6.45	Bromide	0.029	0.160	0.49241	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**04-Apr-2022 / 23:57**	Run Time:	**28.00**

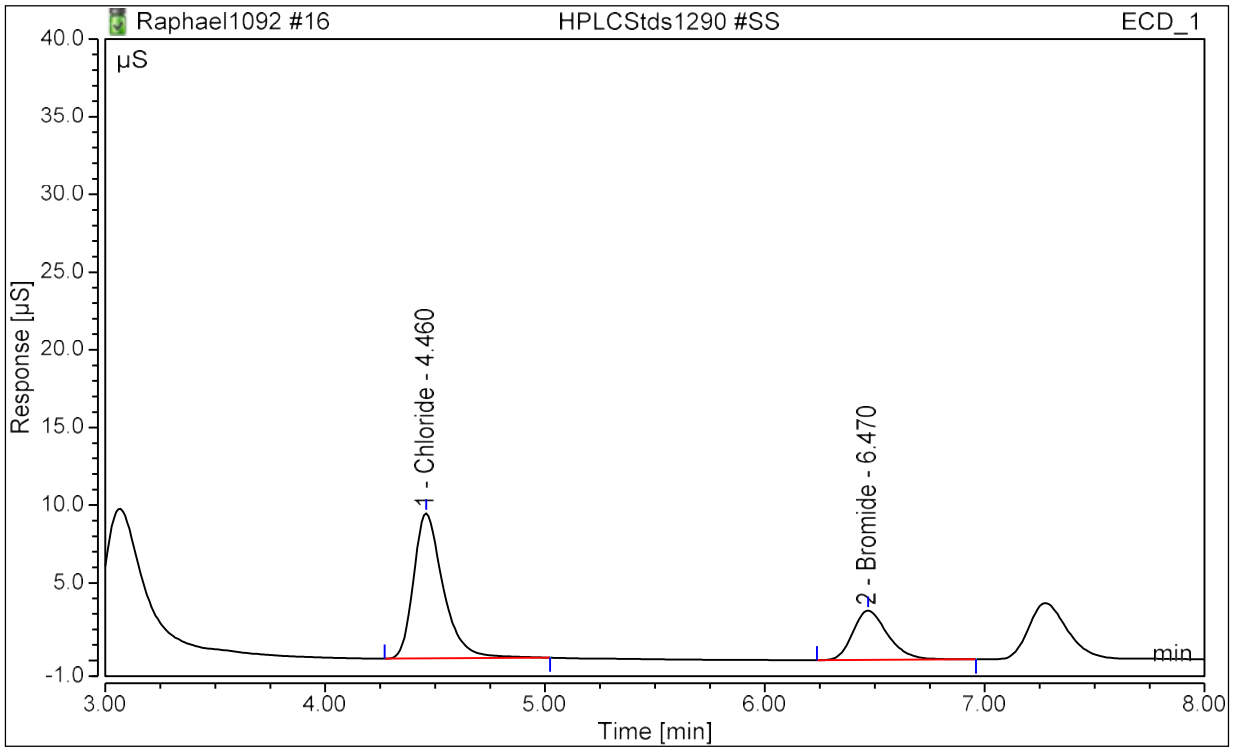


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	1.484	9.532	9.60352	FALSE	FALSE
2	6.47	Bromide	0.594	3.238	9.60930	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #SS**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 00:26**	Run Time:	**28.00**

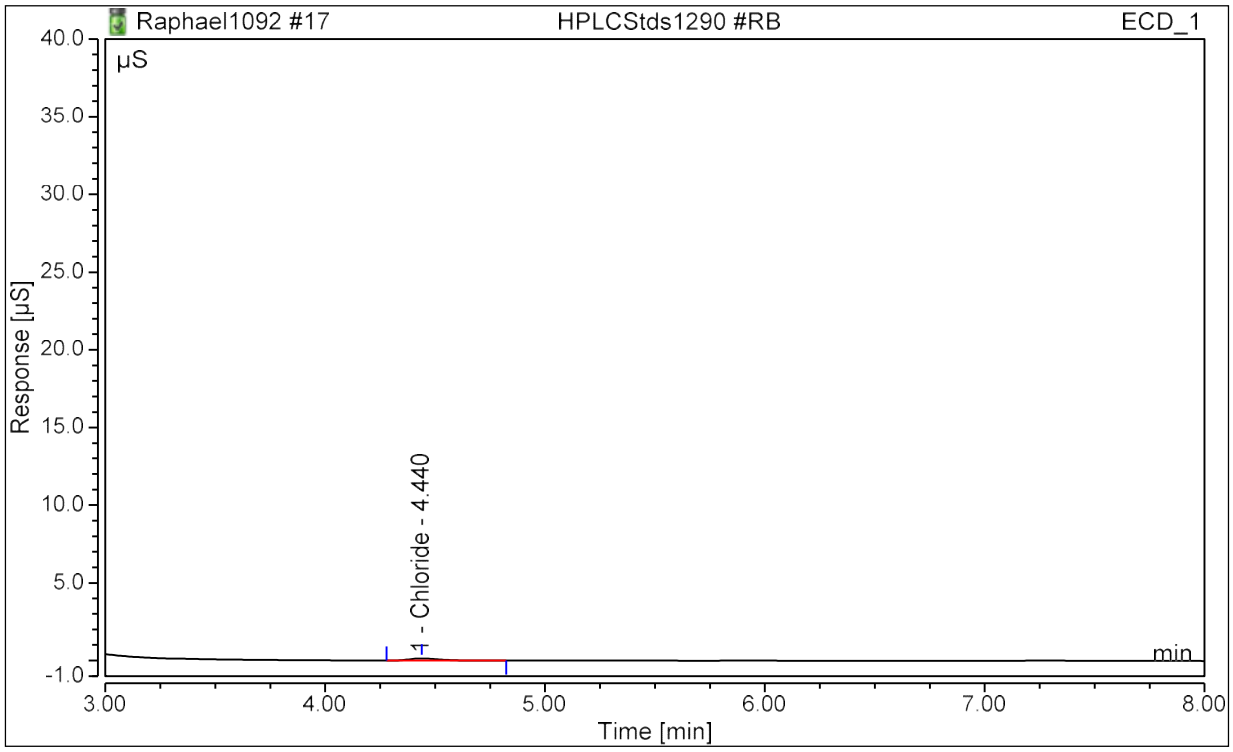


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	1.459	9.329	9.44418	FALSE	FALSE
2	6.47	Bromide	0.587	3.183	9.49620	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 00:56**	Run Time:	**28.00**

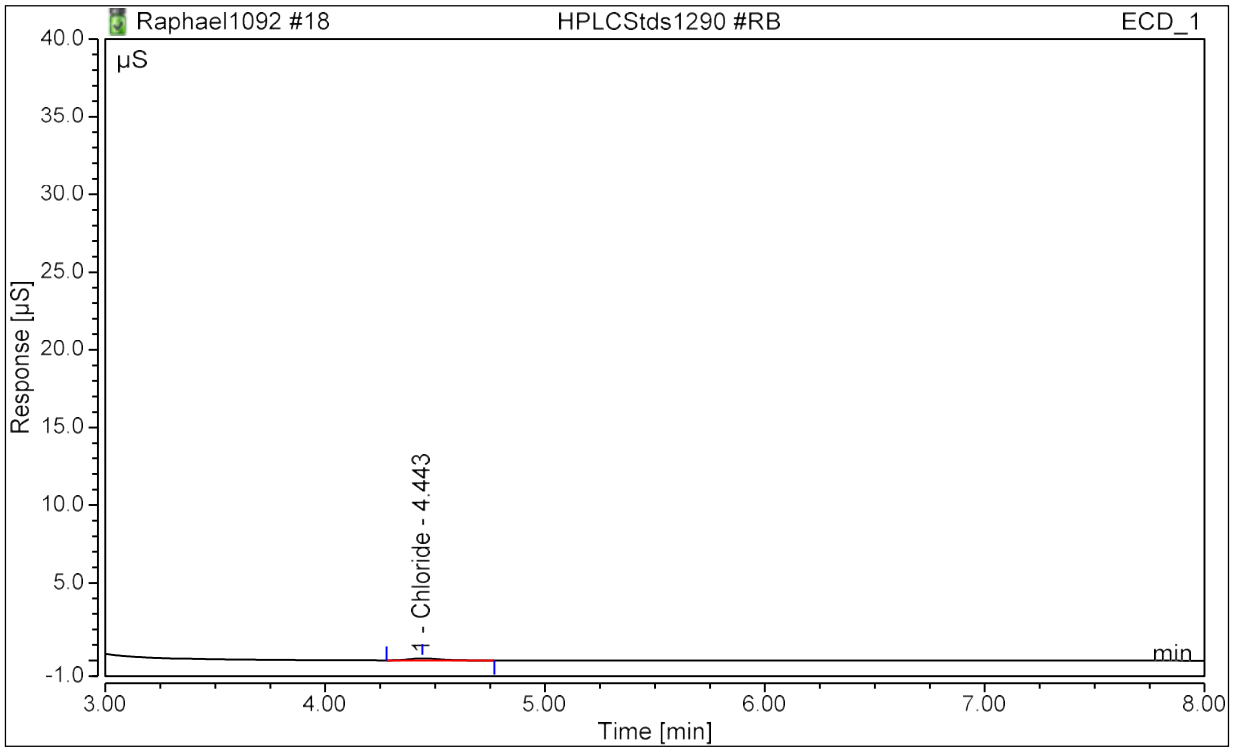


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.021	0.137	0.03825	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1290 #RB**	Injection Volume:	**25.00**
Injection Type:	**Check Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 01:26**	Run Time:	**28.00**

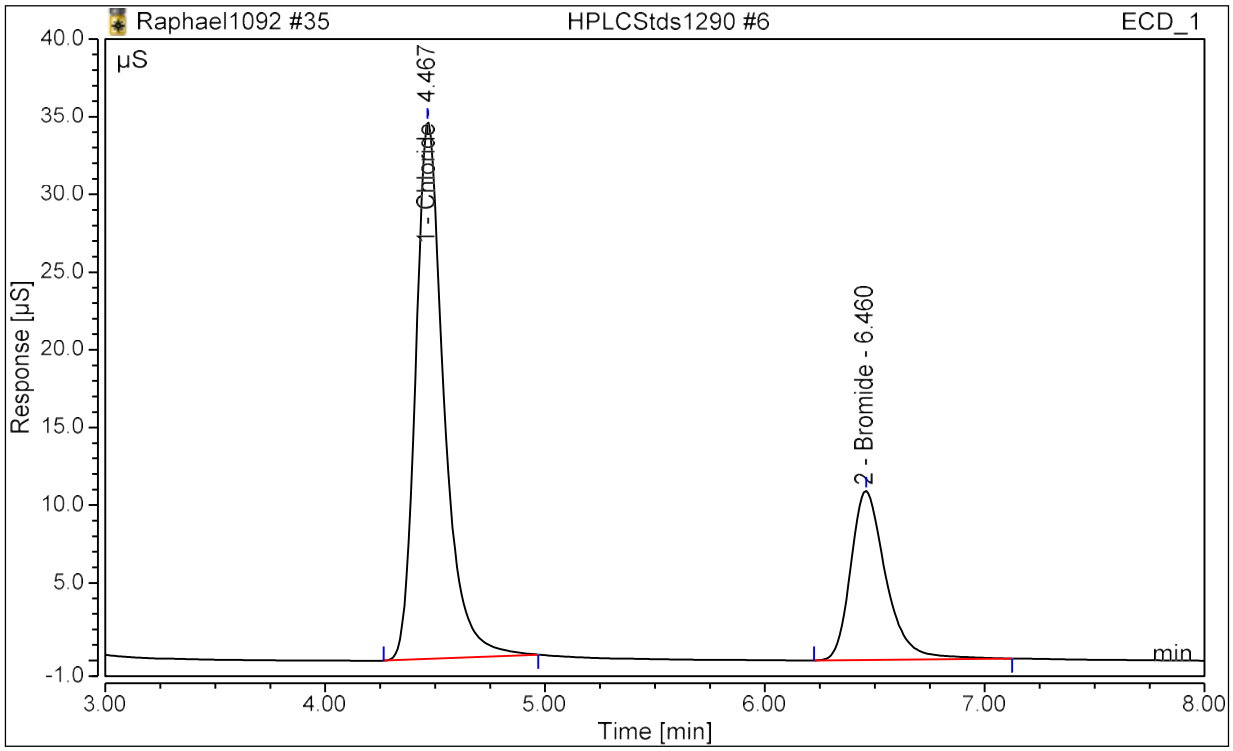


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.020	0.134	0.03326	FALSE	FALSE
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	n.a.

Peak Analysis Report

Sample Name:	**HPLCStds1290 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 09:50**	Run Time:	**28.00**

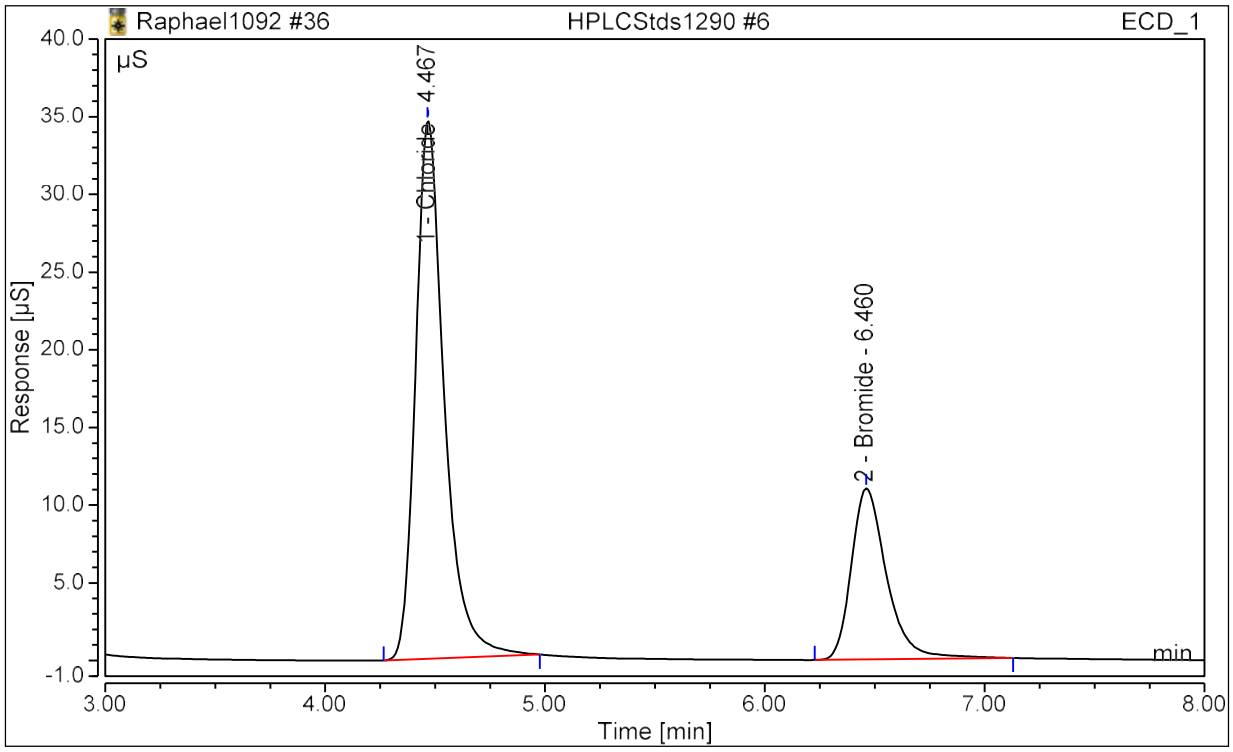


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.47	Chloride	5.169	34.540	29.75081	FALSE	FALSE
2	6.46	Bromide	2.018	10.882	29.82144	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #6**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 10:20**	Run Time:	**28.00**

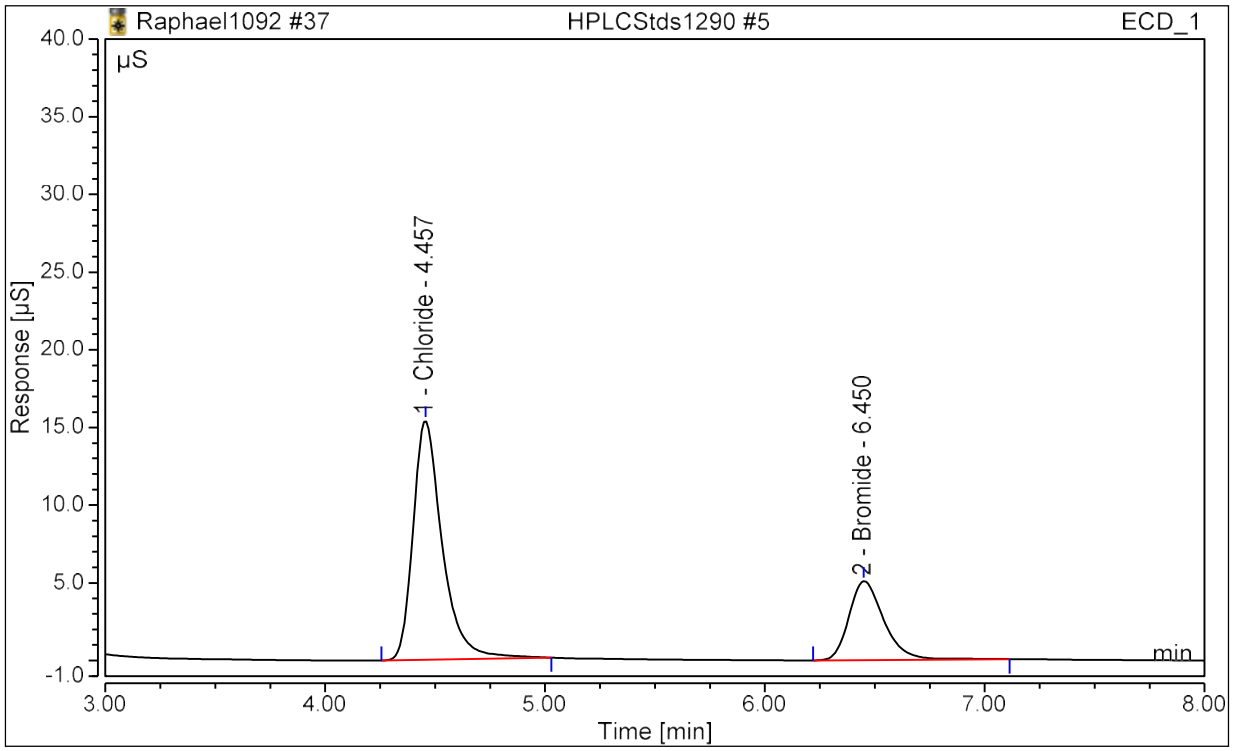


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.47	Chloride	5.248	34.603	30.11830	FALSE	FALSE
2	6.46	Bromide	2.049	11.020	30.20810	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 10:50**	Run Time:	**28.00**

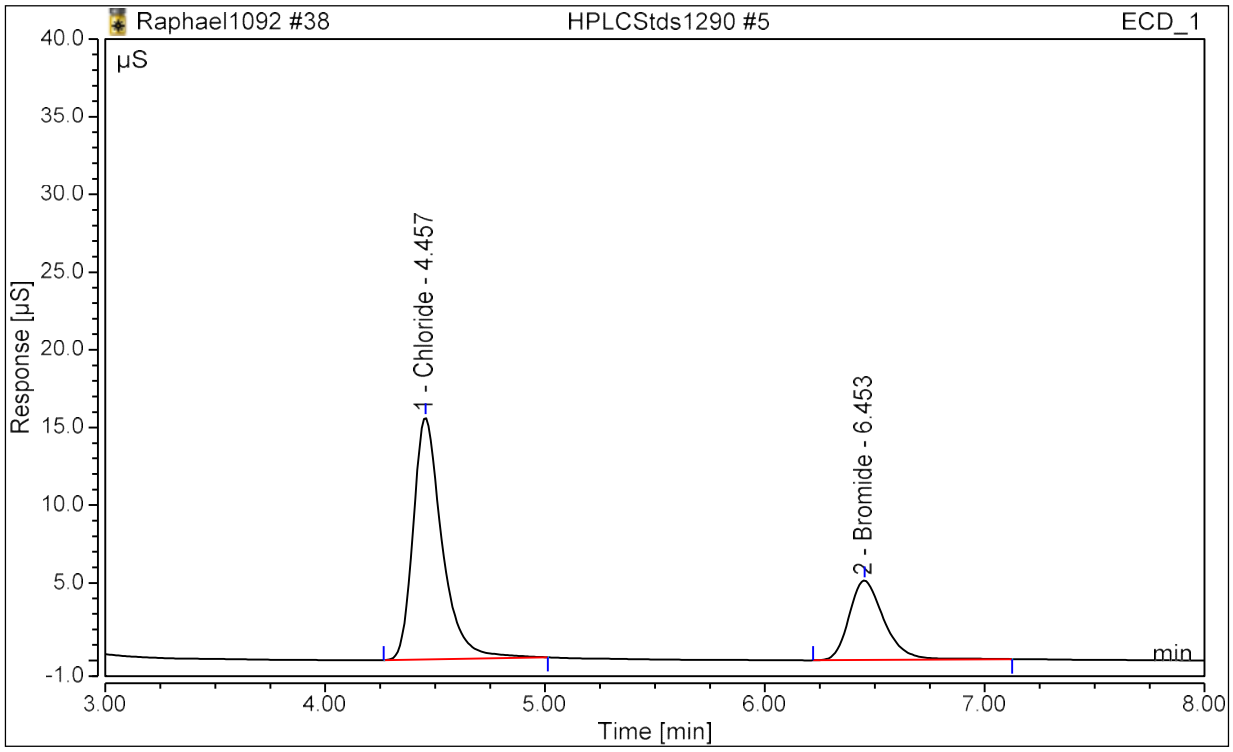


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	2.369	15.399	14.95331	FALSE	FALSE
2	6.45	Bromide	0.936	5.088	14.83816	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #5**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 11:19**	Run Time:	**28.00**

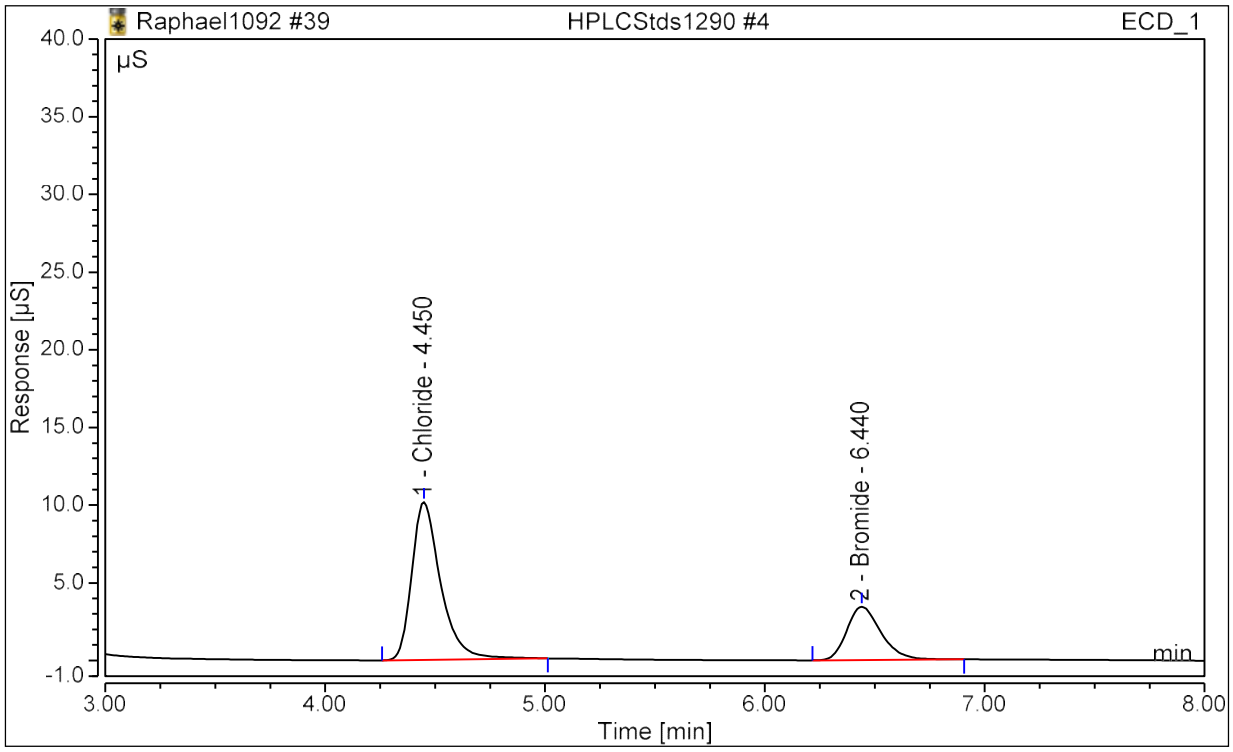


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.46	Chloride	2.373	15.570	14.98221	FALSE	FALSE
2	6.45	Bromide	0.944	5.112	14.95815	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 11:49**	Run Time:	**28.00**

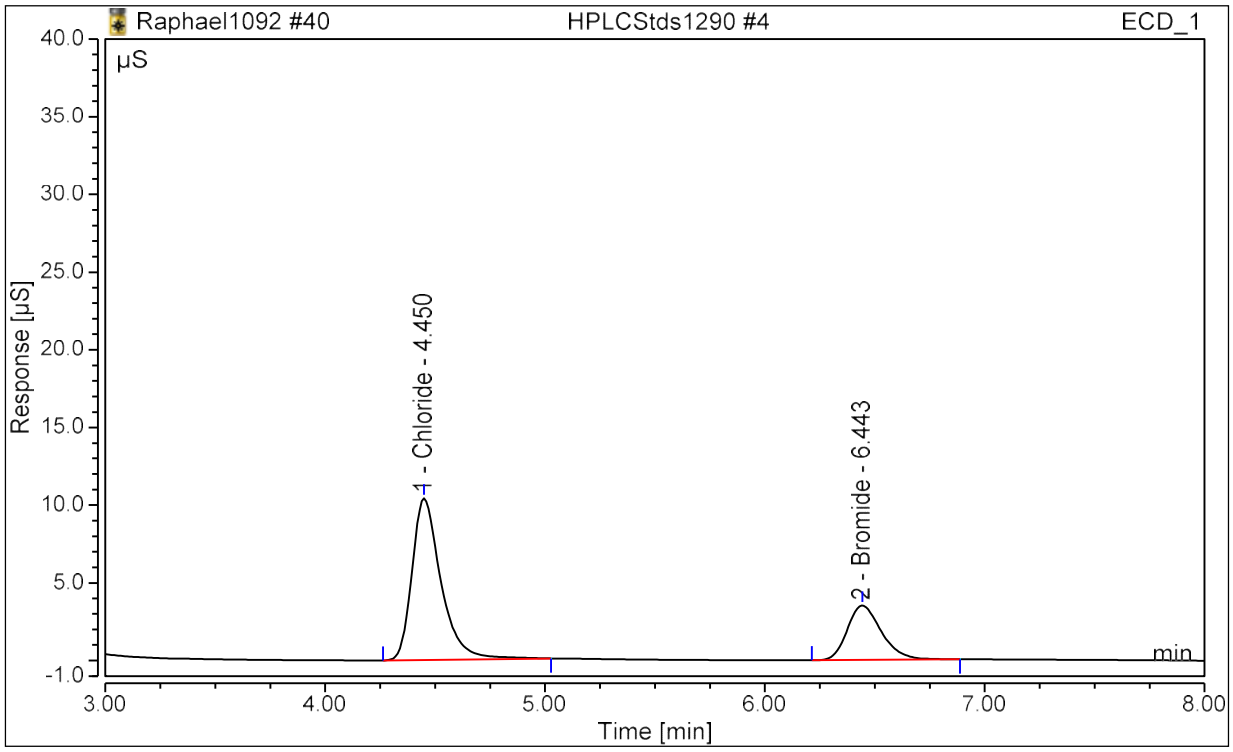


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	1.547	10.151	9.99687	FALSE	FALSE
2	6.44	Bromide	0.619	3.436	10.00027	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #4**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 12:19**	Run Time:	**28.00**

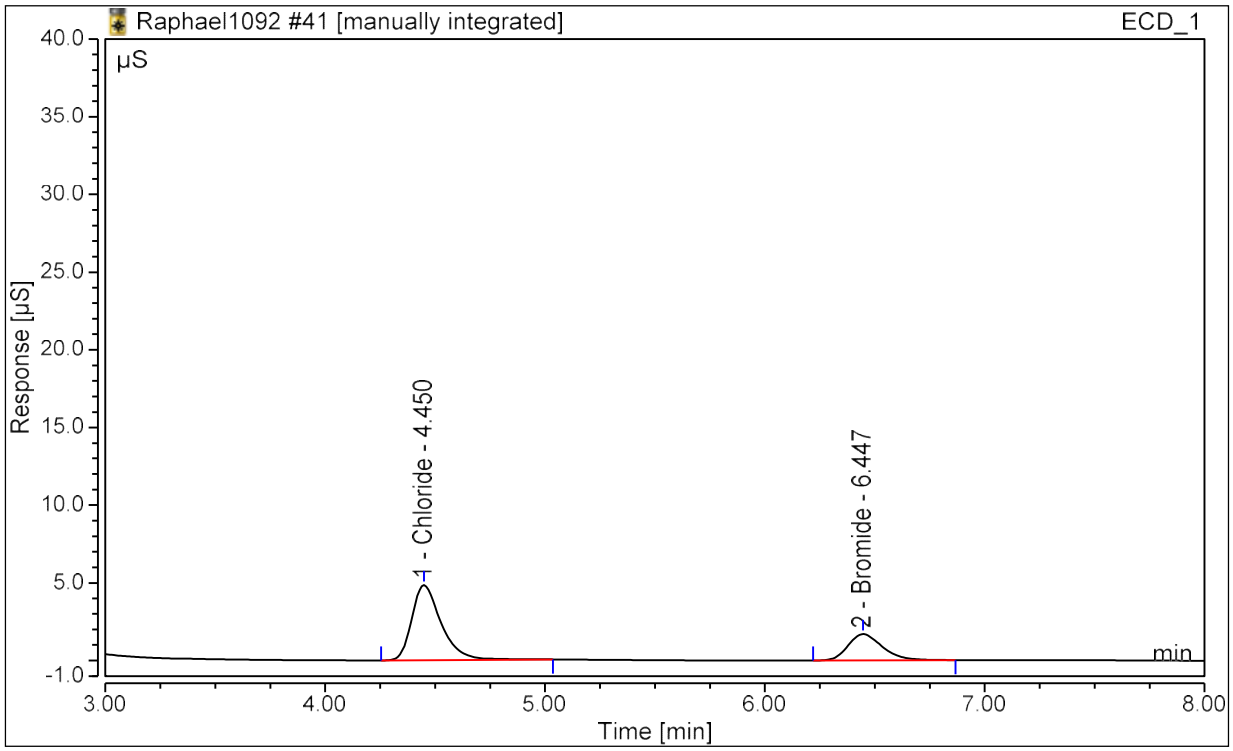


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	1.588	10.390	10.25023	FALSE	FALSE
2	6.44	Bromide	0.632	3.510	10.20384	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 12:49**	Run Time:	**28.00**

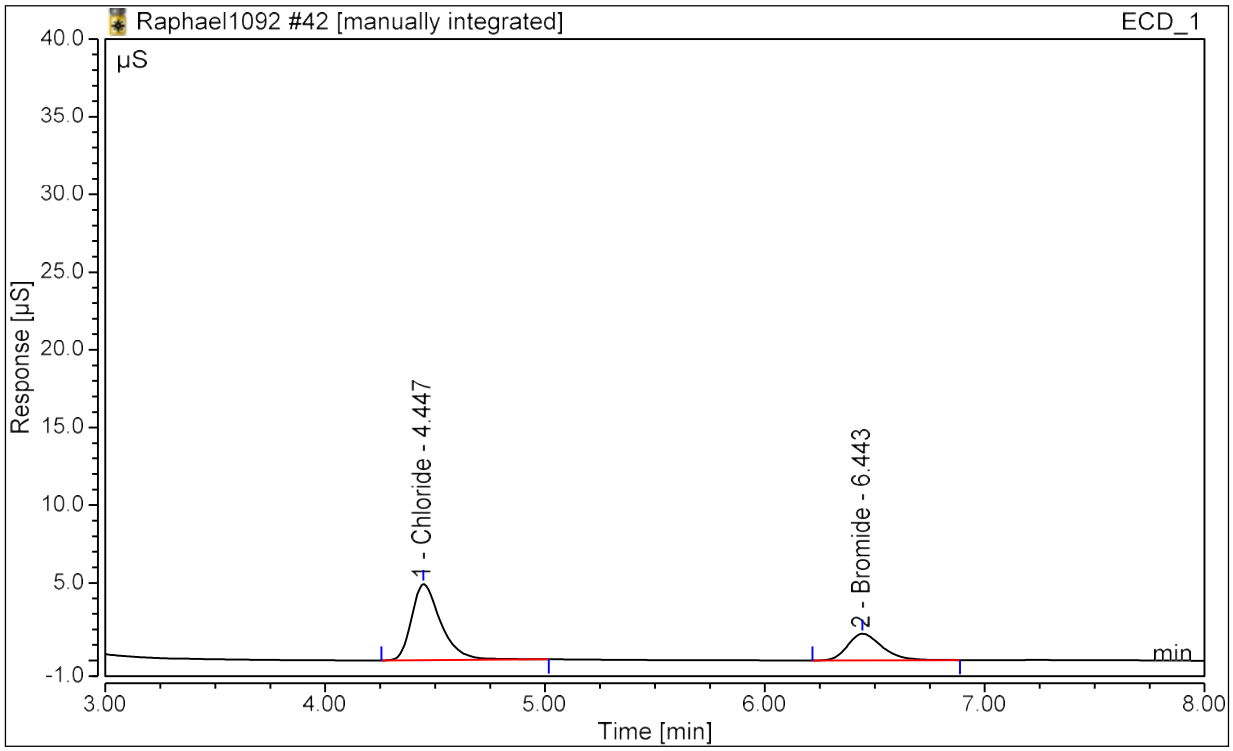


Analyst Comment: II DLM 4/7/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.750	4.836	4.91654	FALSE	TRUE
2	6.45	Bromide	0.306	1.692	5.04487	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #3**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 13:18**	Run Time:	**28.00**

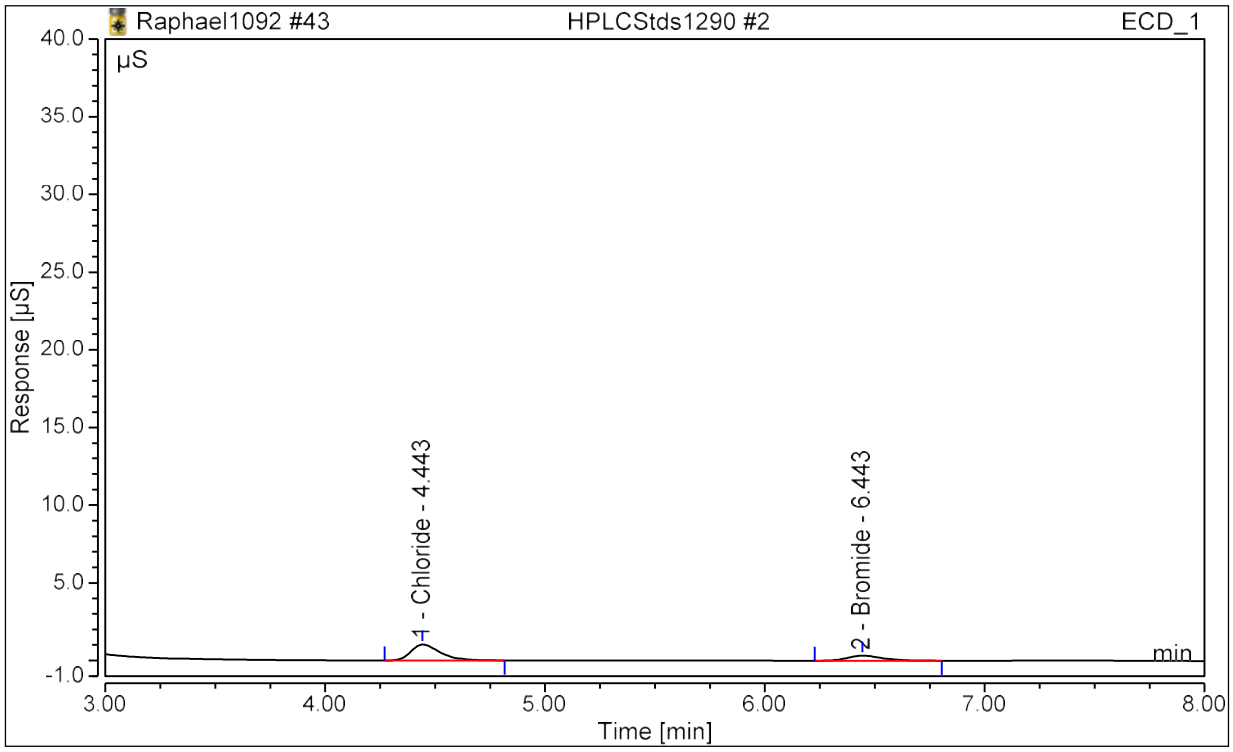


Analyst Comment: II DLM 4/7/22

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.45	Chloride	0.756	4.892	4.95300	FALSE	TRUE
2	6.44	Bromide	0.310	1.708	5.10656	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 13:48**	Run Time:	**28.00**

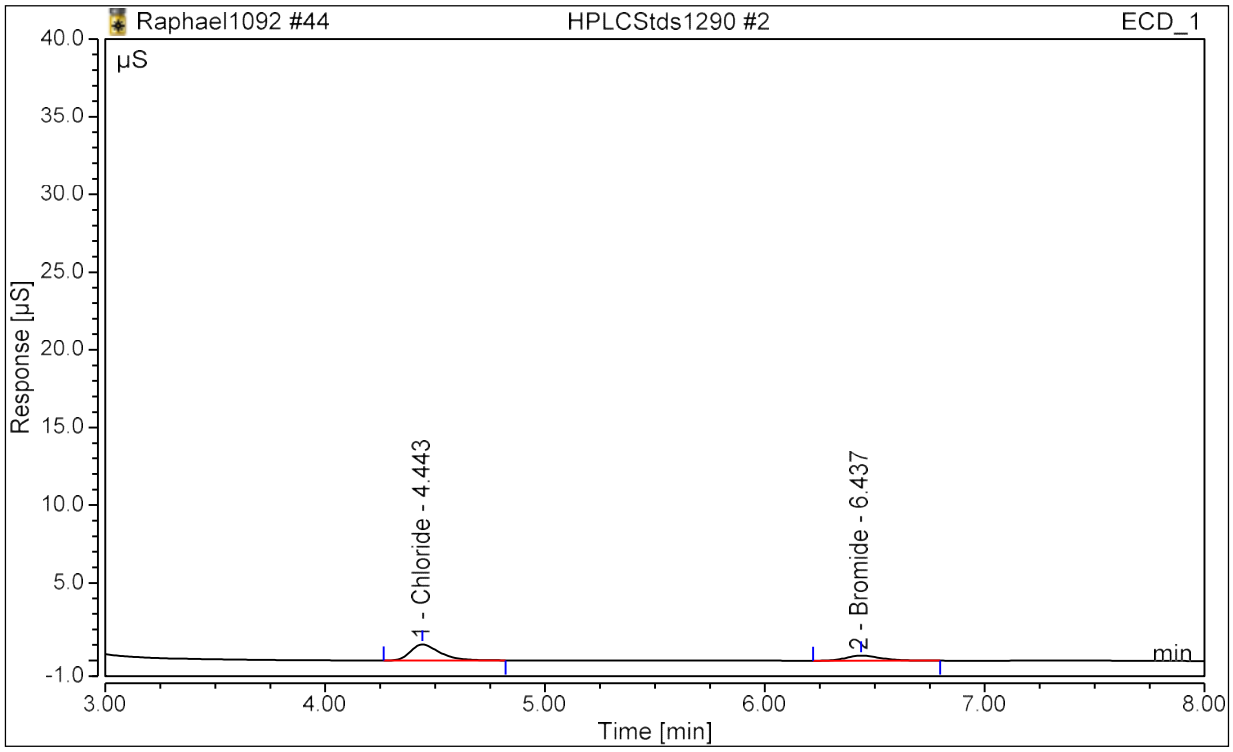


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.159	1.027	0.98324	FALSE	FALSE
2	6.44	Bromide	0.060	0.331	0.99837	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #2**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 14:18**	Run Time:	**28.00**

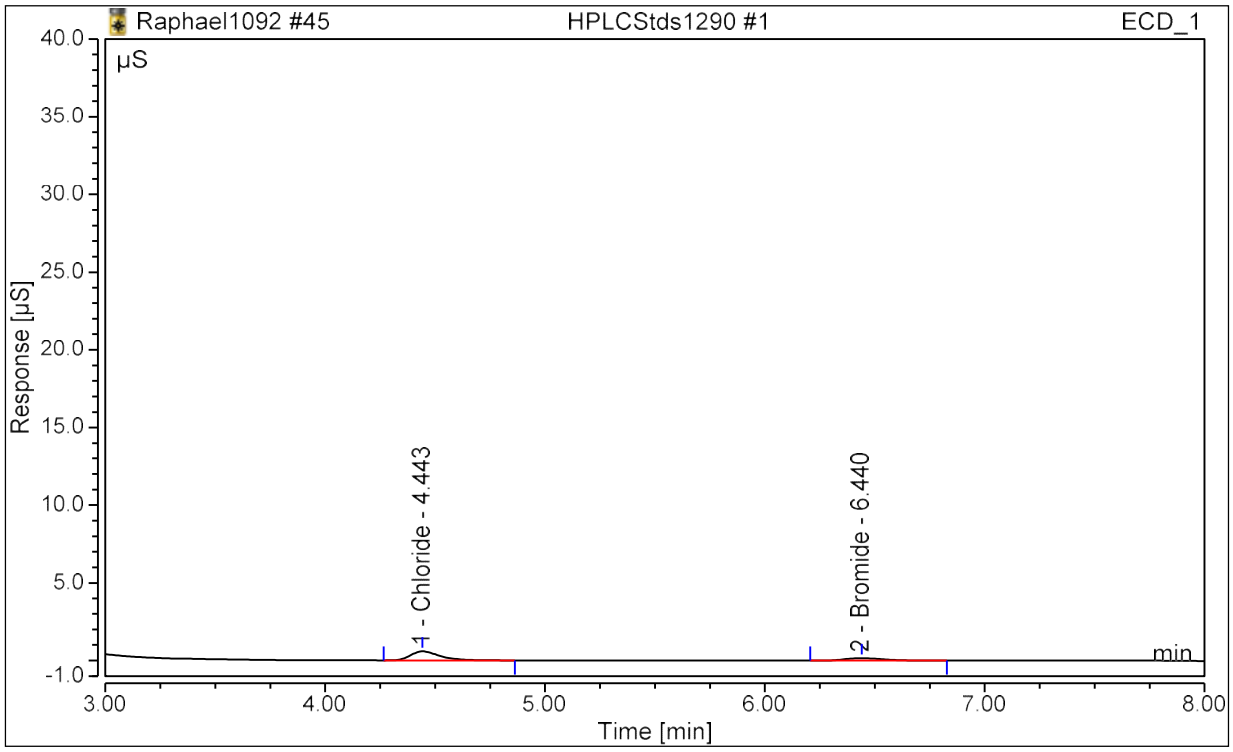


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.159	1.024	0.97955	FALSE	FALSE
2	6.44	Bromide	0.060	0.330	1.00189	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 14:47**	Run Time:	**28.00**

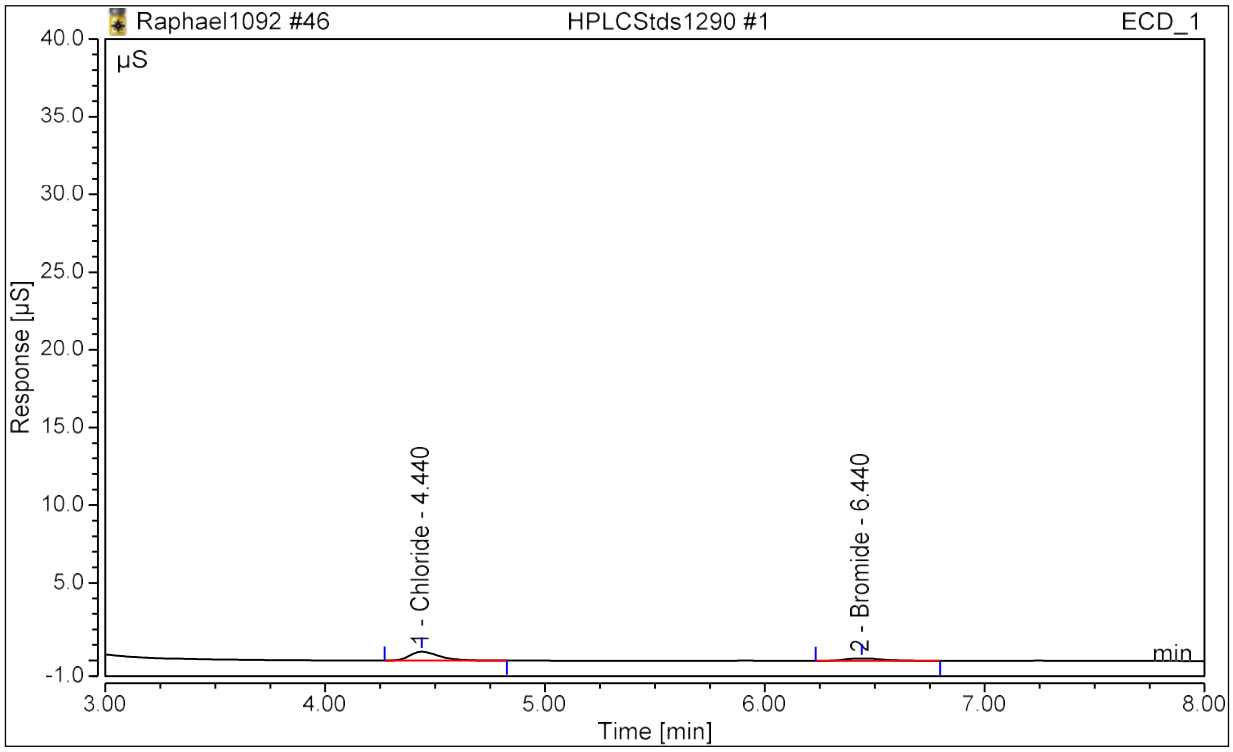


Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.091	0.586	0.51857	FALSE	FALSE
2	6.44	Bromide	0.030	0.166	0.50719	FALSE	FALSE

Peak Analysis Report

Sample Name:	**HPLCStds1290 #1**	Injection Volume:	**25.00**
Injection Type:	**Calibration Standard**	Dilution Factor:	**1.0**
Instrument Method:	**AS22 ASAP Base**	Operator:	**dlmckee**
Inj. Date / Time:	**05-Apr-2022 / 15:17**	Run Time:	**28.00**



Analyst Comment:

No.	Time min	Peak Name	Area µS*min	Height µS	Conc µg/mL	Manually Assigned?	Manipulated?
1	4.44	Chloride	0.090	0.581	0.51235	FALSE	FALSE
2	6.44	Bromide	0.030	0.163	0.49637	FALSE	FALSE

This Is The Last Page Of This Report.

Appendix C.2
Molybdenum Analyses

MVA SCIENTIFIC CONSULTANTS
Full Service Analytical Microscopy Laboratory

3300 Breckinridge Blvd
Suite 400
Duluth, GA 30096

770.662.8509
FAX 770.662.8532
www.mvainc.com

Stack Sample Analysis

PM10 & PM2.5 Custom Particle Sizing

Particle Shape Analysis

Particulate Matter Identification

Back-Half Catch Residue Identification (M202)

Filter Debris Analysis

Ambient Air Sample Characterization

Condensable Analysis

Litigation Support

Techniques

Light Microscopy

Scanning Electron Microscopy

Transmission Electron Microscopy

Fourier Transform Infrared Spectroscopy

Confocal Raman Microscopy

White Light Interference Microscopy

Energy Dispersive X-ray Spectrometry

Fluorescence Microscopy

Ion Milling & Ultramicrotomy

Accreditations

cGMP Compliant

ISO/IEC 17025

FDA Registered

DEA Licensed

Report of Results: MVA14578

Identification of Filter and Bulk Material

Prepared for:

Montrose Air Quality Services, LLC
13585 NE Whitaker Way
Portland, OR 97230

Respectfully Submitted by: EXECUTED BY ELECTRONIC SIGNATURE

Jake Mosely, M.S.
Research Scientist

31 March 2022

Report of Results: MVA14578

Identification of Filter and Bulk Material

Introduction

On 15 March 2022 we received six fiber filters and six bulk powder samples with the request that we determine the composition of the material with specific inspection for the presence of molybdenum oxides. Upon receipt the samples were assigned the unique MVA Scientific Consultants laboratory identification numbers shown in the table below. The analyses were performed at MVA Scientific Consultants during the period 22 March through 30 March 2022.

Client Identification	MVA Sample Number
1-filter- Acute	AH0450
1-Bulk sample Acute	AH0451
2-filter- Acute	AH0452
2-Bulk sample Acute	AH0453
3-filter Acute	AH0454
3-Bulk Sample Acute	AH0455
1-filter- Chronic	AH0456
1-Bulk sample Chronic	AH0457
2-filter- Chronic	AH0458
2-Bulk Sample Chronic	AH0459
3-filter Chronic	AH0460
3-Bulk Sample Chronic	AH0461

Methods

The samples were examined visually and with the aid of a stereomicroscope. Portions of each sample were analyzed by scanning electron microscopy/energy dispersive x-ray spectrometry (SEM/EDS). SEM/EDS analysis was conducted using a JEOL JSM-6500F field emission scanning electron microscope equipped with a Thermo Scientific Noran System 7 energy dispersive x-ray spectrometer.

In the included EDS spectra, the presence of a peak labeled with an element symbol indicates the presence of that element in the sample, and the height of the peak can be related to the concentration of the element in the sample. A table of common elements and their elemental symbol is provided at the end of this report.

Results

1-filter- Acute (AH0450)
The sample presented as a lightly loaded fiber filter.

SEM/EDS analysis of the filter material showed it to be silica (Figures A1 and A2). SEM/EDS analysis of particulate matter on the filter showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium and sodium (along with occasional lesser amounts of potassium) (Figure A3). The chloride salts appear both as sodium- and calcium-rich end members (Figures A4 and A5) but also as various mixtures. The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Some small number of particles had an iron and zinc component (Figure A6).

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres, consistent with fly ash, with zinc, magnesium, titanium, and iron components, and larger flakes of stainless steel/iron and associated corrosion (Figures A7 through A10). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of calcium and sodium chloride salts that made up the majority of the sample (Figures A11 through A13), and were present in roughly equal amounts, with potassium and sulfur appearing in lesser amounts. Small amounts of iron, zinc, and aluminum were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

1-Bulk sample Acute (AH0451)
The sample presented as a homogenous grey powder.

SEM/EDS analysis of the raw powder (Figure B1) showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium and sodium (along with occasional lesser amounts of potassium) (Figure B2). The chloride salts appear as various mixtures but were primarily calcium chloride in most cases (Figure B3). The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Evidence of fine distributed aluminosilicate was present in the observed spectra. Some particles had a zinc and/or magnesium component. An iodine-rich phase appearing as flakes (Figure B4) and an aluminum- and calcium-rich phase present as spheres (Figure B5) were present in trace (<1% by volume) amounts.

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres, consistent with fly ash, with copper, phosphorous, magnesium, titanium, and iron components alongside residual salts (Figures B6 through B8). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of mixed chloride salts that made up the majority of the sample, with more calcium than sodium present, and aluminum, potassium, and sulfur appearing in lesser amounts (Figures B9 through B12). Small amounts of copper were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

2-filter- Acute (AH0452)
The sample presented as a lightly loaded fiber filter.

SEM/EDS analysis of the filter material showed it to be silica (Figures C1 and C2). SEM/EDS analysis of particulate matter on the filter showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium and sodium (along with occasional lesser amounts of potassium) (Figure C3). The chloride salts appear both as sodium- and calcium-rich end members (Figures C4 and C5) but also as various mixtures. The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Some particles had an iron, zinc, copper, magnesium, and/or aluminum component (Figure C6).

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres and flakes of varying composition, consistent with fly ash, with zinc, phosphorous, magnesium, titanium, and iron components (Figures C7 through C9) and larger flakes of iron and associated corrosion (Figures C10 and C11). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of calcium and sodium chloride salts that up the majority of the sample (Figures C12 through C14), with sodium appearing in greater proportions than calcium, along with potassium and sulfur in lesser amounts. Small amounts of magnesium, copper, iron, zinc, and aluminum were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

2-Bulk sample Acute (AH0453)
The sample presented as a homogenous grey powder.

SEM/EDS analysis of the raw powder (Figure D1) showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium and sodium (along with occasional lesser amounts of potassium) (Figure D2). The chloride salts appear as various mixtures but were primarily calcium chloride in most cases (Figure D3). The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Evidence of fine distributed aluminosilicate was present in the observed spectra. Some particles had a zinc and/or magnesium component.

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition, consistent with fly ash, with zinc, phosphorous, magnesium, titanium, and iron components alongside residual salts (Figures D4 through D6). Fine iron- and zinc-rich (with some copper) particles were present in trace amounts as well (Figure D7). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of mixed chloride and sulfate/sulfite salts that made up the majority of the sample, with more calcium than sodium present, and aluminum and potassium appearing in lesser amounts (Figures D8 through D10). Small amounts of copper were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

3-filter- Acute (AH0454)
The sample presented as a lightly loaded fiber filter.

SEM/EDS analysis of the filter material showed it to be silica (Figures E1 and E2). SEM/EDS analysis of particulate matter on the filter showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium, sodium, and potassium (Figure E3). The chloride salts appear as sodium-, potassium-, and calcium-rich end members (Figures E4 through E6) but also as various mixtures. The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Some particles had a zinc and/or aluminum component.

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition, consistent with fly ash, with zinc, phosphorous, magnesium, titanium, and iron components (Figures E7 through E9) and flakes of iron and associated corrosion (Figures E10). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of calcium and sodium chloride salts that made up the majority of the material (Figures E11 through E13) with sodium appearing in greater proportions than calcium, along with potassium and sulfur in lesser amounts. Small amounts of aluminum were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

3-Bulk sample Acute (AH0455)
The sample presented as a homogenous grey powder.

SEM/EDS analysis of the raw powder (Figure F1) showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium and sodium (along with occasional lesser amounts of potassium) (Figure F2). The chloride salts appear as various mixtures but were primarily calcium chloride in most cases (Figure F3). The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Evidence of fine distributed aluminosilicate was present in the observed spectra. Some particles had a zinc and/or magnesium component. A small number of particles were iron-rich (Figure F4).

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition, consistent with fly ash, with various zinc, phosphorous, magnesium, and iron components alongside residual salts (Figures F5 and F6). Iodine-rich particles were present in trace amounts as well (Figure F7). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of mixed chloride and sulfate/sulfite salts that made up the majority of the sample, with more calcium than sodium present, and with aluminum and potassium appearing in lesser amounts (Figures F8 through F10).

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

1-filter- Chronic (AH0456)
The sample presented as a lightly loaded fiber filter.

SEM/EDS analysis of particulate matter on the filter (Figure G1) showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium (with lesser amounts of sodium and potassium) (Figure G2). The chloride salts appear as calcium-dominated mixtures. The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Some salt particles had an iron and magnesium component. Stainless steel/stainless steel corrosion (Figure G3) and iron-rich (Figure G4) particles were seen in trace amounts.

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition, consistent with fly ash, with zinc, magnesium, and iron components (Figures G5 through G7) and particles of iron-rich material, stainless steel, and associated corrosion (Figures G8 and G9). The filter material was silica (Figure G10). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of calcium chloride and sulfate/sulfite salts that made up the majority of the sample (Figures G11 through G14), along with sodium and potassium in lesser amounts. Small amounts of magnesium and aluminum were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

1-Bulk sample Chronic (AH0457)
The sample presented as a homogenous grey powder.

SEM/EDS analysis of the raw powder (Figure H1) showed that it consisted primarily of chloride and sulfate/sulfite salts of calcium (along with occasional lesser amounts of sodium and potassium) (Figure H2). The chloride salts appear as various mixtures but were primarily calcium chloride in most cases (Figure H3). The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Evidence of fine distributed aluminosilicate was present in the observed spectra. Some particles had a magnesium component.

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition, consistent with fly ash, with zinc, phosphorous, magnesium, titanium, and iron components alongside residual salts (Figures H4 and H5). Iodine-rich particles were present in trace amounts as well (Figure H6). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of mixed chloride and sulfate/sulfite salts that made up the majority of the sample, with more calcium than sodium present, and with aluminum, and potassium appearing in lesser amounts along with copper (Figures H7 through H9).

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

2-filter-Chronic (AH0458)
The sample presented as a lightly loaded fiber filter.

SEM/EDS analysis of the filter material showed it to be silica (Figures I1 and I2). SEM/EDS analysis of particulate matter on the filter showed that it consisted primarily of mixed chloride and sulfate/sulfite salts of calcium and sodium (along with occasional lesser amounts of potassium) (Figures I3 and I4). The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Some small number of particles had an iron and zinc component (Figure I5).

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition consistent with fly ash and/or iron corrosion with zinc, manganese, and iron components, and also larger flakes of iron and associated corrosion (Figures I6 through I8). Iodine-rich particles were present in trace amounts as well (Figure I9). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of calcium and sodium chloride salts that made up the majority of the sample (Figures I10 through I12) and were present in roughly equal amounts, with potassium and sulfur appearing in lesser amounts. Small amounts of zinc and aluminum were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

2-Bulk sample Chronic (AH0459)
The sample presented as a homogenous grey powder.

SEM/EDS analysis of the raw powder (Figure J1) showed that it consisted primarily of chloride and sulfate/sulfite salts of calcium (along with occasional lesser amounts of sodium and potassium) (Figure J2). The chloride salts appear as various mixtures but were primarily calcium chloride in most cases (Figure J3). The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Evidence of fine distributed aluminosilicate was present in the observed spectra. Some particles had a magnesium, phosphorous, iron, copper, and/or zinc component.

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition, consistent with fly ash, with zinc, phosphorous, magnesium, copper, and iron components alongside residual salts (Figures J4 and J5). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of mixed chloride and sulfate/sulfite salts that made up the majority of the sample, with more calcium than sodium present and more chlorine than sulfur, and with aluminum, magnesium, zinc, and potassium appearing in lesser amounts (Figures J6 through J8).

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

3-filter-Chronic (AH0460):
The sample presented as a lightly loaded fiber filter.

SEM/EDS analysis of the filter material showed it to be silica (Figures K1 and K2). SEM/EDS analysis of particulate matter on the filter showed that it consisted primarily of mixed chloride salts of calcium and sodium (along with occasional lesser amounts of sulfur and potassium) (Figures K3 and K4). Sulfur salts appear only in mixtures with the chloride salts and in much lesser amounts. Stainless steel/stainless steel corrosion particles were seen in trace amounts (Figure K5).

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres of varying composition, consistent with fly ash with occasional magnesium components, and flakes of iron and associated corrosion (Figures K6 through K8). Calcium-rich larger spherical particles were present in trace amounts as well (Figure K9). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of calcium and sodium chloride salts that made up the majority of the sample (Figures K10 through K12) and were present in roughly equal amounts, with potassium and sulfur appearing in lesser amounts. Small amounts of iron and aluminum were present as well.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

3-Bulk sample Chronic (AH0461)
The sample presented as a mainly homogenous grey powder; within the bulk grey material there was a ~1 cm diameter conglomeration of white powder.

SEM/EDS analysis of the grey powder (Figure L1) showed that it consisted primarily of chloride and sulfate/sulfite salts of calcium (along with occasional lesser amounts of sodium and potassium) (Figure L2). The chloride salts appear as various mixtures but were primarily calcium chloride in most cases (Figure L3). The sulfur salts appear only in mixtures with the chloride salts and in lesser amounts. Evidence of fine distributed aluminosilicate was present in the observed spectra. Some particles had a magnesium, iron, and/or zinc component.

SEM/EDS analysis of the white powder (Figure L4) showed that it consisted of calcium magnesium oxide/dolomitic lime (Figure L5).

SEM/EDS analysis of the non-soluble residue after rinsing the filter with deionized (DI) water showed it consisted of small aluminosilicate spheres and flakes of varying composition, consistent with fly ash, with zinc, magnesium, and iron components alongside residual salts (Figures L6 through L8). SEM/EDS analysis of the reprecipitated water-soluble material from the rinse showed it consisted of mixed chloride and sulfate/sulfite salts that made up the majority of the sample, with more calcium than sodium present and more chlorine than sulfur, with aluminum, nitrogen, and potassium appearing in lesser amounts (Figures L9 through L11) alongside small amounts of iron, and copper.

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in this sample.

Conclusion

No evidence for the presence of molybdenum, or any compounds of molybdenum, was seen in these samples.

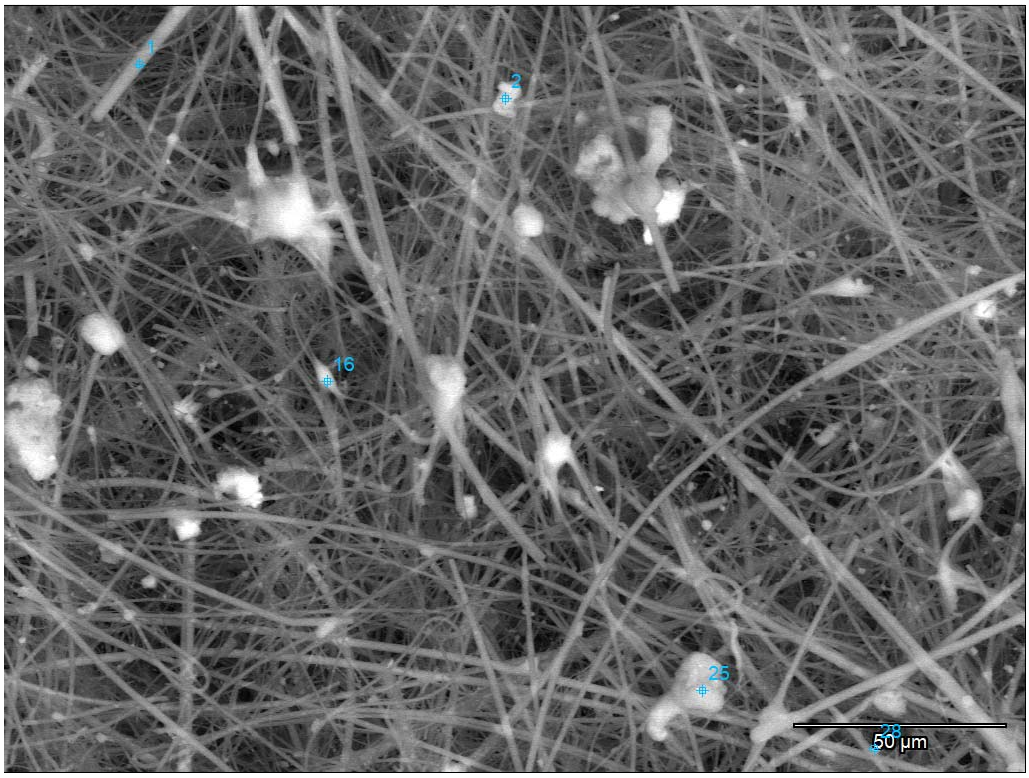


Figure A1. AH0450. SEM image of particulate on filter.

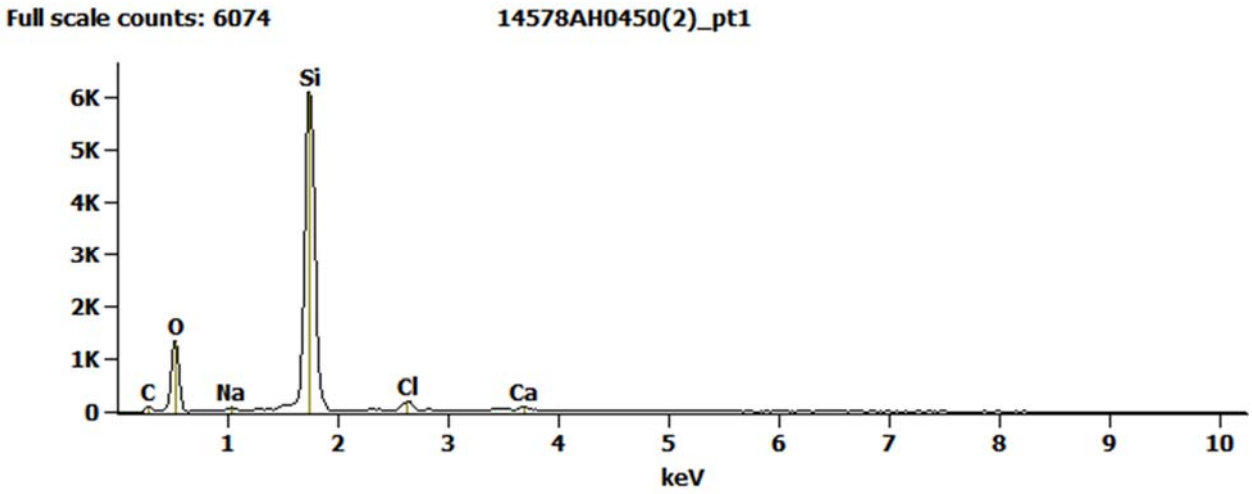


Figure A2. AH0450. SEM/EDS spectrum from area 1 in Figure A1. Silica filter fiber.

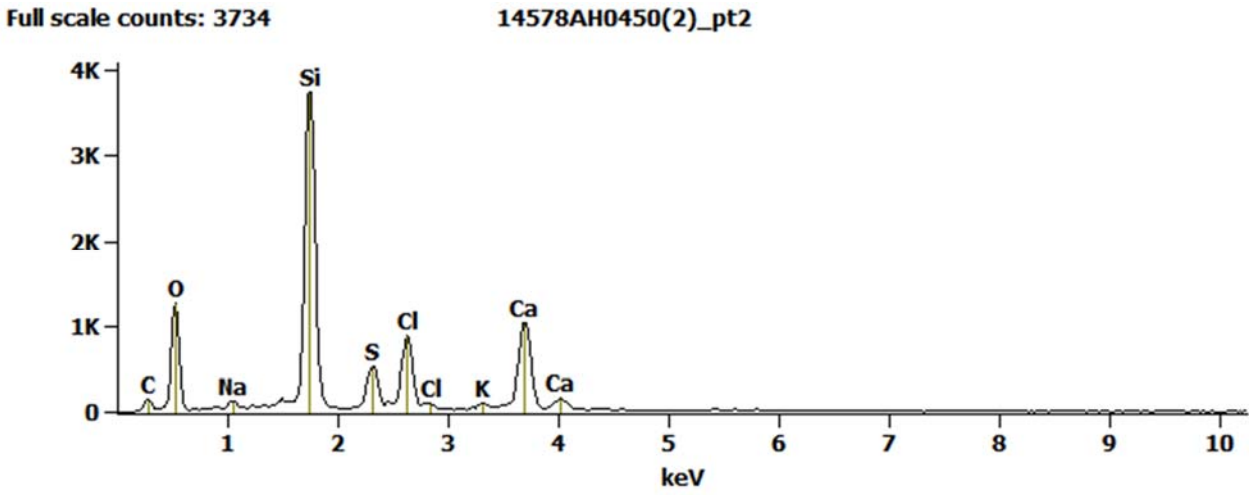


Figure A3. AH0450. SEM/EDS spectrum from area 2 in Figure A1. Mixed salts.

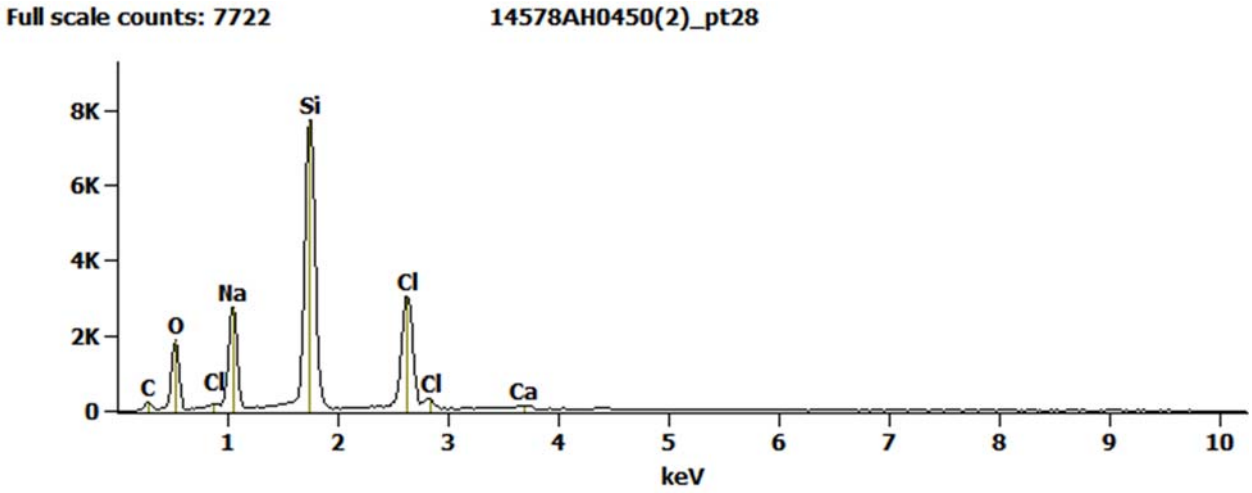


Figure A4. AH0450. SEM/EDS spectrum from area 28 in Figure A1. Sodium chloride.

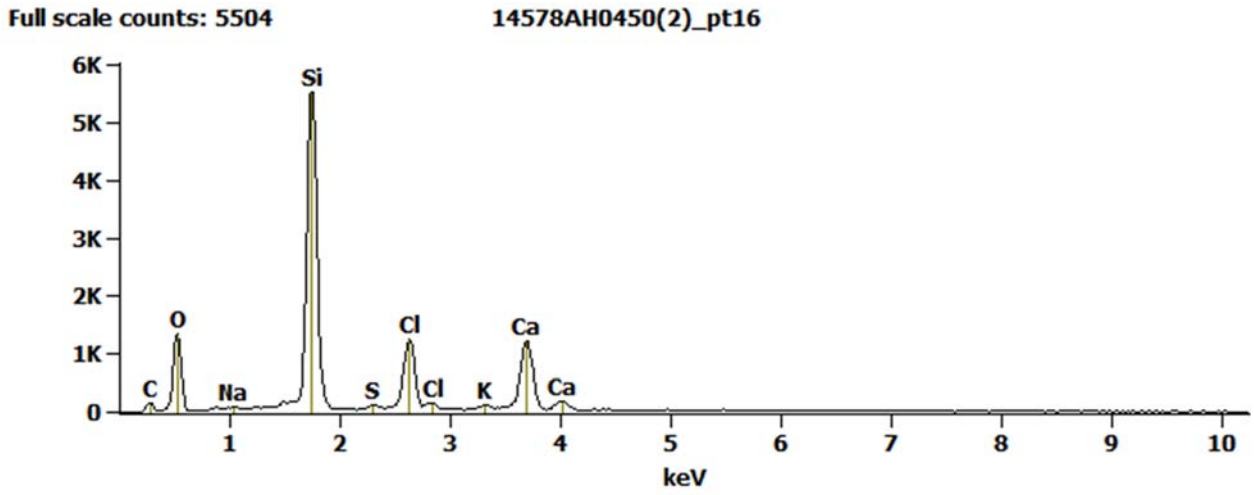


Figure A5. AH0450. SEM/EDS spectrum from area 16 in Figure A1. Calcium chloride.

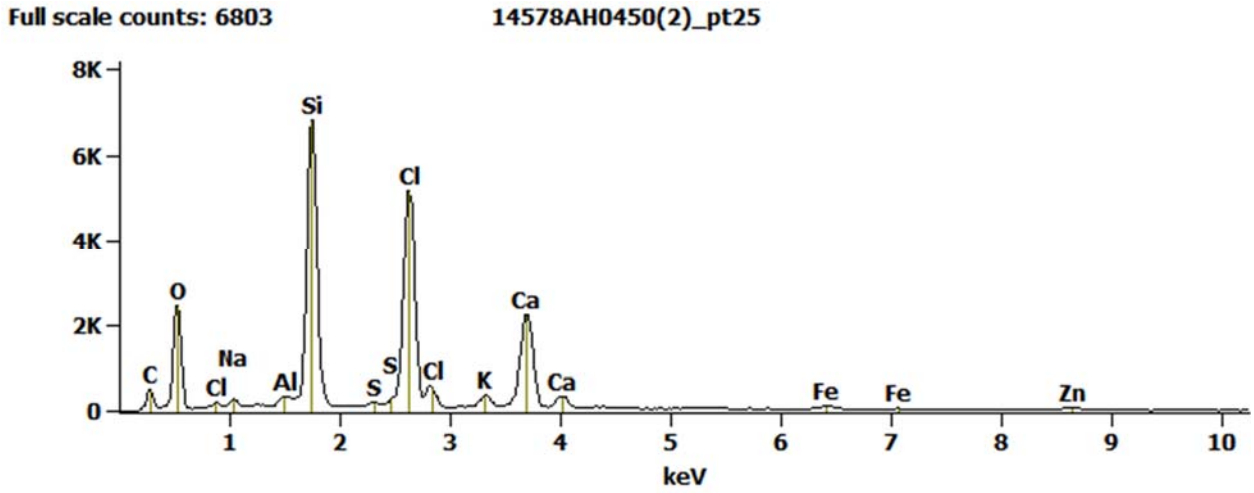


Figure A6. AH0450. SEM/EDS spectrum from area 25 in Figure A1.
Iron- and zinc-containing particle.

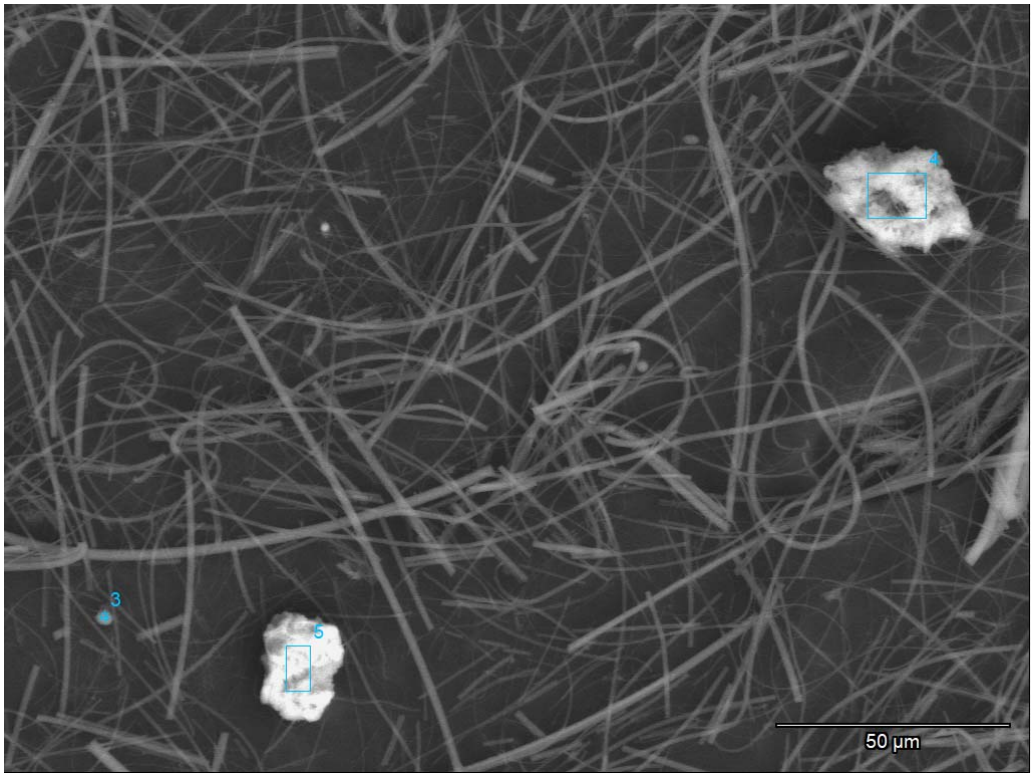


Figure A7. AH0450. SEM image of residue after rinsing on a carbon substrate.

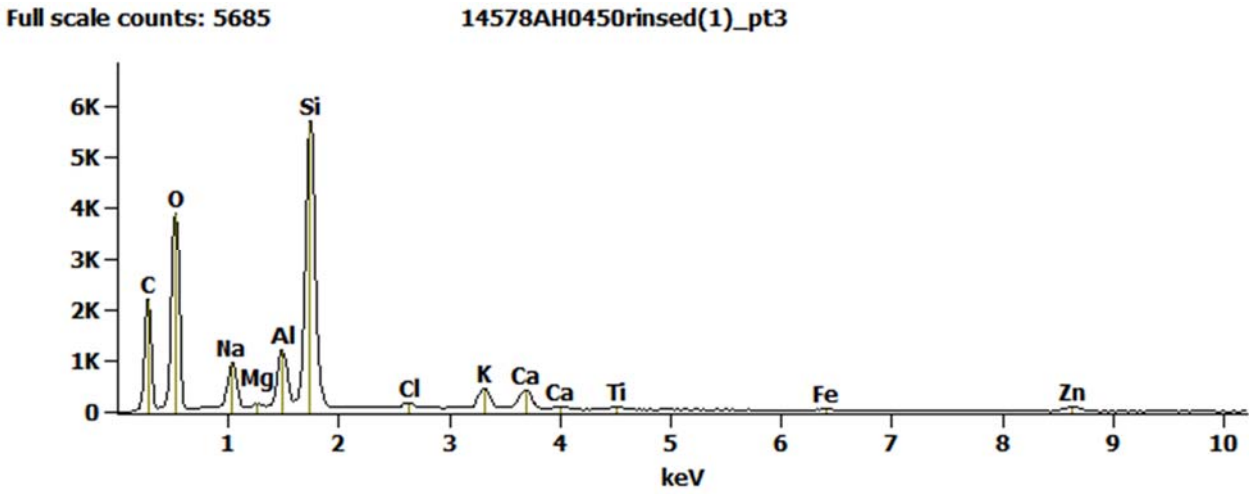


Figure A8. AH0450. SEM/EDS spectrum from area 3 in Figure A7. Aluminosilicate.

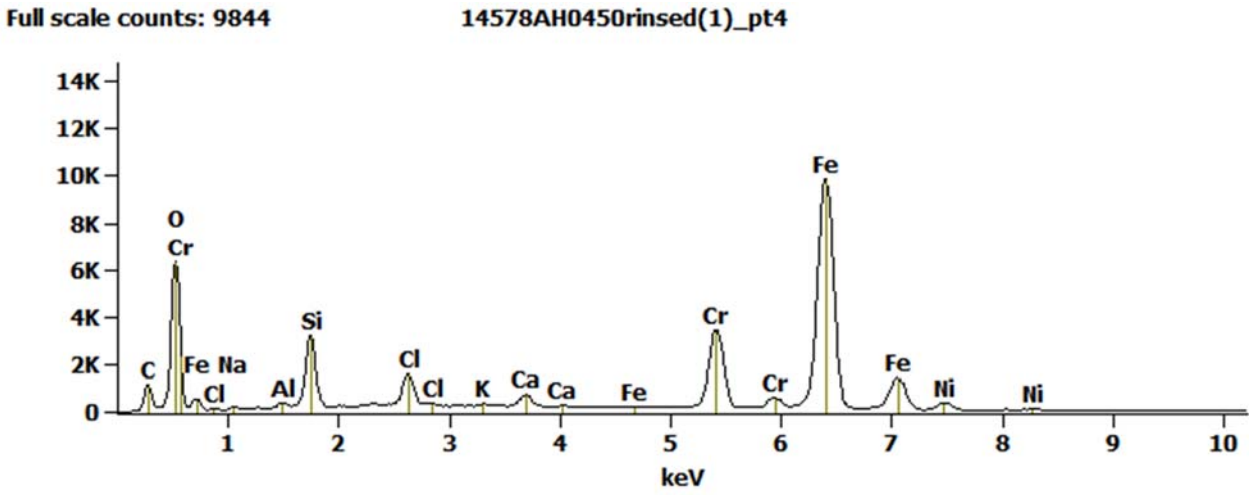


Figure A9. AH0450. SEM/EDS spectrum from area 4 in Figure A7. Stainless steel and corrosion.

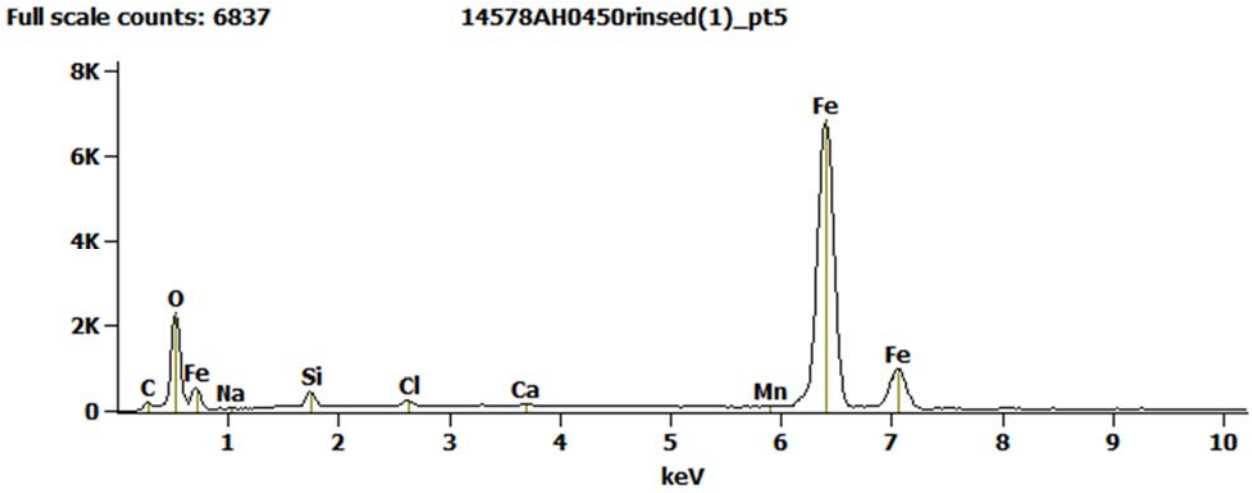


Figure A10. AH0450. SEM/EDS spectrum from area 5 in Figure A7. Iron/iron oxide.

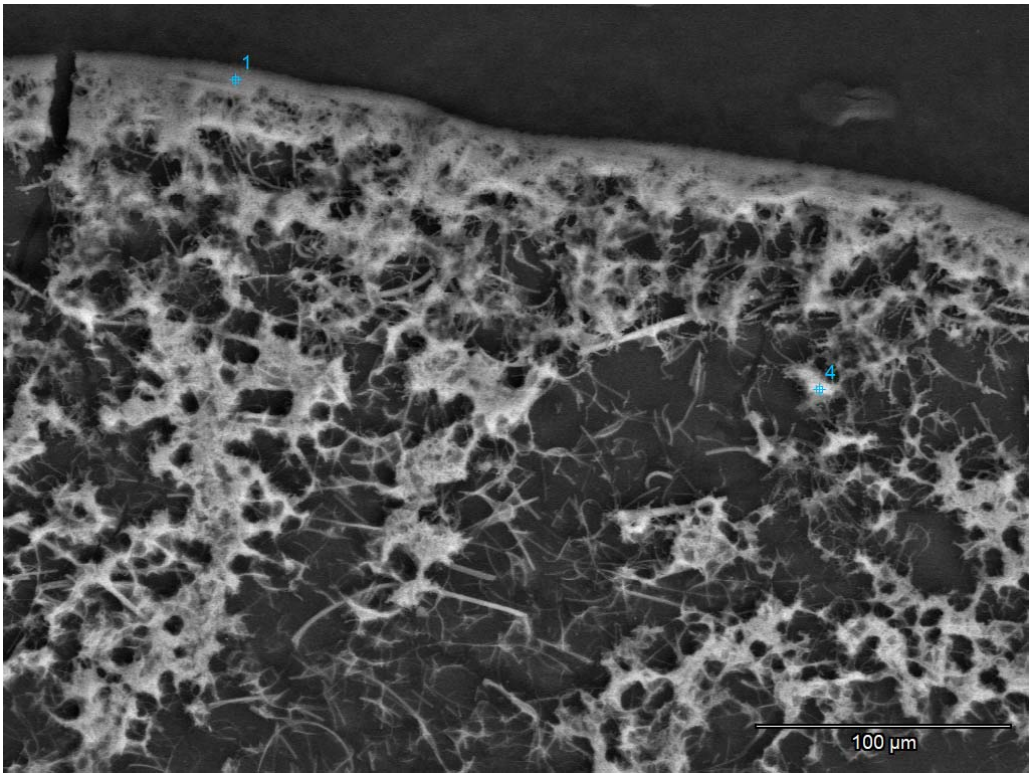


Figure A11. AH0450. SEM image of reprecipitated salts (and residual filter fibers) on carbon substrate.

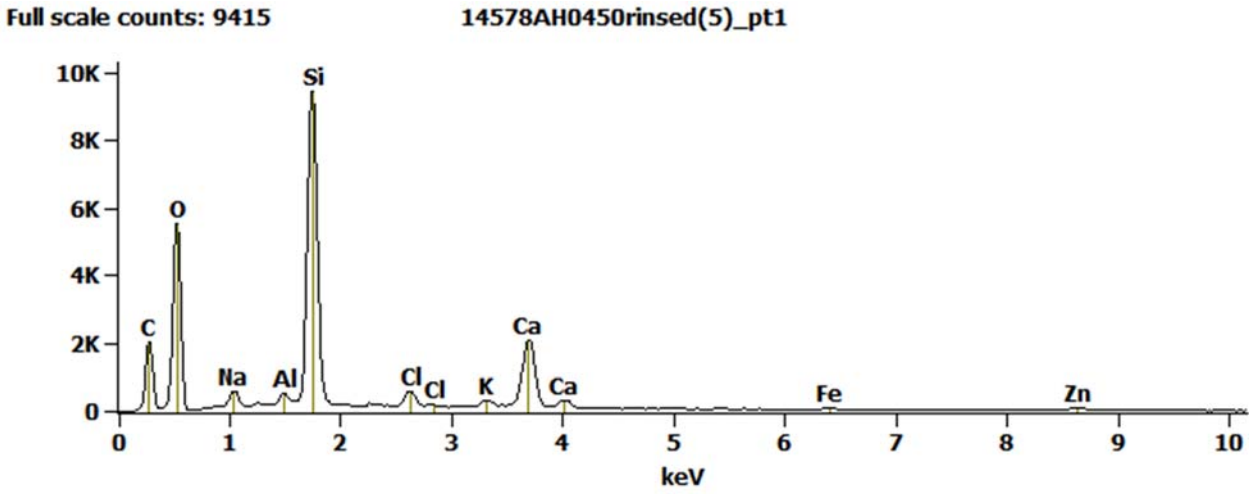


Figure A12. AH0450. SEM/EDS spectrum from area 1 in Figure A11. Mixed salts.

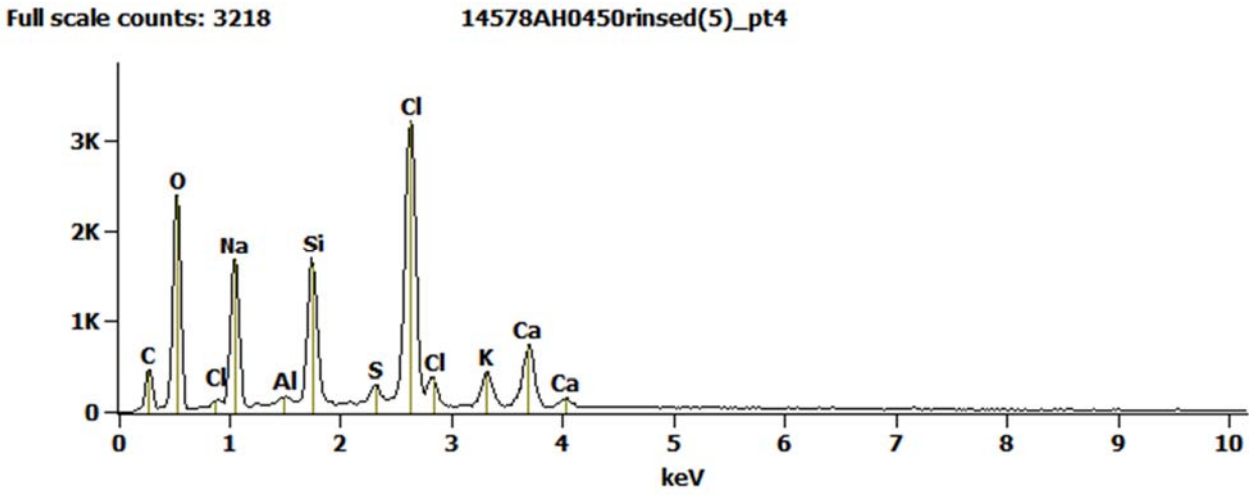


Figure A13. AH0450. SEM/EDS spectrum from area 4 in Figure A11. Mixed salts.

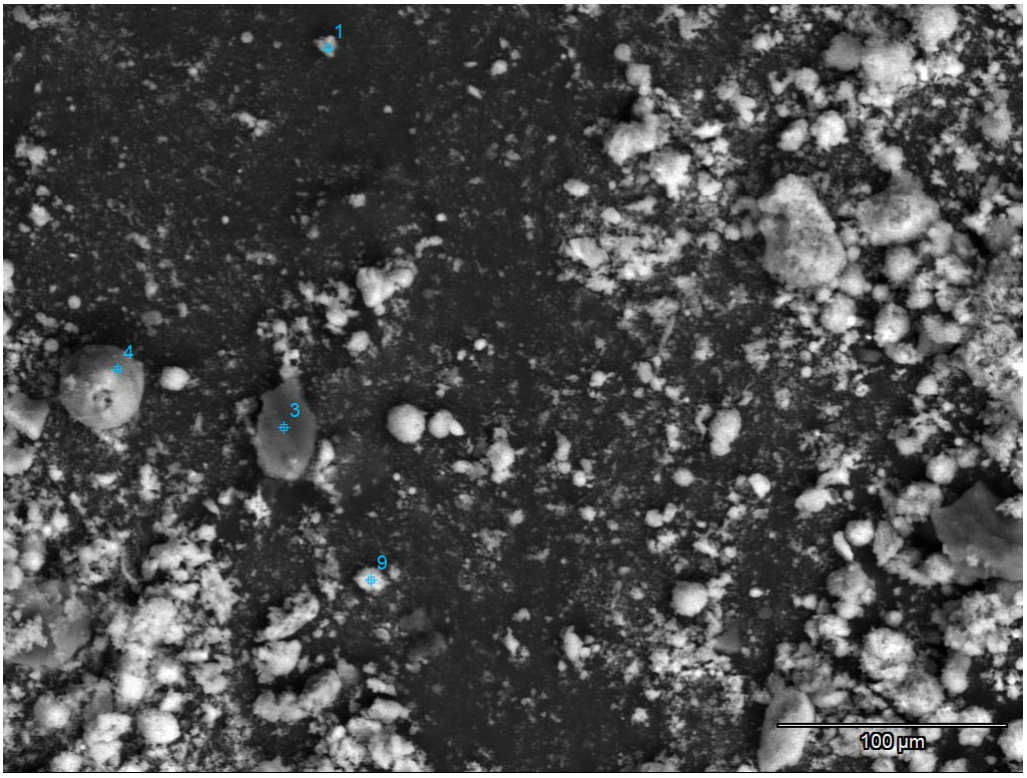


Figure B1. AH0451. SEM image of raw particulate on carbon substrate.

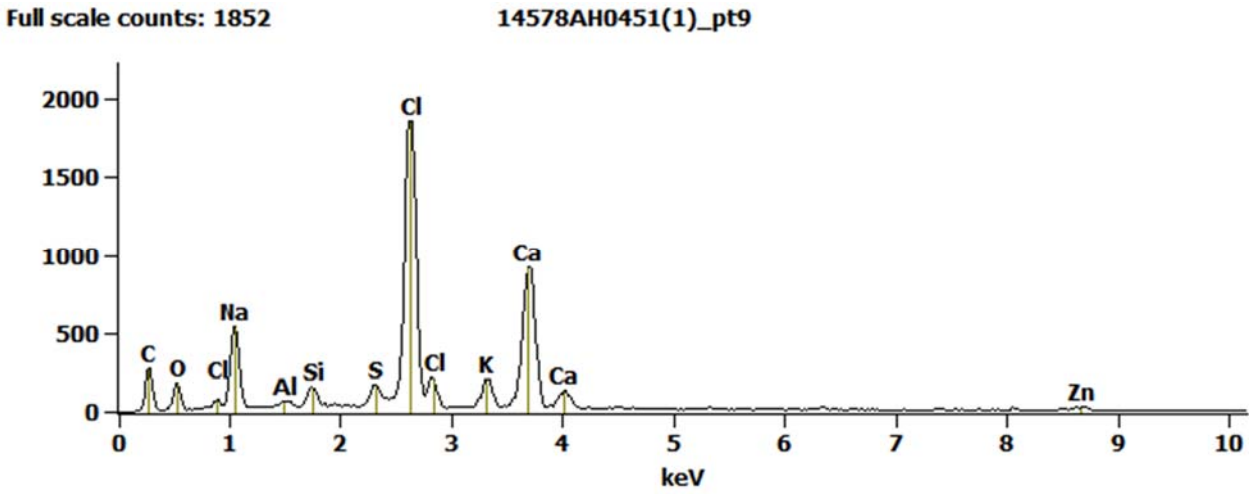


Figure B2. AH0451. SEM/EDS spectrum from area 9 in Figure B1. Mixed salts.

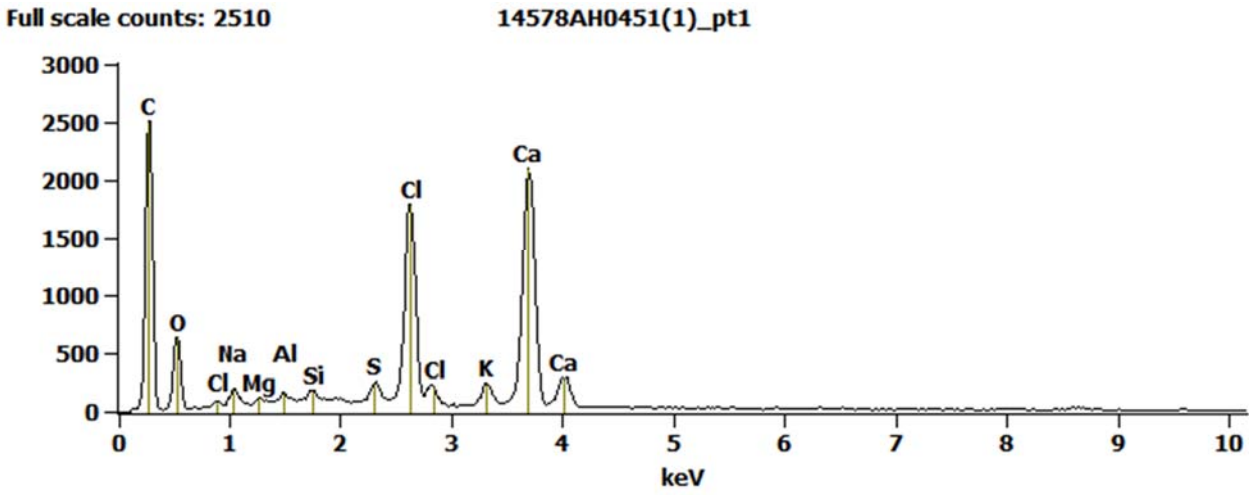


Figure B3. AH0451. SEM/EDS spectrum from area 1 in Figure B1. Mixed salts.

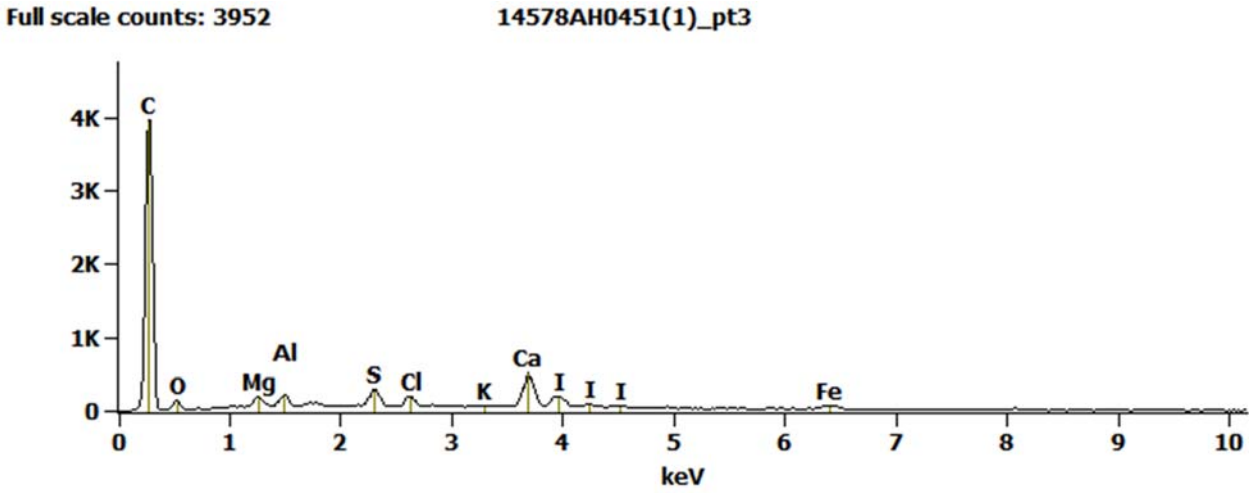


Figure B4. AH0451. SEM/EDS spectrum from area 3 in Figure B1. Iodine-rich flake.

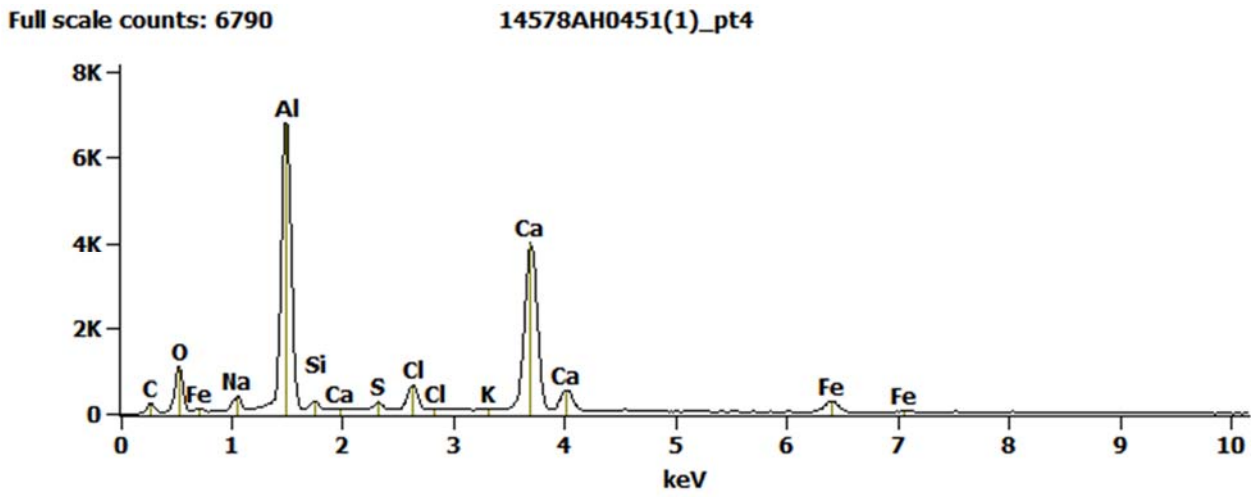


Figure B5. AH0451. SEM/EDS spectrum from area 4 in Figure B1. Aluminum- and calcium-rich sphere.

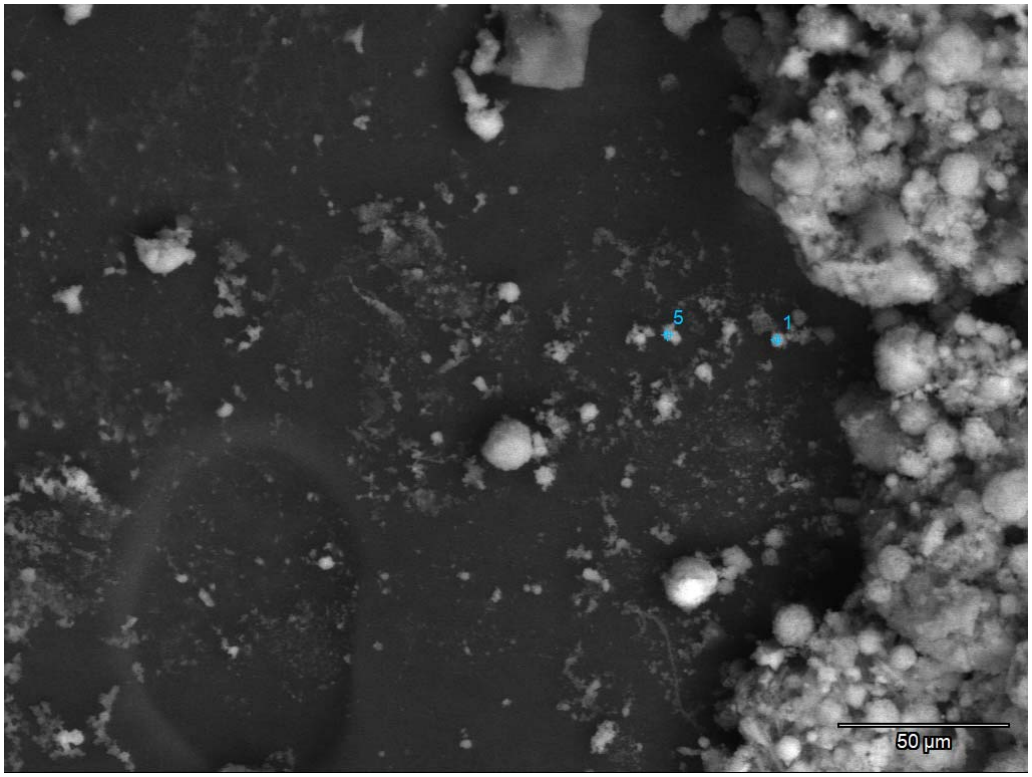


Figure B6. AH0451. SEM image of rinsed particulate on carbon substrate.

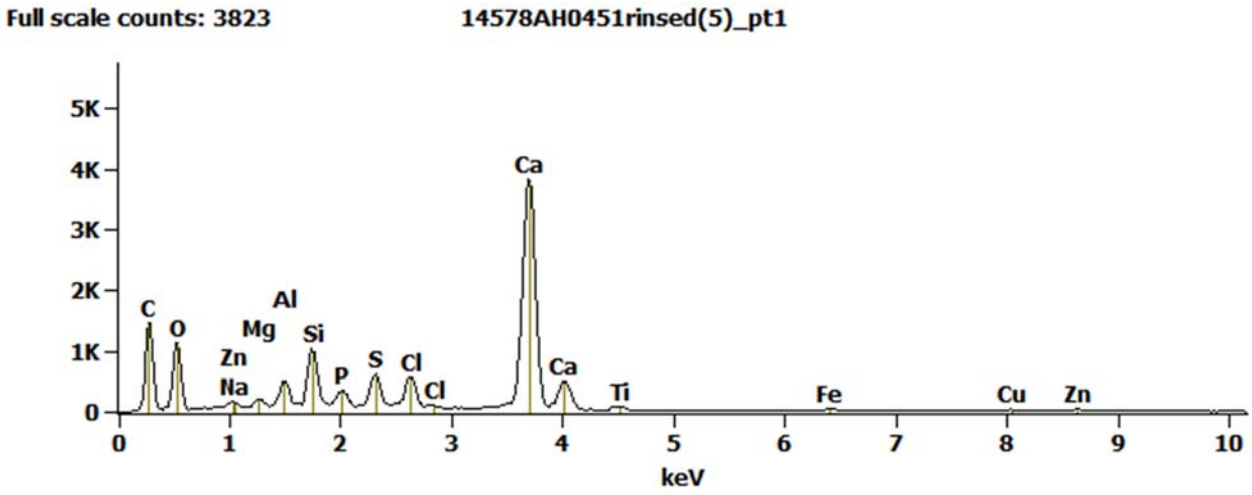


Figure B7. AH0451. SEM/EDS spectrum from area 1 in Figure B6. Aluminosilicate + salts.

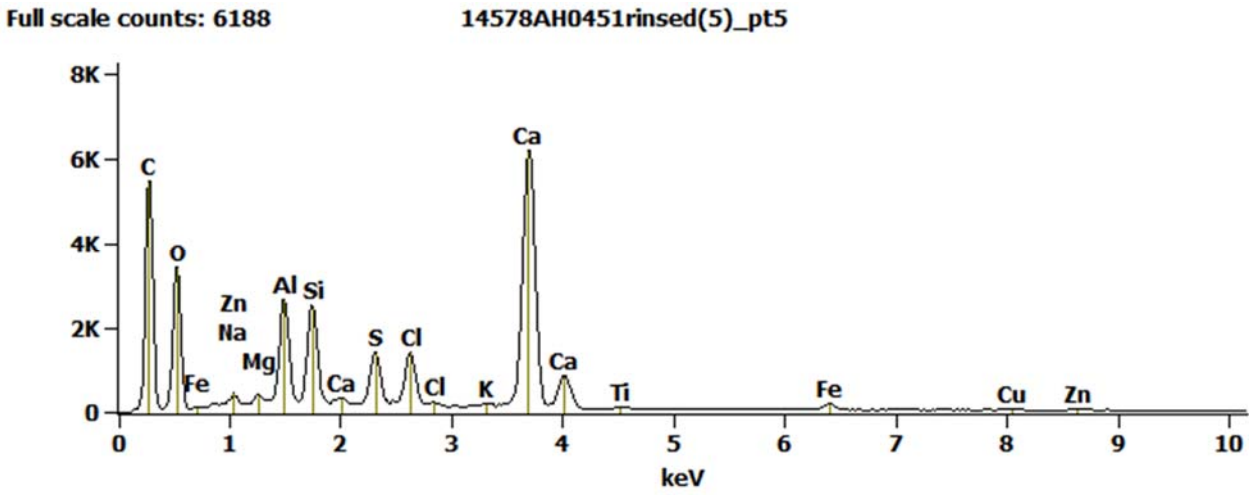


Figure B8. AH0451. SEM/EDS spectrum from area 5 in Figure B6. Aluminosilicate + salts.

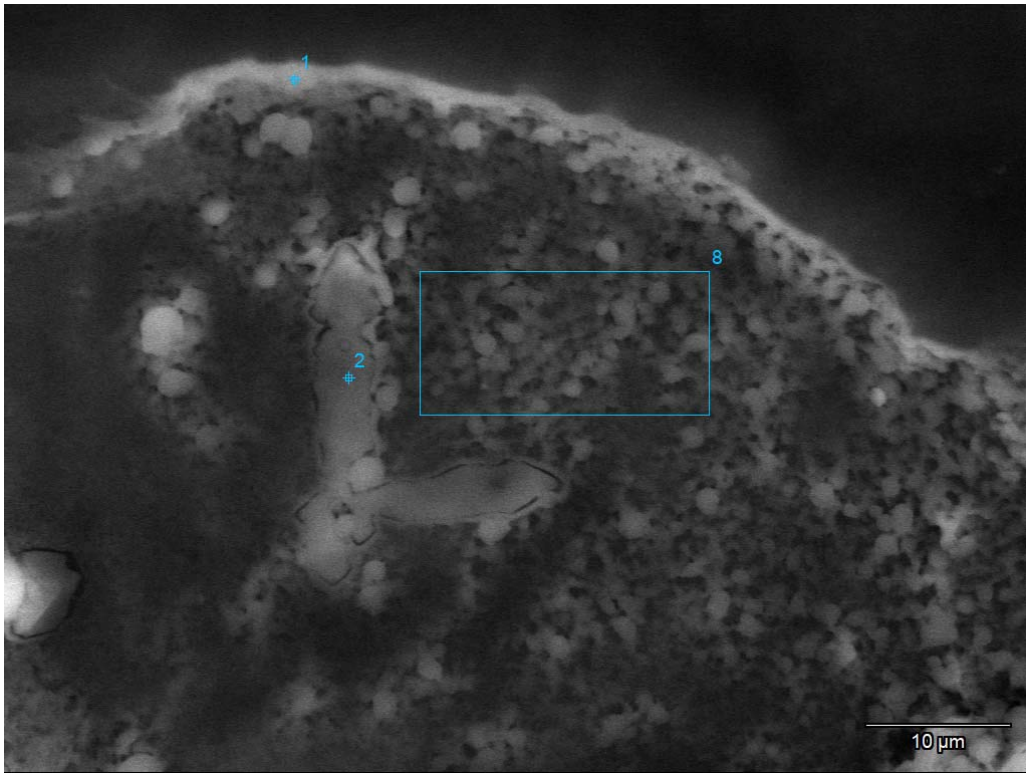


Figure B9. AH0451. SEM image of reprecipitated salts on carbon substrate.

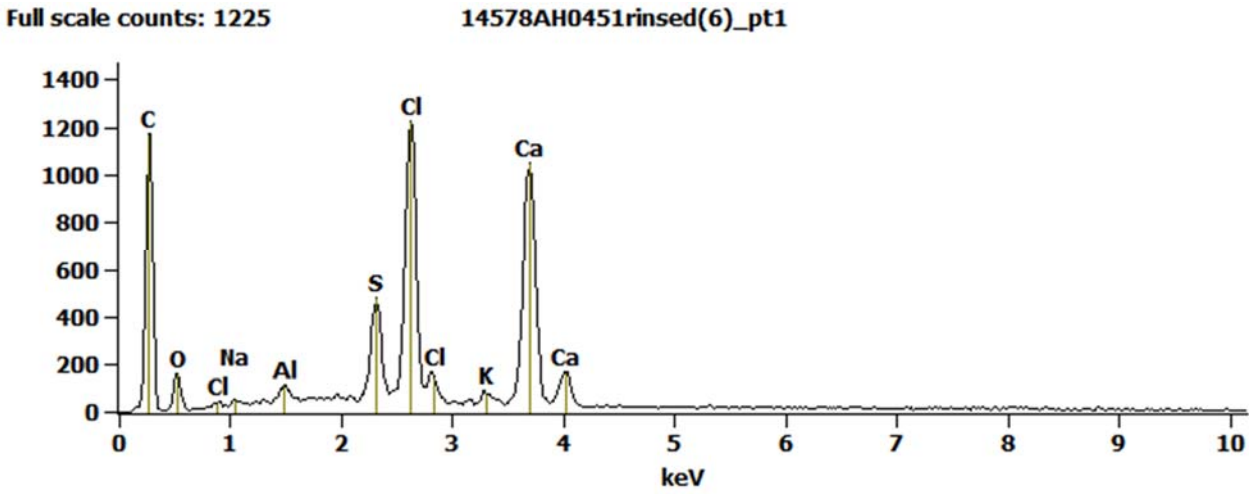


Figure B10. AH0451. SEM/EDS spectrum from area 1 in Figure B9. Mixed salts.

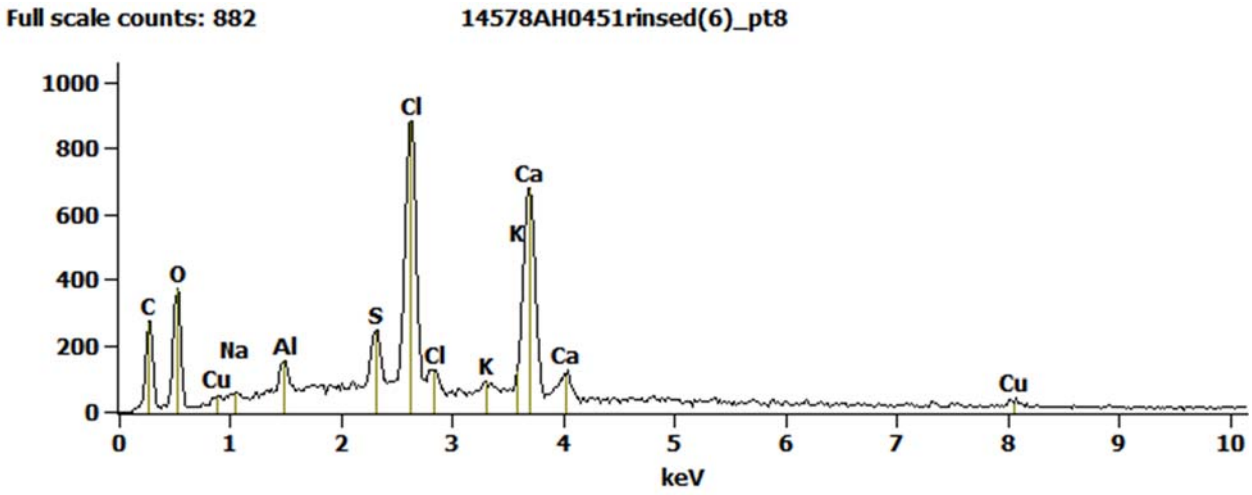


Figure B11. AH0451. SEM/EDS spectrum from area 8 in Figure B9. Mixed salts.

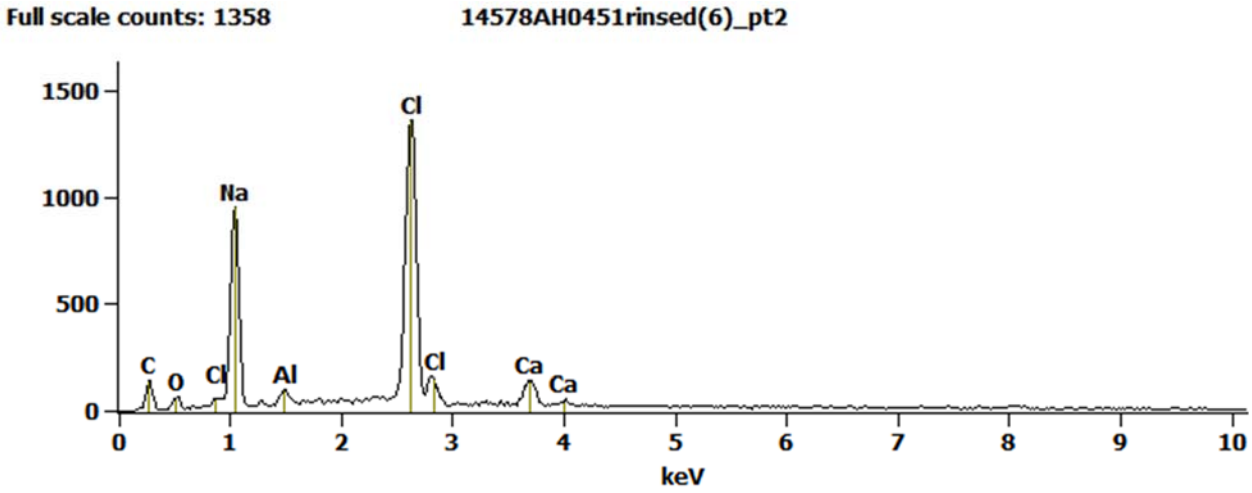


Figure B12. AH0451. SEM/EDS spectrum from area 2 in Figure B9.
Mixed chloride salts.

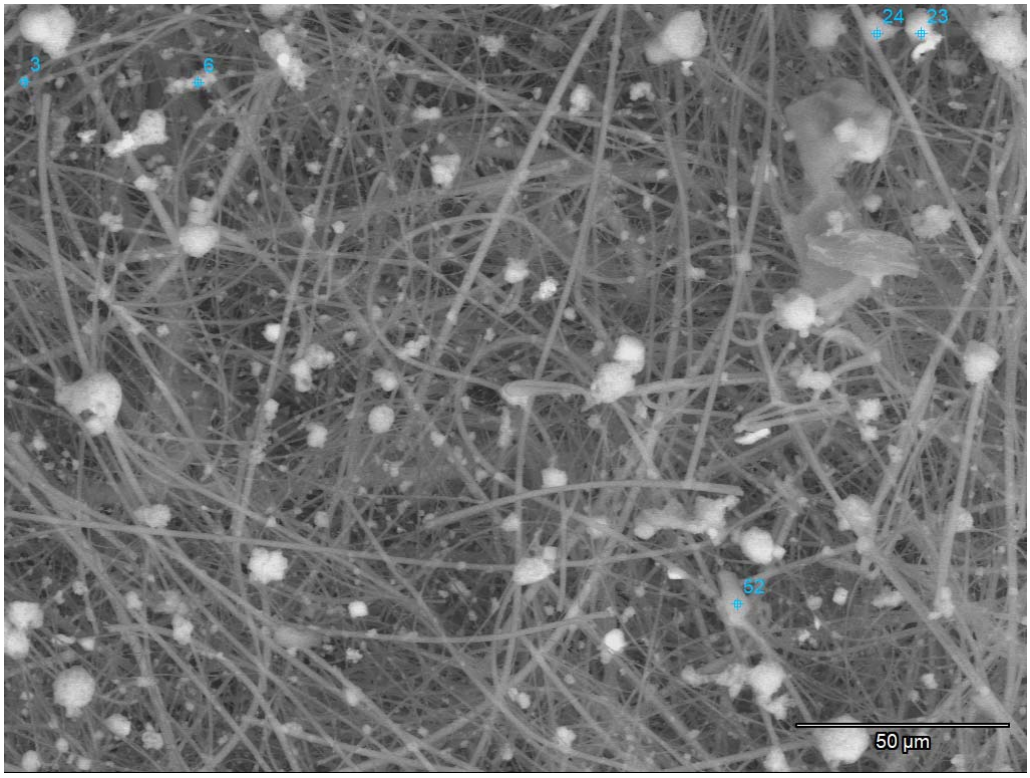


Figure C1. AH0452. SEM image of particulate on filter.

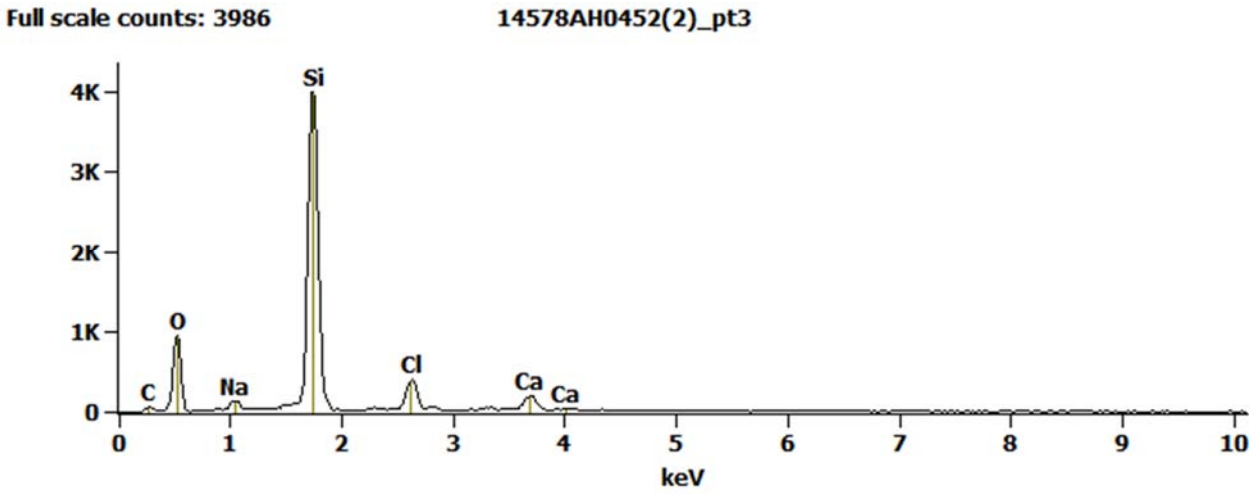


Figure C2. AH0452. SEM/EDS spectrum from area 3 in Figure C1. Silica filter fiber.

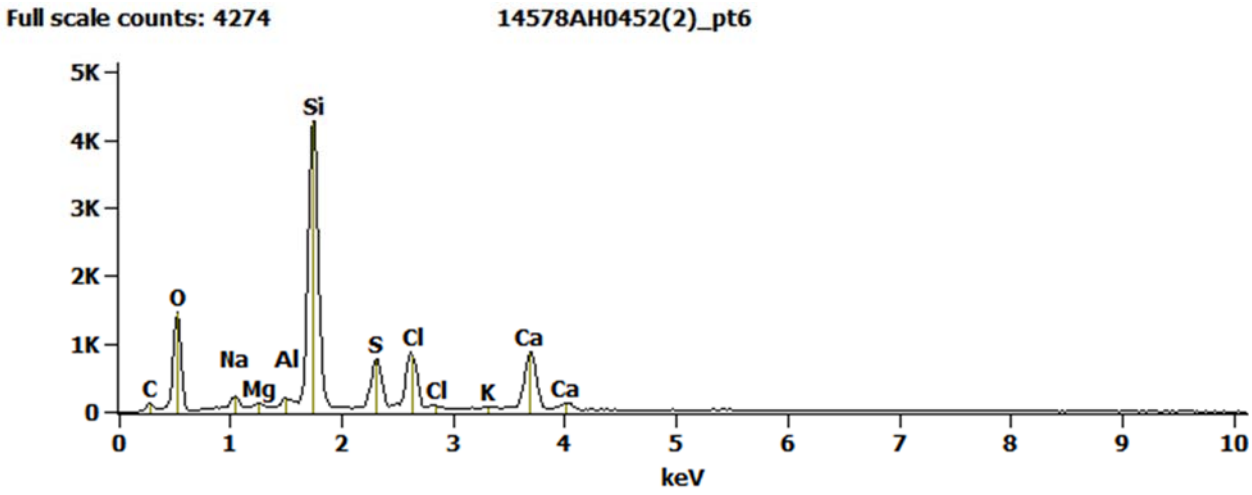


Figure C3. AH0452. SEM/EDS spectrum from area 6 in Figure C1. Mixed salts.

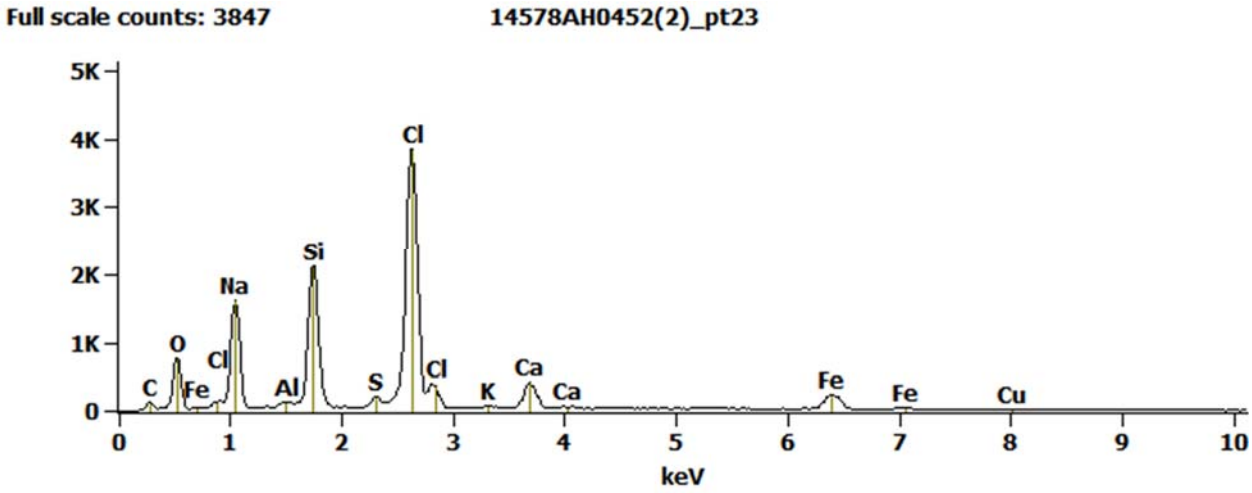


Figure C4. AH0452. SEM/EDS spectrum from area 23 in Figure C1. Sodium chloride.

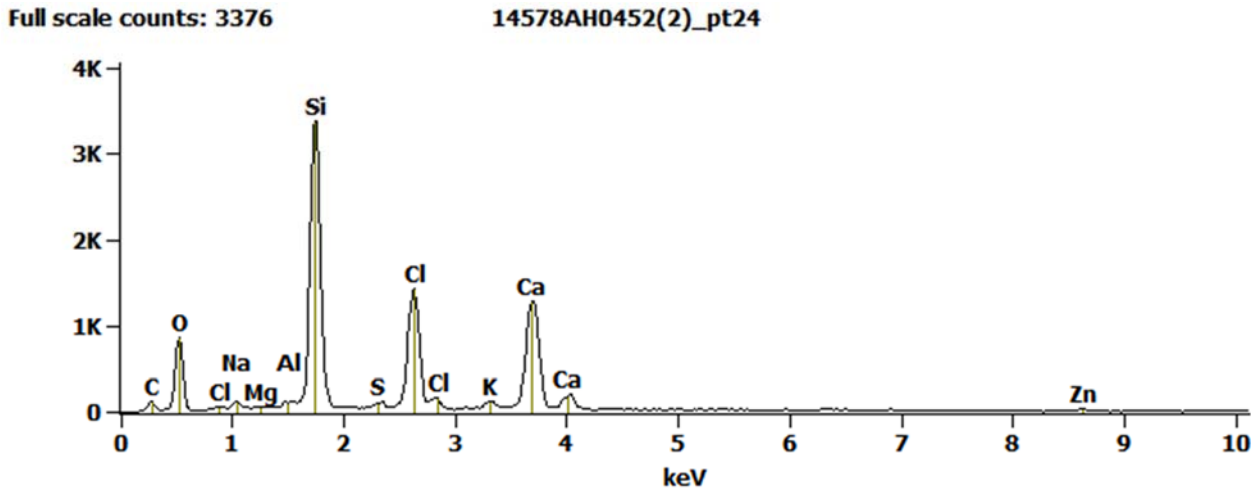


Figure C5. AH0452. SEM/EDS spectrum from area 24 in Figure C1. Calcium chloride.

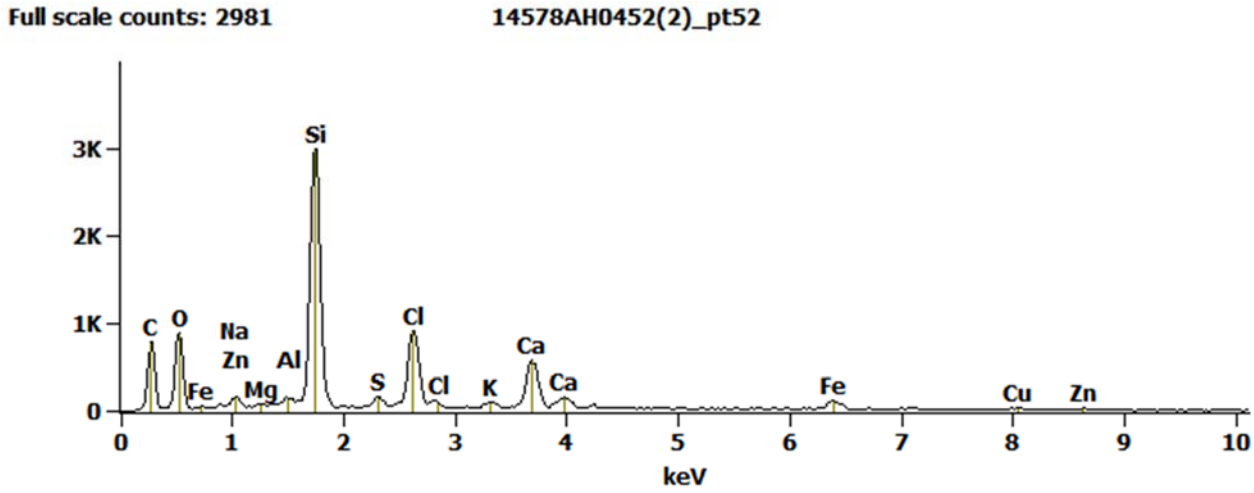


Figure C6. AH0452. SEM/EDS spectrum from area 52 in Figure C1. Salts + metals.

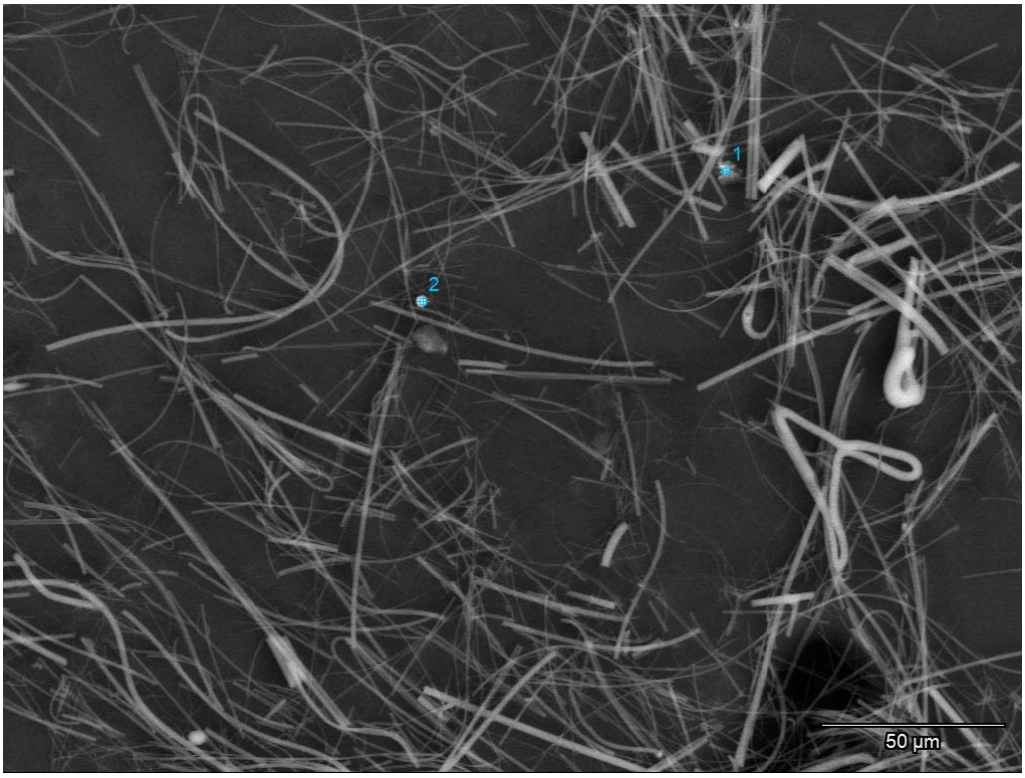


Figure C7. AH0452. SEM image of residue after rinsing on a carbon substrate.

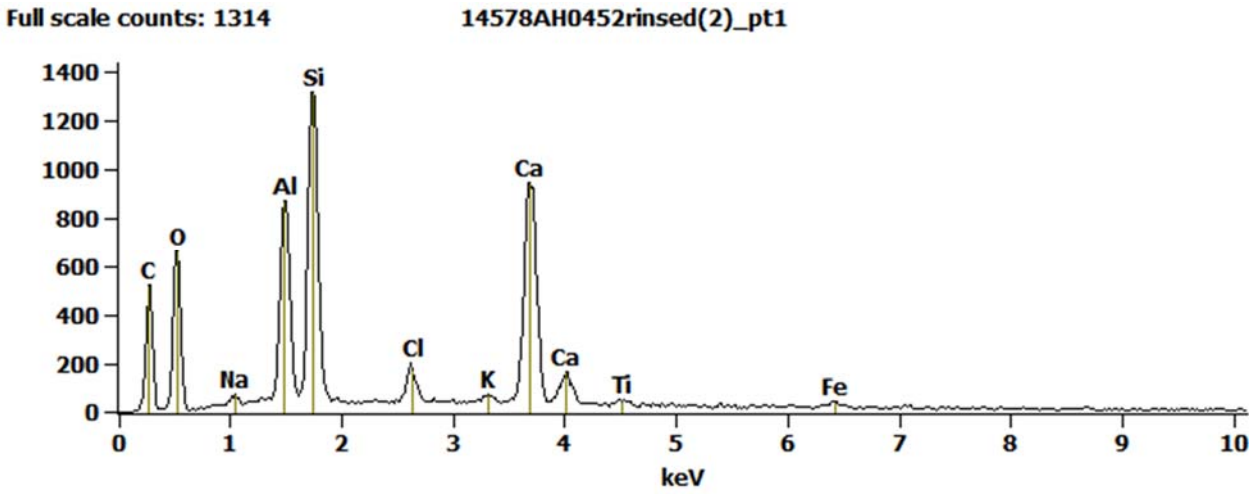


Figure C8. AH0452. SEM/EDS spectrum from area 1 in Figure C7. Aluminosilicate.

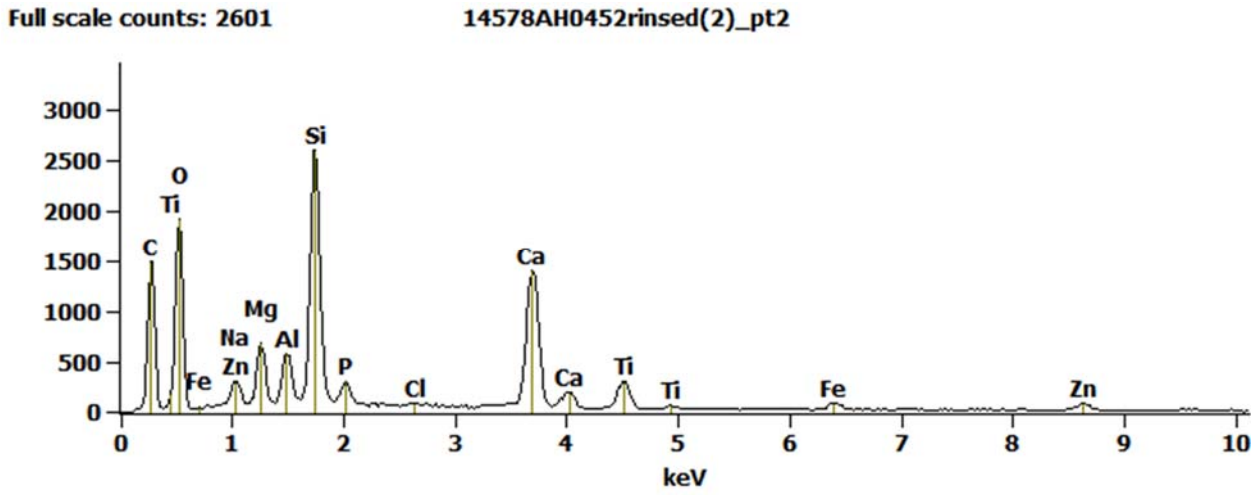


Figure C9. AH0452. SEM/EDS spectrum from area 2 in Figure C7. Aluminosilicate.

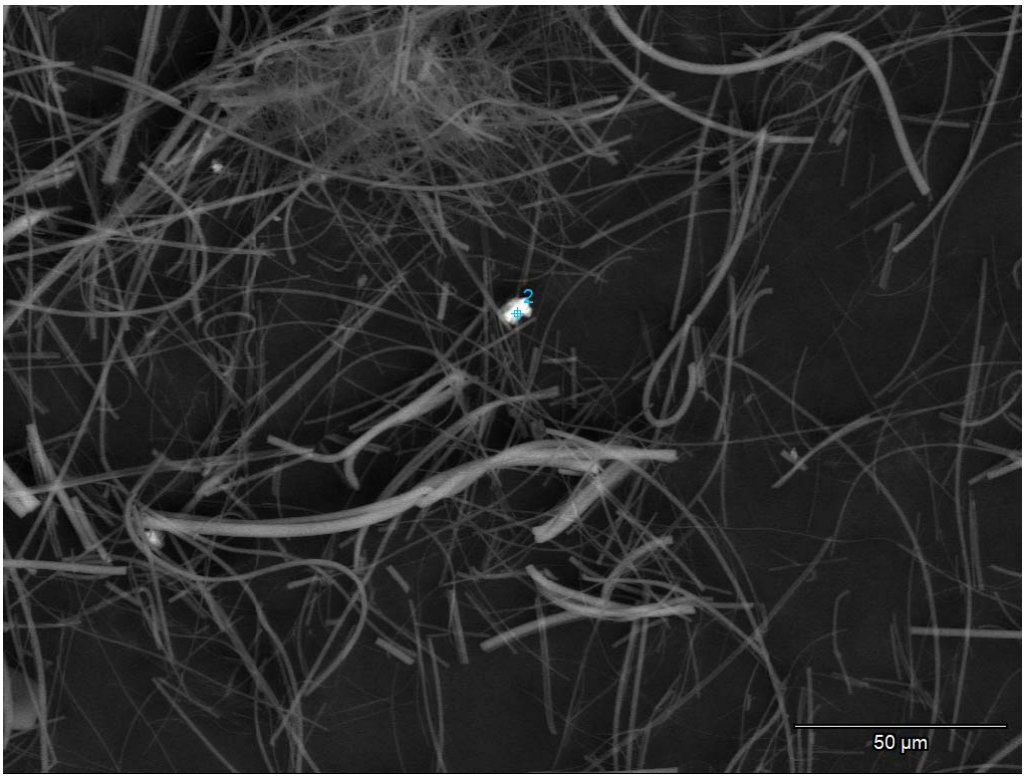


Figure C10. AH0452. SEM image of residue after rinsing on a carbon substrate.

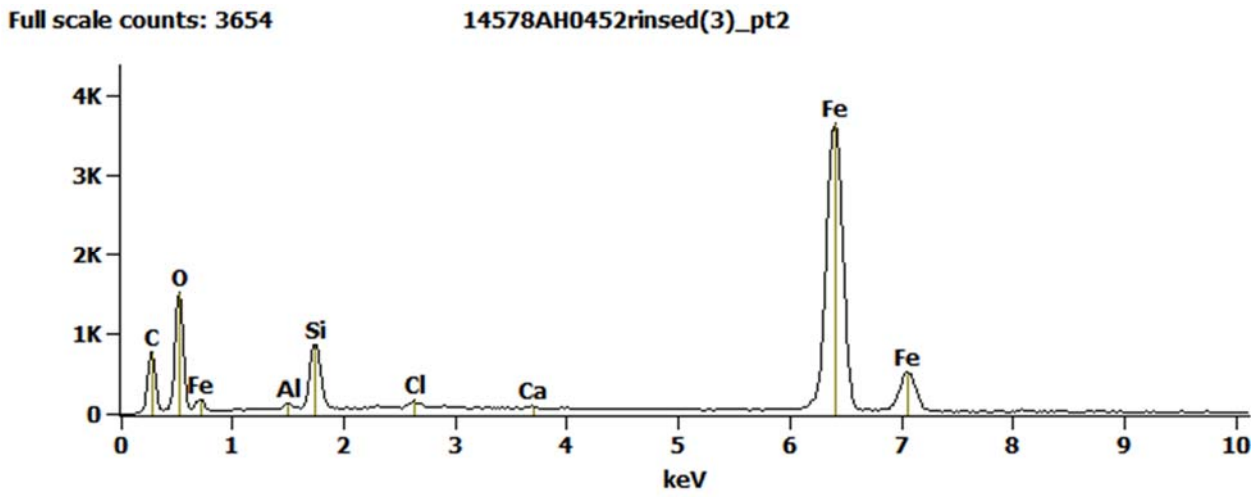


Figure C11. AH0452. SEM/EDS spectrum from area 2 in Figure C10. Iron/iron corrosion.

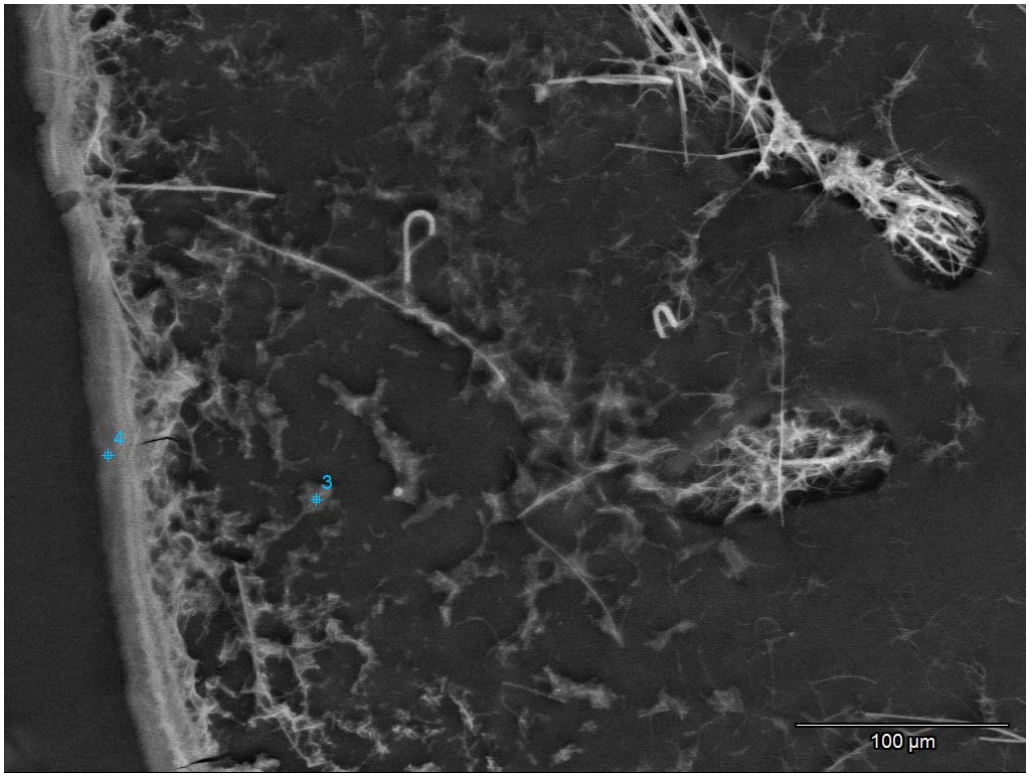


Figure C12. AH0452. SEM image of reprecipitated salts (and residual filter fibers) on carbon substrate.

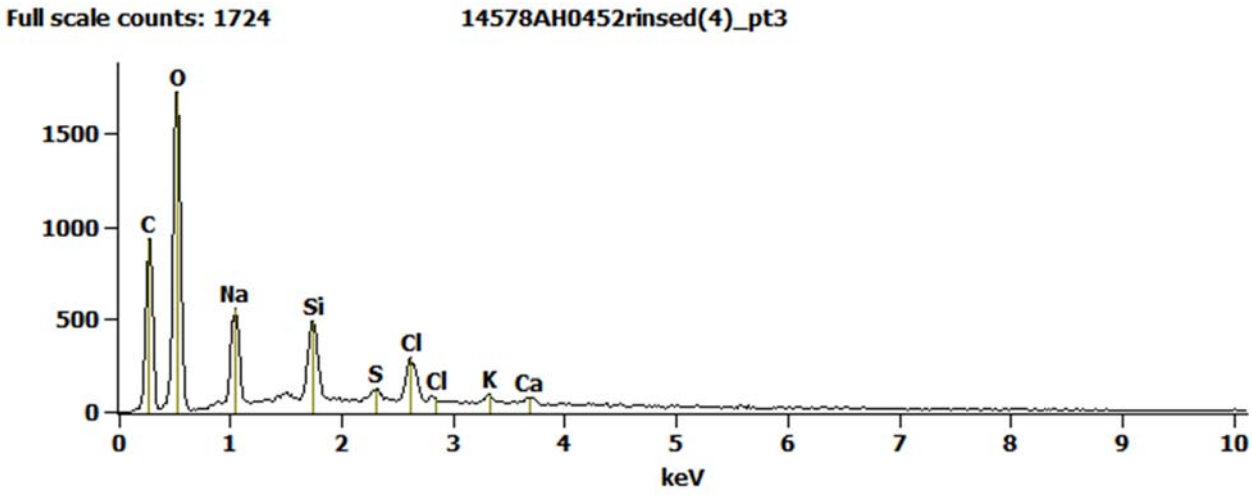


Figure C13. AH0452. SEM/EDS spectrum from area 3 in Figure C12. Mixed salts.

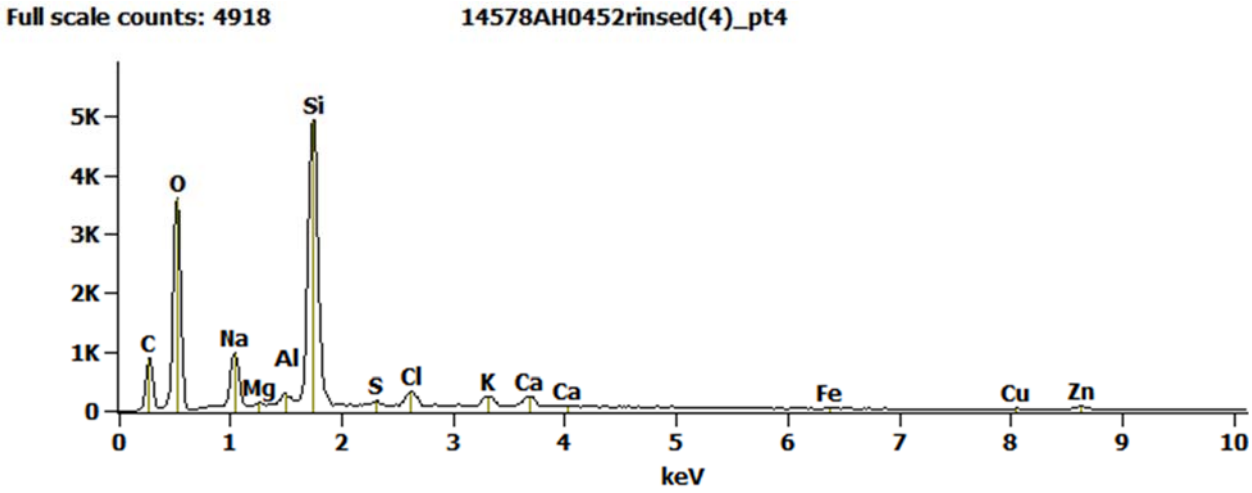


Figure C14. AH0452. SEM/EDS spectrum from area 4 in Figure C12. Mixed salts.

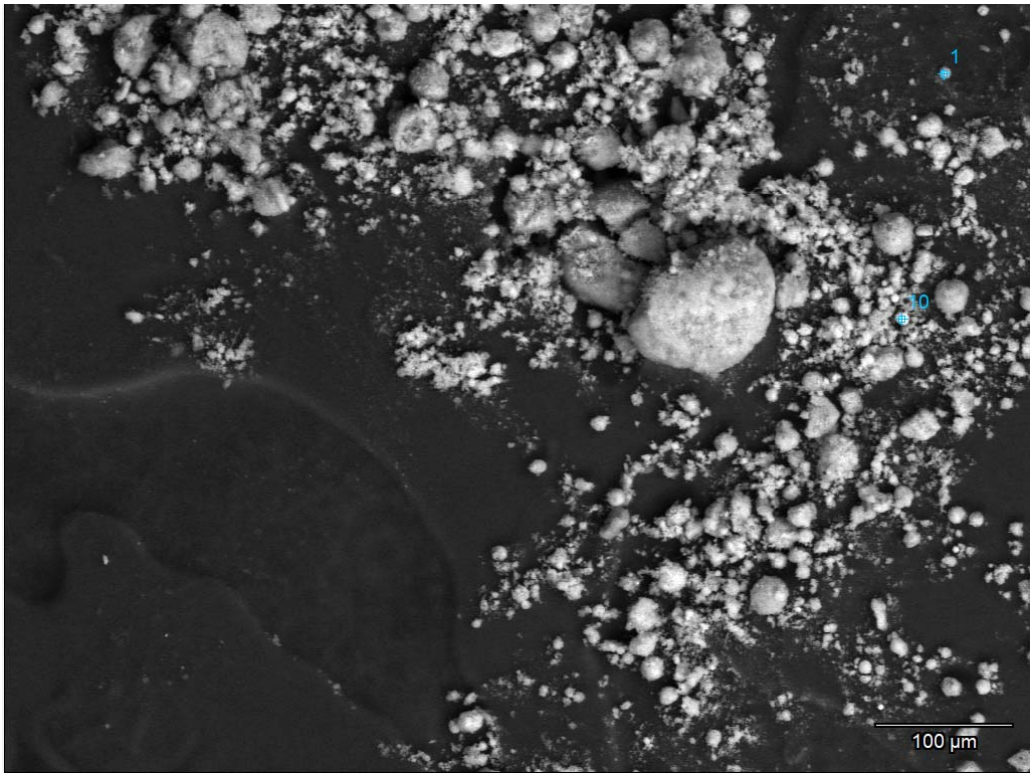


Figure D1. AH0453. SEM image of raw particulate on carbon substrate.

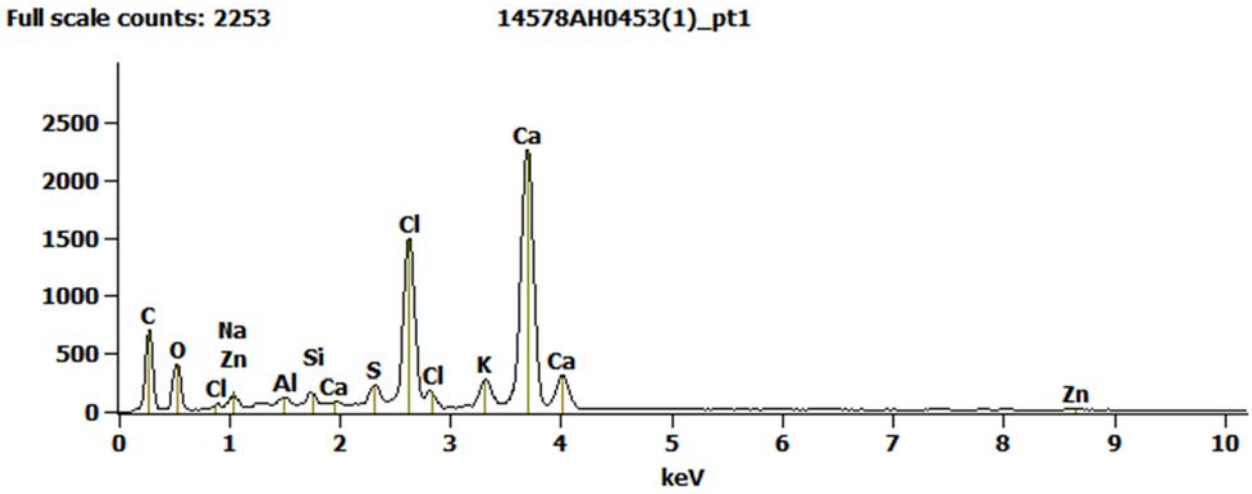


Figure D2. AH0453. SEM/EDS spectrum from area 1 in Figure D1. Mixed salts.

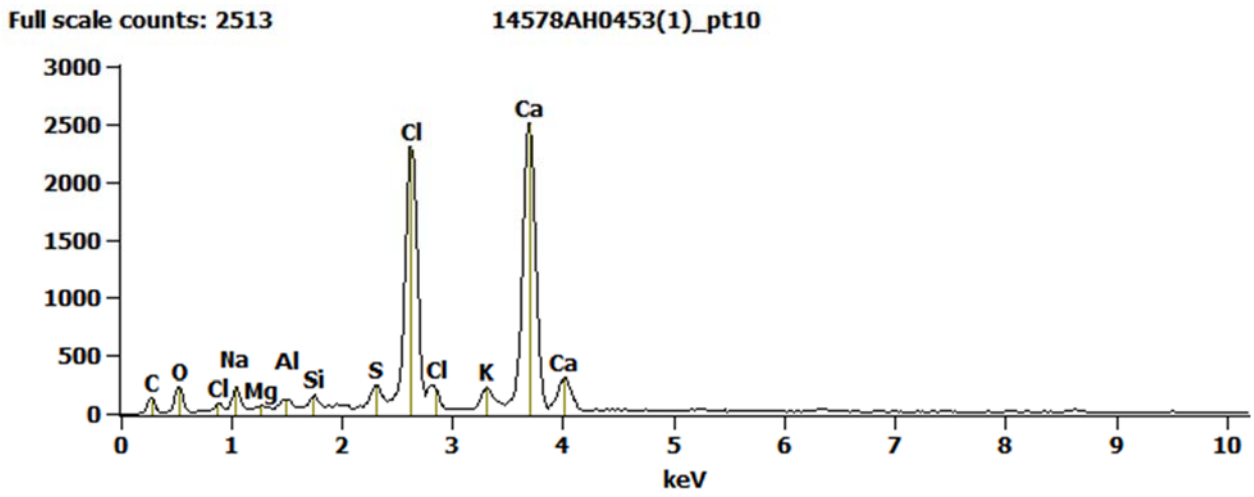


Figure D3. AH0453. SEM/EDS spectrum from area 10 in Figure D1. Mixed salts.

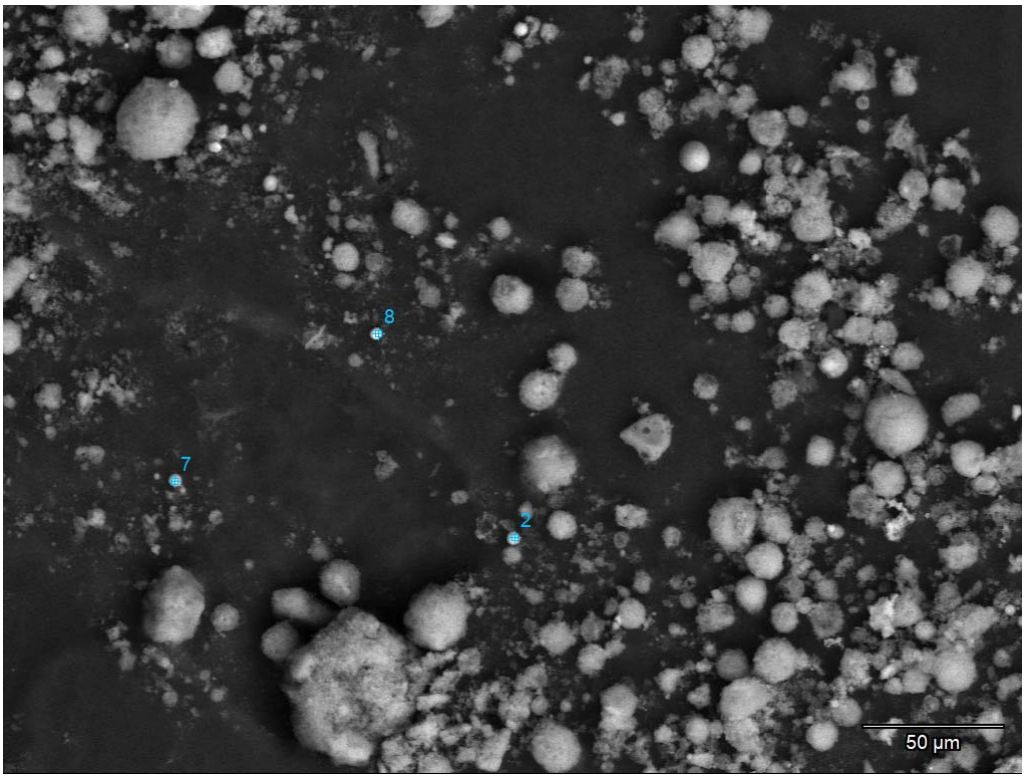


Figure D4. AH0453. SEM image of rinsed particulate on carbon substrate.

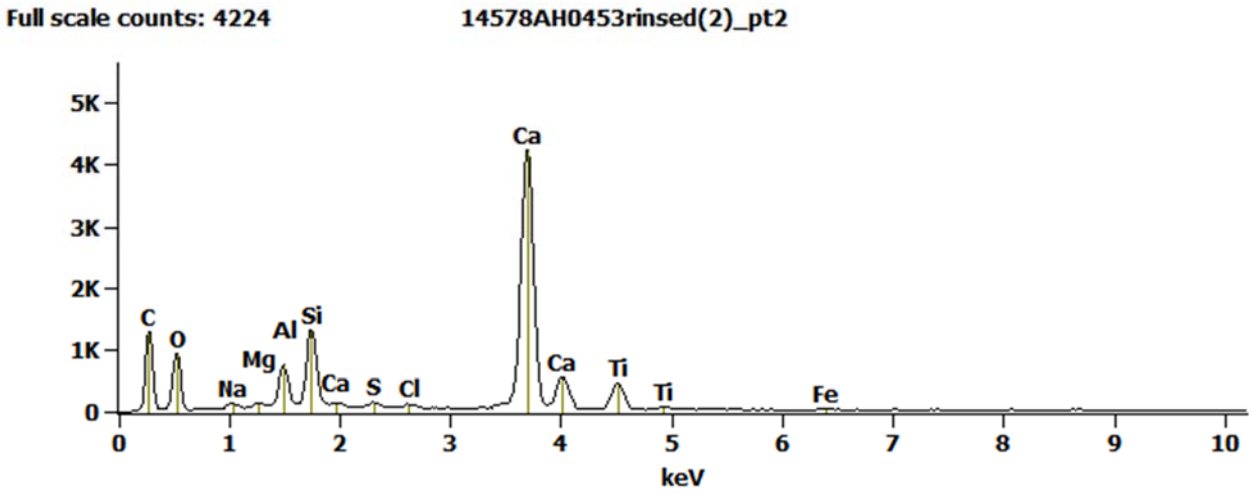


Figure D5. AH0453. SEM/EDS spectrum from area 2 in Figure D4. Aluminosilicate.

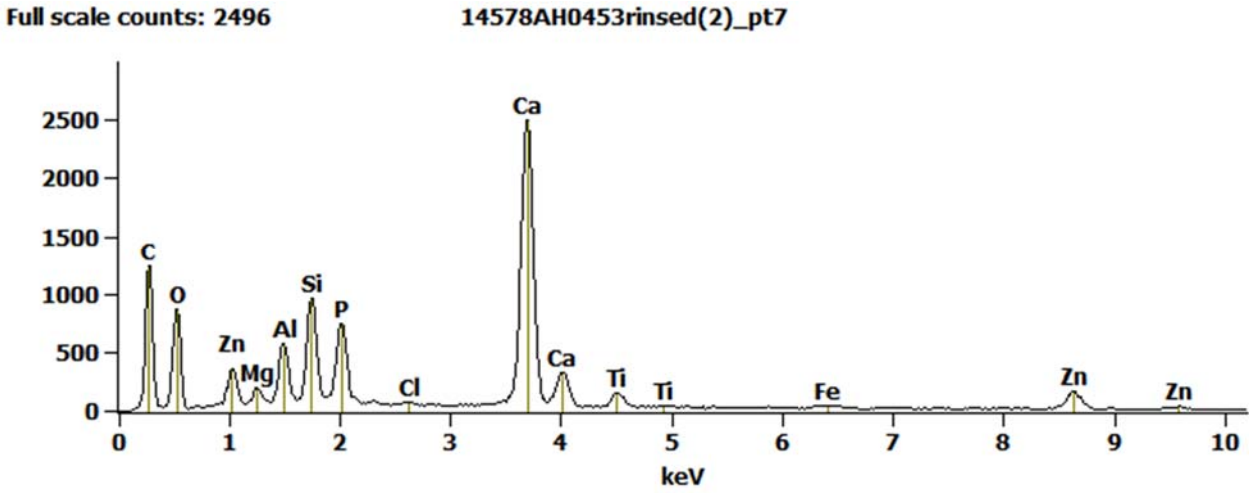


Figure D6. AH0453. SEM/EDS spectrum from area 7 in Figure D4. Aluminosilicate.

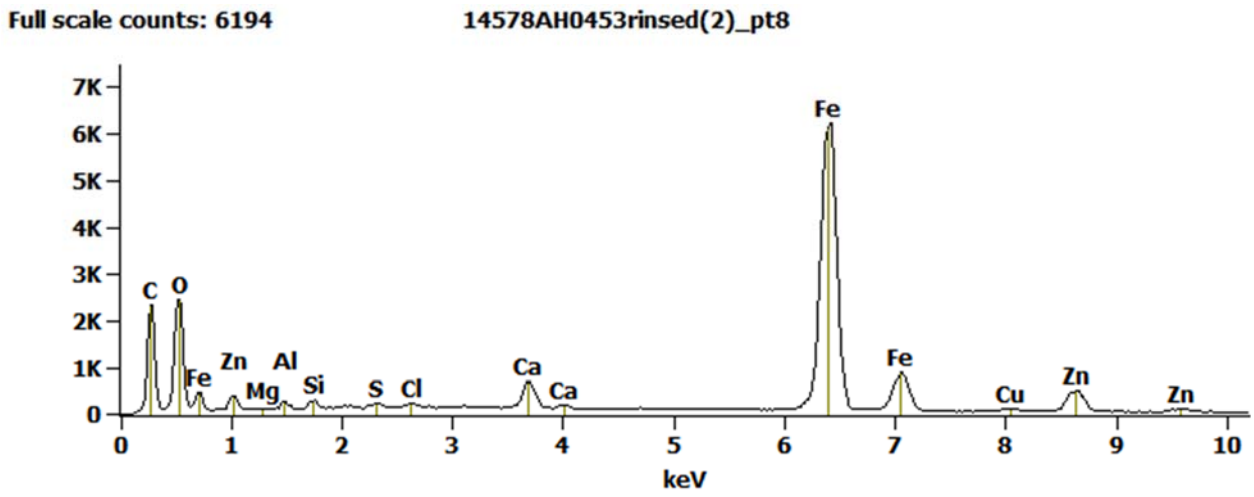


Figure D7. AH0453. SEM/EDS spectrum from area 8 in Figure D4. Iron- and zinc-rich.

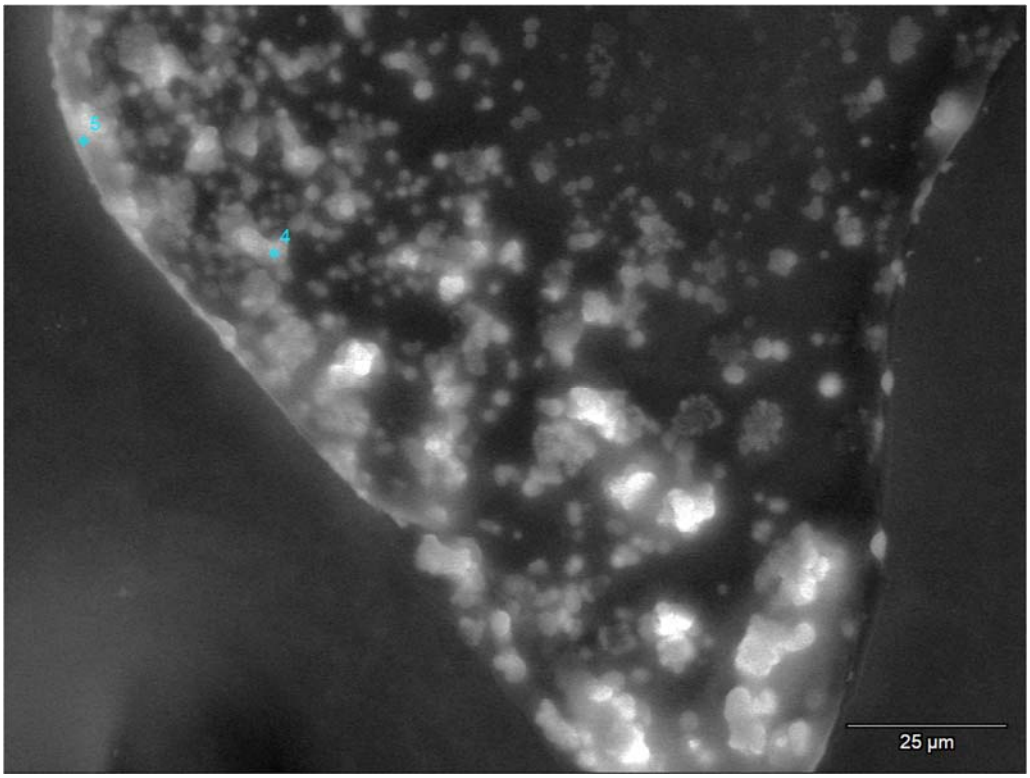


Figure D8. AH0453. SEM image of reprecipitated salts on carbon substrate.

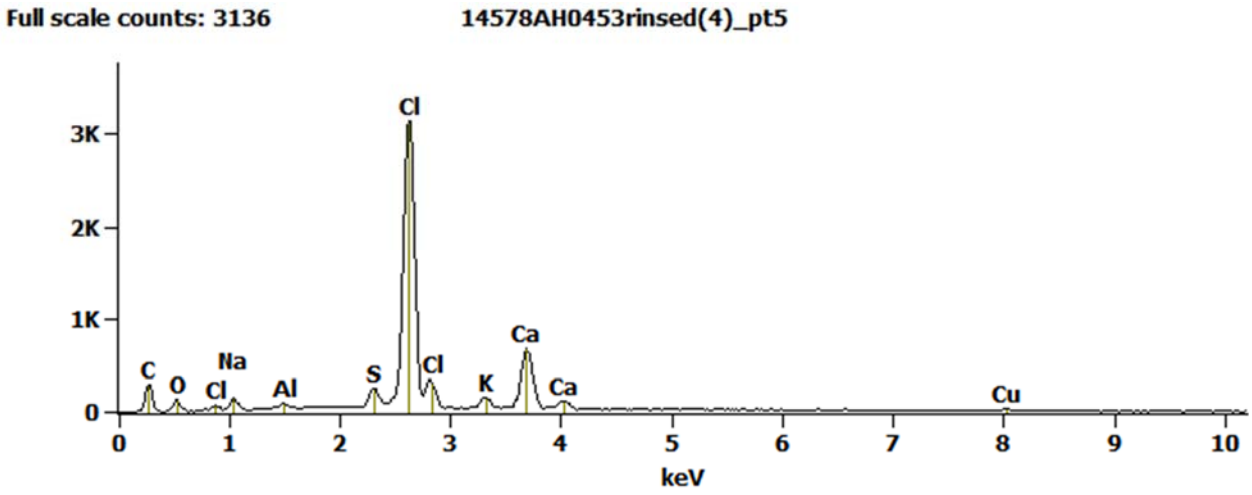


Figure D9. AH0453. SEM/EDS spectrum from area 5 in Figure D8. Mixed salts.

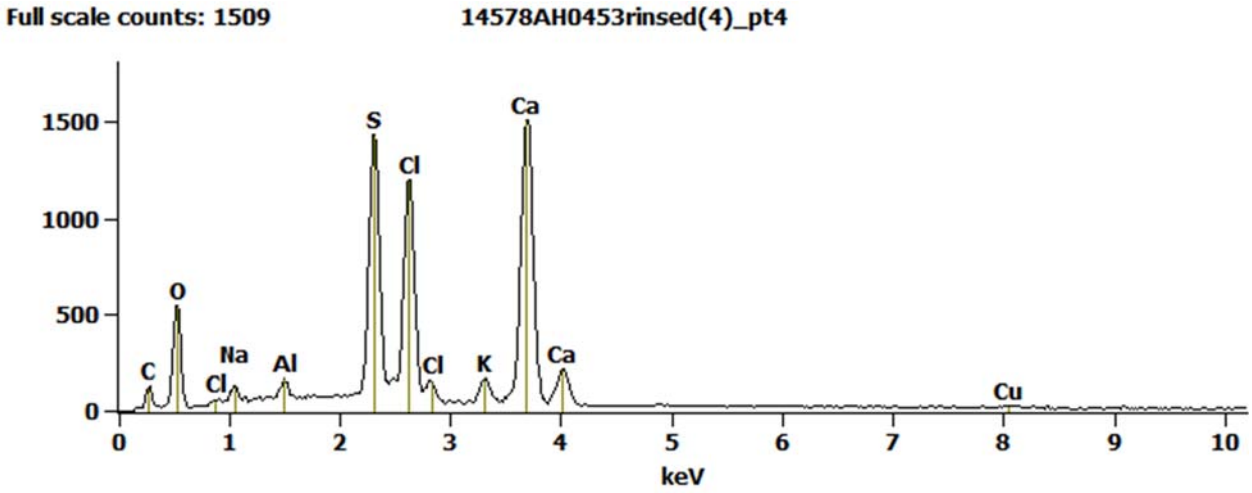


Figure D10. AH0453. SEM/EDS spectrum from area 4 in Figure D8. Mixed salts.

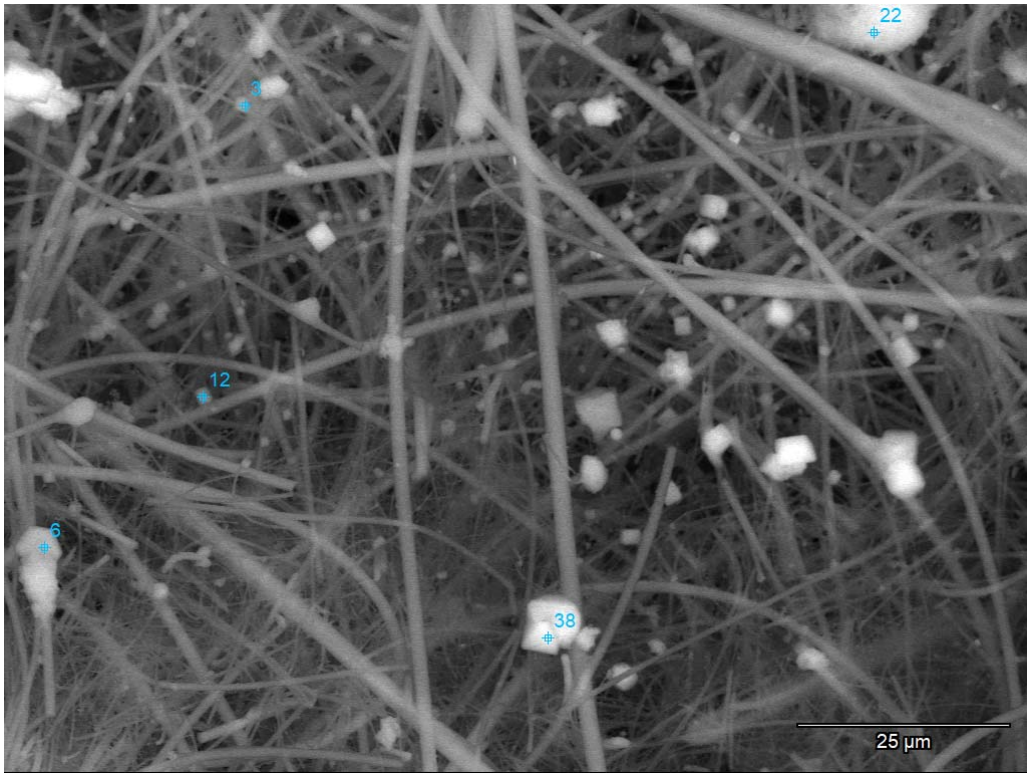


Figure E1. AH0454. SEM image of particulate on filter.

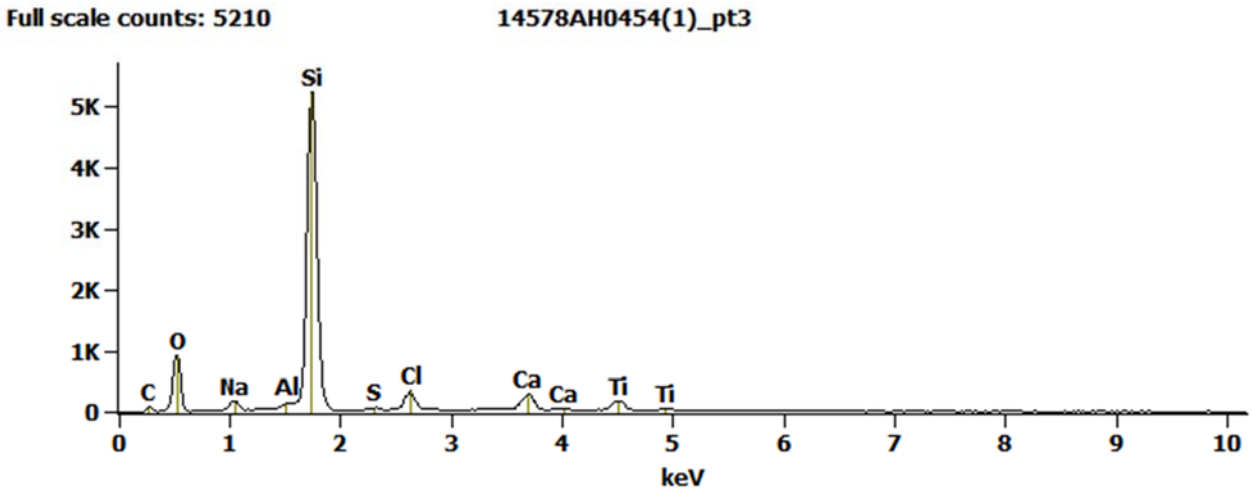


Figure E2. AH0454. SEM/EDS spectrum from area 3 in Figure E1. Silica filter fiber.

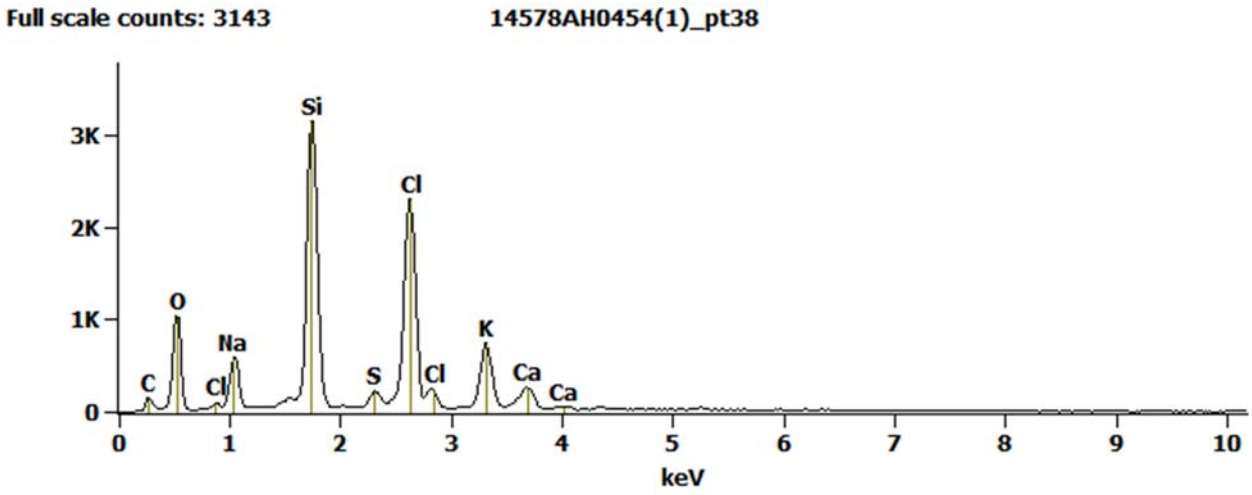


Figure E3. AH0454. SEM/EDS spectrum from area 38 in Figure E1. Mixed salts.

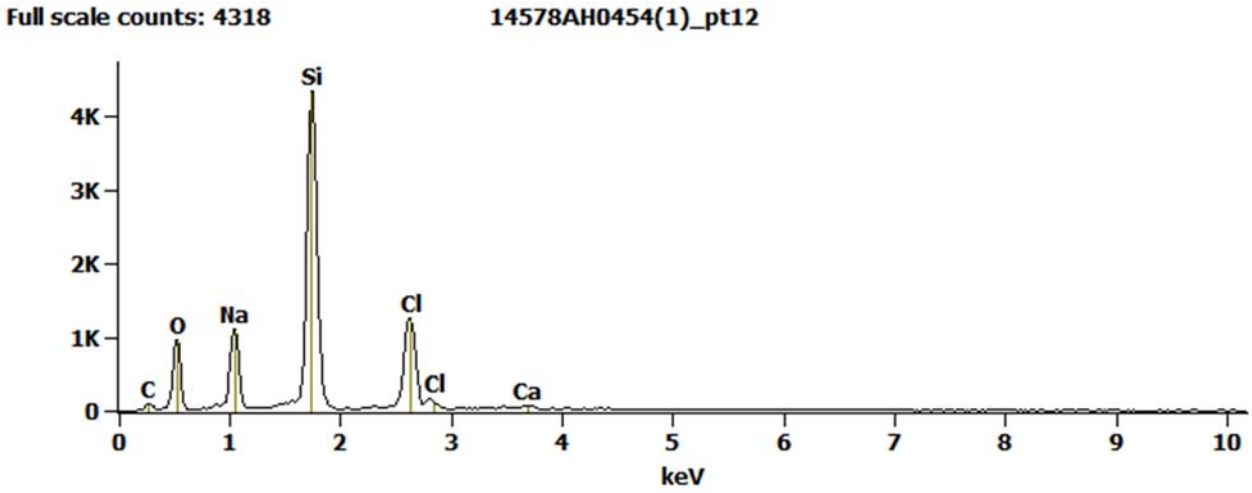


Figure E4. AH0454. SEM/EDS spectrum from area 12 in Figure E1. Sodium chloride.

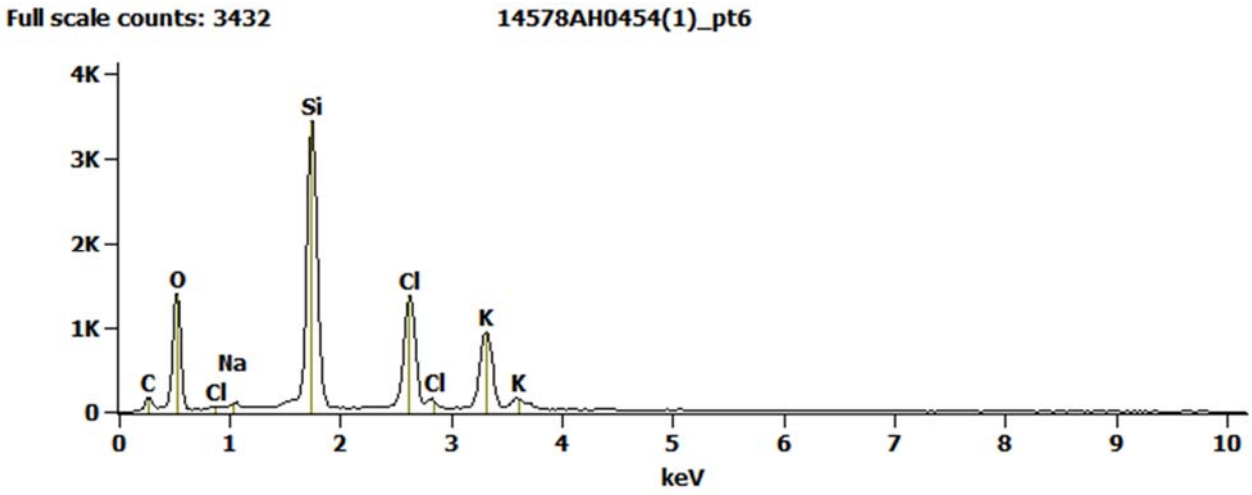


Figure E5. AH0454. SEM/EDS spectrum from area 6 in Figure E1. Potassium chloride.

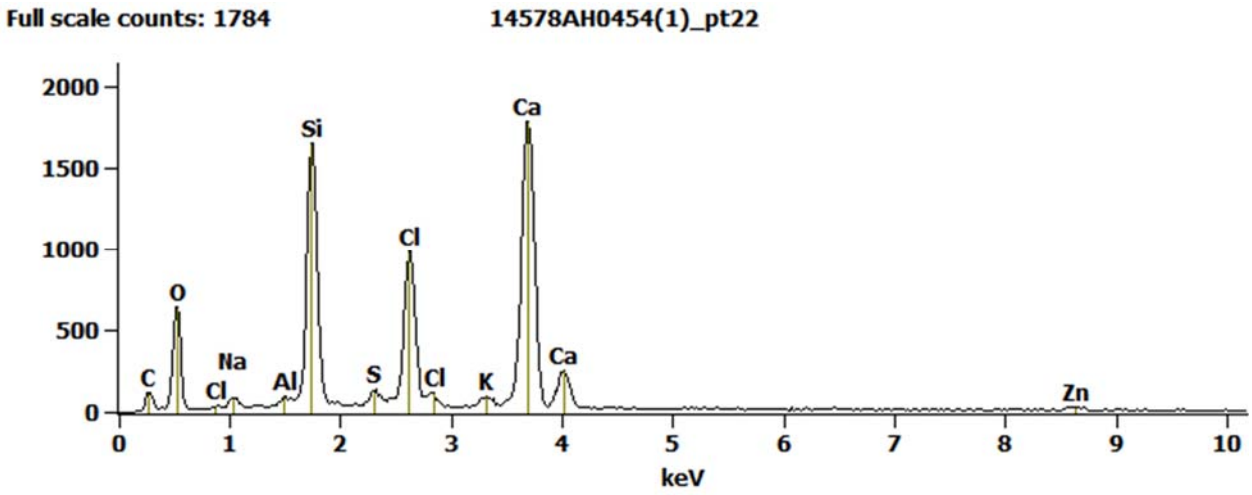


Figure E6. AH0454. SEM/EDS spectrum from area 22 in Figure E1. Calcium chloride.

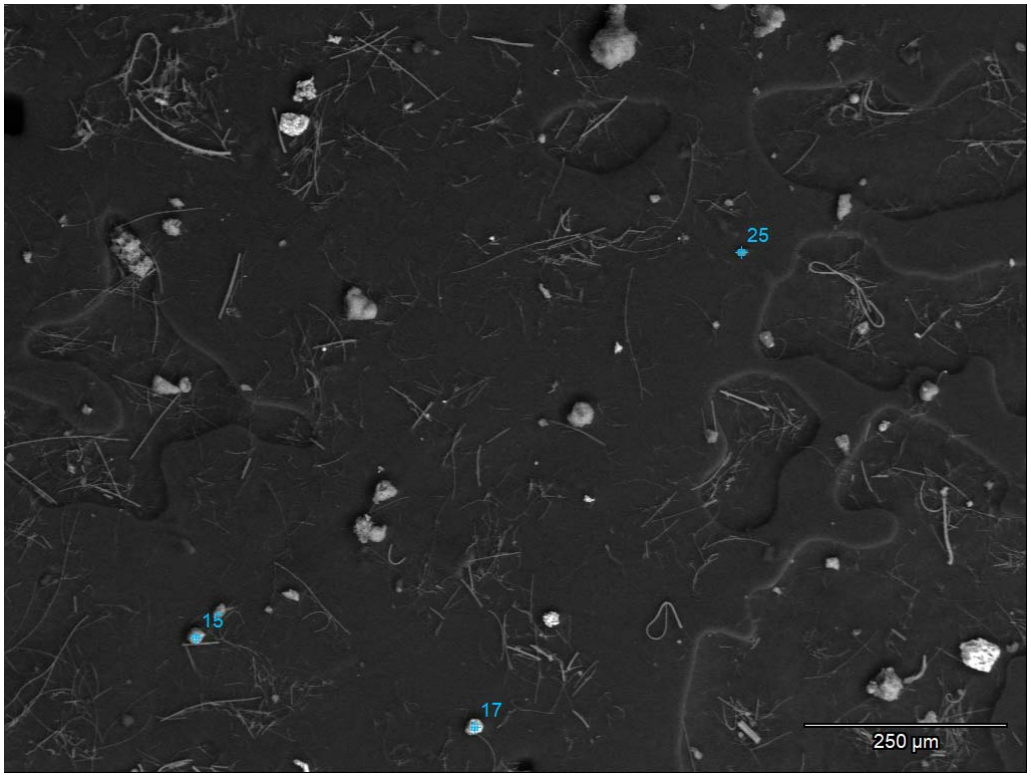


Figure E7. AH0454. SEM image of rinsed particulate on carbon substrate.

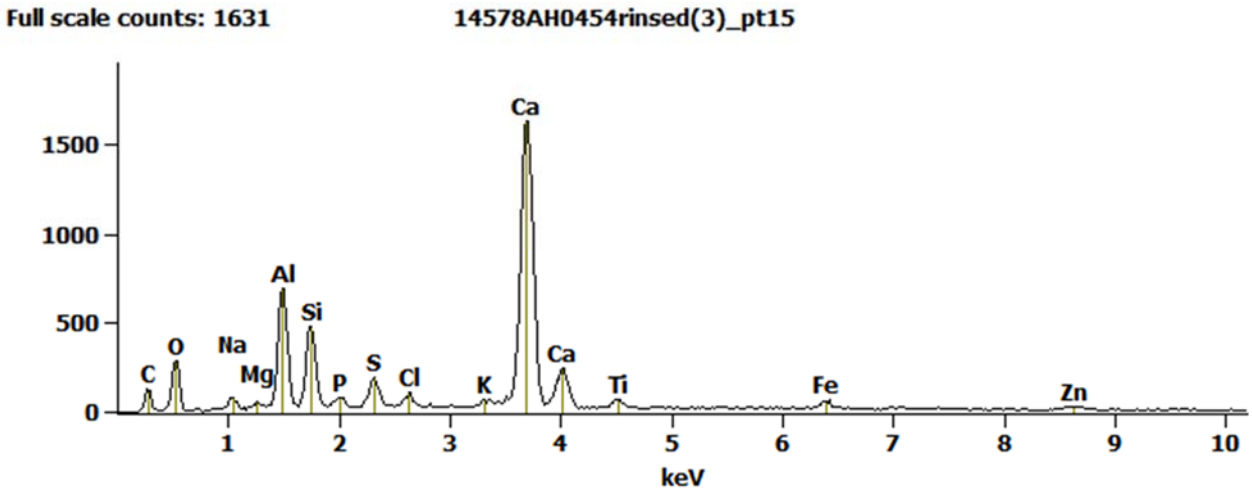


Figure E8. AH0454. SEM/EDS spectrum from area 15 in Figure E7. Aluminosilicate.

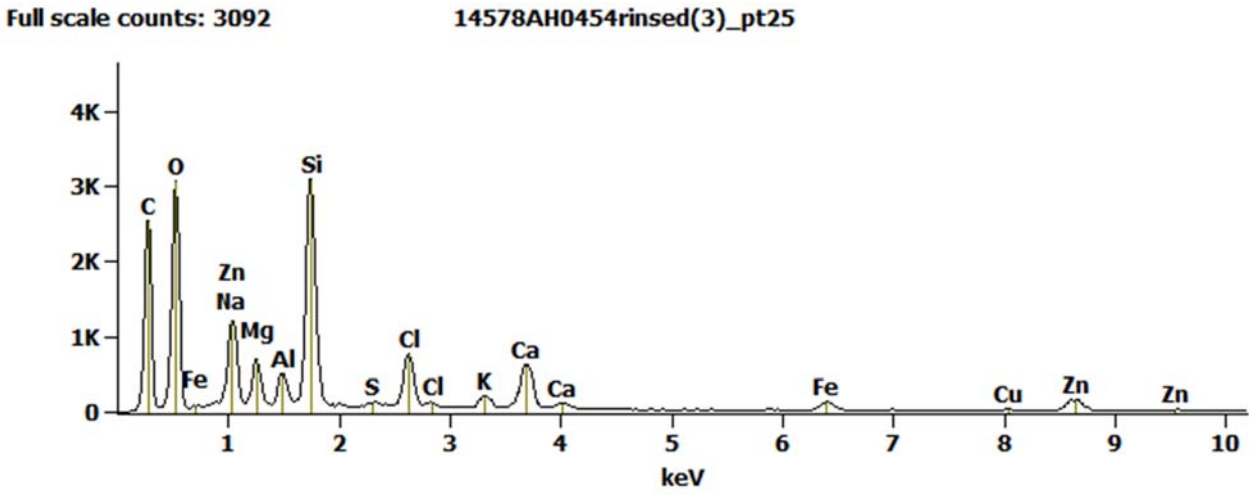


Figure E9. AH0454. SEM/EDS spectrum from area 25 in Figure E7. Aluminosilicate.

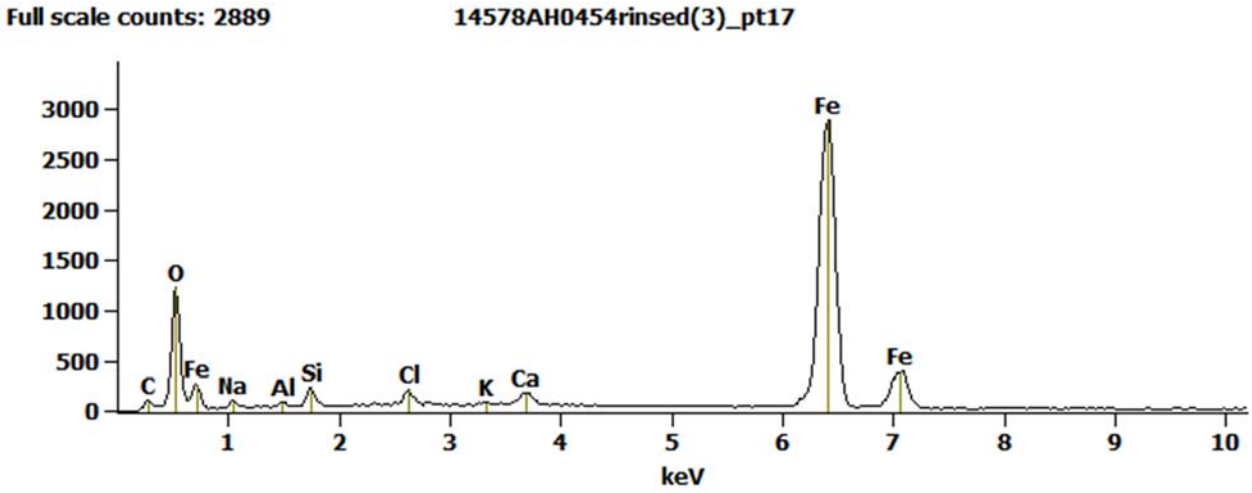


Figure E10. AH0454. SEM/EDS spectrum from area 17 in Figure E7. Iron/iron oxide.

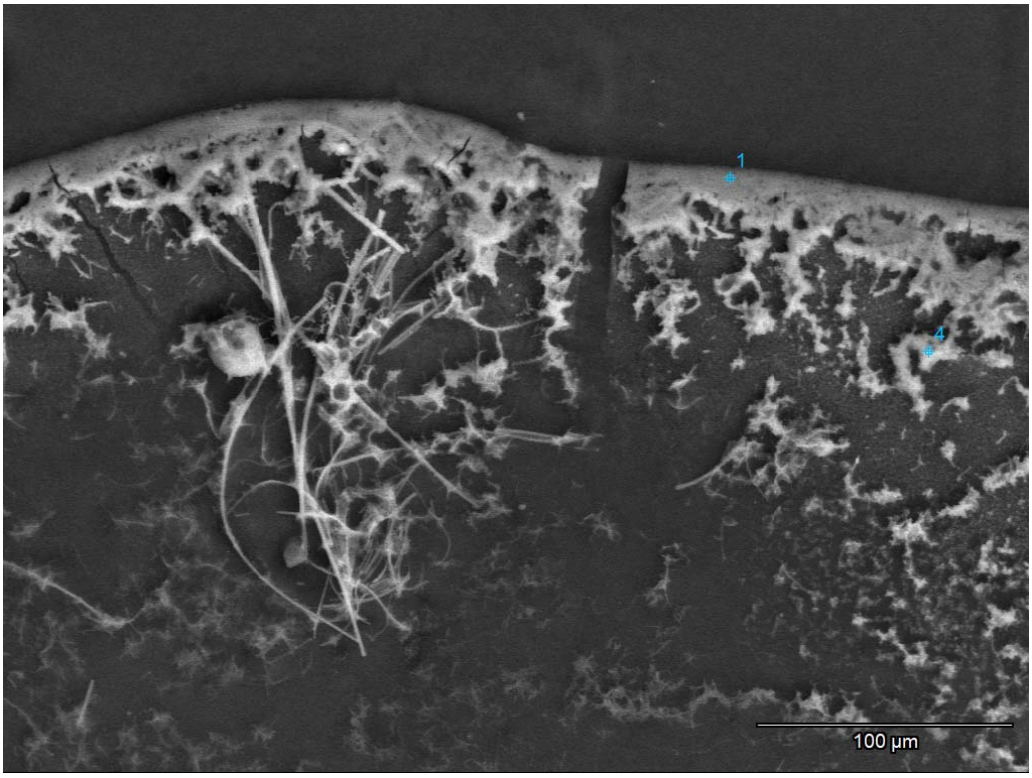


Figure E11. AH0454. SEM image of reprecipitated salts (and residual filter fibers) on carbon substrate.

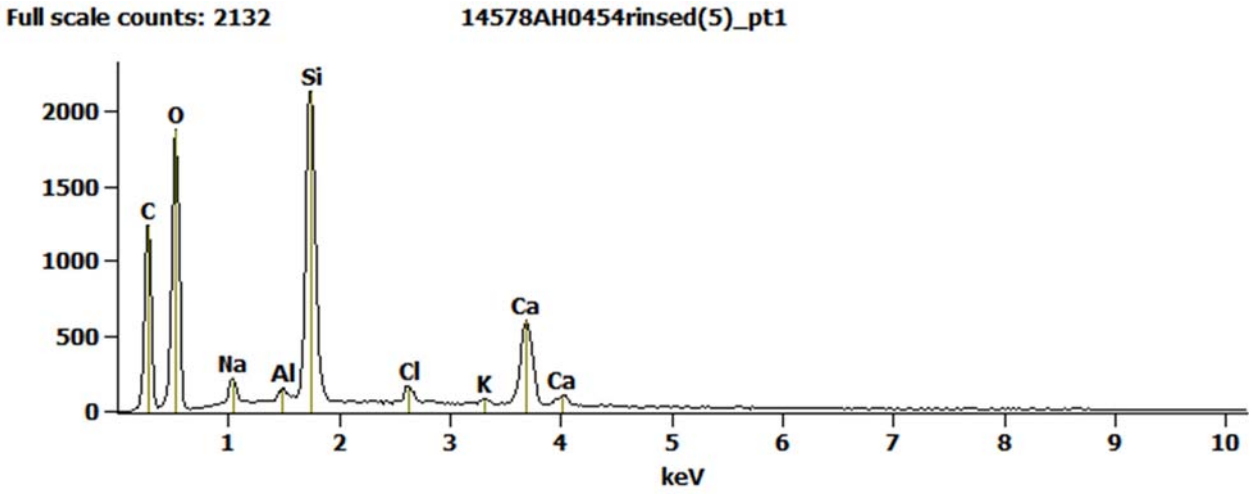


Figure E12. AH0454. SEM/EDS spectrum from area 1 in Figure E11. Mixed salts.

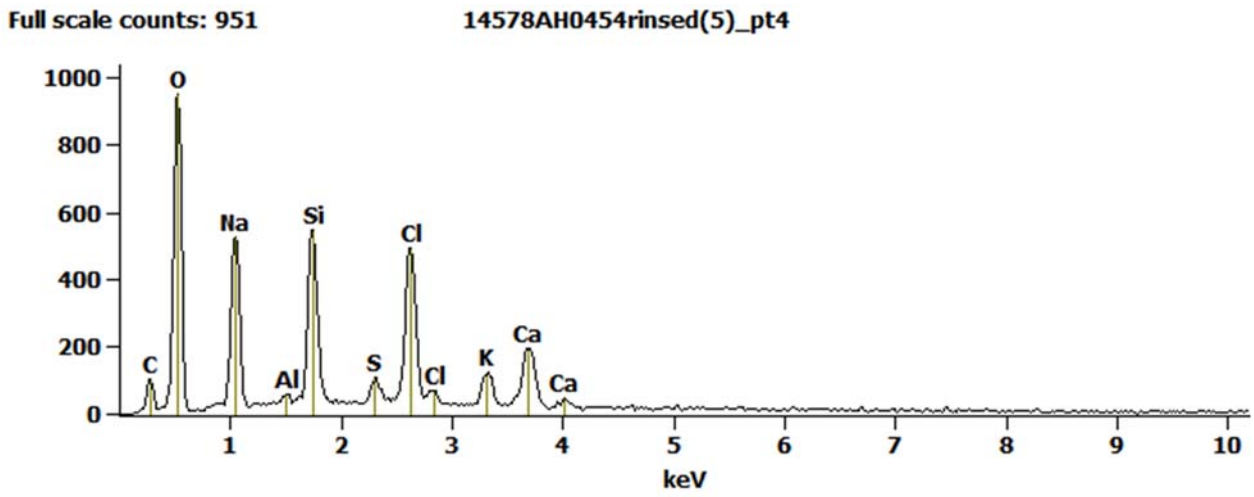


Figure E13. AH0454. SEM/EDS spectrum from area 4 in Figure E11. Mixed salts.

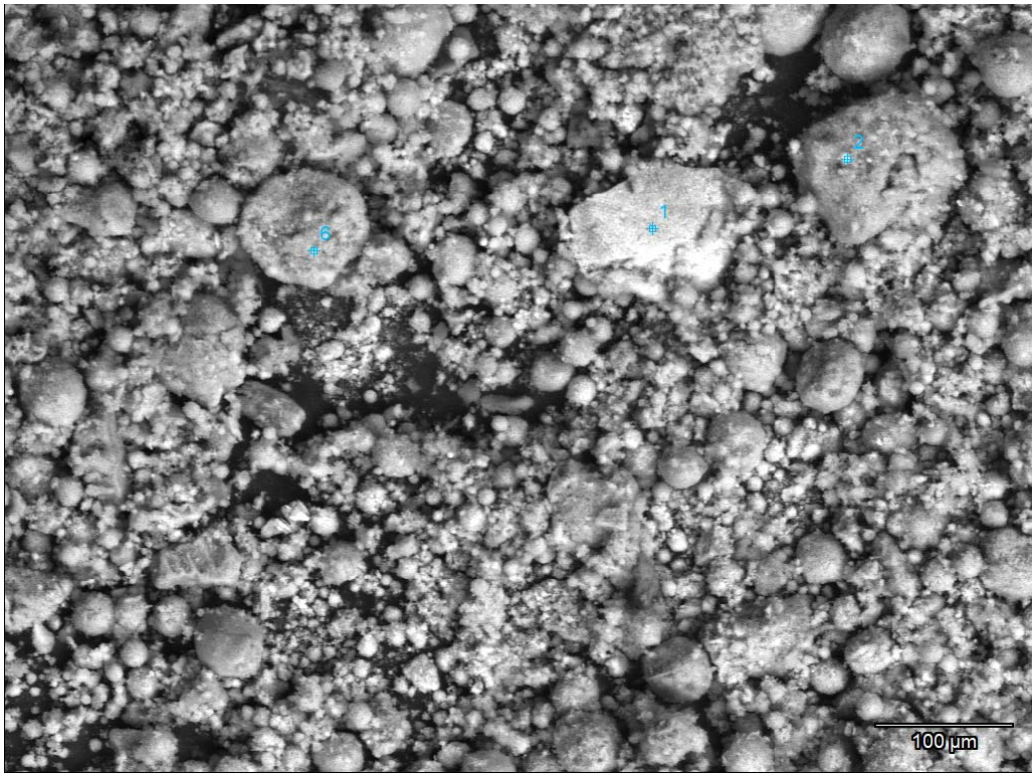


Figure F1. AH0455. SEM image of raw particulate on carbon substrate.

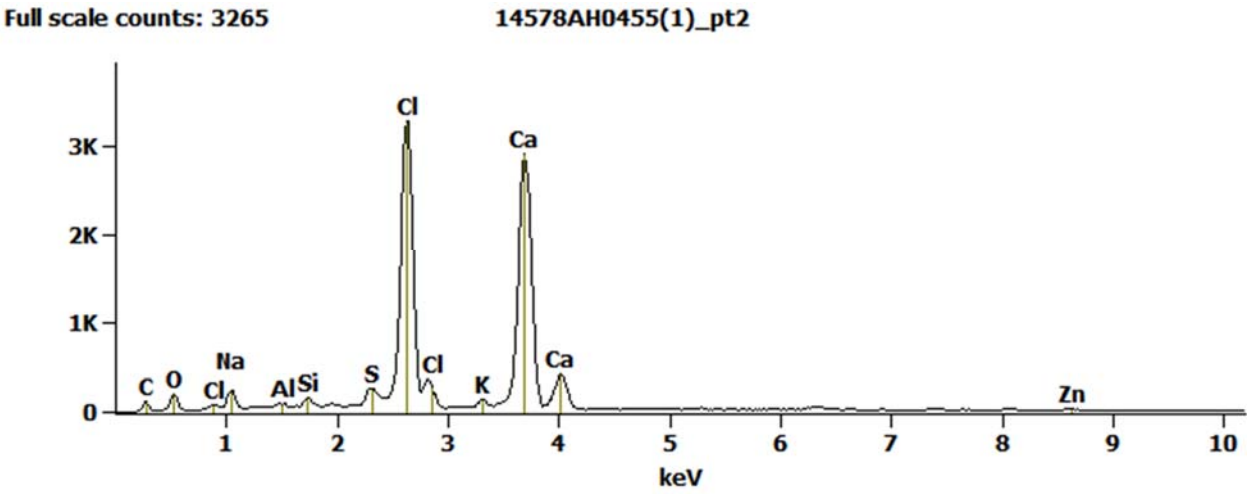


Figure F2. AH0455. SEM/EDS spectrum from area 2 in Figure F1. Mixed salts.

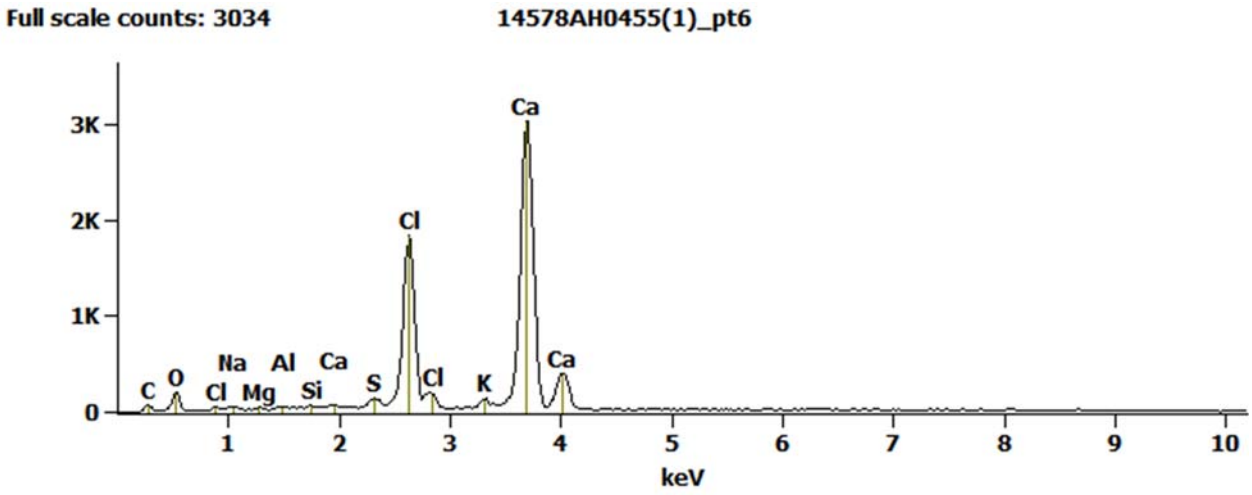


Figure F3. AH0455. SEM/EDS spectrum from area 6 in Figure F1. Mixed salts.

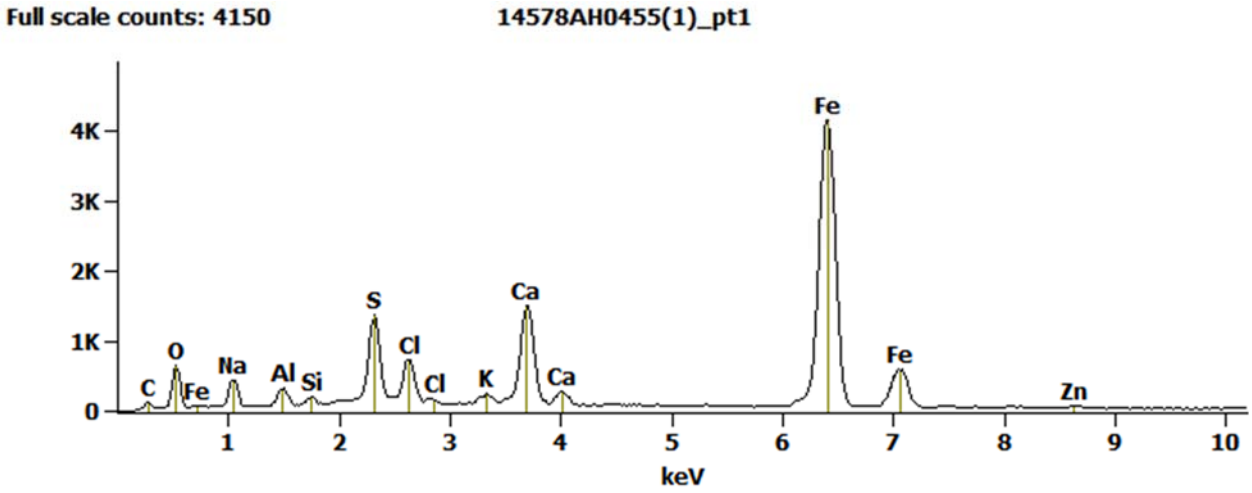


Figure F4. AH0455. SEM/EDS spectrum from area 1 in Figure F1. Iron-rich.

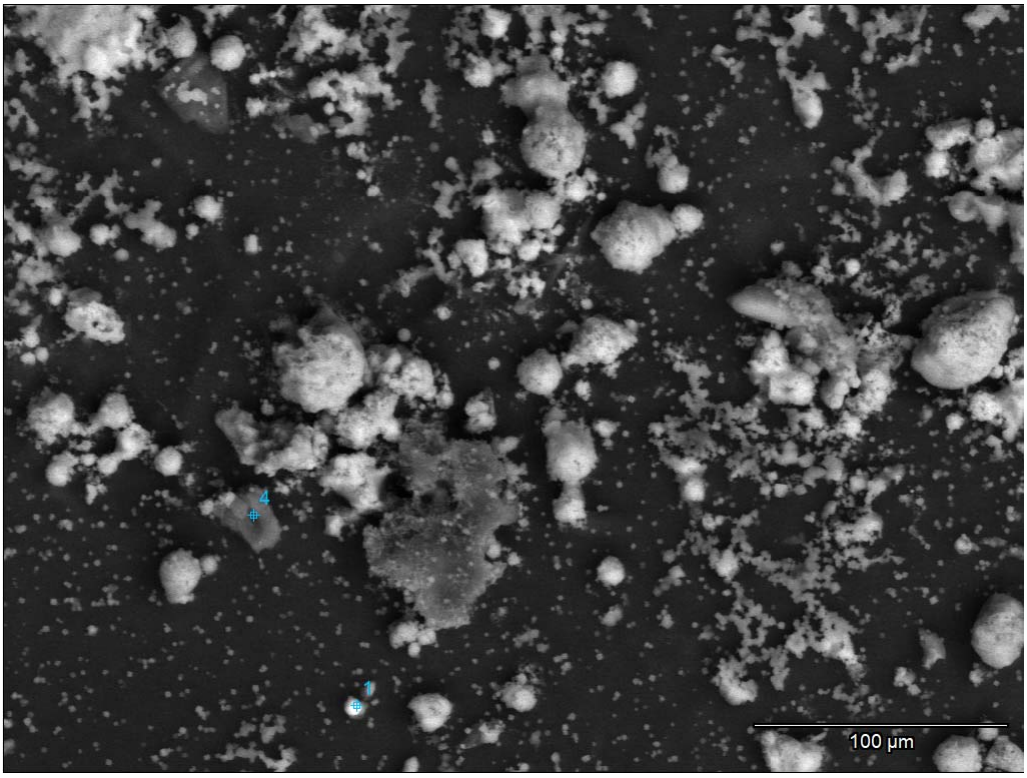


Figure F5. AH0455. SEM image of rinsed particulate on carbon substrate.

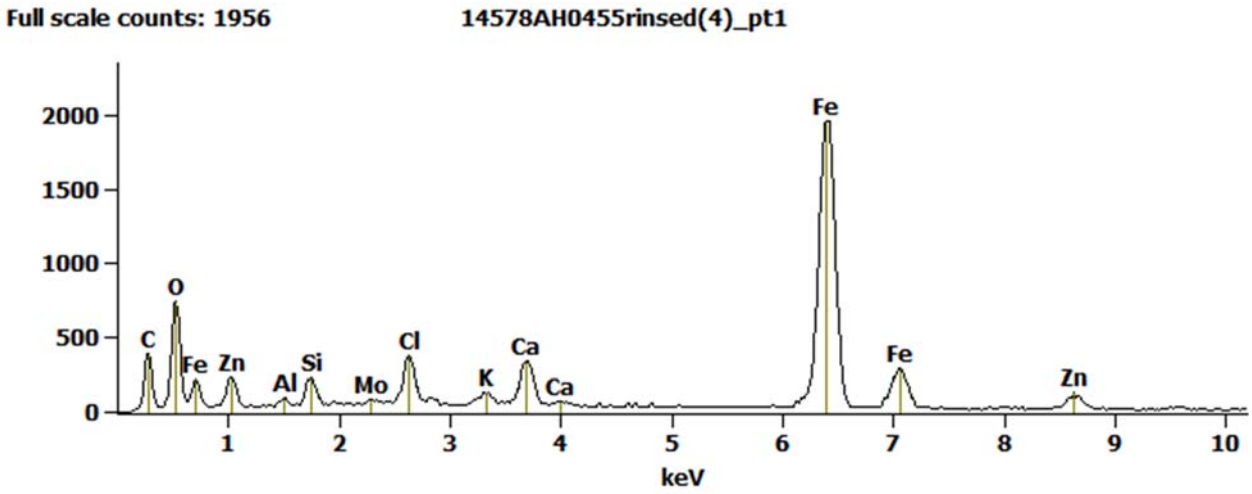


Figure F6. AH0455. SEM/EDS spectrum from area 1 in Figure F5. Aluminosilicate + iron corrosion + salts.

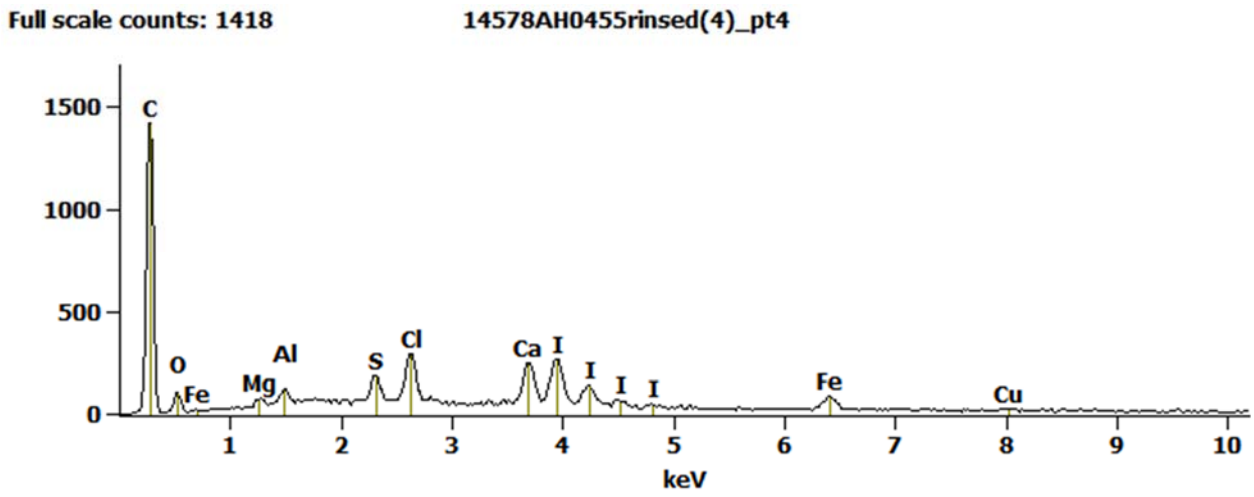


Figure F7. AH0455. SEM/EDS spectrum from area 4 in Figure F5. Iodine-rich.

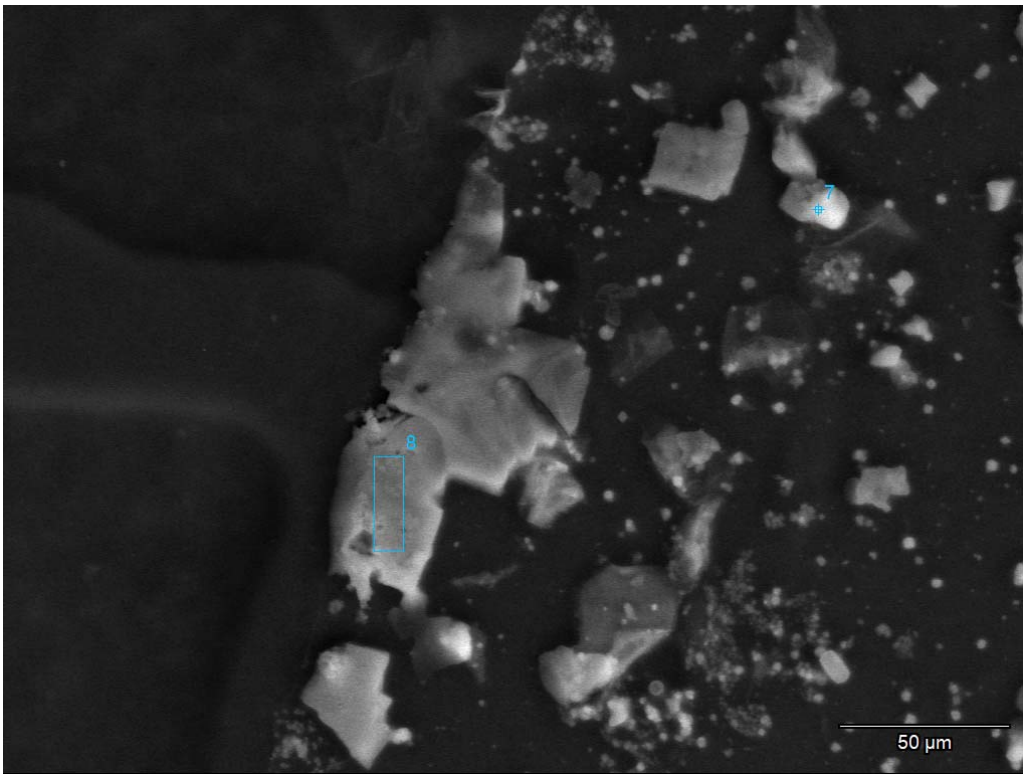


Figure F8. AH0455. SEM image of reprecipitated salts on carbon substrate.

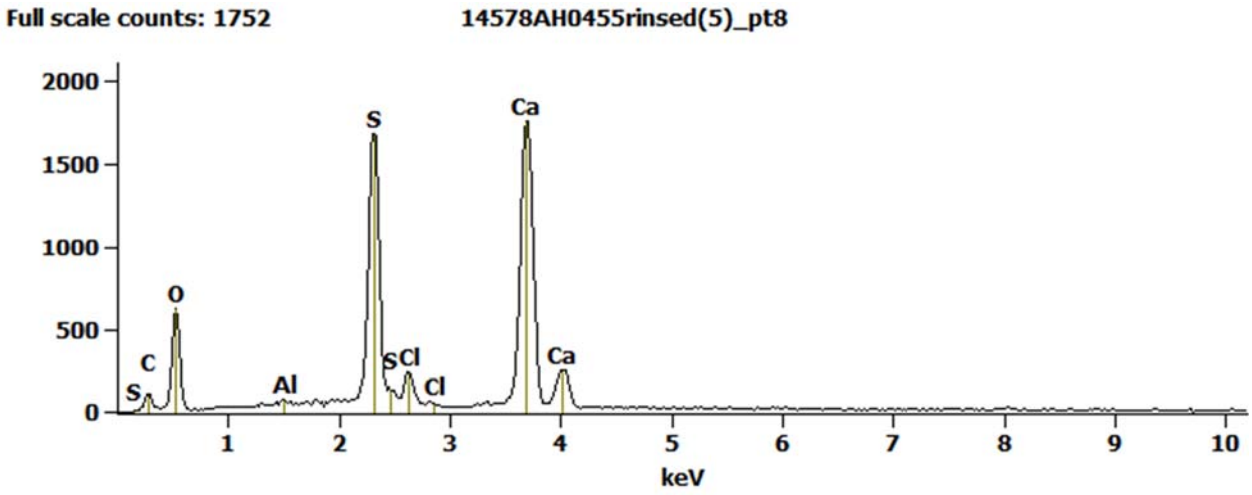


Figure F9. AH0455. SEM/EDS spectrum from area 8 in Figure F8. Mixed salts.

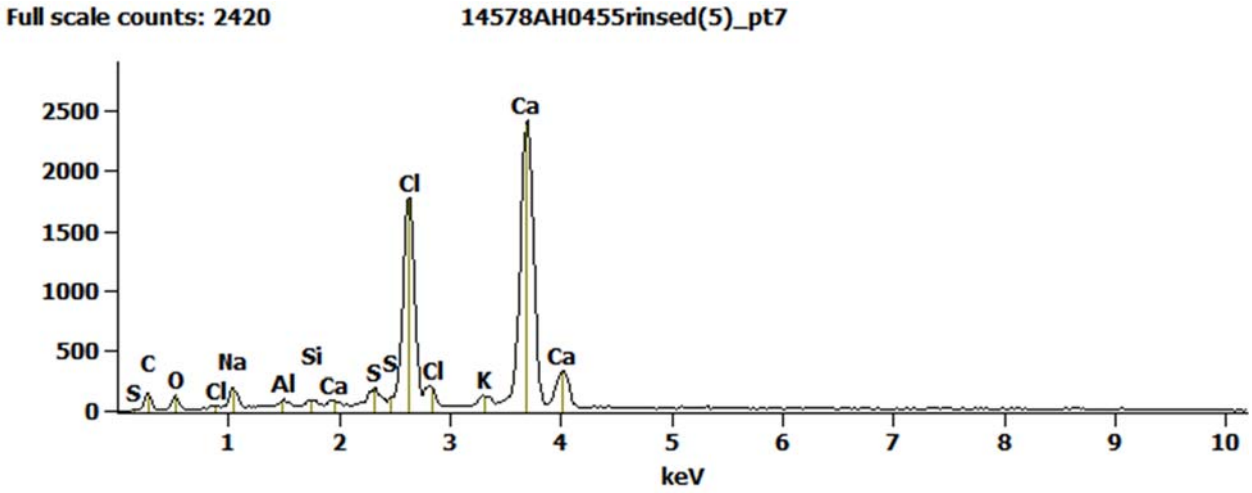


Figure F10. AH0455. SEM/EDS spectrum from area 7 in Figure F8. Mixed salts.

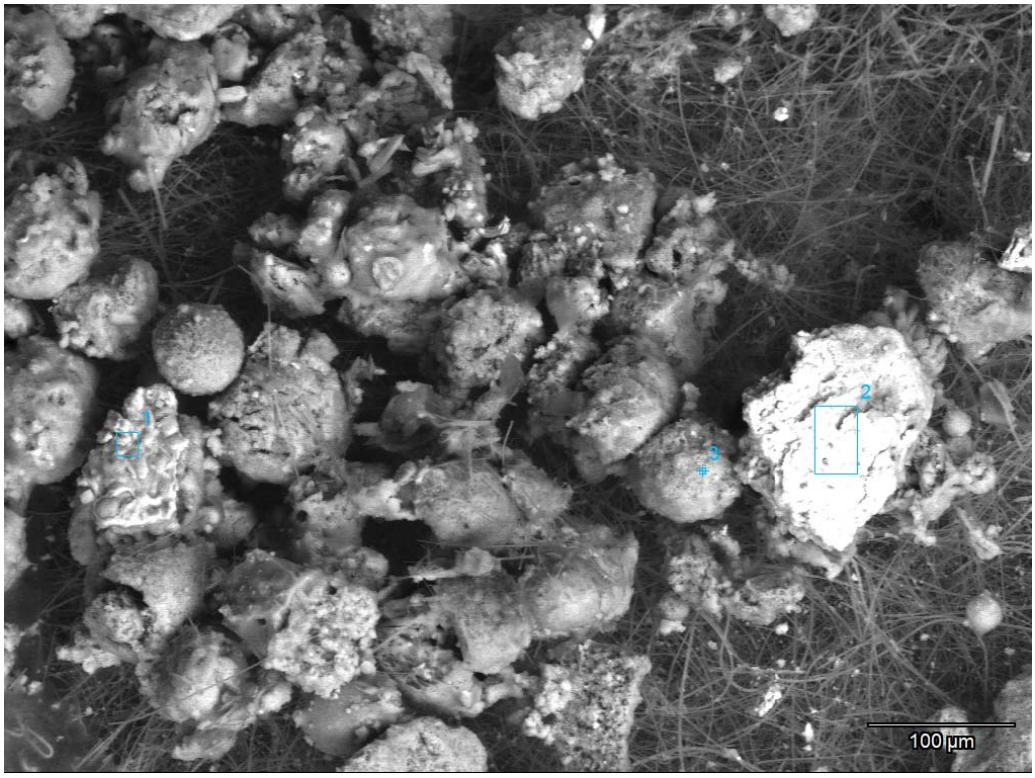


Figure G1. AH0456. SEM image of particulate on filter.

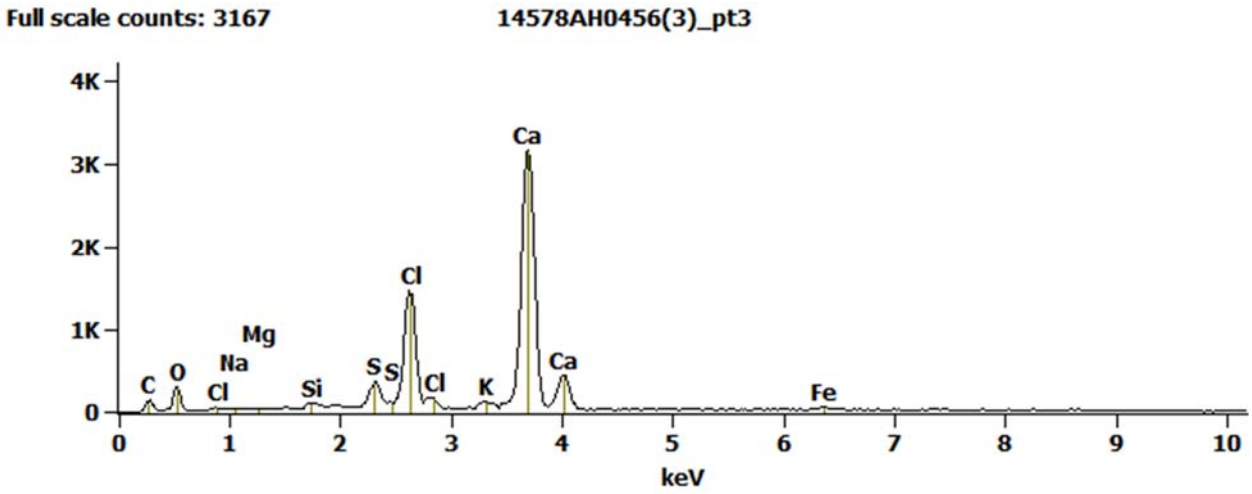


Figure G2. AH0456. SEM/EDS spectrum from area 3 in Figure G1. Mixed salts.

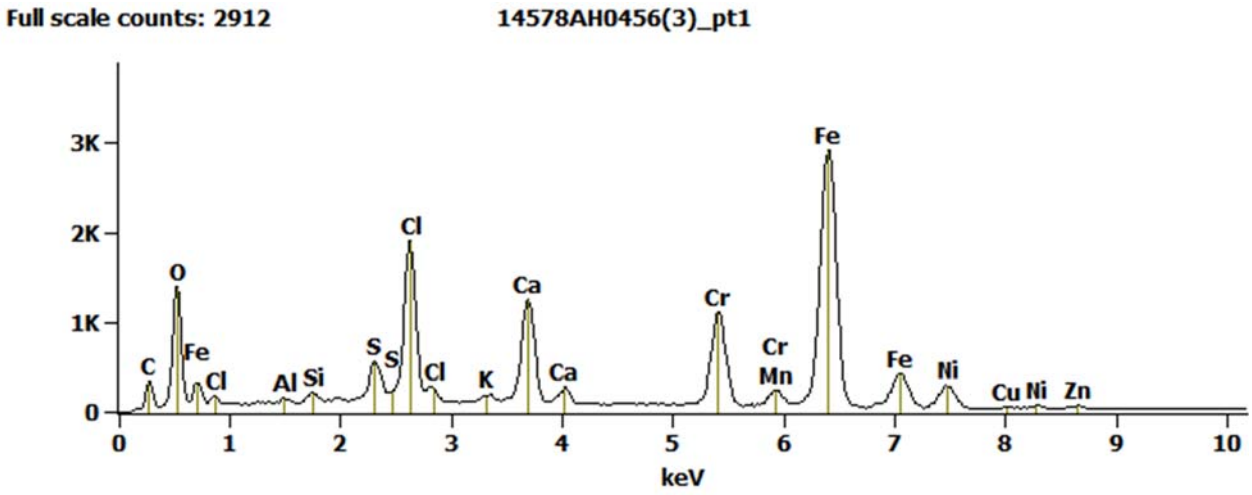


Figure G3. AH0456. SEM/EDS spectrum from area 1 in Figure G1. Stainless steel/corrosion.

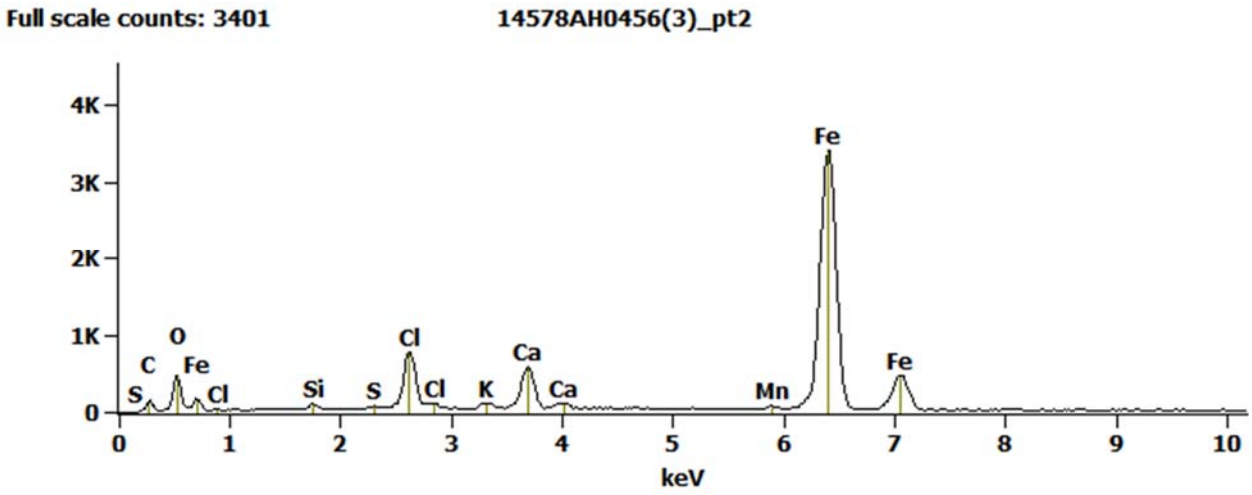


Figure G4. AH0456. SEM/EDS spectrum from area 2 in Figure G1. Iron-rich.

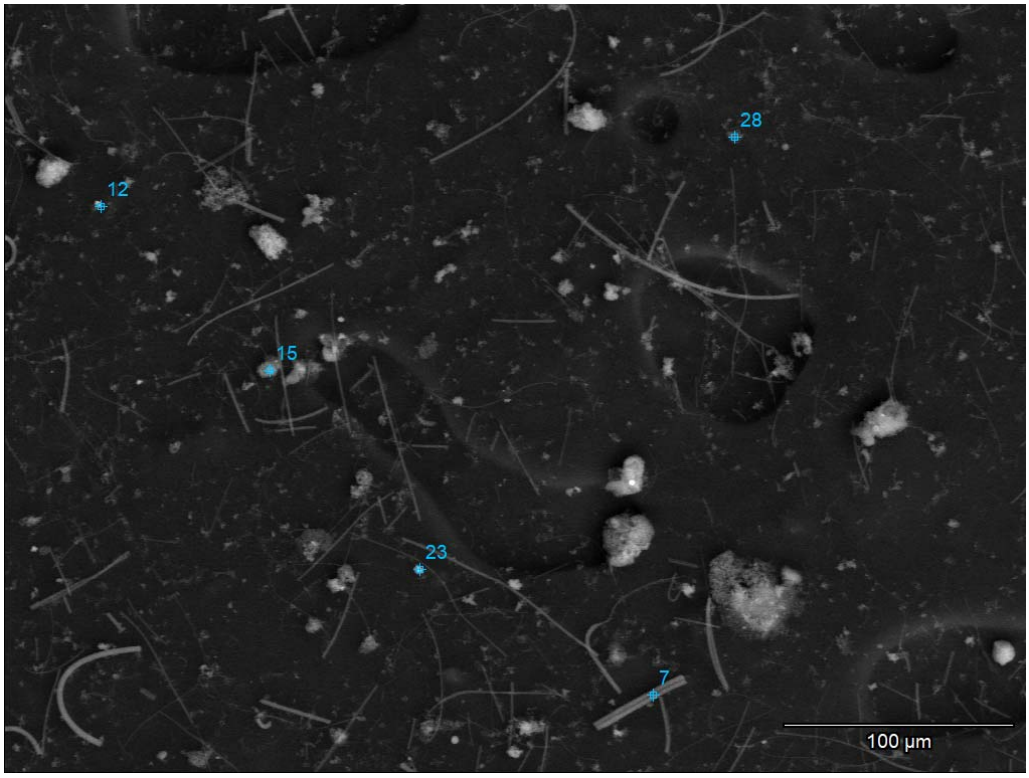


Figure G5. AH0456. SEM image of rinsed particulate on carbon substrate.

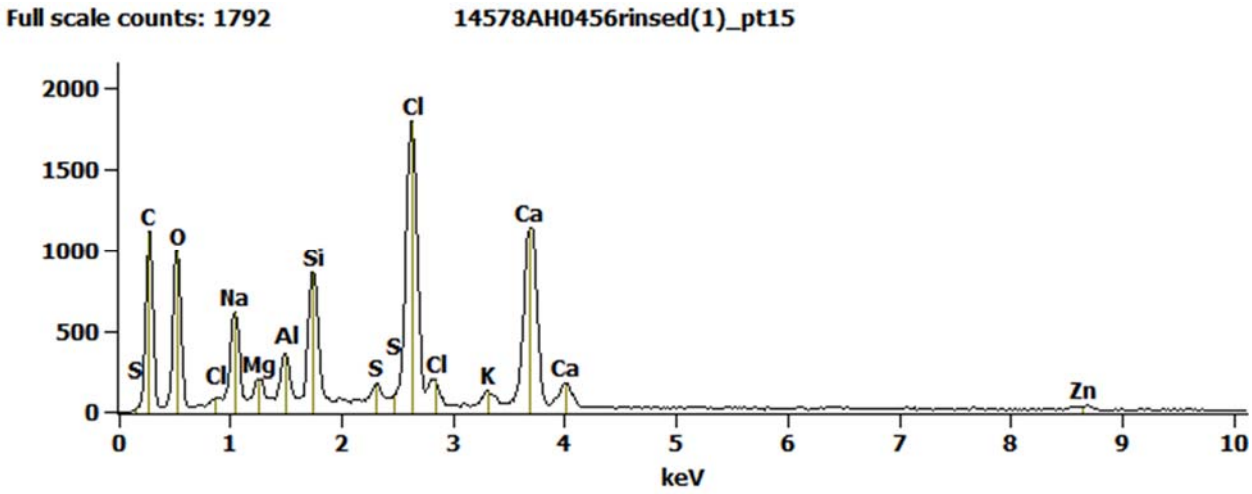


Figure G6. AH0456. SEM/EDS spectrum from area 15 in Figure G5. Aluminosilicate.

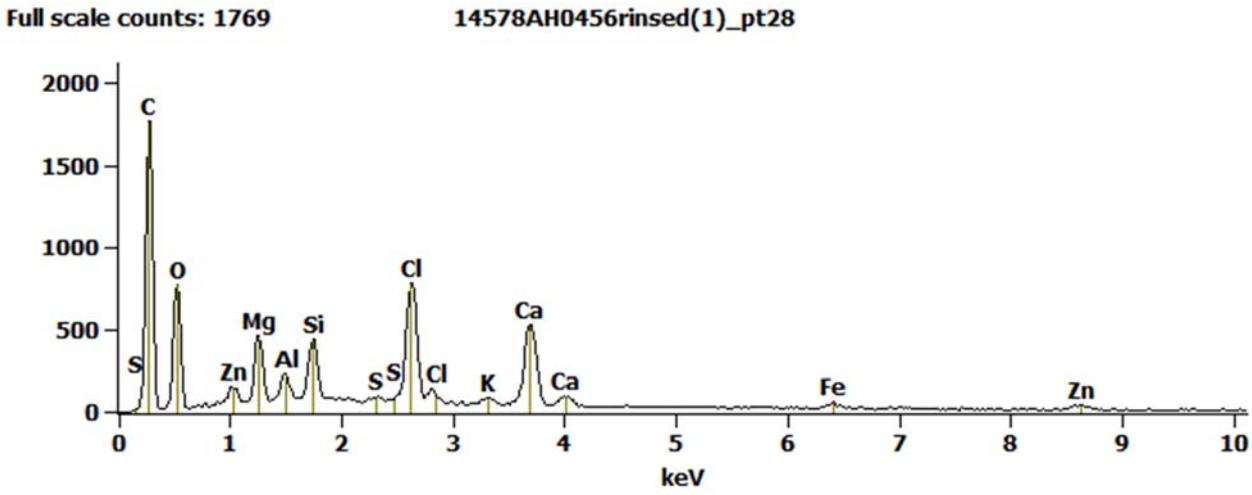


Figure G7. AH0456. SEM/EDS spectrum from area 28 in Figure G5. Aluminosilicate + salts.

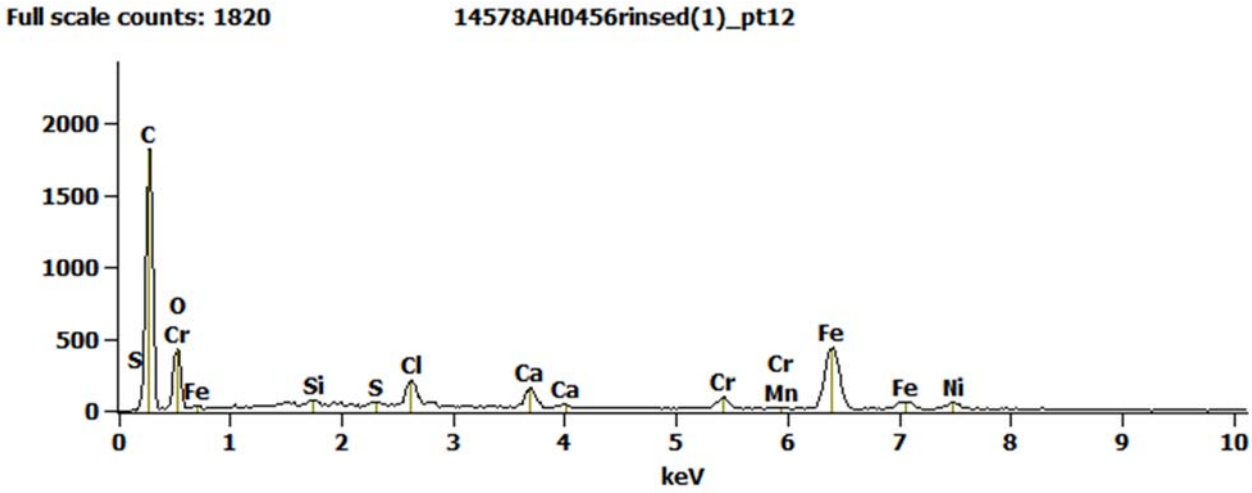


Figure G8. AH0456. SEM/EDS spectrum from area 12 in Figure G5. Stainless steel/corrosion.

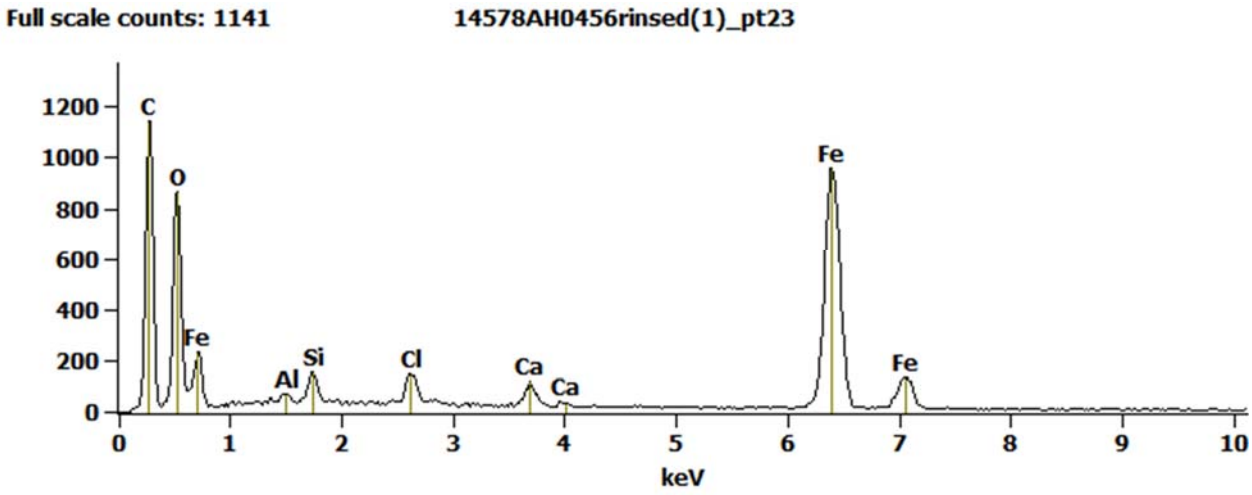


Figure G9. AH0456. SEM/EDS spectrum from area 23 in Figure G5. Iron-rich/corrosion.

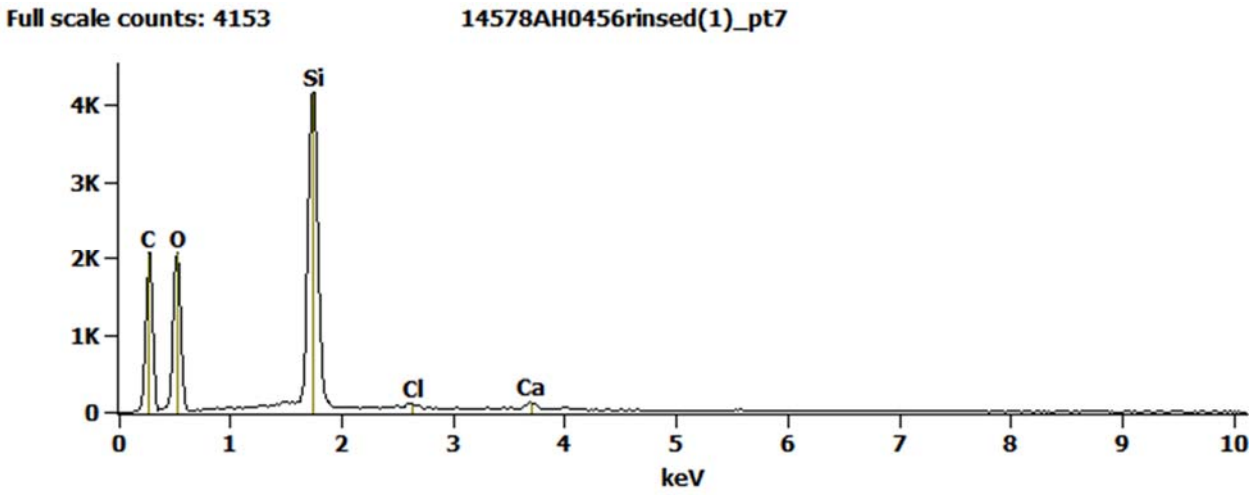


Figure G10. AH0456. SEM/EDS spectrum from area 7 in Figure G5. Silica filter fiber.

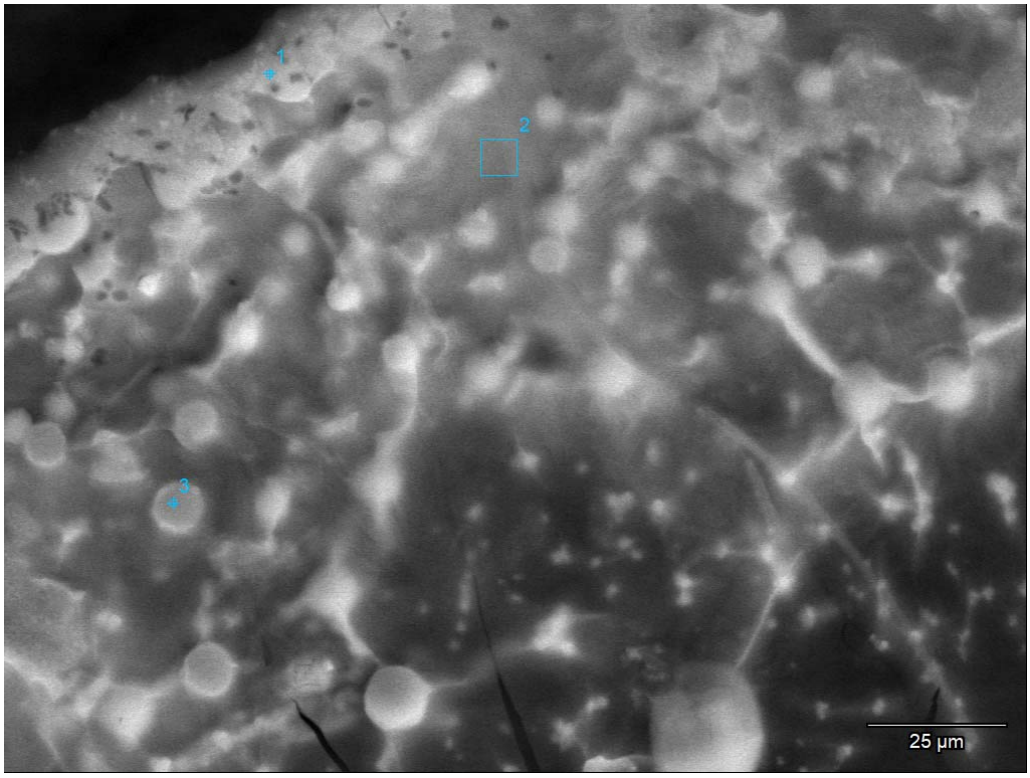


Figure G11. AH0456. SEM image of reprecipitated salts on carbon substrate.

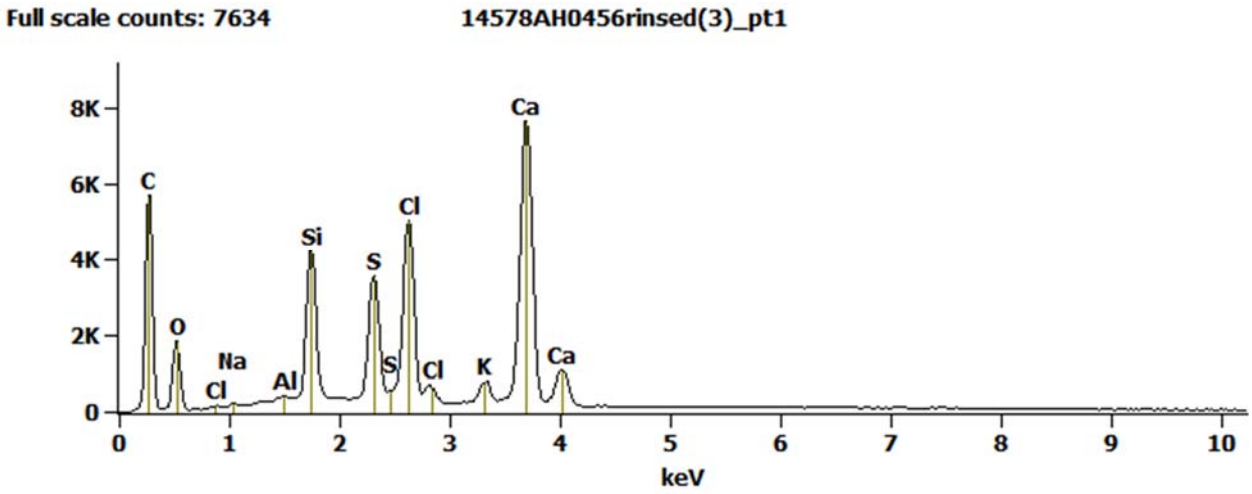


Figure G12. AH0456. SEM/EDS spectrum from area 1 in Figure G11. Mixed salts.

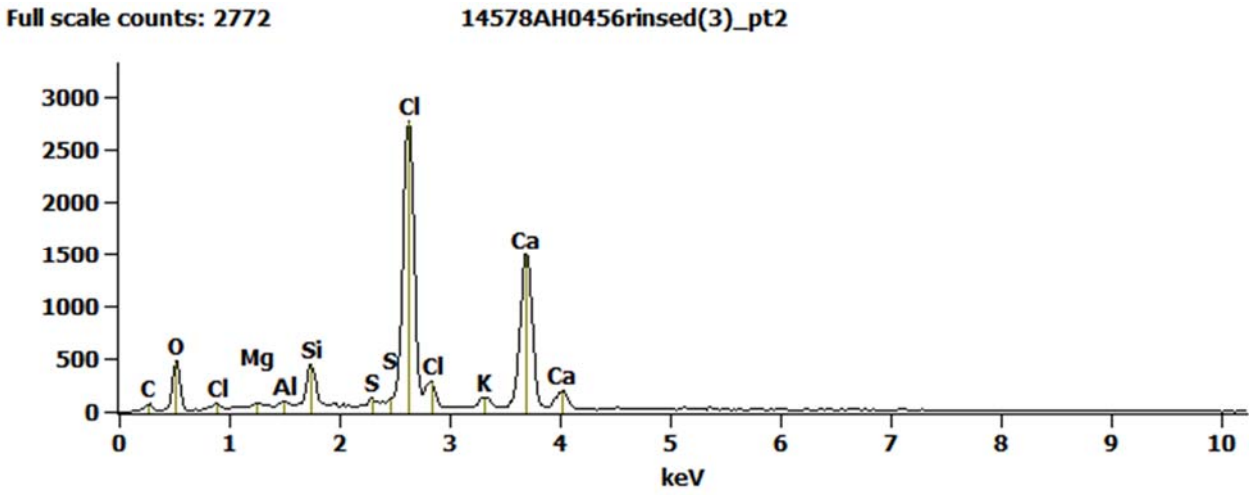


Figure G13. AH0456. SEM/EDS spectrum from area 2 in Figure G11. Mixed salts.

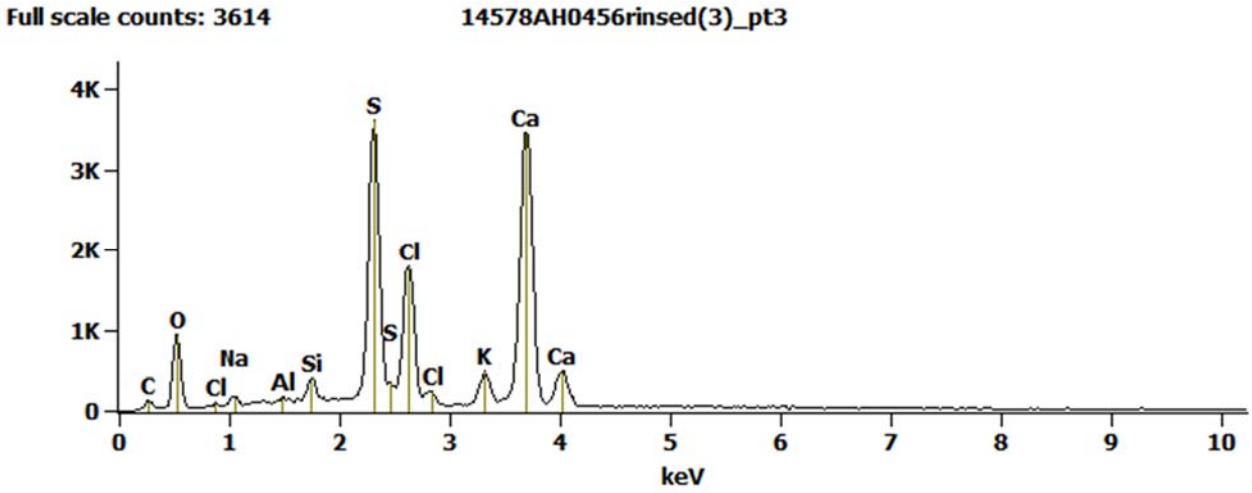


Figure G14. AH0456. SEM/EDS spectrum from area 3 in Figure G11. Mixed salts.

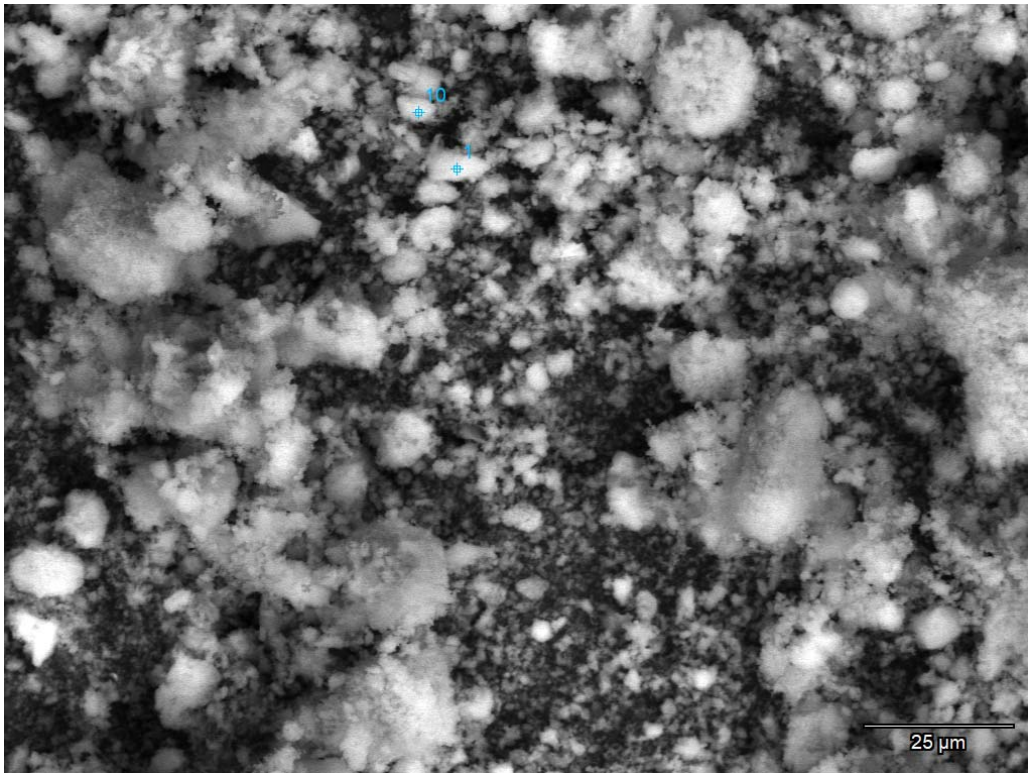


Figure H1. AH0457. SEM image of raw particulate on carbon substrate.

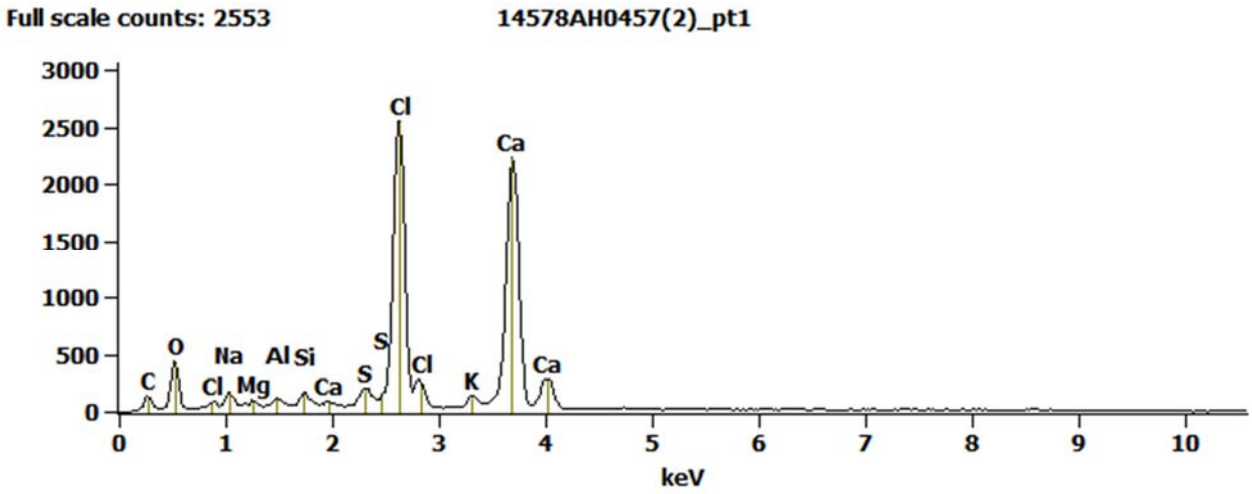


Figure H2. AH0457. SEM/EDS spectrum from area 1 in Figure H1. Mixed salts.

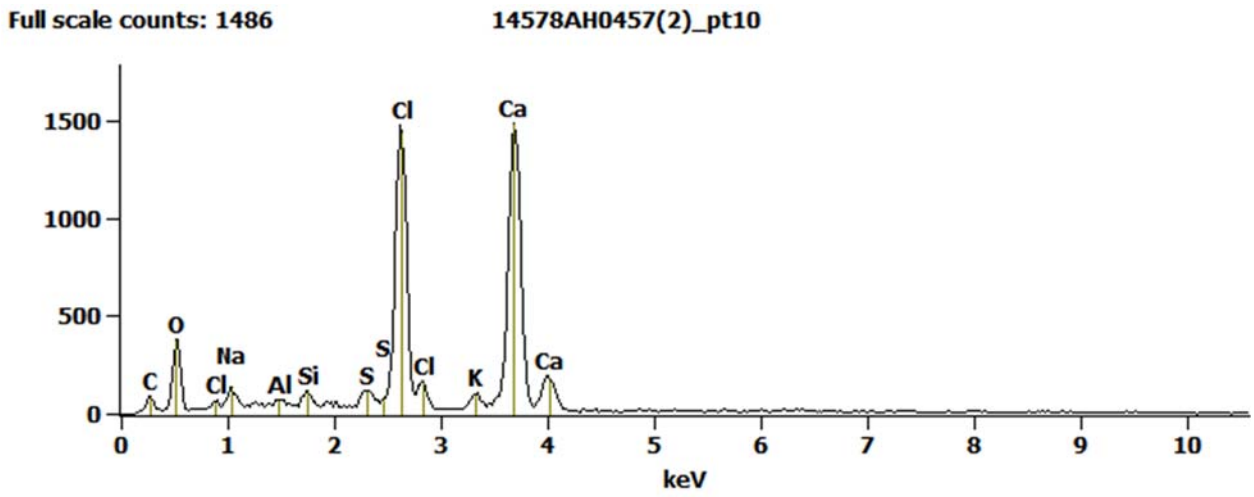


Figure H3. AH0457. SEM/EDS spectrum from area 10 in Figure H1. Mixed salts.

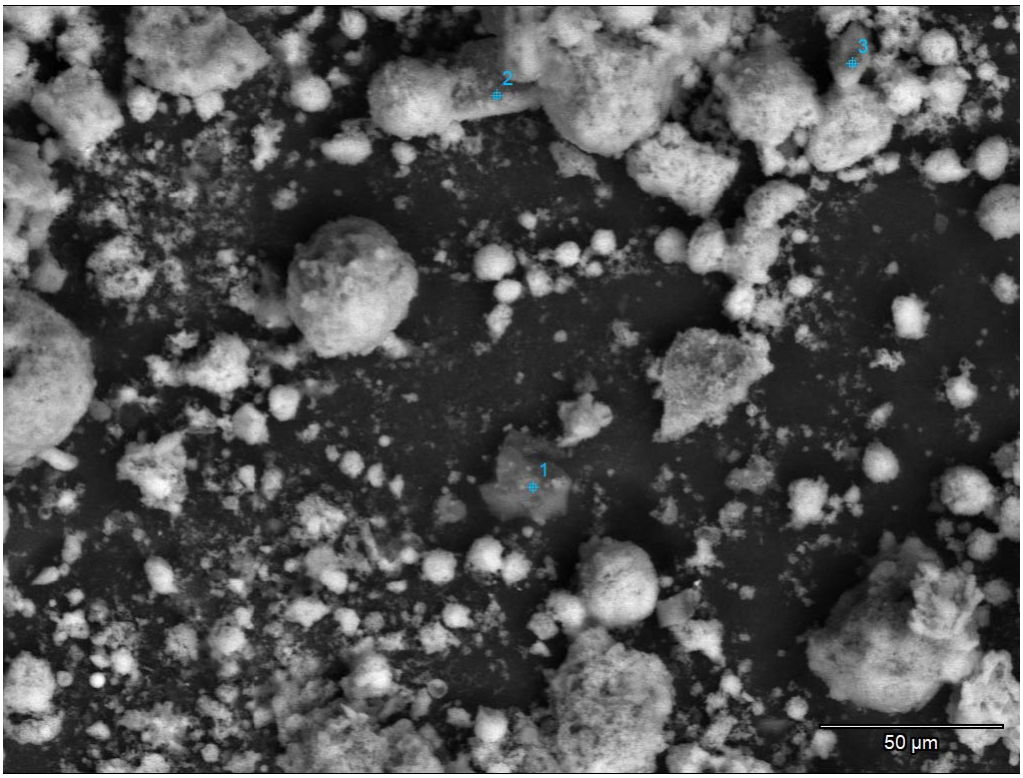


Figure H4. AH0457. SEM image of rinsed particulate on carbon substrate.

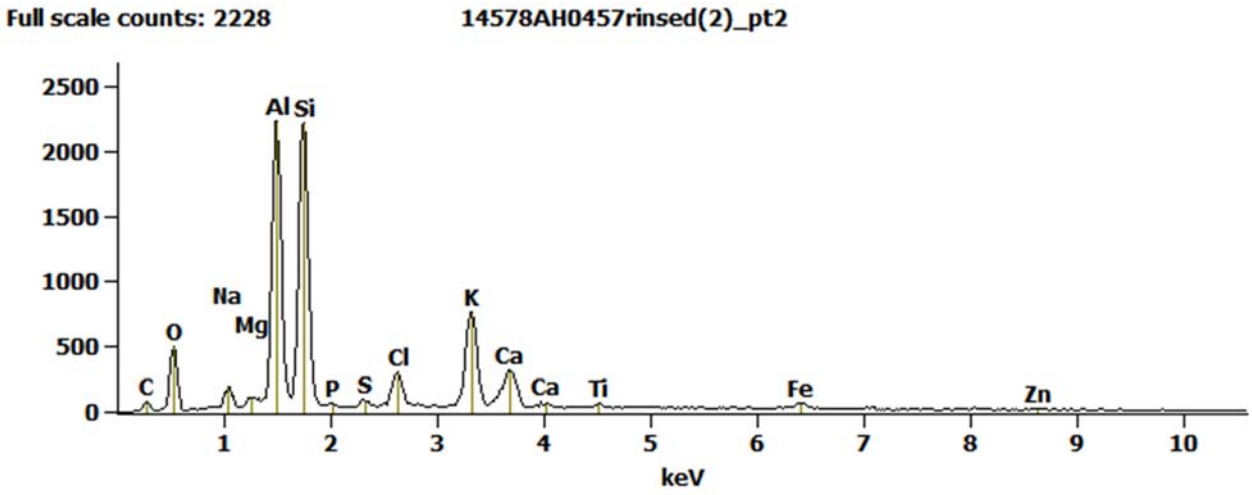


Figure H5. AH0457. SEM/EDS spectrum from area 2 in Figure H4. Aluminosilicate + salts.

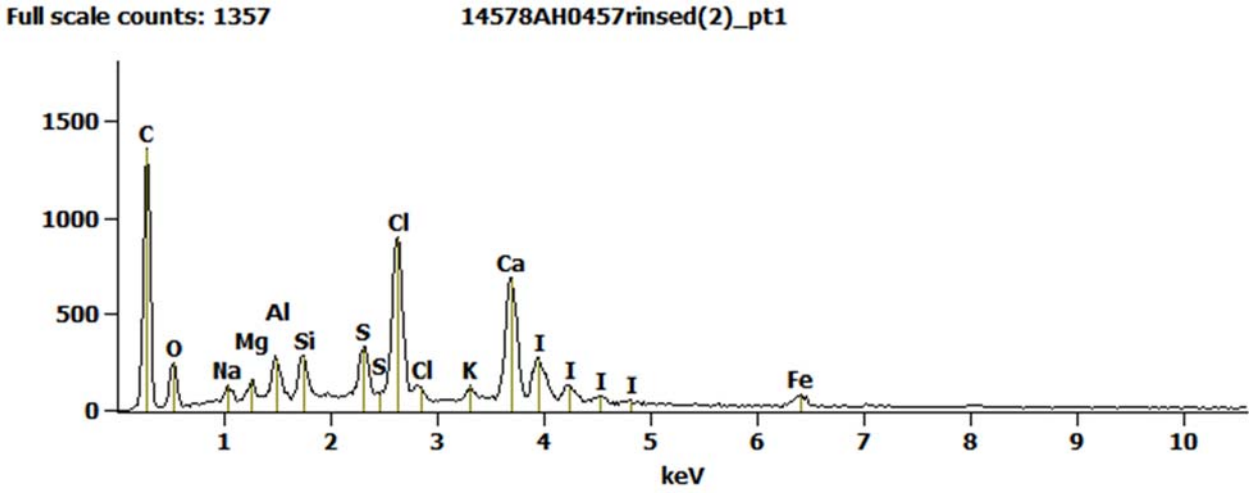


Figure H6. AH0457. SEM/EDS spectrum from area 1 in Figure H4. Iodine-rich.

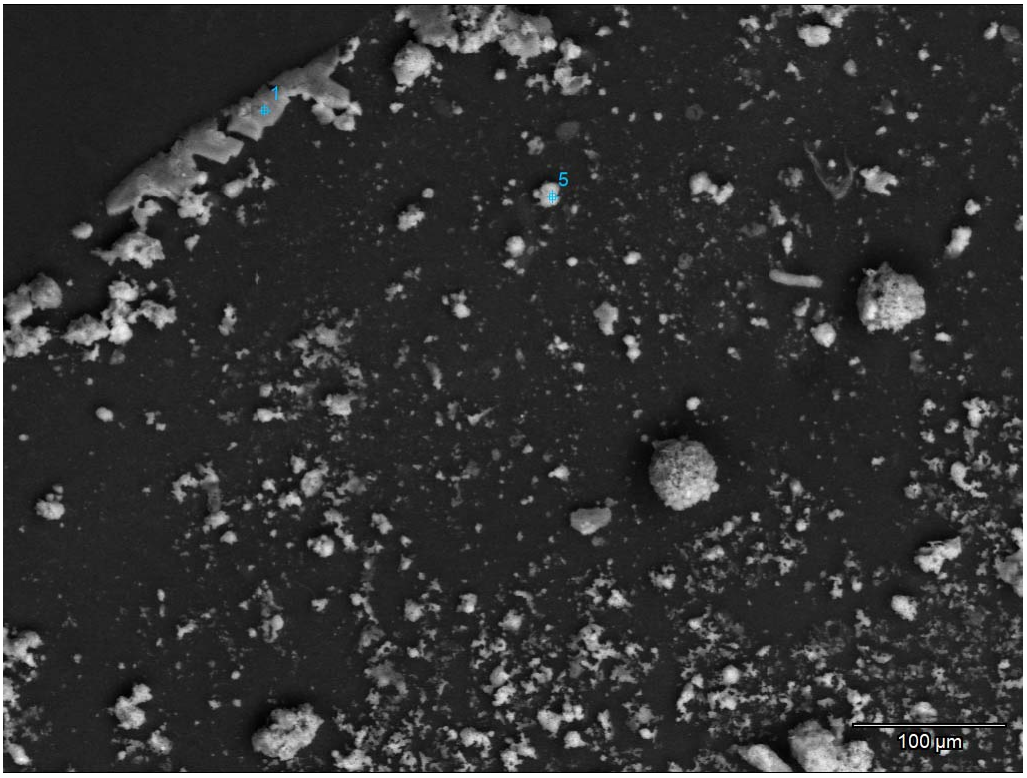


Figure H7. AH0457. SEM image of reprecipitated salts on carbon substrate.

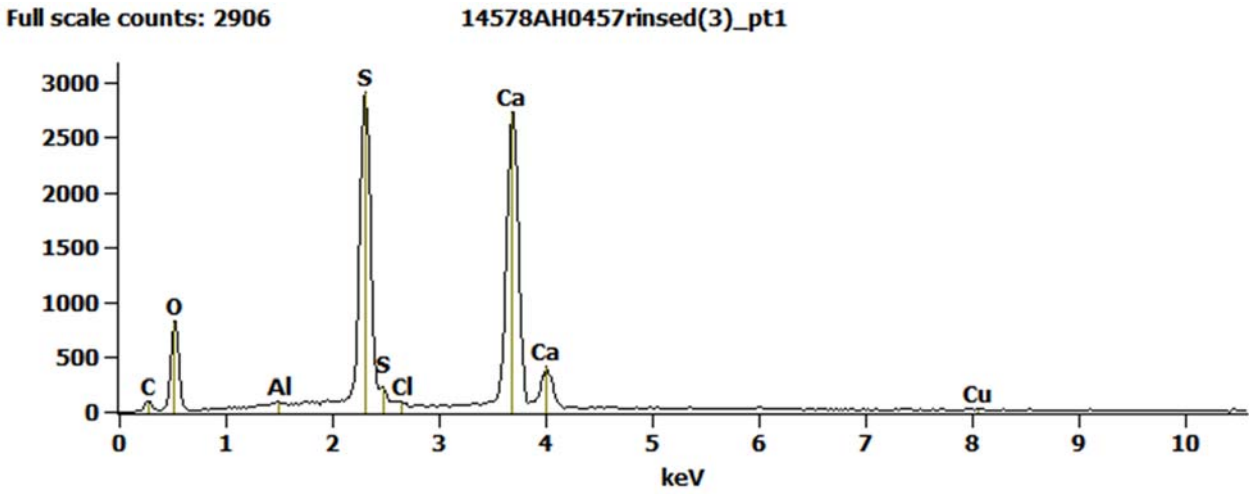


Figure H8. AH0457. SEM/EDS spectrum from area 1 in Figure H7. Calcium sulfate.

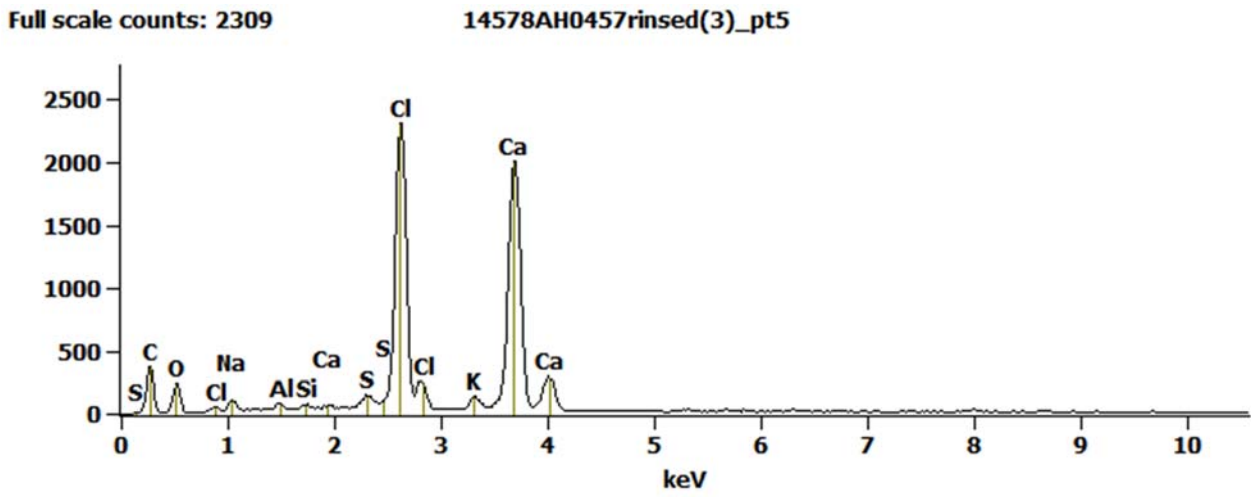


Figure H9. AH0457. SEM/EDS spectrum from area 5 in Figure H7. Mixed salts.

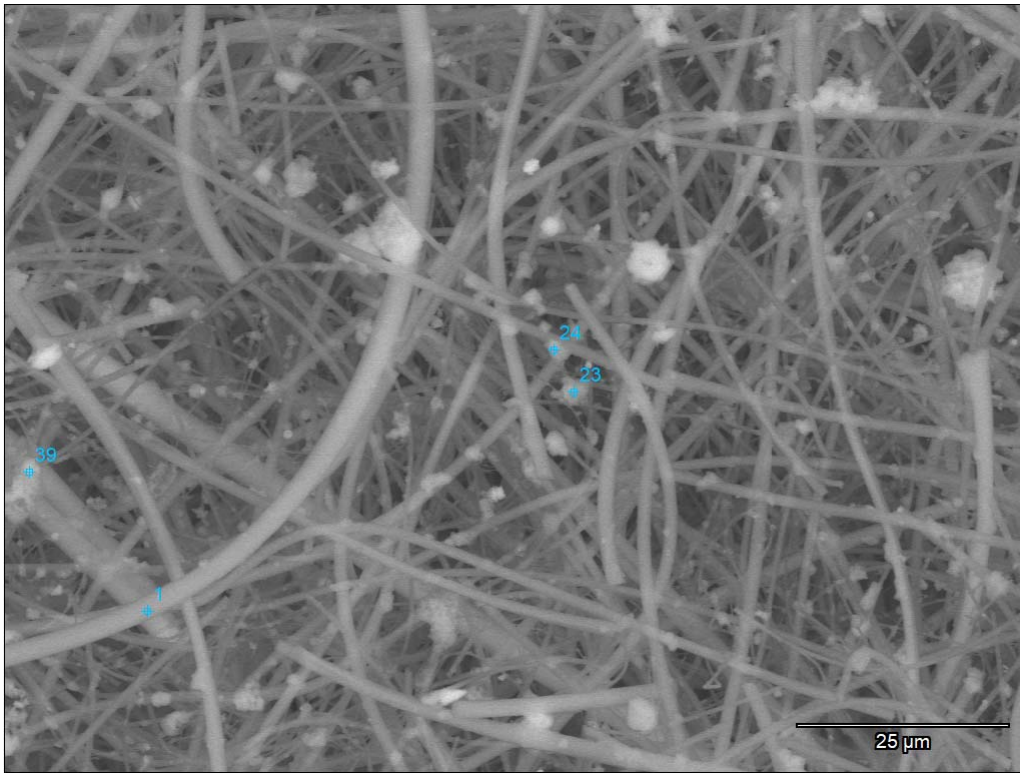


Figure I1. AH0458. SEM image of particulate on filter.

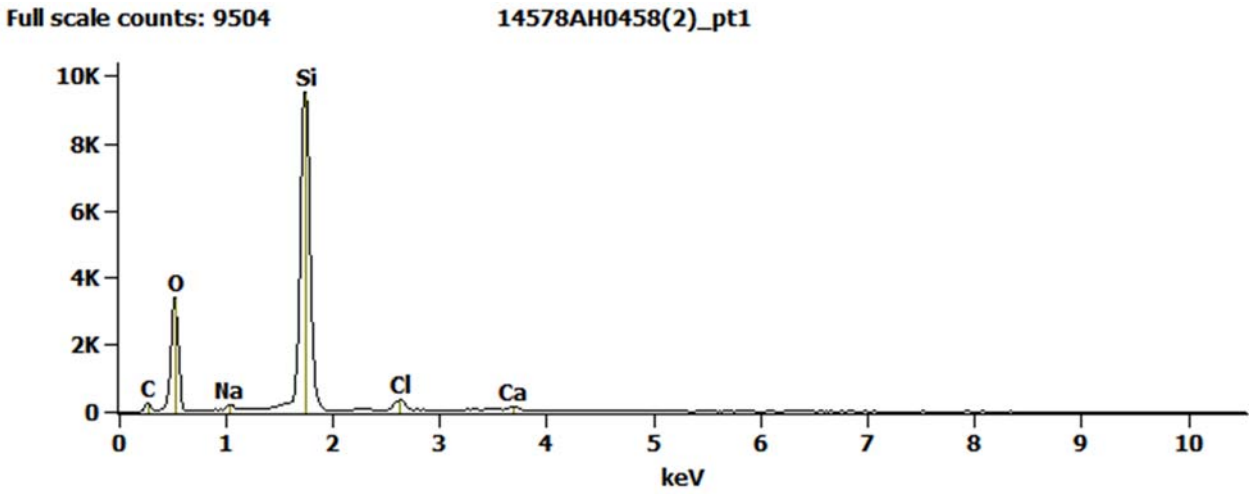


Figure I2. AH0458. SEM/EDS spectrum from area 1 in Figure I1. Silica filter fiber.

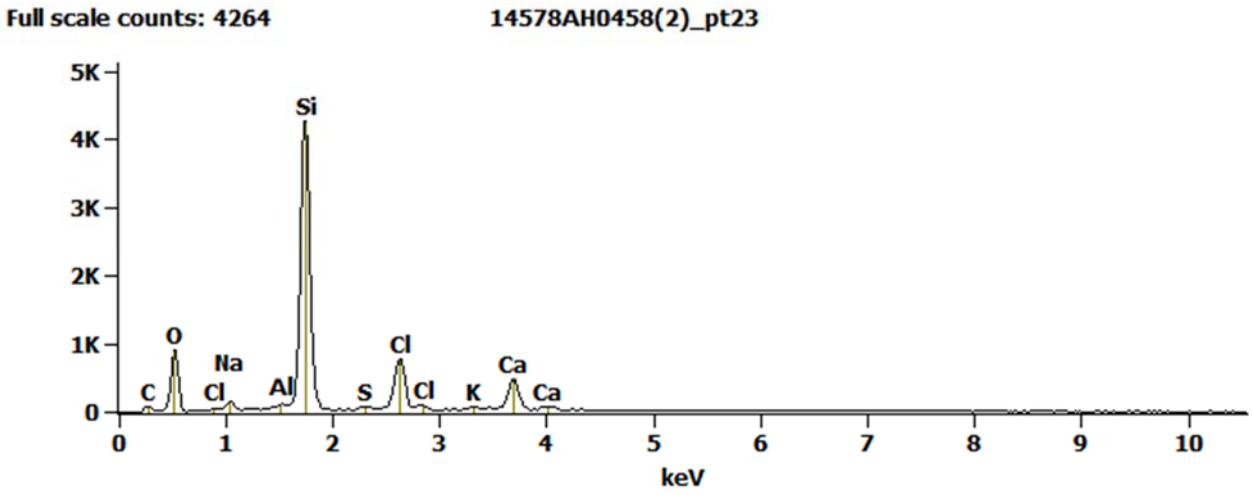


Figure I3. AH0458. SEM/EDS spectrum from area 23 in Figure I1. Mixed salts.

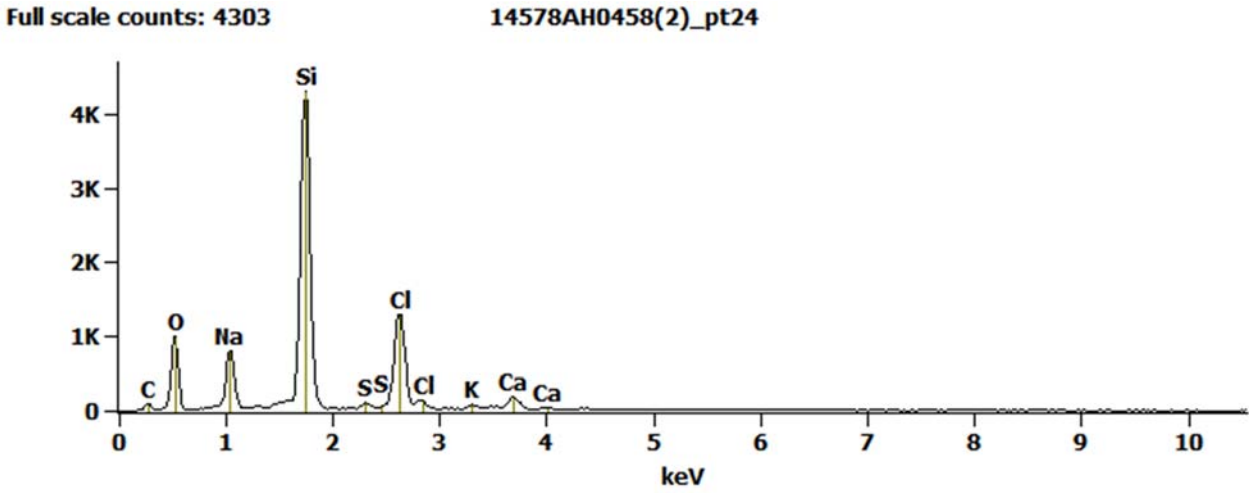


Figure I4. AH0458. SEM/EDS spectrum from area 24 in Figure I1. Mixed salts.

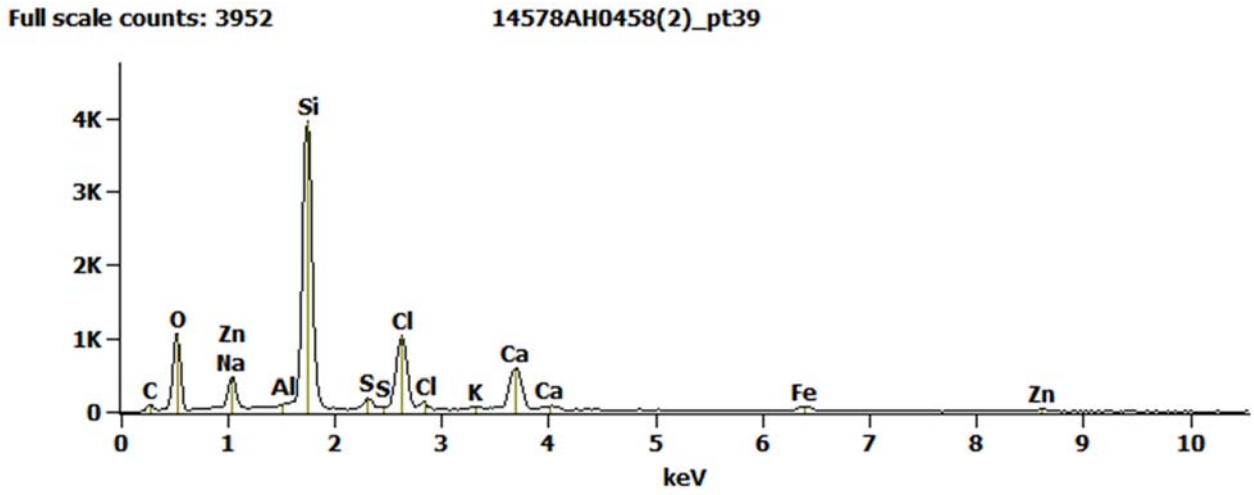


Figure I5. AH0458. SEM/EDS spectrum from area 39 in Figure I1. Iron- and zinc-containing particle.

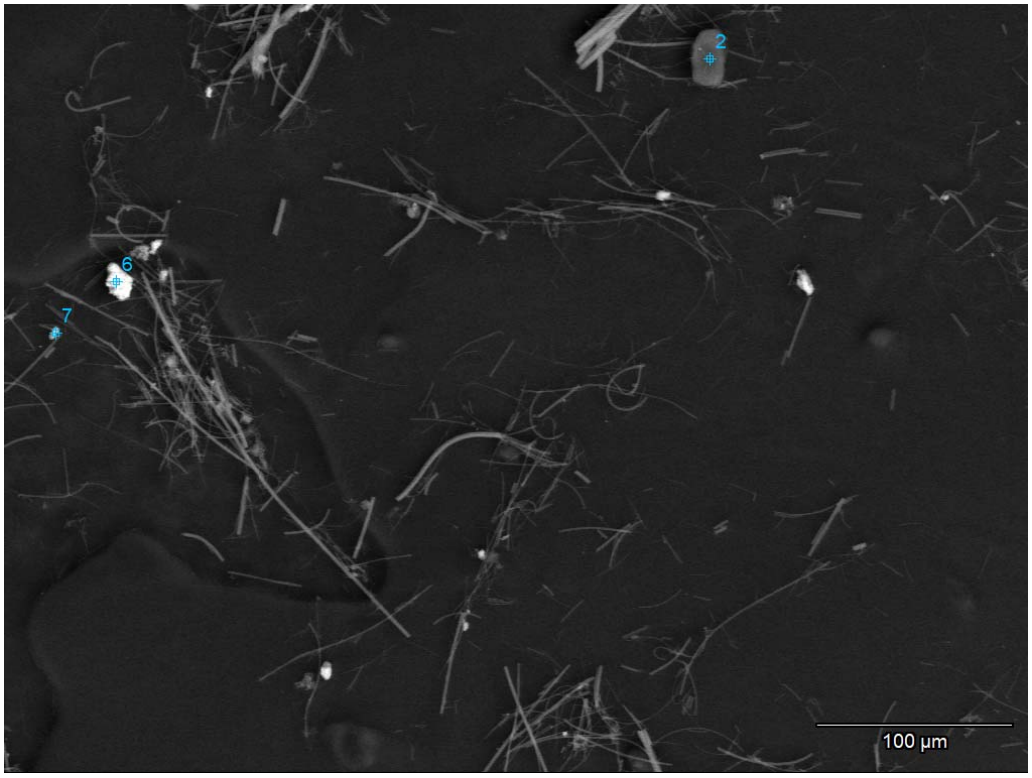


Figure I6. AH0458. SEM image of rinsed particulate on carbon substrate.

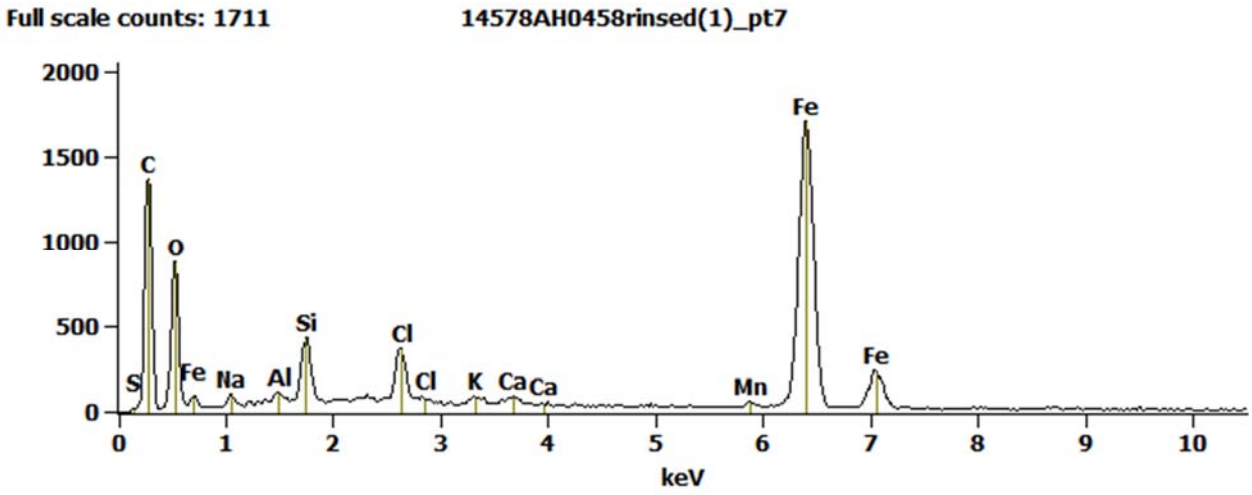


Figure I7. AH0458. SEM/EDS spectrum from area 7 in Figure I6. Aluminosilicate + iron corrosion.

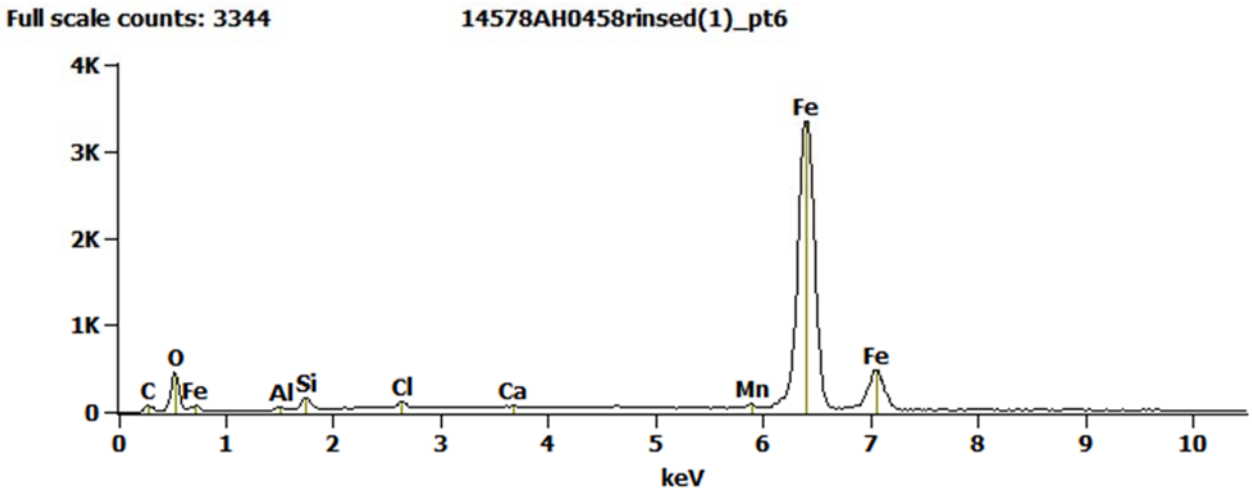


Figure I8. AH0458. SEM/EDS spectrum from area 6 in Figure I6. Iron-rich.

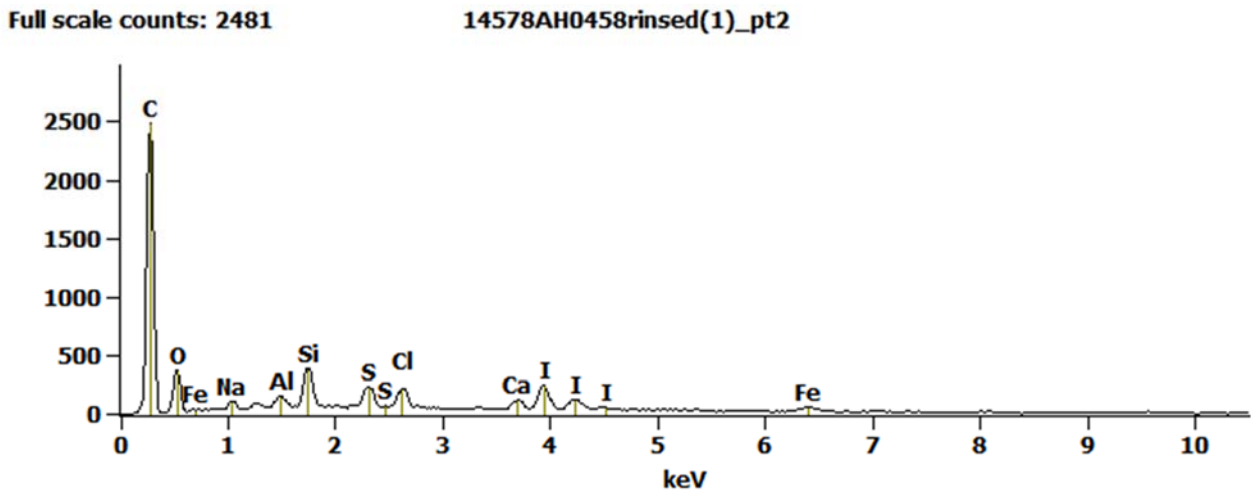


Figure I9. AH0458. SEM/EDS spectrum from area 2 in Figure I6. Iodine-rich.

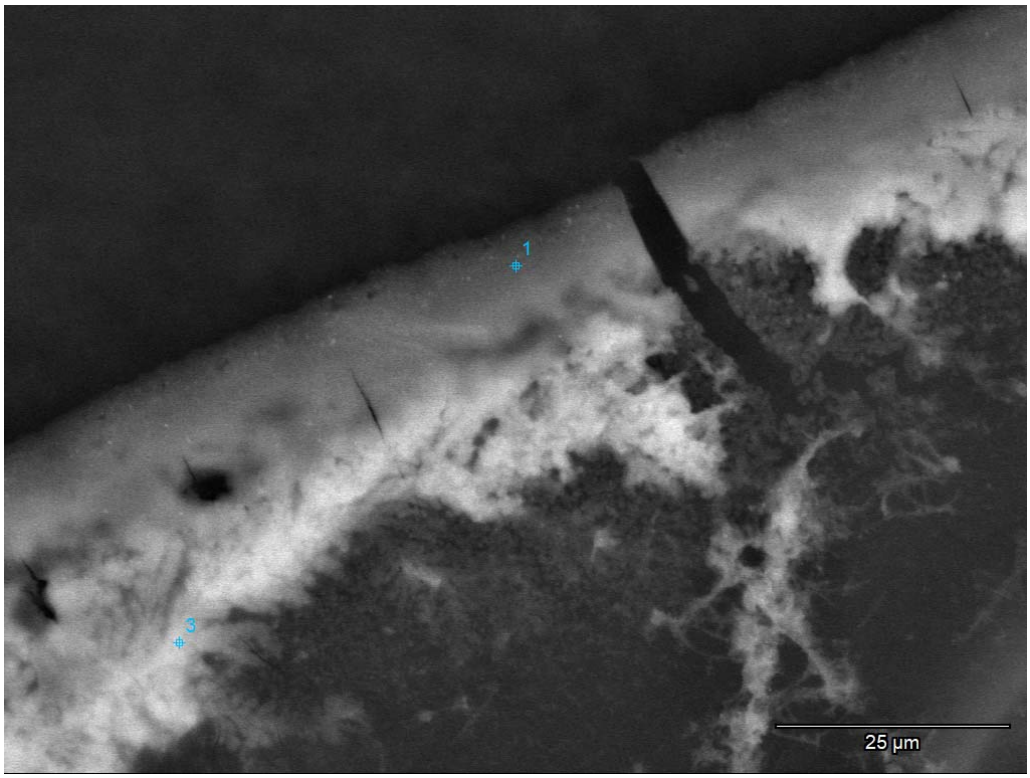


Figure I10. AH0458. SEM image of reprecipitated salts (along with filter fibers) on carbon substrate.

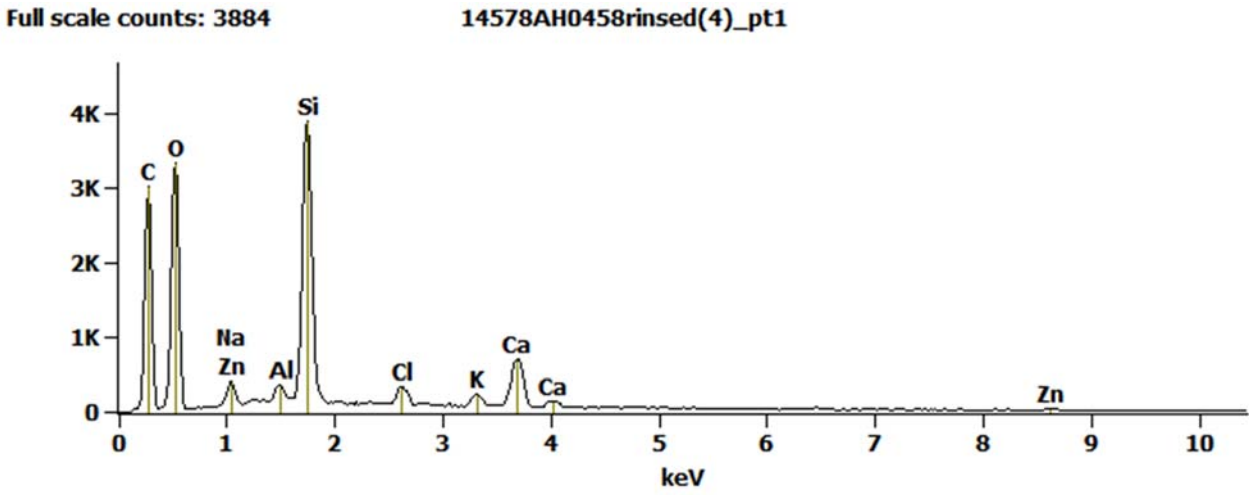


Figure I11. AH0458. SEM/EDS spectrum from area 1 in Figure I10. Mixed salts.

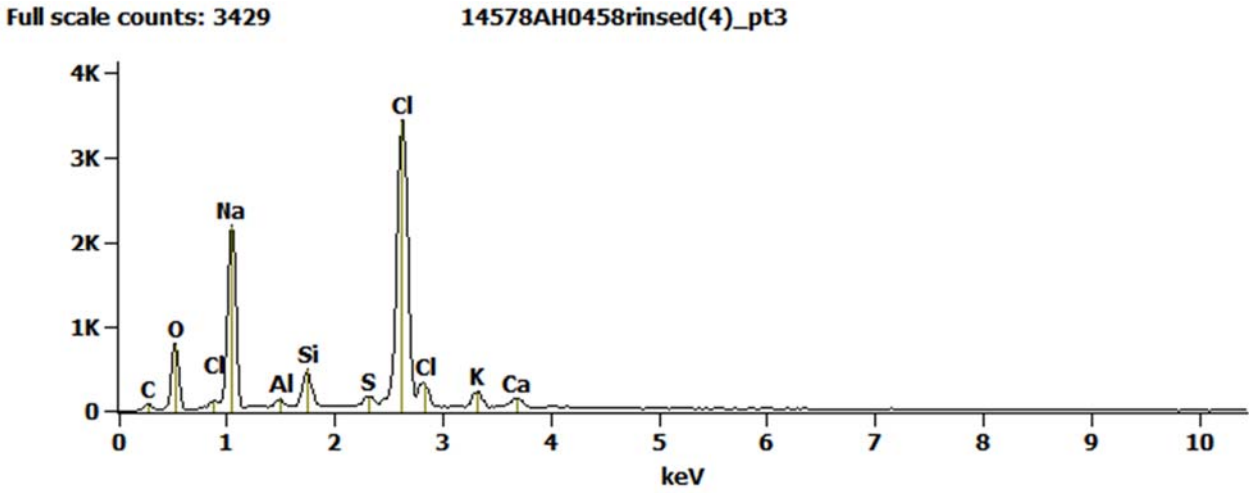


Figure I12. AH0458. SEM/EDS spectrum from area 3 in Figure I10. Mixed salts.

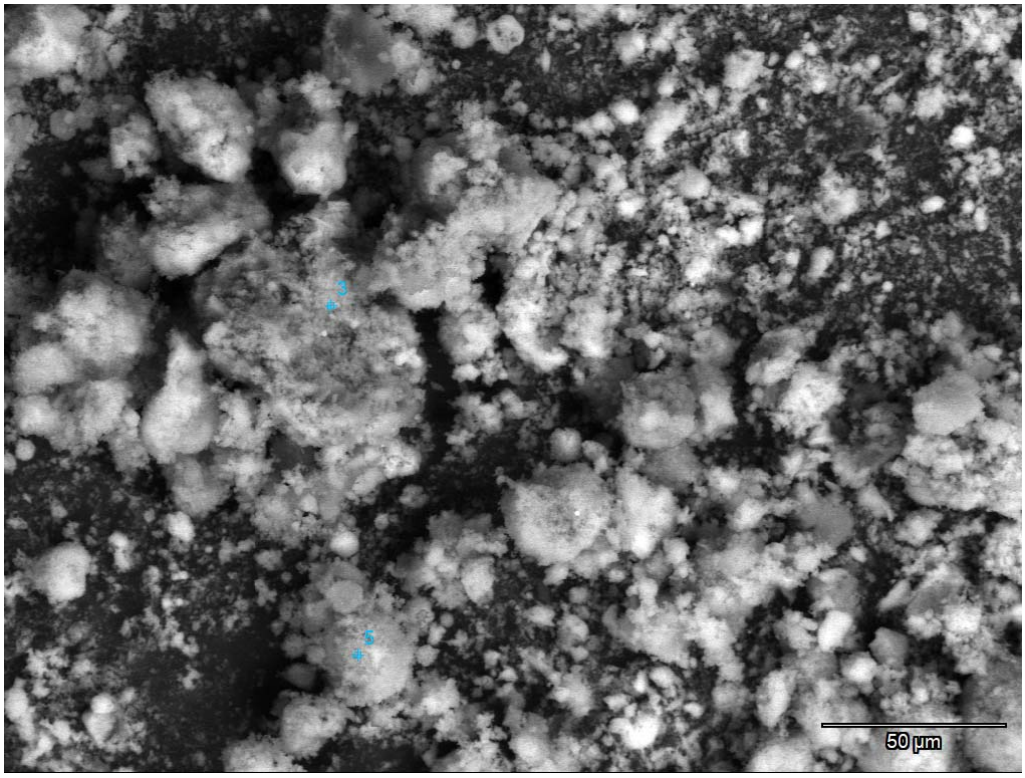


Figure J1. AH0459. SEM image of raw particulate on carbon substrate.

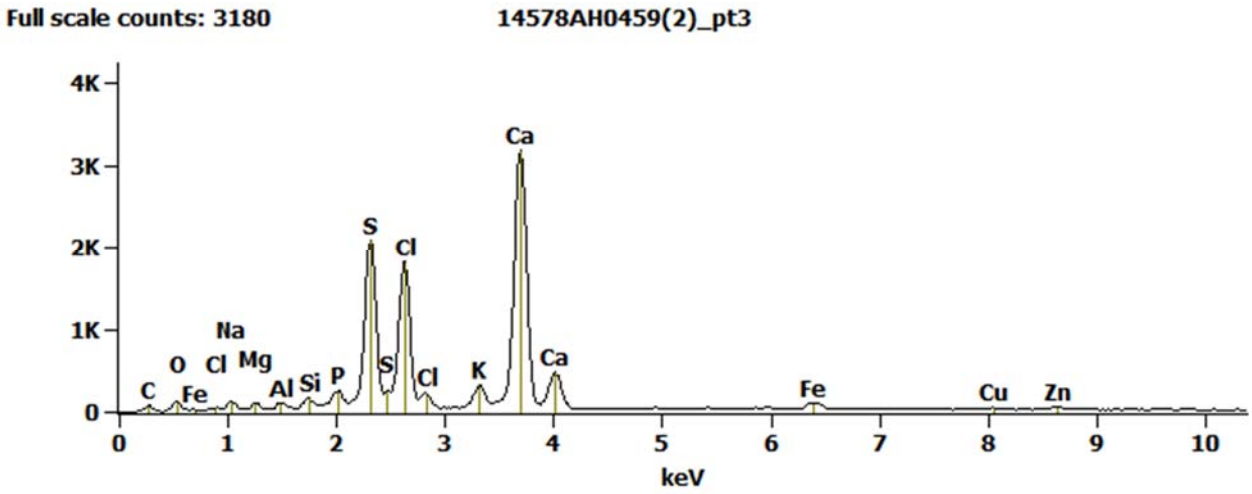


Figure J2. AH0459. SEM/EDS spectrum from area 3 in Figure J1. Mixed salts.

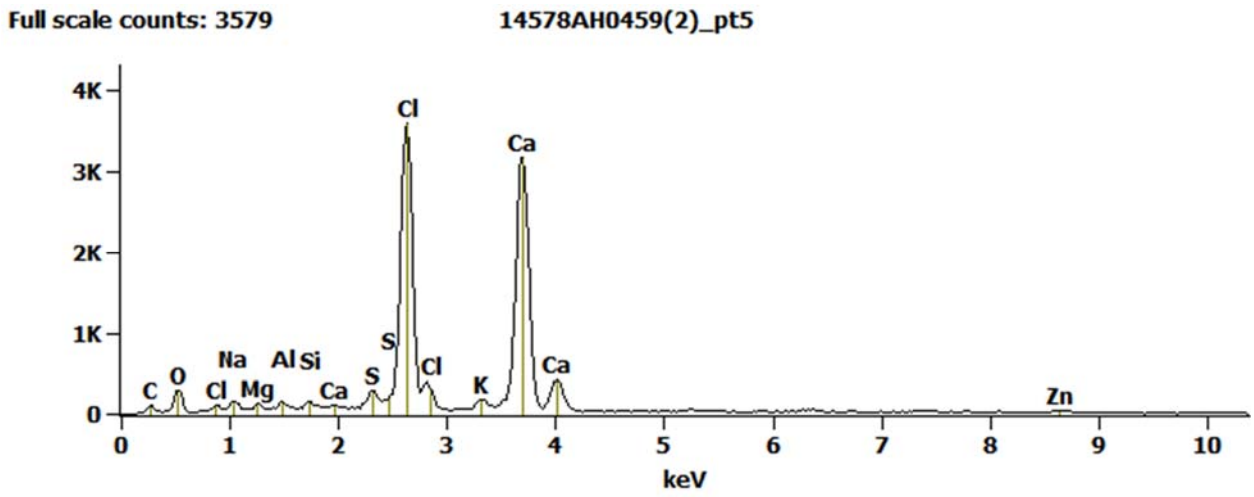


Figure J3. AH0459. SEM/EDS spectrum from area 5 in Figure J1. Mixed salts.

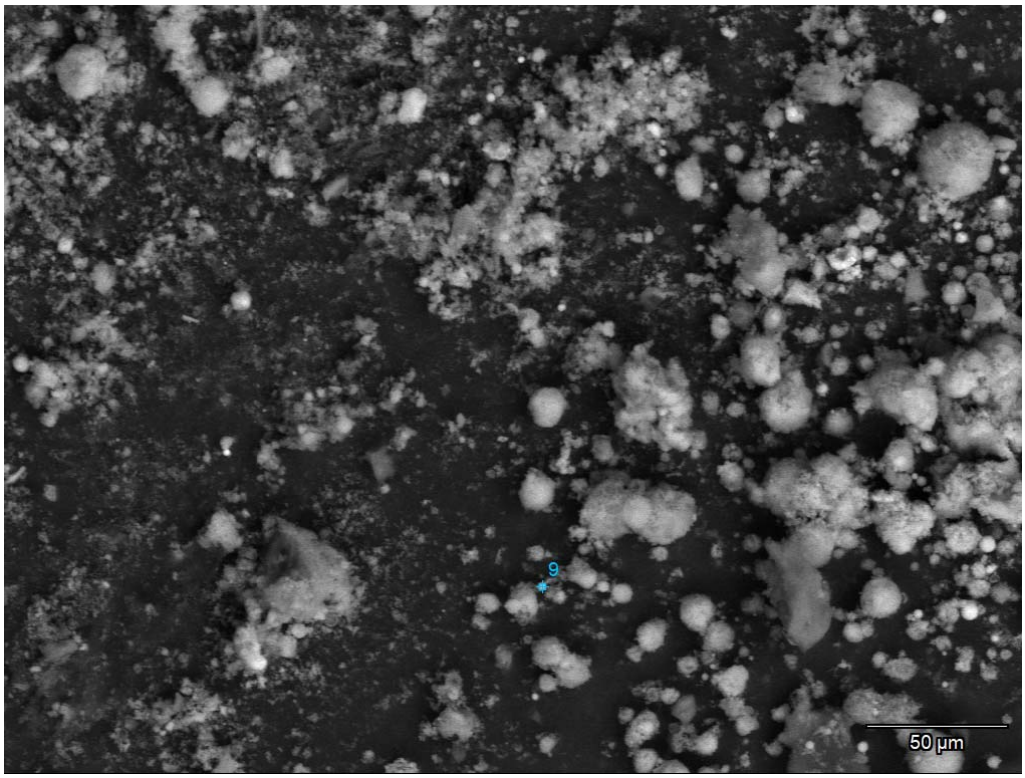


Figure J4. AH0459. SEM image of rinsed particulate on carbon substrate.

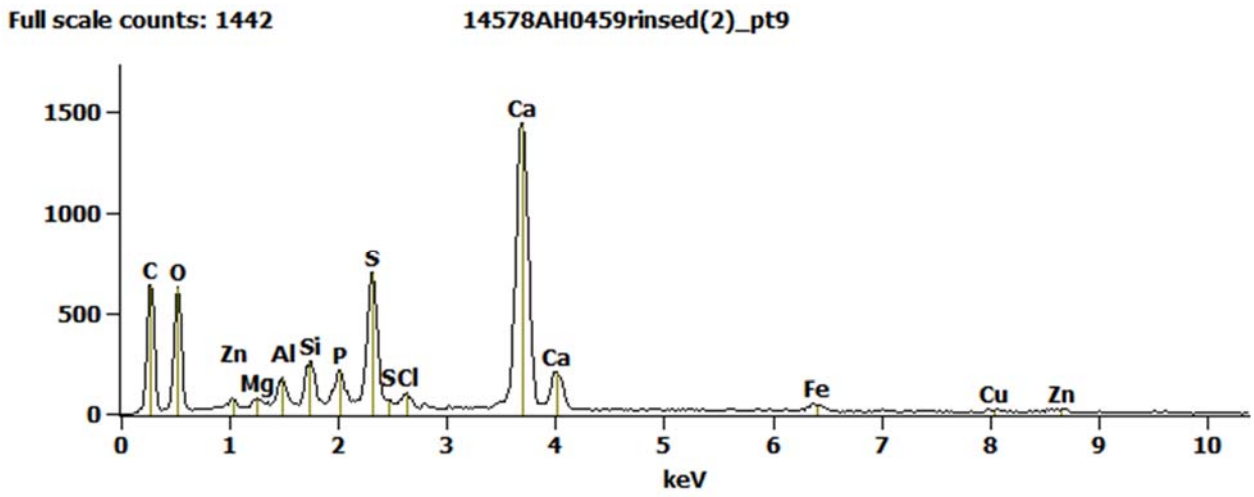


Figure J5. AH0459. SEM/EDS spectrum from area 9 in Figure J4. Aluminosilicate + salts.

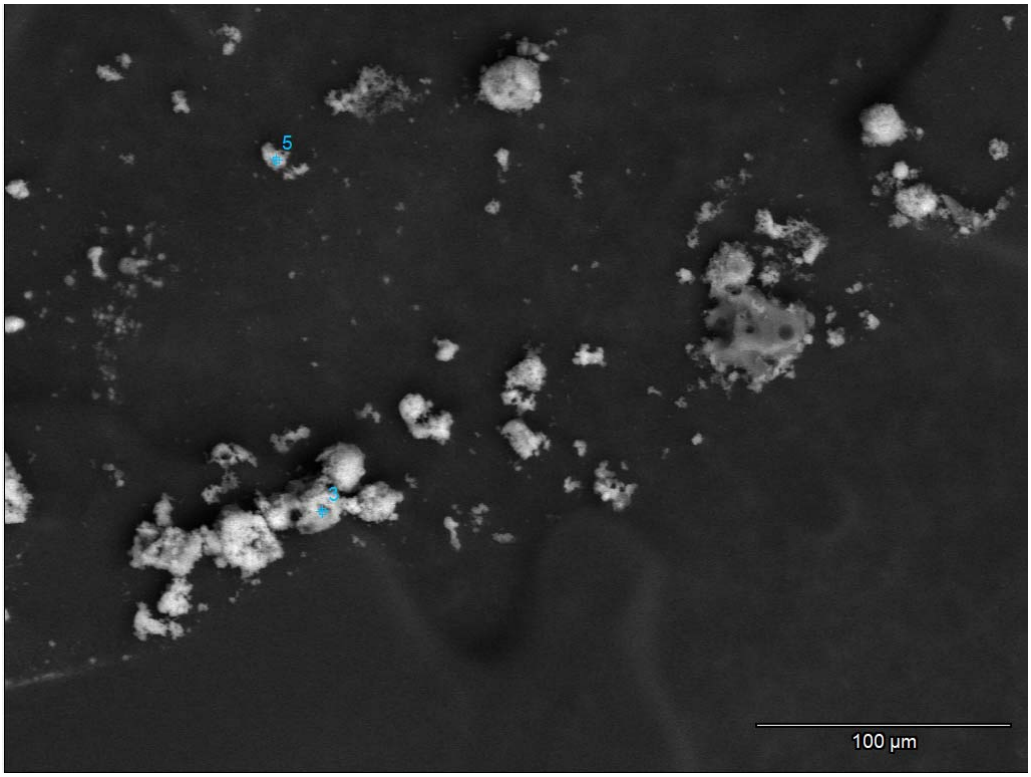


Figure J6. AH0459. SEM image of reprecipitated salts on carbon substrate.

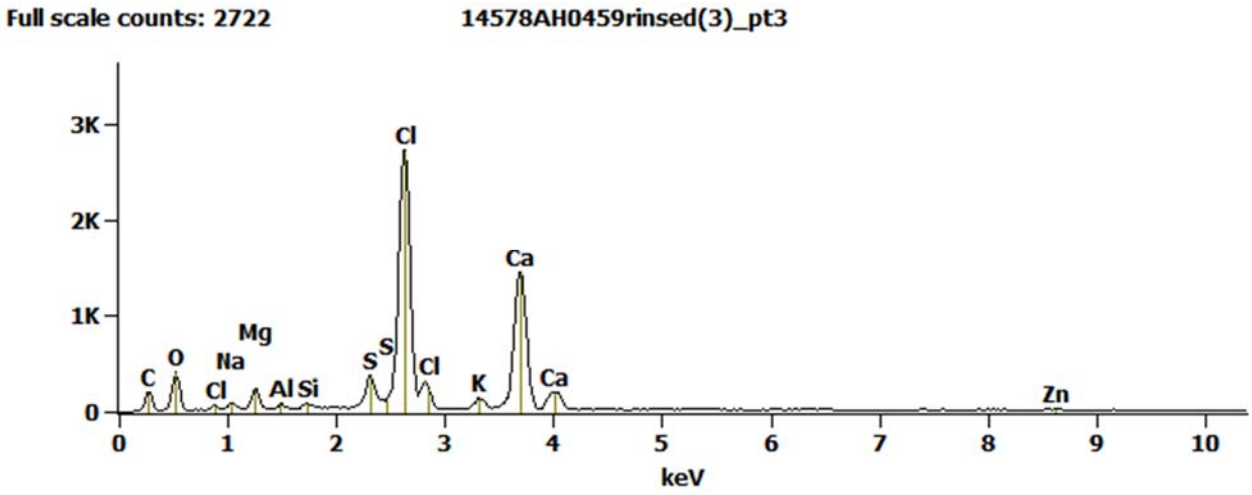


Figure J7. AH0459. SEM/EDS spectrum from area 3 in Figure J6. Mixed salts.

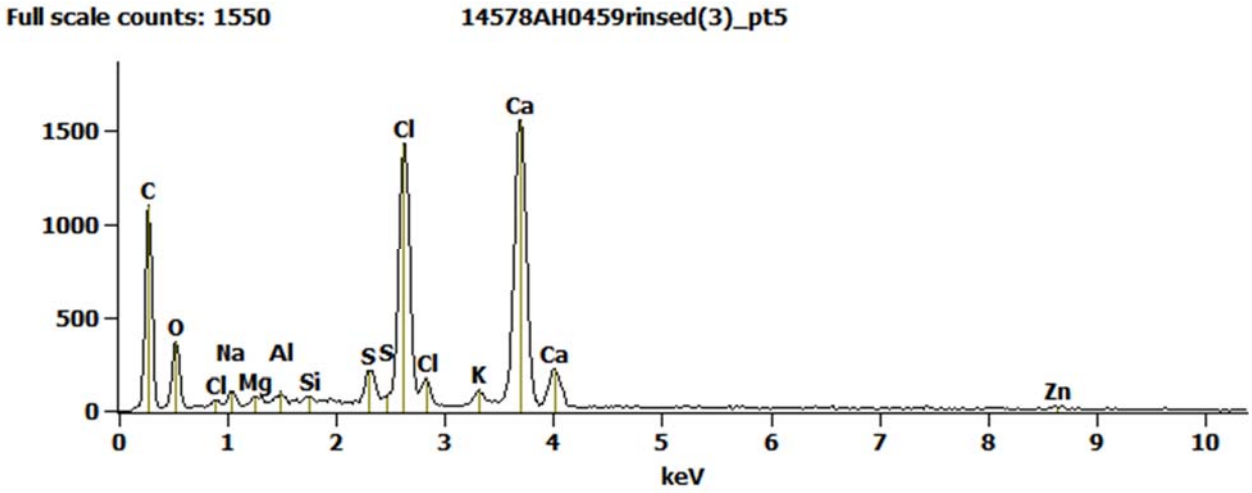


Figure J8. AH0459. SEM/EDS spectrum from area 5 in Figure J6. Mixed salts.

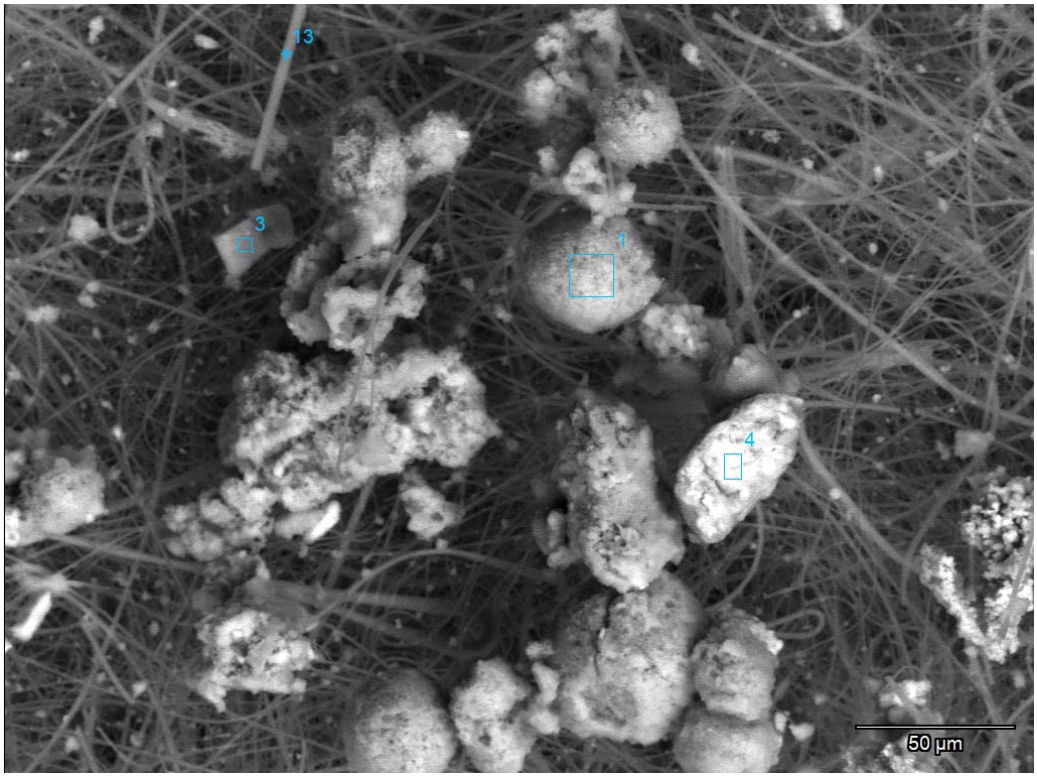


Figure K1. AH0460. SEM image of particulate on filter.

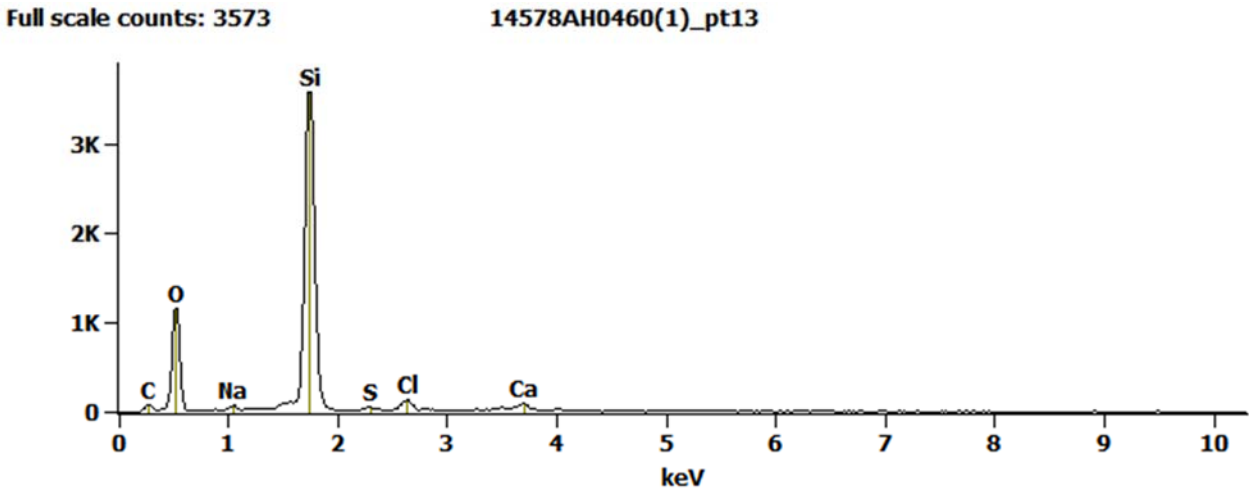


Figure K2. AH0460. SEM/EDS spectrum from area 13 in Figure K1. Silica filter fiber.

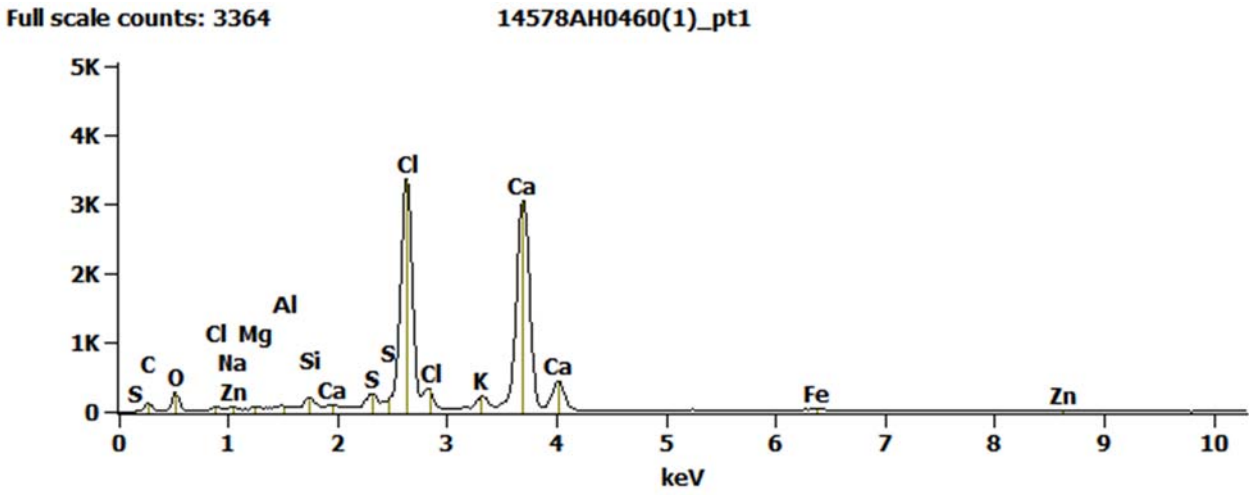


Figure K3. AH0460. SEM/EDS spectrum from area 1 in Figure K1. Mixed salts.

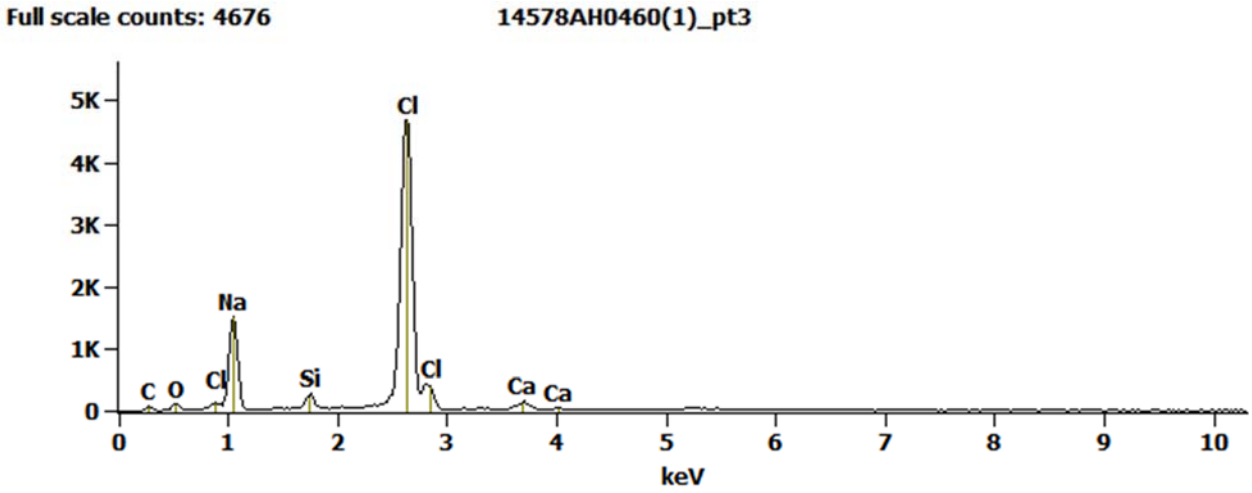


Figure K4. AH0460. SEM/EDS spectrum from area 3 in Figure K1. Mixed salts.

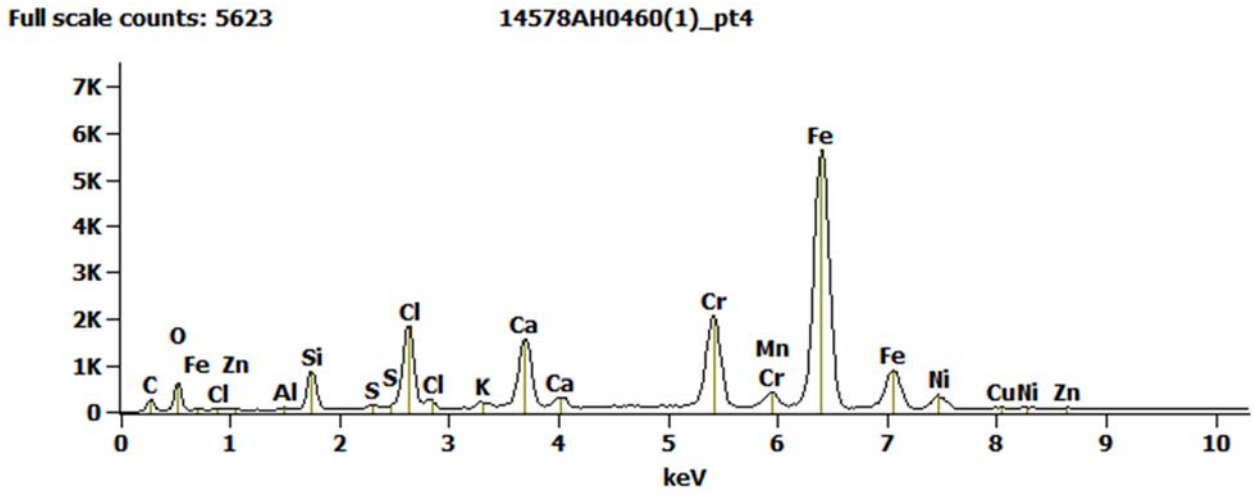


Figure K5. AH0460. SEM/EDS spectrum from area 4 in Figure K1. Stainless steel/corrosion.

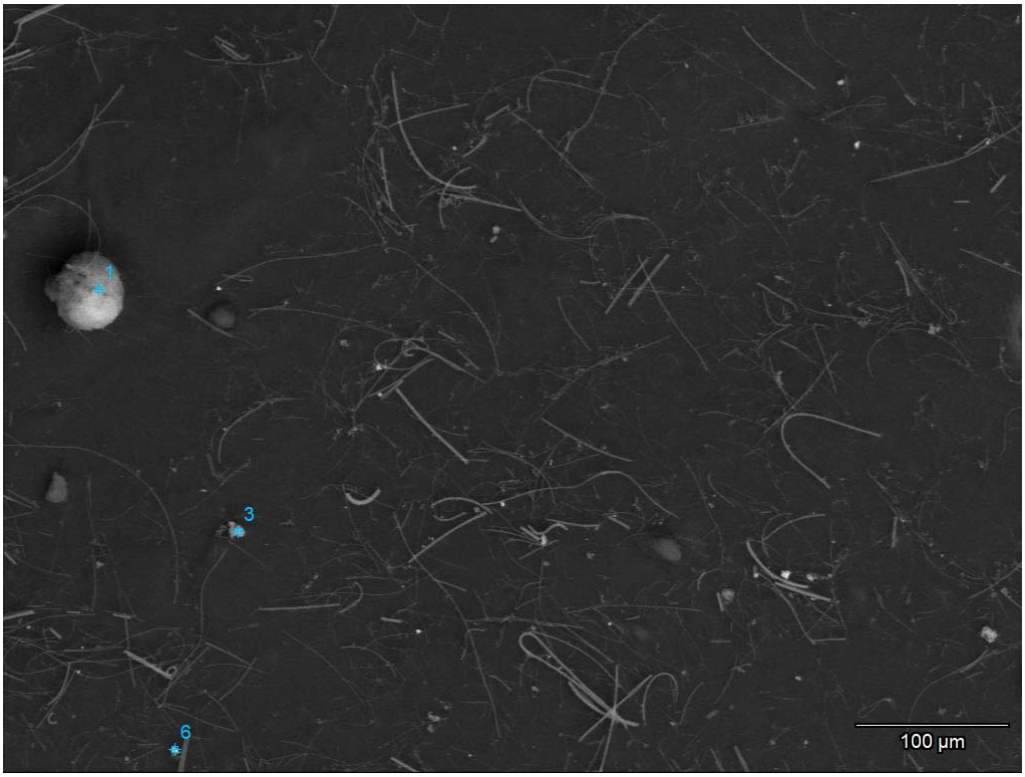


Figure K6. AH0460. SEM image of rinsed particulate on carbon substrate.

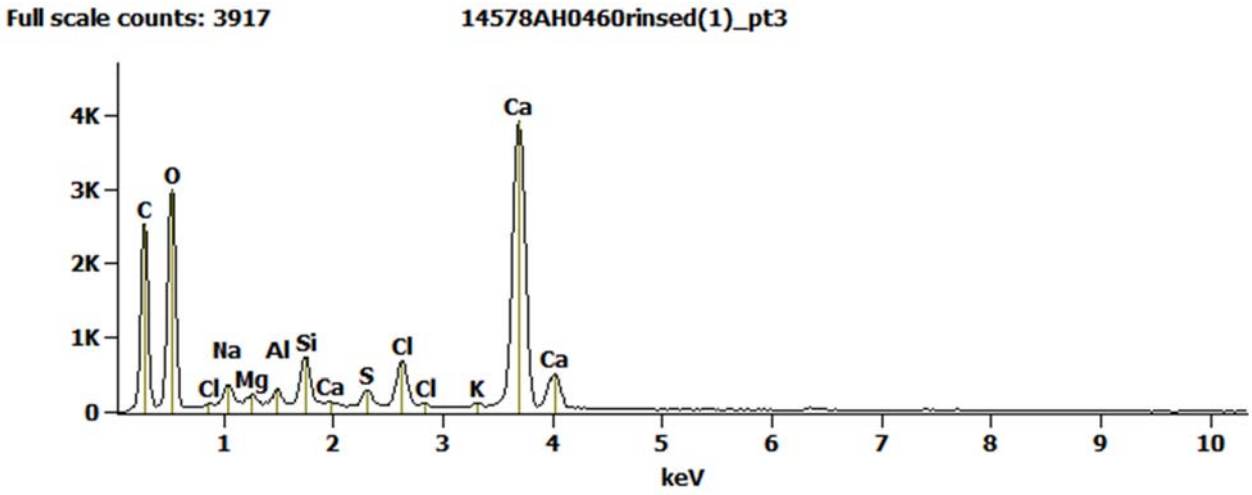


Figure K7. AH0460. SEM/EDS spectrum from area 3 in Figure K6. Aluminosilicate + salts.

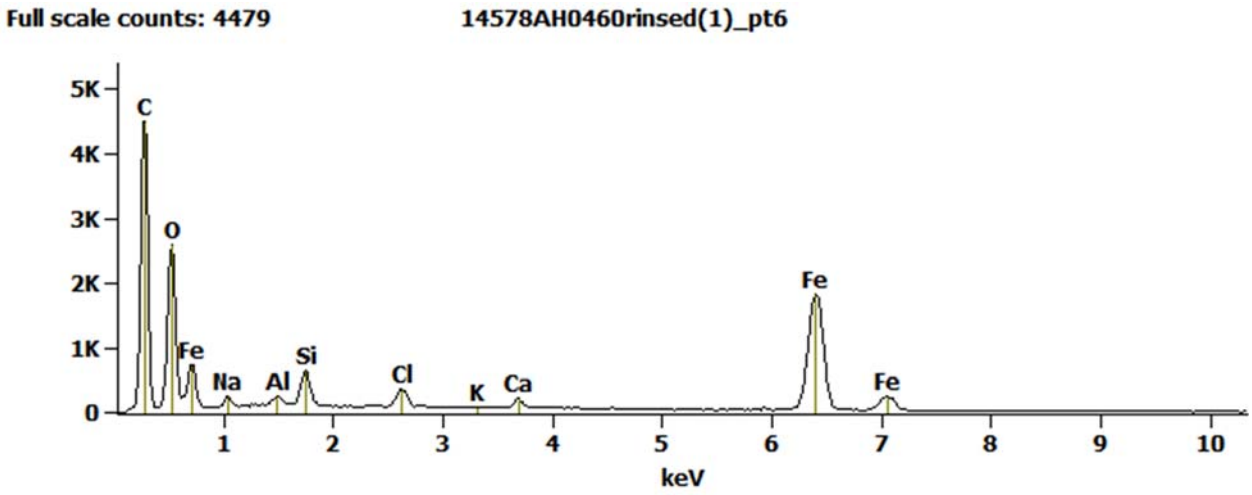


Figure K8. AH0460. SEM/EDS spectrum from area 6 in Figure K6. Iron-rich.

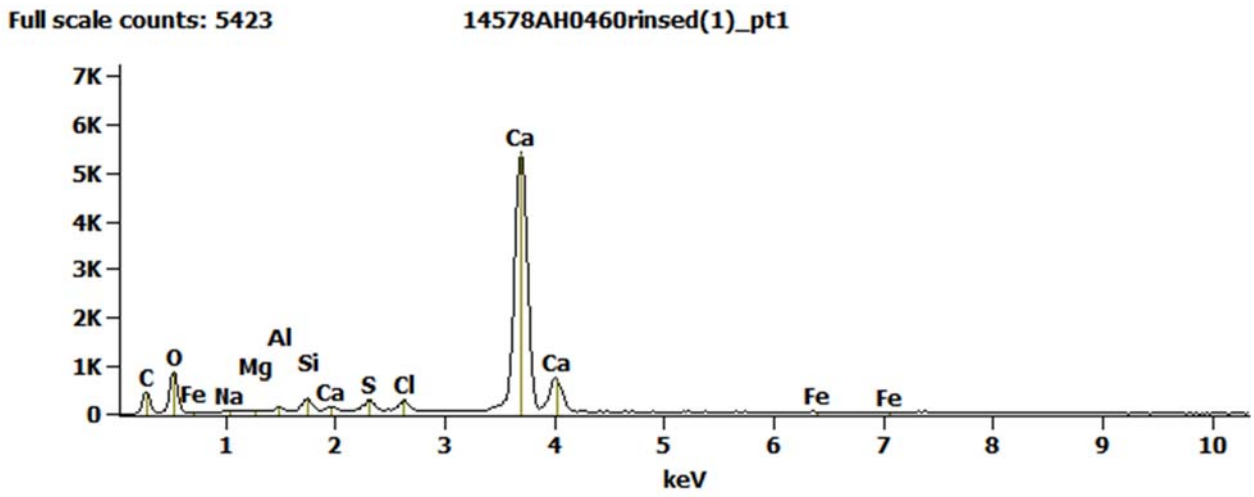


Figure K9. AH0460. SEM/EDS spectrum from area 1 in Figure K6. Calcium-rich.

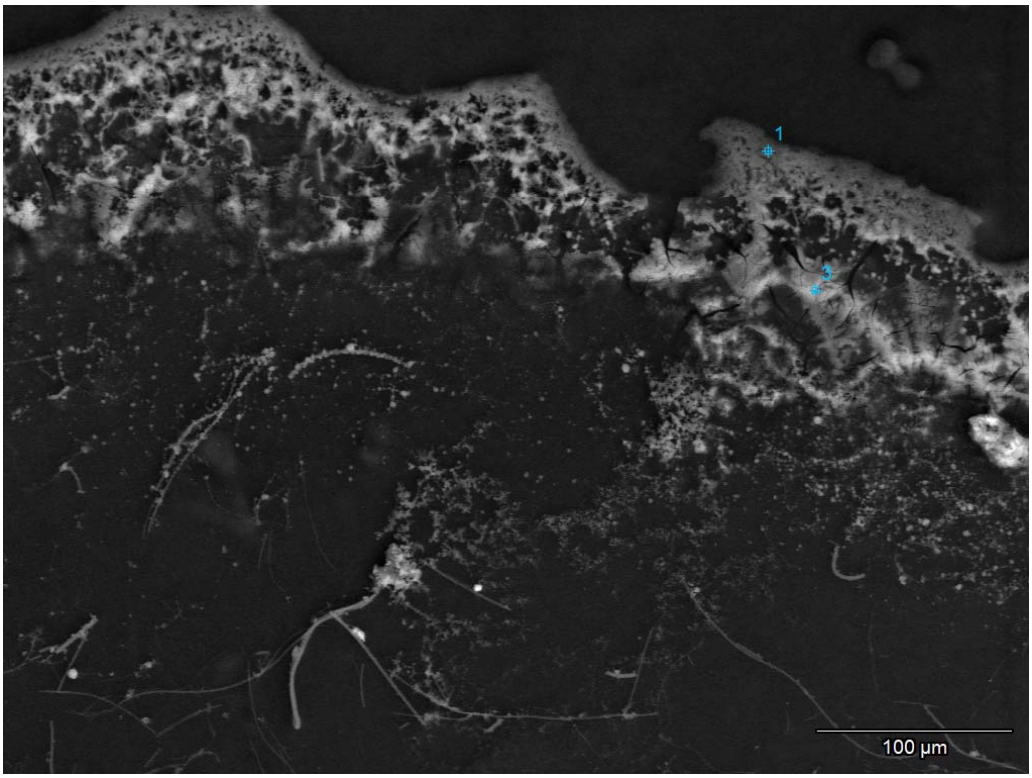


Figure K10. AH0460. SEM image of reprecipitated salts (along with filter fibers) on carbon substrate.

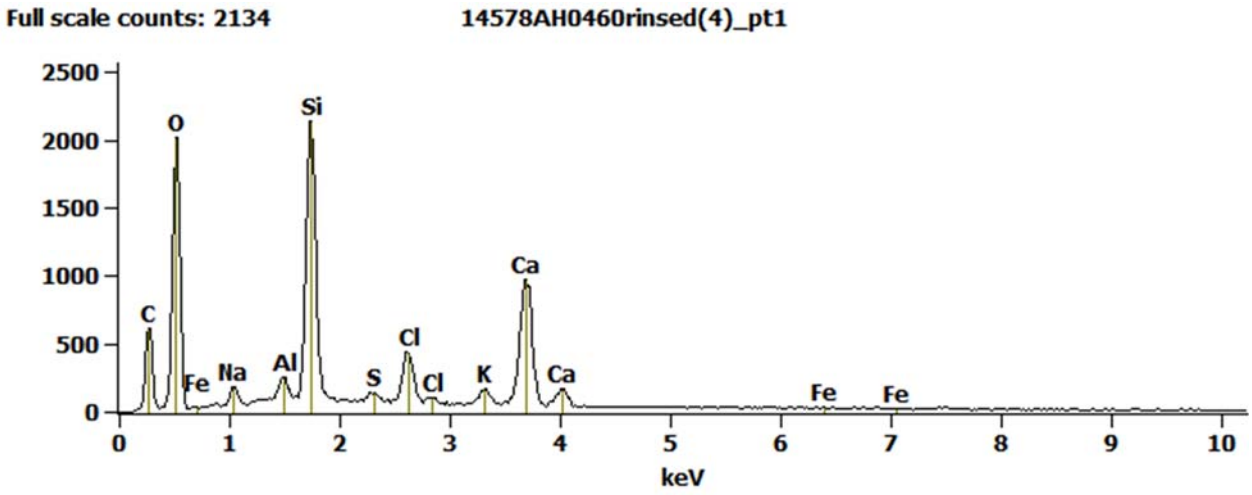


Figure K11. AH0460. SEM/EDS spectrum from area 1 in Figure K10. Mixed salts.

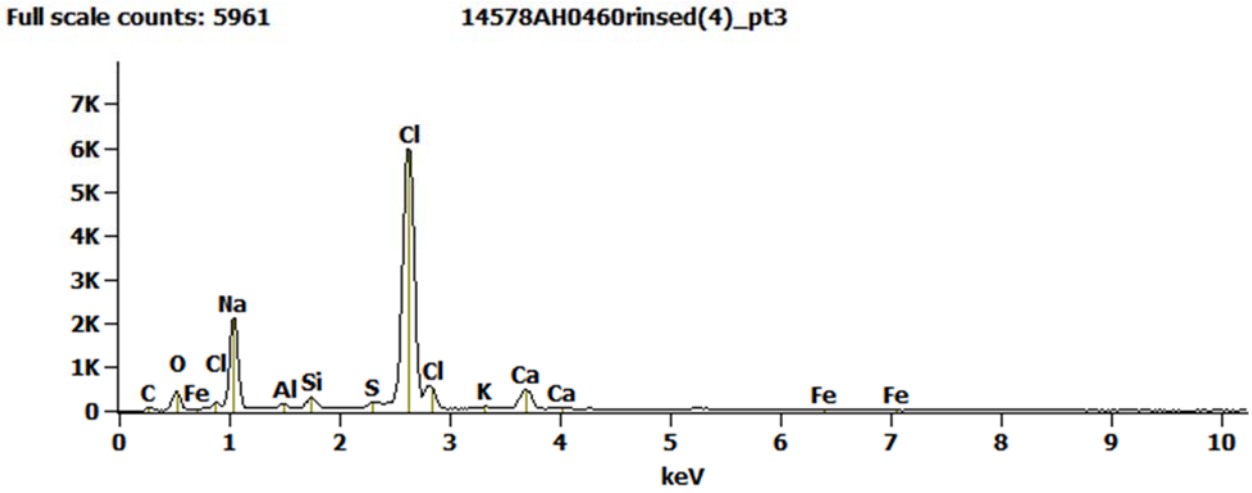


Figure K12. AH0460. SEM/EDS spectrum from area 3 in Figure K10. Mixed salts.

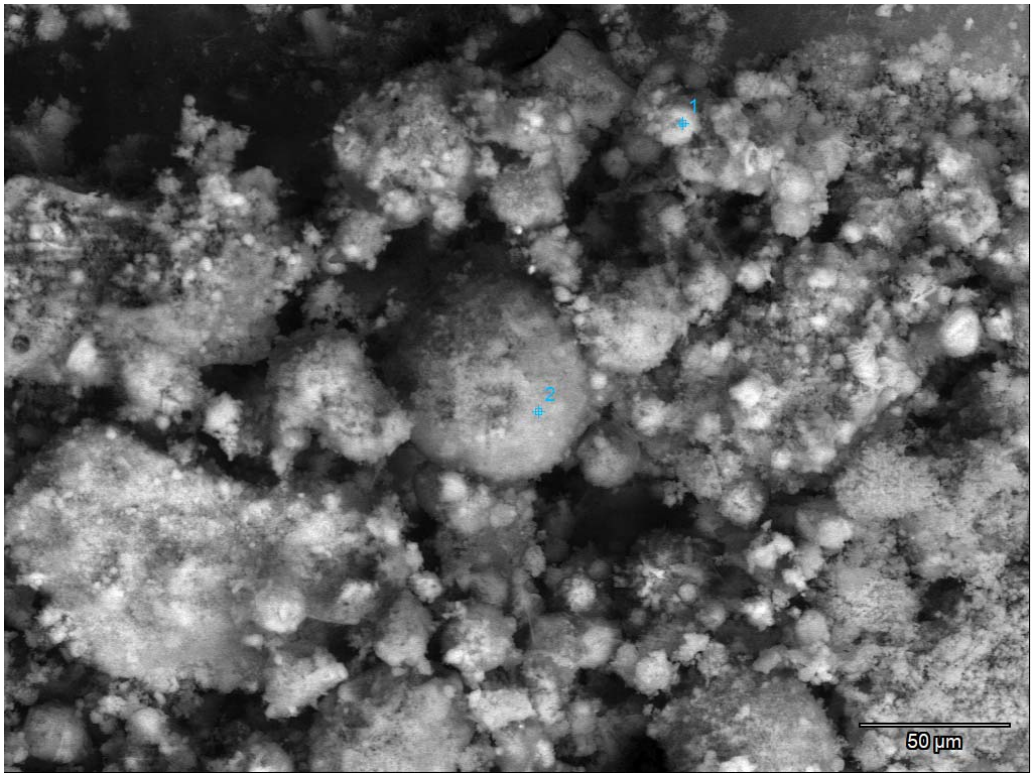


Figure L1. AH0461. SEM image of raw grey particulate on carbon substrate.

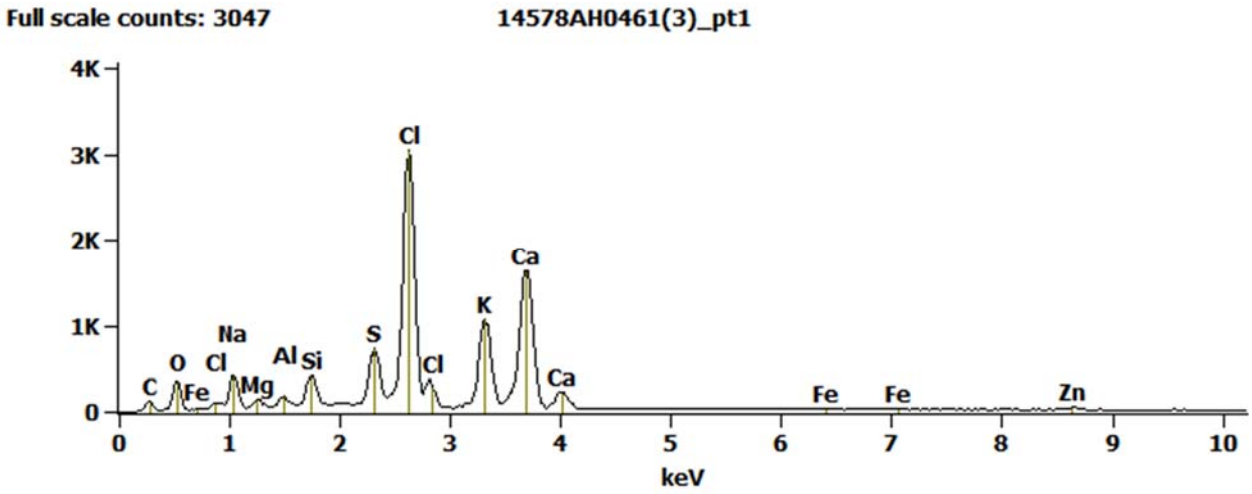


Figure L2. AH0461. SEM/EDS spectrum from area 1 in Figure L1. Mixed salts.

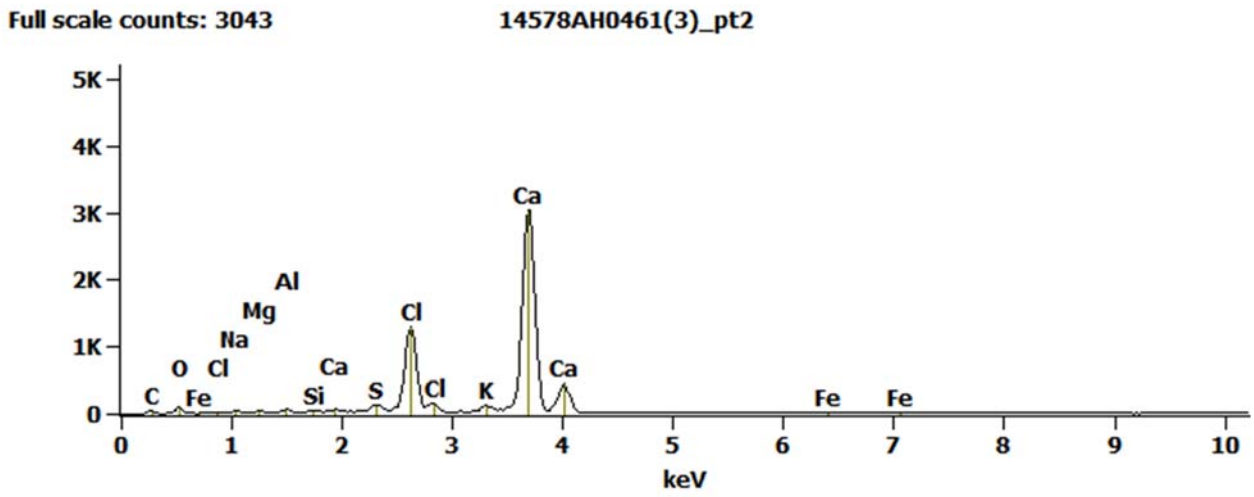


Figure L3. AH0461. SEM/EDS spectrum from area 2 in Figure L1. Mixed salts.

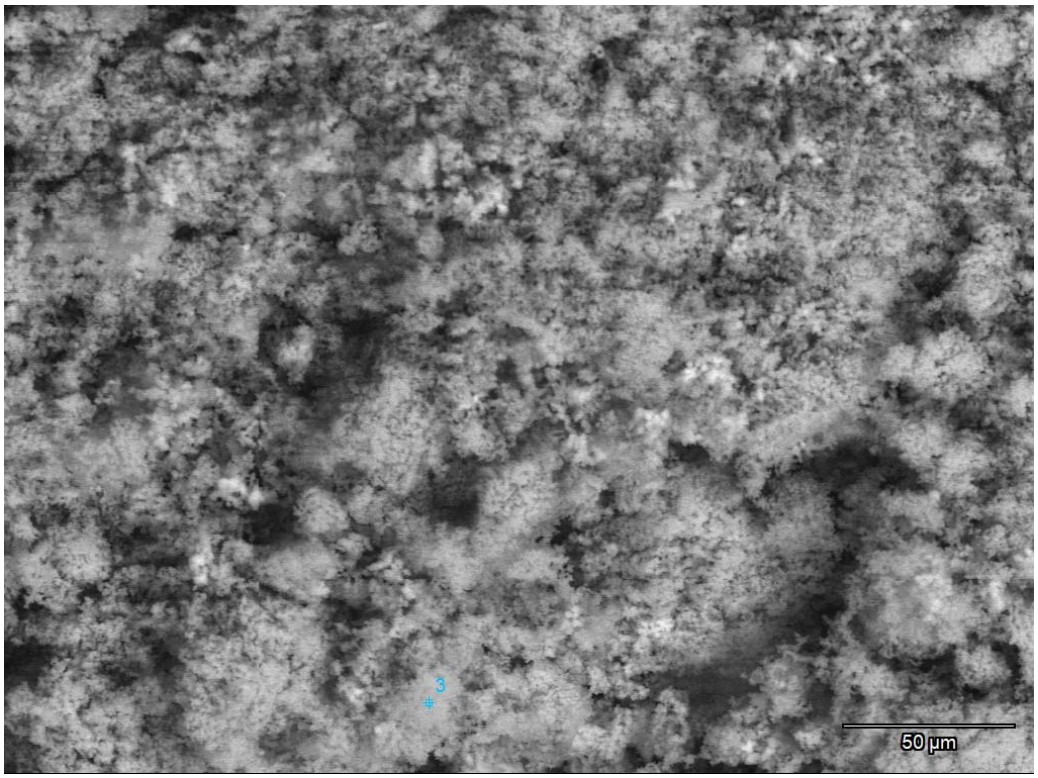


Figure L4. AH0461. SEM image of raw white particulate on carbon substrate.

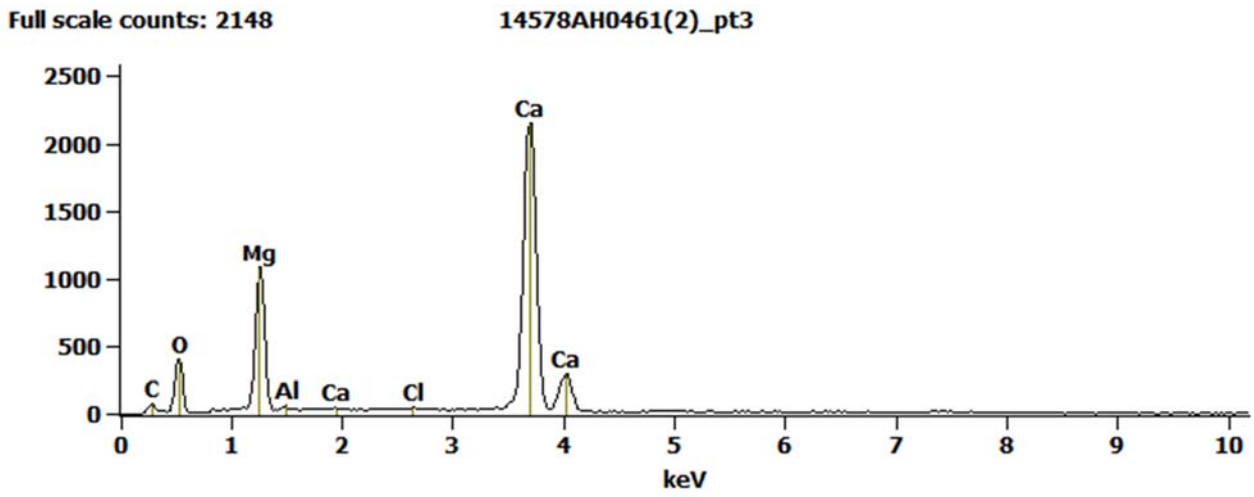


Figure L5. AH0461. SEM/EDS spectrum from area 3 in Figure L4. Calcium magnesium oxide/dolomitic lime.

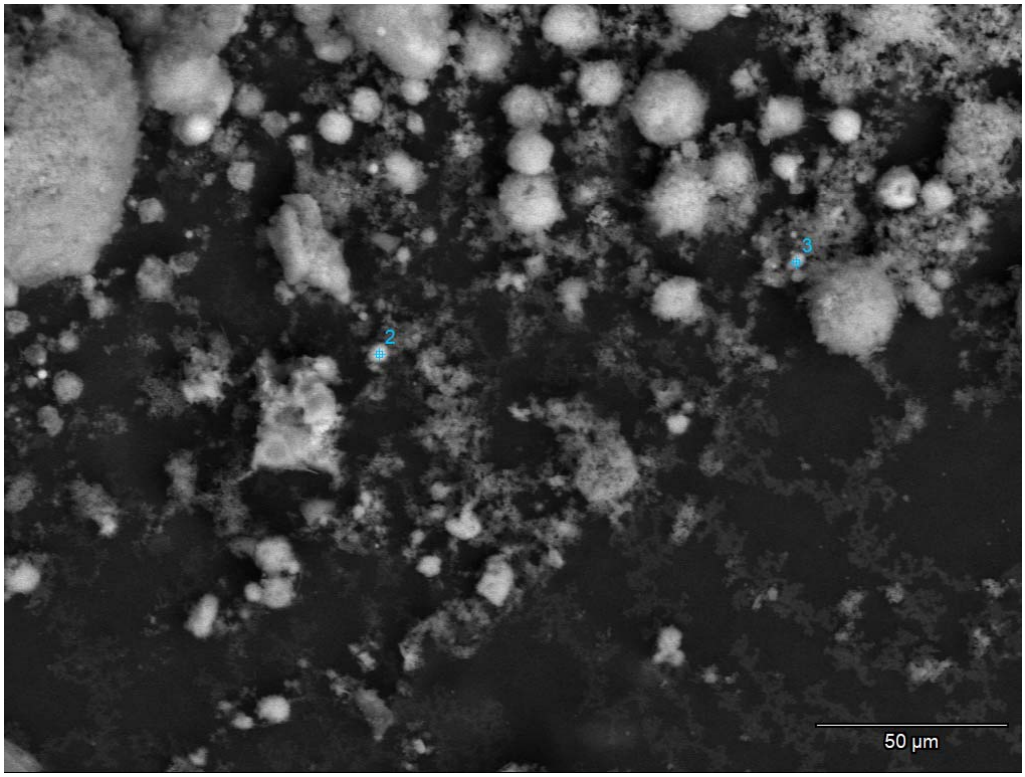


Figure L6. AH0461. SEM image of rinsed particulate on carbon substrate.

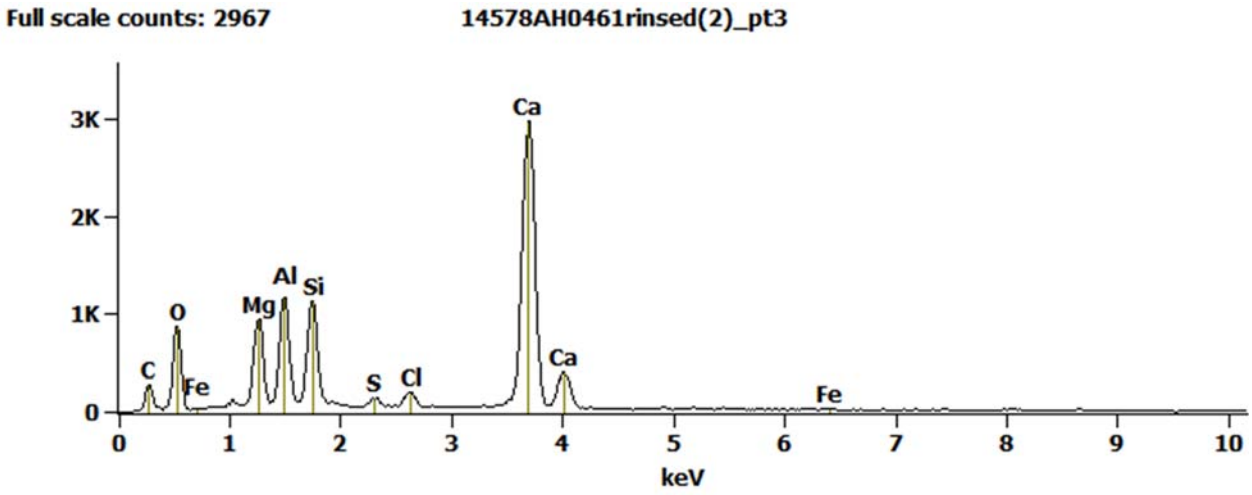


Figure L7. AH0461. SEM/EDS spectrum from area 3 in Figure L6. Aluminosilicate + salts.

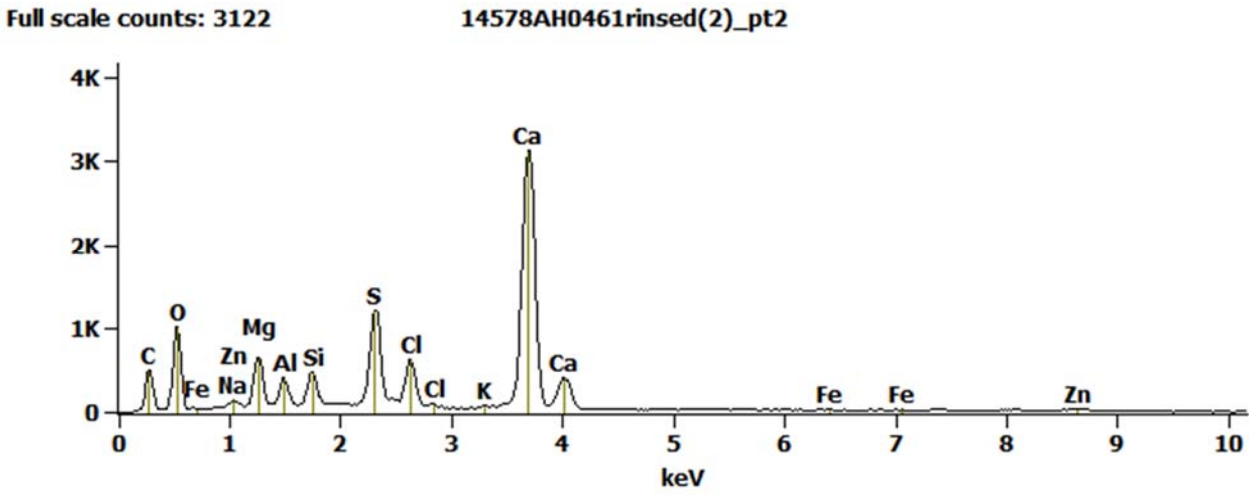


Figure L8. AH0461. SEM/EDS spectrum from area 2 in Figure L6. Aluminosilicate + salts.

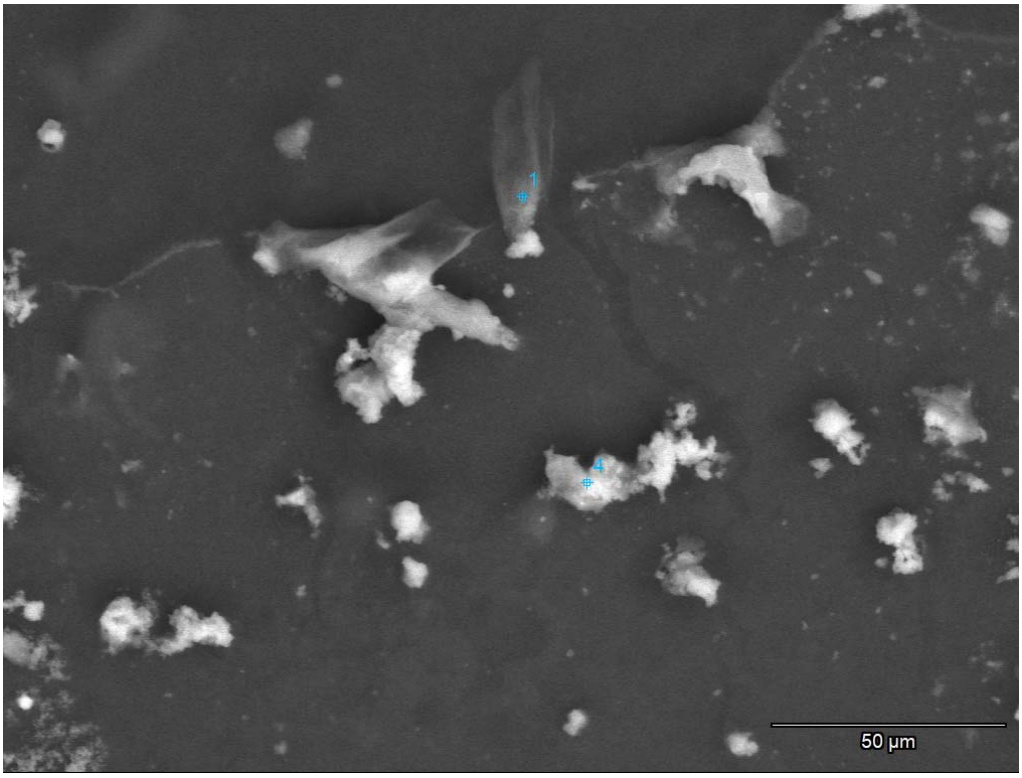


Figure L9. AH0461. SEM image of reprecipitated salts on carbon substrate.

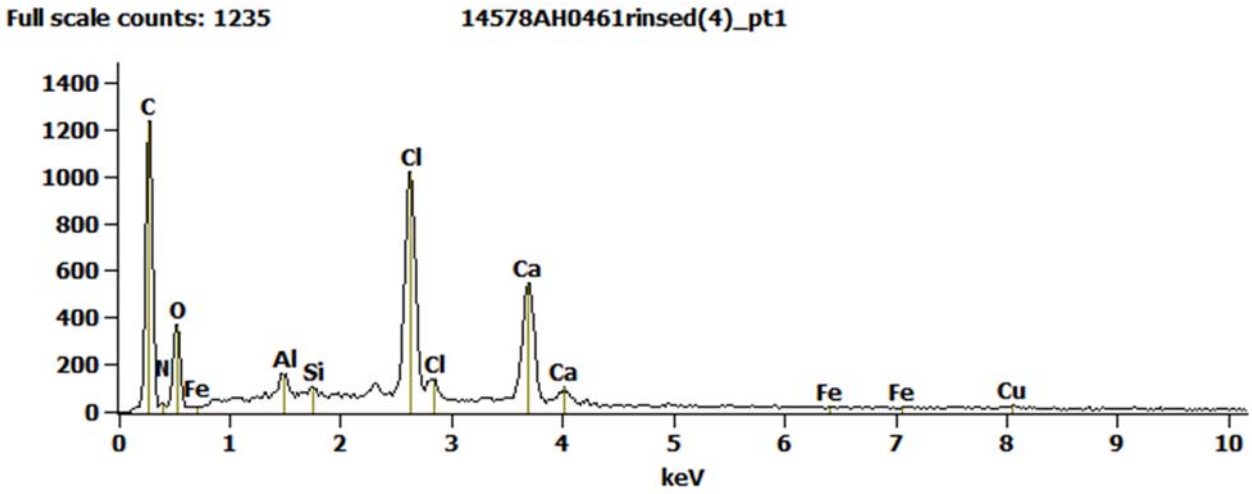


Figure L10. AH0461. SEM/EDS spectrum from area 1 in Figure L9. Mixed salts.

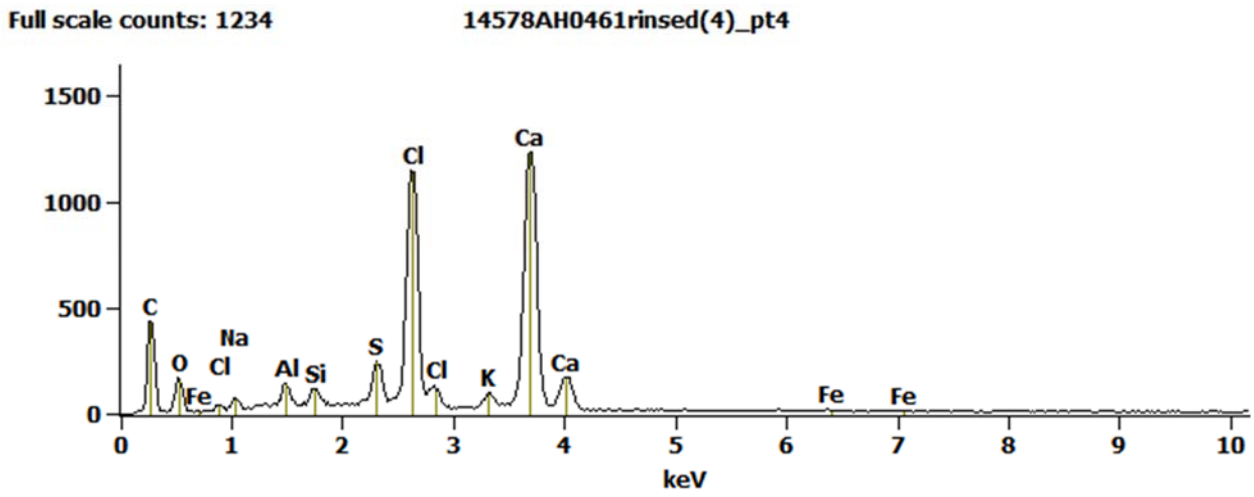


Figure L11. AH0461. SEM/EDS spectrum from area 4 in Figure L9. Mixed salts.

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Full Service Analytical Microscopy Laboratory

List of Common Elements

Symbol	Element
Ag	Silver
Al	Aluminum
As	Arsenic
Au	Gold
Ba	Barium
Bi	Bismuth
Br	Bromine
C	Carbon
Ca	Calcium
Cd	Cadmium
Cl	Chlorine
Co	Cobalt
Cr	Chromium
Cu	Copper
F	Fluorine
Fe	Iron
Hg	Mercury
I	Iodine
K	Potassium
La	Lanthanum
Mg	Magnesium
Mn	Manganese

Symbol	Element
Mo	Molybdenum
N	Nitrogen
Na	Sodium
Ni	Nickel
O	Oxygen
P	Phosphorus
Pb	Lead
Pt	Platinum
Rb	Rubidium
S	Sulfur
Sb	Antimony
Se	Selenium
Si	Silicon
Sn	Tin
Sr	Strontium
Th	Thorium
Ti	Titanium
U	Uranium
V	Vanadium
W	Tungsten
Zn	Zinc
Zr	Zirconium

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Portland, OR 97230
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Lab info:
MVA Scientfic Consultants
Duluth, GA

Client / Project: Covanta Marion, Inc.	**Project / Sample Location:** Unit 2 Acute	**Test / Analytical Method:** EPA 5
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Detection Limit / Reporting Instructions:** Electron scanning of filter for Molybdenum Oxides and Chlorides, Specifically MoO3
Send Analytical Report To: Portland QA/QC: PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	**Sampler or PM Signature:** Rob Becker	

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-filter- Acute	3.8.2022	13:00	1	Container 1 - filter	--	AH0450
1-Bulk sample Acute	3.8.2022	13:00	1	Bag Ash Bulk sample	"	AH0451
2-filter- Acute	3.8.2022	16:37	1	Container 1 - filter	"	AH0452
2-Bulk Sample Acute	3.8.2022	16:37	1	Bag Ash Bulk sample	"	AH0453
3-filter Acute	3.8.2022	20:16	1	Container 1 - filter	"	AH0454
3-Bulk Sample Acute	3.8.2022	20:16	1	Bag Ash Bulk sample		AH0455
Total Containers			6			

Relinquished by	Date 3.14.22	Time 14:00	Received by Raya Greenberger	Date 3/15/22	Time 10:23	Temp.
Relinquished by	Date	Time	Received by	Date	Time	Temp.
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: FB = Field Blank, RB = Reagent Blank

MVA COA Acute

W006AS-010935D-RT-2059R1

14578

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Portland, OR 97230
Phone (503) 255-5050 | Fax (503) 255-0505

Lab info:
MVA Scientfic Consultants
Duluth, GA

Client / Project: Covanta Marion, Inc.	**Project / Sample Location:** Unit 1 Chronic	**Test / Analytical Method:** EPA 5
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Detection Limit / Reporting Instructions:** Electron scanning of filter for Molybdenum Oxides and Chlorides, Specifically MoO3
Send Analytical Report To: Portland QA/QC: PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	**Sampler or PM Signature:** Pete Becker	

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-filter- Chronic	3.9.2022	12:40	1	Container 1 - filter	--	AH0456
1-Bulk sample Chronic	3.9.2022	12:40	1	Bag Ash Bulk sample	"	AH0457
2-filter- Chronic	3.9.2022	16:51	1	Container 1 - filter	"	AH0458
2-Bulk Sample Chronic	3.9.2022	16:51	1	Bag Ash Bulk sample	"	AH0459
3-filter Chronic	3.9.2022	21:21	1	Container 1 - filter	"	AH0460
3-Bulk Sample Chronic	3.9.2022	21:21	1	Bag Ash Bulk sample	"	AH0461
Total Containers			6			

	Date	Time	Received by	Date	Time	Temp.
Relinquished by	3.14.22	14:00	Reya Greenberger	3/15/22	10:23	
Relinquished by	Date	Time	Received by	Date	Time	Temp.
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: FB = Field Blank, RB = Reagent Blank

MVA COA Chronic

W006AS-010935D-RT-2059R1

Appendix C.3
Hexavalent Chromium Analyses

MONTROSE AIR QUALITY SERVICES

PROJECT: PROJ-010935
COVANTA MARION

CLIENT # H007
REPORT # 22-106

SUBMITTED BY:
CHESTER LabNet
12242 S.W. GARDEN PLACE
TIGARD, OR 97223
(503)624-2183/FAX (503)624-2653
www.ChesterLab.Net

CHESTER LabNet

12242 SW Garden Place ❖ Tigard, OR 97223-8246 ❖ USA
Telephone 503-624-2183 ❖ Fax 503-624-2653 ❖ www.chesterlab.net

Case Narrative

Date: March 14, 2022

General Information

Client:	Montrose Air Quality Services
Client Number:	H007
Report Number:	22-106
Sample Description:	Impinger Solutions
Sample Numbers:	22-S160 – 22-S164

Analysis

Analytes:	Hexavalent Chromium
Analytical Protocols:	SW-846 Method 0061 (revision 0, December 1996)
Analytical Notes:	No problems were encountered during the analyses. The results are not blank corrected.
QA/QC Review:	All of the data have been reviewed by the analysts performing the analyses and the project manager. All of the quality control and sample-specific information in this package is complete and meets or exceeds the minimum requirements for acceptability.
Comments:	If you have any questions or concerns regarding this analysis, please feel free to contact the project manager.
Disclaimer:	This report shall not be reproduced, except in full, without the written approval of the laboratory. The results only represent that of the samples as received into the laboratory. All data are reported to the detection limit. Results <5x DL must be considered to have a higher degree of uncertainty associated with them. Due to the statistical process of detection limit determination, data in this report should not be used for statistical analysis as the data has been censored in such a manner as to bias statistical analyses high.

Paul Duda 3/14/22

Project Manager Date
Paul Duda

Client: H007 - Montrose Air Quality Services
Report Number: 22-106

Lab ID: 22-S160
Client ID: 1-0061
Site: Covanta Marion
Source: Chronic Unit 2
Sample Date: 3/ 9/22
Sample Volume: 705. mL

Analyte	µg/L Conc.	DL	µg/sample Conc.	DL
Cr VI	3.09	0.010	2.18	0.0070

Lab ID: 22-S161
Client ID: 2-0061
Site: Covanta Marion
Source: Chronic Unit 2
Sample Date: 3/ 9/22
Sample Volume: 690. mL

Analyte	µg/L Conc.	DL	µg/sample Conc.	DL
Cr VI	4.04	0.010	2.79	0.0069

Lab ID: 22-S162
Client ID: 3-0061
Site: Covanta Marion
Source: Chronic Unit 2
Sample Date: 3/ 9/22
Sample Volume: 760. mL

Analyte	µg/L Conc.	DL	µg/sample Conc.	DL
Cr VI	0.511	0.010	0.388	0.0076

Lab ID: 22-S163
Client ID: RB-NaHCO3
Site: Covanta Marion
Source: Chronic Unit 2
Sample Date: 3/ 9/22
Sample Volume: 300. mL

Analyte	µg/L Conc.	DL	µg/sample Conc.	DL
Cr VI	< DL	0.010	< DL	0.0030

Lab ID: 22-S164
Client ID: RB-DI
Site: Covanta Marion
Source: Chronic Unit 2
Sample Date: 3/ 9/22
Sample Volume: 260. mL

Analyte	µg/L Conc.	DL	µg/sample Conc.	DL
Cr VI	< DL	0.010	< DL	0.0026

QA/QC Report

Client Name: Montrose Air Quality Services
Project Number: H007
Analytical Technique: Ion Chromatography-PCR
Instrument: Aquion Cr VI IC (2)
Sample Description: SW-846 0061
Report Number: 22-106

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Cr VI	ICB	< DL	0.010
Cr VI	CCB	< DL	0.010
Cr VI	CCB	< DL	0.010

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Cr VI	ICV	0.500	0.508	101.6
Cr VI	LL-LCS	0.030	0.035	116.7
Cr VI	CCV	0.500	0.508	101.6
Cr VI	CCV	0.500	0.505	101.0

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

Analyte	Sample ID	Sample Conc. µg/L	Duplicate Conc. µg/L	RPD
Cr VI	22-S161	4.04	3.96	1.95

RPD = {(sample-duplicate)/[(sample+duplicate)/2]}x100 Duplicate Limit: 20% RPD
N/C: RPD is not calculated when sample or duplicate is below detection limit
*: per EPA CLP protocol, control limits do not apply if sample and/or duplicate concentration is less than 5x the detection limit

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Cr VI	22-S162	0.511	1.00	0.500	98.0

LCS Limit: 80% - 120% Recovery Spike Limit: 75% - 125% Recovery
*: per EPA CLP protocol, control limits do not apply if spike concentration is less than 25% of the sample concentration

CHESTER LABNET
SOURCE SAMPLE RECEIPT CHECKLIST

Client	Montrose Air Quality Services	Date	3/10/22
# Runs	3+ blanks	Report #	22-106

Package intact?	Hand Delivered	
Chain-of-Custody form inspected	✓	
CoC present with samples?	✓	
CoC indicates analytical methodology to be used? (eg M29, etc.)	SW 826 0061	!!
Has CoC been signed by client?	✓	
Custody release date and time noted on CoC?	✓	
All sample containers inspected	✓	
Does number of samples match number on CoC form?	✓	!!
Do all sample ID numbers match those on the CoC form?	✓	!!
Did client mark sample volumes prior to shipment?	✓	
Sample temperature recorded?	NA	
Are the sample containers intact?	✓	!!
If present, Audit Sample intact?	NA	!!
Are signs of leakage present?	ND	*
Chain-of-Custody form signed and dated by CLN	✓	
Corrective actions		
Client contacted due to mismatching sample ID numbers		
Client contacted due to broken sample container(s)		
Client contacted due to leaking sample container(s)		
Client contacted for verification of methodology?	3/10/22	
Corrective actions documented?		
Corrective actions accomplished?		

*Items marked !! shall be addressed **prior to any analytical work being started**.*
*Items marked * shall be **noted in case narrative** upon reporting of results to client.*

Signed Lisa Ball

Notes

MONTROSE AIR QUALITY SERVICES

CHAIN OF CUSTODY

Portland Location
13585 NE Whitaker Way
Portland, OR 97230
Phone (503) 255-5050 | Fax (503) 255-0505

Lab info:
Chester LabNet
Tigard, OR

Client / Project: Covanta Maion	**Project / Sample Location:** Chronic Unit 2	**Test / Analytical Method:** EPA SW-846 Method 0061
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Detection Limit / Reporting Instructions:**
Send Analytical Report To: Portland QA/QC: PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	**Sampler or PM Signature:** Peter Becker	Hexavalent Chromium

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-0061	3.9.22	15:53	1	Container 1- Impingers 1 & 2 contents, rinses	0.1N NaHCO3 / DI Rinse	22-5160
2-0061	3.9.22	18:59	1	Container 1- Impingers 1 & 2 contents, rinses	0.1N NaHCO3 / DI Rinse	5161
3-061			1	Container 1- Impingers 1 & 2 contents, rinses	0.1N NaHCO3 / DI Rinse	5162
RB-NaHCO3	3.9.22	19:05	1	NaHCO3 reagent blank	0.1N NaHCO3	5163
RB-DI	3.9.22	19:20	1	DI Reagent Blank	DI	5164
Total Containers			5			

Relinquished by	Date	Time	Received by	Date	Time	Temp.
Peter Becker	3.10.22	11:30	Juhan Vaca	3/10/22	1130	
Relinquished by	Date	Time	Received by	Date	Time	Temp.
Juhan Vaca	3/10/22	1238	Leon Bell	3/10/22	12:40	
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: [KO] = Knockout impinger, "[ ]" denotes an option in the method, FB = Field Blank, RB = Reagent Blank

RAW DATA

Available upon request

Appendix C.4
PCDD/F & PCB Analyses

April 21, 2022

Vista Work Order No. 2203006

Mr. Peter Becker
Montrose Air Quality Services
13585 NE Whitaker Way
Portland, OR 97230

Dear Mr. Becker,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on March 14, 2022 under your Project Name 'Covanta Marion / PROJ-010935'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Jamie Fox
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2203006
Case Narrative

Sample Condition on Receipt:

Five air train samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:

EPA Method 23

These samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 23 using a ZB-DIOXIN GC column.

Holding Times

The method holding time criteria were met for the samples.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery sample (OPR) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

EPA Method 1668A

The XAD-2 resin was not pre-spiked with PCB surrogates prior to being sent for sampling. As requested, the samples were extracted and analyzed for a selected list of PCB congeners by EPA Method 1668A using a ZB-1 GC column.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The

preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2203006-01	1-EPA 23	10-Mar-22 20:20	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse
2203006-02	2-EPA 23	11-Mar-22 17:05	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse
2203006-03	3-EPA 23	11-Mar-22 19:16	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse
2203006-04	RB	11-Mar-22 17:54	14-Mar-22 12:52	Acetone
				Toluene
				DI Water
2203006-05	Field Blank	11-Mar-22 13:50	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse

ANALYTICAL RESULTS

Sample ID: Method Blank **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D008-BLK1
QC Batch: B22D008
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	6.81			18-Apr-22 14:50	1
1,2,3,7,8-PeCDD	ND	6.67			18-Apr-22 14:50	1
1,2,3,4,7,8-HxCDD	ND	6.53			18-Apr-22 14:50	1
1,2,3,6,7,8-HxCDD	ND	6.34			18-Apr-22 14:50	1
1,2,3,7,8,9-HxCDD	ND	6.43			18-Apr-22 14:50	1
1,2,3,4,6,7,8-HpCDD	ND	7.01			18-Apr-22 14:50	1
OCDD	ND	30.2			18-Apr-22 14:50	1
2,3,7,8-TCDF	ND	4.47			18-Apr-22 14:50	1
1,2,3,7,8-PeCDF	ND	5.46			18-Apr-22 14:50	1
2,3,4,7,8-PeCDF	ND	4.92			18-Apr-22 14:50	1
1,2,3,4,7,8-HxCDF	ND	4.83			18-Apr-22 14:50	1
1,2,3,6,7,8-HxCDF	ND	4.72			18-Apr-22 14:50	1
2,3,4,6,7,8-HxCDF	ND	5.05			18-Apr-22 14:50	1
1,2,3,7,8,9-HxCDF	ND	5.81			18-Apr-22 14:50	1
1,2,3,4,6,7,8-HpCDF	ND	10.3			18-Apr-22 14:50	1
1,2,3,4,7,8,9-HpCDF	ND	12.8			18-Apr-22 14:50	1
OCDF	ND	9.25			18-Apr-22 14:50	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	6.81				
Total PeCDD	ND	6.67				
Total HxCDD	ND	6.53				
Total HpCDD	ND	7.01				
Total TCDF	ND	4.47				
Total PeCDF	ND	5.46				
Total HxCDF	ND	5.81				
Total HpCDF	ND	12.8				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.4	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,7,8-PeCDD	IS	87.6	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,6,7,8-HxCDD	IS	82.9	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,6,7,8-HpCDD	IS	88.4	25 - 130		18-Apr-22 14:50	1
13C-OCDD	IS	83.8	25 - 130		18-Apr-22 14:50	1
13C-2,3,7,8-TCDF	IS	89.9	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,7,8-PeCDF	IS	91.4	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,6,7,8-HxCDF	IS	87.5	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,6,7,8-HpCDF	IS	91.2	25 - 130		18-Apr-22 14:50	1
13C-OCDF	IS	88.2	25 - 130		18-Apr-22 14:50	1
37Cl-2,3,7,8-TCDD	PS	93.8	70 - 130		18-Apr-22 14:50	1
13C-2,3,4,7,8-PeCDF	PS	103	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,7,8-HxCDD	PS	104	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,7,8-HxCDF	PS	99.3	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,7,8,9-HpCDF	PS	96.4	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,7,8,9-HxCDF	AS	81.1	40 - 130		18-Apr-22 14:50	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: OPR **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D008-BS1
QC Batch: B22D008
Date Extracted: 04-Apr-22 09:02
Column: ZB-DIOXIN

Analyte	Amt Found (pg/Sa	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	181	200	90.6	70-130		18-Apr-22 13:21	1
1,2,3,7,8-PeCDD	965	1000	96.5	70-130		18-Apr-22 13:21	1
1,2,3,4,7,8-HxCDD	1000	1000	100	70-130		18-Apr-22 13:21	1
1,2,3,6,7,8-HxCDD	1100	1000	110	70-130		18-Apr-22 13:21	1
1,2,3,7,8,9-HxCDD	1100	1000	110	70-130		18-Apr-22 13:21	1
1,2,3,4,6,7,8-HpCDD	972	1000	97.2	70-130		18-Apr-22 13:21	1
OCDD	2000	2000	100	70-130		18-Apr-22 13:21	1
2,3,7,8-TCDF	182	200	91.1	70-130		18-Apr-22 13:21	1
1,2,3,7,8-PeCDF	940	1000	94.0	70-130		18-Apr-22 13:21	1
2,3,4,7,8-PeCDF	914	1000	91.4	70-130		18-Apr-22 13:21	1
1,2,3,4,7,8-HxCDF	1010	1000	101	70-130		18-Apr-22 13:21	1
1,2,3,6,7,8-HxCDF	1080	1000	108	70-130		18-Apr-22 13:21	1
2,3,4,6,7,8-HxCDF	1060	1000	106	70-130		18-Apr-22 13:21	1
1,2,3,7,8,9-HxCDF	1080	1000	108	70-130		18-Apr-22 13:21	1
1,2,3,4,6,7,8-HpCDF	978	1000	97.8	70-130		18-Apr-22 13:21	1
1,2,3,4,7,8,9-HpCDF	951	1000	95.1	70-130		18-Apr-22 13:21	1
OCDF	1960	2000	97.9	70-130		18-Apr-22 13:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	82.9	40-130		18-Apr-22 13:21	1
13C-1,2,3,7,8-PeCDD	IS	82.9	40-130		18-Apr-22 13:21	1
13C-1,2,3,6,7,8-HxCDD	IS	75.8	40-130		18-Apr-22 13:21	1
13C-1,2,3,4,6,7,8-HpCDD	IS	88.6	25-130		18-Apr-22 13:21	1
13C-OCDD	IS	82.9	25-130		18-Apr-22 13:21	1
13C-2,3,7,8-TCDF	IS	84.8	40-130		18-Apr-22 13:21	1
13C-1,2,3,7,8-PeCDF	IS	87.4	40-130		18-Apr-22 13:21	1
13C-1,2,3,6,7,8-HxCDF	IS	79.2	40-130		18-Apr-22 13:21	1
13C-1,2,3,4,6,7,8-HpCDF	IS	88.1	25-130		18-Apr-22 13:21	1
13C-OCDF	IS	88.3	25-130		18-Apr-22 13:21	1
13C-1,2,3,7,8,9-HxCDF	AS	91.4	40-130		18-Apr-22 13:21	1

Sample ID: 1-EPA 23 **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data
Lab Sample: 2203006-01
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	3.61			18-Apr-22 17:05	1
1,2,3,7,8-PeCDD	ND	3.76			18-Apr-22 17:05	1
1,2,3,4,7,8-HxCDD	ND		3.64		18-Apr-22 17:05	1
1,2,3,6,7,8-HxCDD	12.9			J	18-Apr-22 17:05	1
1,2,3,7,8,9-HxCDD	ND		6.07		18-Apr-22 17:05	1
1,2,3,4,6,7,8-HpCDD	84.9			J	18-Apr-22 17:05	1
OCDD	126			J	18-Apr-22 17:05	1
2,3,7,8-TCDF	17.2			J	18-Apr-22 17:05	1
1,2,3,7,8-PeCDF	ND		9.83		18-Apr-22 17:05	1
2,3,4,7,8-PeCDF	19.1			J	18-Apr-22 17:05	1
1,2,3,4,7,8-HxCDF	ND		13.0		18-Apr-22 17:05	1
1,2,3,6,7,8-HxCDF	17.6			J	18-Apr-22 17:05	1
2,3,4,6,7,8-HxCDF	14.8			J	18-Apr-22 17:05	1
1,2,3,7,8,9-HxCDF	ND	5.97			18-Apr-22 17:05	1
1,2,3,4,6,7,8-HpCDF	49.0			J	18-Apr-22 17:05	1
1,2,3,4,7,8,9-HpCDF	8.24			J	18-Apr-22 17:05	1
OCDF	15.9			J	18-Apr-22 17:05	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	13.4					
Totals						
Total TCDD	ND		100			
Total PeCDD	67.1		162			
Total HxCDD	198		278			
Total HpCDD	166					
Total TCDF	183		281			
Total PeCDF	115		213			
Total HxCDF	145		173			
Total HpCDF	93.0					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.1	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,7,8-PeCDD	IS	93.3	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,6,7,8-HxCDD	IS	88.8	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,6,7,8-HpCDD	IS	98.0	25 - 130		18-Apr-22 17:05	1
13C-OCDD	IS	92.1	25 - 130		18-Apr-22 17:05	1
13C-2,3,7,8-TCDF	IS	95.8	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,7,8-PeCDF	IS	99.6	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,6,7,8-HxCDF	IS	90.5	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,6,7,8-HpCDF	IS	94.2	25 - 130		18-Apr-22 17:05	1
13C-OCDF	IS	99.5	25 - 130		18-Apr-22 17:05	1
37Cl-2,3,7,8-TCDD	PS	95.7	70 - 130		18-Apr-22 17:05	1
13C-2,3,4,7,8-PeCDF	PS	96.9	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,7,8-HxCDD	PS	99.8	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,7,8-HxCDF	PS	100	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,7,8,9-HpCDF	PS	97.2	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,7,8,9-HxCDF	AS	87.9	40 - 130		18-Apr-22 17:05	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 2-EPA 23 **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data
Lab Sample: 2203006-02
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	4.74			18-Apr-22 17:50	1
1,2,3,7,8-PeCDD	ND	6.62			18-Apr-22 17:50	1
1,2,3,4,7,8-HxCDD	ND		6.25		18-Apr-22 17:50	1
1,2,3,6,7,8-HxCDD	14.6			J	18-Apr-22 17:50	1
1,2,3,7,8,9-HxCDD	11.2			J	18-Apr-22 17:50	1
1,2,3,4,6,7,8-HpCDD	103				18-Apr-22 17:50	1
OCDD	135			J	18-Apr-22 17:50	1
2,3,7,8-TCDF	9.60			J	18-Apr-22 17:50	1
1,2,3,7,8-PeCDF	ND		13.1		18-Apr-22 17:50	1
2,3,4,7,8-PeCDF	21.6			J	18-Apr-22 17:50	1
1,2,3,4,7,8-HxCDF	17.4			J	18-Apr-22 17:50	1
1,2,3,6,7,8-HxCDF	18.6			J	18-Apr-22 17:50	1
2,3,4,6,7,8-HxCDF	ND		9.71		18-Apr-22 17:50	1
1,2,3,7,8,9-HxCDF	5.00			J	18-Apr-22 17:50	1
1,2,3,4,6,7,8-HpCDF	56.2			J	18-Apr-22 17:50	1
1,2,3,4,7,8,9-HpCDF	ND		6.24		18-Apr-22 17:50	1
OCDF	ND		23.3		18-Apr-22 17:50	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	15.8					
Totals						
Total TCDD	ND		65.7			
Total PeCDD	88.6		171			
Total HxCDD	244		331			
Total HpCDD	198					
Total TCDF	254		301			
Total PeCDF	183		232			
Total HxCDF	159		197			
Total HpCDF	71.8		92.3			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	83.6	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,7,8-PeCDD	IS	85.5	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,6,7,8-HxCDD	IS	79.0	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,6,7,8-HpCDD	IS	89.4	25 - 130		18-Apr-22 17:50	1
13C-OCDD	IS	79.7	25 - 130		18-Apr-22 17:50	1
13C-2,3,7,8-TCDF	IS	88.6	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,7,8-PeCDF	IS	91.9	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,6,7,8-HxCDF	IS	83.7	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,6,7,8-HpCDF	IS	88.1	25 - 130		18-Apr-22 17:50	1
13C-OCDF	IS	91.3	25 - 130		18-Apr-22 17:50	1
37Cl-2,3,7,8-TCDD	PS	90.3	70 - 130		18-Apr-22 17:50	1
13C-2,3,4,7,8-PeCDF	PS	96.7	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,7,8-HxCDD	PS	104	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,7,8-HxCDF	PS	100	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,7,8,9-HpCDF	PS	106	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,7,8,9-HxCDF	AS	89.6	40 - 130		18-Apr-22 17:50	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 3-EPA 23 **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data
Lab Sample: 2203006-03
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	3.78			18-Apr-22 18:35	1
1,2,3,7,8-PeCDD	ND	6.78			18-Apr-22 18:35	1
1,2,3,4,7,8-HxCDD	ND	9.01			18-Apr-22 18:35	1
1,2,3,6,7,8-HxCDD	16.4			J	18-Apr-22 18:35	1
1,2,3,7,8,9-HxCDD	ND	8.88			18-Apr-22 18:35	1
1,2,3,4,6,7,8-HpCDD	98.7			J	18-Apr-22 18:35	1
OCDD	111			J	18-Apr-22 18:35	1
2,3,7,8-TCDF	ND		8.63		18-Apr-22 18:35	1
1,2,3,7,8-PeCDF	16.2			J	18-Apr-22 18:35	1
2,3,4,7,8-PeCDF	18.2			J	18-Apr-22 18:35	1
1,2,3,4,7,8-HxCDF	16.0			J	18-Apr-22 18:35	1
1,2,3,6,7,8-HxCDF	19.0			J	18-Apr-22 18:35	1
2,3,4,6,7,8-HxCDF	17.7			J	18-Apr-22 18:35	1
1,2,3,7,8,9-HxCDF	ND	5.09			18-Apr-22 18:35	1
1,2,3,4,6,7,8-HpCDF	51.0			J	18-Apr-22 18:35	1
1,2,3,4,7,8,9-HpCDF	8.87			J	18-Apr-22 18:35	1
OCDF	16.7			J	18-Apr-22 18:35	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	14.5					
Totals						
Total TCDD	65.8		79.3			
Total PeCDD	57.3		166			
Total HxCDD	266		330			
Total HpCDD	184					
Total TCDF	173		326			
Total PeCDF	213		243			
Total HxCDF	164		194			
Total HpCDF	59.9		89.7			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.4	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,7,8-PeCDD	IS	94.6	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,6,7,8-HxCDD	IS	85.8	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,6,7,8-HpCDD	IS	95.3	25 - 130		18-Apr-22 18:35	1
13C-OCDD	IS	85.6	25 - 130		18-Apr-22 18:35	1
13C-2,3,7,8-TCDF	IS	93.7	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,7,8-PeCDF	IS	99.0	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,6,7,8-HxCDF	IS	85.4	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,6,7,8-HpCDF	IS	91.6	25 - 130		18-Apr-22 18:35	1
13C-OCDF	IS	95.0	25 - 130		18-Apr-22 18:35	1
37Cl-2,3,7,8-TCDD	PS	92.6	70 - 130		18-Apr-22 18:35	1
13C-2,3,4,7,8-PeCDF	PS	97.4	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,7,8-HxCDD	PS	100	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,7,8-HxCDF	PS	101	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,7,8,9-HpCDF	PS	101	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,7,8,9-HxCDF	AS	93.9	40 - 130		18-Apr-22 18:35	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: RB **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data
Lab Sample: 2203006-04
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	2.79			18-Apr-22 15:35	1
1,2,3,7,8-PeCDD	ND	2.82			18-Apr-22 15:35	1
1,2,3,4,7,8-HxCDD	ND	4.63			18-Apr-22 15:35	1
1,2,3,6,7,8-HxCDD	ND	4.50			18-Apr-22 15:35	1
1,2,3,7,8,9-HxCDD	ND	4.56			18-Apr-22 15:35	1
1,2,3,4,6,7,8-HpCDD	ND	4.06			18-Apr-22 15:35	1
OCDD	ND	8.50			18-Apr-22 15:35	1
2,3,7,8-TCDF	ND	1.85			18-Apr-22 15:35	1
1,2,3,7,8-PeCDF	ND	2.03			18-Apr-22 15:35	1
2,3,4,7,8-PeCDF	ND	1.83			18-Apr-22 15:35	1
1,2,3,4,7,8-HxCDF	ND	2.10			18-Apr-22 15:35	1
1,2,3,6,7,8-HxCDF	ND	2.06			18-Apr-22 15:35	1
2,3,4,6,7,8-HxCDF	ND	2.20			18-Apr-22 15:35	1
1,2,3,7,8,9-HxCDF	ND	2.53			18-Apr-22 15:35	1
1,2,3,4,6,7,8-HpCDF	ND	3.34			18-Apr-22 15:35	1
1,2,3,4,7,8,9-HpCDF	ND	4.15			18-Apr-22 15:35	1
OCDF	ND	3.29			18-Apr-22 15:35	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	2.79				
Total PeCDD	ND	2.82				
Total HxCDD	ND	4.63				
Total HpCDD	ND	4.06				
Total TCDF	ND	1.85				
Total PeCDF	ND	2.03				
Total HxCDF	ND	2.53				
Total HpCDF	ND	4.15				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	79.9	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,7,8-PeCDD	IS	86.3	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,6,7,8-HxCDD	IS	79.8	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,4,6,7,8-HpCDD	IS	89.9	25 - 130		18-Apr-22 15:35	1
13C-OCDD	IS	87.6	25 - 130		18-Apr-22 15:35	1
13C-2,3,7,8-TCDF	IS	88.6	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,7,8-PeCDF	IS	89.6	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,6,7,8-HxCDF	IS	82.8	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,4,6,7,8-HpCDF	IS	90.3	25 - 130		18-Apr-22 15:35	1
13C-OCDF	IS	95.2	25 - 130		18-Apr-22 15:35	1
13C-1,2,3,7,8,9-HxCDF	AS	89.6	40 - 130		18-Apr-22 15:35	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Field Blank

EPA Method 23

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data

Lab Sample: 2203006-05
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	3.29			18-Apr-22 16:20	1
1,2,3,7,8-PeCDD	ND	4.13			18-Apr-22 16:20	1
1,2,3,4,7,8-HxCDD	ND	4.59			18-Apr-22 16:20	1
1,2,3,6,7,8-HxCDD	ND	4.46			18-Apr-22 16:20	1
1,2,3,7,8,9-HxCDD	ND	4.52			18-Apr-22 16:20	1
1,2,3,4,6,7,8-HpCDD	ND	6.61			18-Apr-22 16:20	1
OCDD	ND	15.5			18-Apr-22 16:20	1
2,3,7,8-TCDF	ND	1.87			18-Apr-22 16:20	1
1,2,3,7,8-PeCDF	ND	2.10			18-Apr-22 16:20	1
2,3,4,7,8-PeCDF	ND	1.89			18-Apr-22 16:20	1
1,2,3,4,7,8-HxCDF	ND	1.68			18-Apr-22 16:20	1
1,2,3,6,7,8-HxCDF	ND	1.64			18-Apr-22 16:20	1
2,3,4,6,7,8-HxCDF	ND	1.76			18-Apr-22 16:20	1
1,2,3,7,8,9-HxCDF	ND	2.02			18-Apr-22 16:20	1
1,2,3,4,6,7,8-HpCDF	ND	3.60			18-Apr-22 16:20	1
1,2,3,4,7,8,9-HpCDF	ND	4.48			18-Apr-22 16:20	1
OCDF	ND	3.31			18-Apr-22 16:20	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	3.29				
Total PeCDD	ND	4.13				
Total HxCDD	ND	4.59				
Total HpCDD	ND	6.61				
Total TCDF	ND	1.87				
Total PeCDF	ND	2.10				
Total HxCDF	ND	2.02				
Total HpCDF	ND	4.48				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	79.9	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,7,8-PeCDD	IS	89.3	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,6,7,8-HxCDD	IS	86.6	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,6,7,8-HpCDD	IS	92.3	25 - 130		18-Apr-22 16:20	1
13C-OCDD	IS	84.8	25 - 130		18-Apr-22 16:20	1
13C-2,3,7,8-TCDF	IS	91.6	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,7,8-PeCDF	IS	94.2	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,6,7,8-HxCDF	IS	85.2	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,6,7,8-HpCDF	IS	89.8	25 - 130		18-Apr-22 16:20	1
13C-OCDF	IS	93.1	25 - 130		18-Apr-22 16:20	1
37Cl-2,3,7,8-TCDD	PS	86.4	70 - 130		18-Apr-22 16:20	1
13C-2,3,4,7,8-PeCDF	PS	101	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,7,8-HxCDD	PS	98.9	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,7,8-HxCDF	PS	101	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,7,8,9-HpCDF	PS	101	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,7,8,9-HxCDF	AS	92.8	40 - 130		18-Apr-22 16:20	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Method Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BLK1
QC Batch: B22D009
Date Extracted: 04-Apr-22
Column: ZB-1

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	ND	35.2			13-Apr-22 23:09	1
PCB-18	ND	15.7			13-Apr-22 23:09	1
PCB-28	ND	9.40			13-Apr-22 23:09	1
PCB-44	ND	8.61			13-Apr-22 23:09	1
PCB-52/69	ND		16.0		13-Apr-22 23:09	1
PCB-66/76	16.4			J	13-Apr-22 23:09	1
PCB-77	ND	6.35			13-Apr-22 23:09	1
PCB-81	ND	6.70			13-Apr-22 23:09	1
PCB-90/101	ND		27.7		13-Apr-22 23:09	1
PCB-105	ND	6.65			13-Apr-22 23:09	1
PCB-106/118	ND	6.44			13-Apr-22 23:09	1
PCB-114	ND	6.24			13-Apr-22 23:09	1
PCB-123	ND	6.80			13-Apr-22 23:09	1
PCB-126	ND	6.66			13-Apr-22 23:09	1
PCB-128/162	ND	5.36			13-Apr-22 23:09	1
PCB-138/163/164	ND		18.6		13-Apr-22 23:09	1
PCB-153	ND		22.0		13-Apr-22 23:09	1
PCB-156	ND	4.26			13-Apr-22 23:09	1
PCB-157	ND	4.90			13-Apr-22 23:09	1
PCB-167	ND	4.61			13-Apr-22 23:09	1
PCB-169	ND	4.37			13-Apr-22 23:09	1
PCB-170	ND	6.17			13-Apr-22 23:09	1
PCB-180	ND	6.03			13-Apr-22 23:09	1
PCB-182/187	ND	5.38			13-Apr-22 23:09	1
PCB-189	ND	4.06			13-Apr-22 23:09	1
PCB-195	ND	3.84			13-Apr-22 23:09	1
PCB-206	ND	4.85			13-Apr-22 23:09	1
PCB-209	ND	5.33			13-Apr-22 23:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	77.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-28	IS	73.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-32	IS	79.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-47	IS	78.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-52	IS	77.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-70	IS	76.8	25 - 150		13-Apr-22 23:09	1
13C-PCB-77	IS	76.0	25 - 150		13-Apr-22 23:09	1
13C-PCB-81	IS	76.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-101	IS	78.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-105	IS	69.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-114	IS	70.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-118	IS	81.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-123	IS	82.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-126	IS	62.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-138	IS	78.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-153	IS	77.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-156	IS	81.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-157	IS	81.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-159	IS	79.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-167	IS	77.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-169	IS	83.8	25 - 150		13-Apr-22 23:09	1

Sample ID: Method Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BLK1
QC Batch: B22D009
Date Extracted: 04-Apr-22
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-170	IS	87.0	25 - 150		13-Apr-22 23:09	1
13C-PCB-180	IS	82.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-188	IS	78.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-189	IS	88.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-194	IS	78.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-206	IS	85.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-209	IS	90.3	25 - 150		13-Apr-22 23:09	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: OPR **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BS1
QC Batch: B22D009
Date Extracted: 04-Apr-22 09:05
Column: ZB-1

Analyte	Amt Found (pg/Sa	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
PCB-77	9870	10000	98.7	50-150		13-Apr-22 19:08	1
PCB-81	9440	10000	94.4	50-150		13-Apr-22 19:08	1
PCB-105	9560	10000	95.6	50-150		13-Apr-22 19:08	1
PCB-106/118	20000	20000	99.9	50-150		13-Apr-22 19:08	1
PCB-114	9730	10000	97.3	50-150		13-Apr-22 19:08	1
PCB-123	10100	10000	101	50-150		13-Apr-22 19:08	1
PCB-126	9840	10000	98.4	50-150		13-Apr-22 19:08	1
PCB-156	9500	10000	95.0	50-150		13-Apr-22 19:08	1
PCB-157	9690	10000	96.9	50-150		13-Apr-22 19:08	1
PCB-167	9760	10000	97.6	50-150		13-Apr-22 19:08	1
PCB-169	9900	10000	99.0	50-150		13-Apr-22 19:08	1
PCB-189	10200	10000	102	50-150		13-Apr-22 19:08	1
PCB-206	9430	10000	94.3	50-150		13-Apr-22 19:08	1
PCB-209	9390	10000	93.9	50-150		13-Apr-22 19:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	81.1	30-140		13-Apr-22 19:08	1
13C-PCB-28	IS	89.2	30-140		13-Apr-22 19:08	1
13C-PCB-32	IS	83.3	30-140		13-Apr-22 19:08	1
13C-PCB-47	IS	81.3	30-140		13-Apr-22 19:08	1
13C-PCB-52	IS	81.9	30-140		13-Apr-22 19:08	1
13C-PCB-70	IS	83.9	30-140		13-Apr-22 19:08	1
13C-PCB-77	IS	85.6	30-140		13-Apr-22 19:08	1
13C-PCB-81	IS	86.9	30-140		13-Apr-22 19:08	1
13C-PCB-101	IS	86.1	30-140		13-Apr-22 19:08	1
13C-PCB-105	IS	76.5	30-140		13-Apr-22 19:08	1
13C-PCB-114	IS	76.8	30-140		13-Apr-22 19:08	1
13C-PCB-118	IS	92.9	30-140		13-Apr-22 19:08	1
13C-PCB-123	IS	92.7	30-140		13-Apr-22 19:08	1
13C-PCB-126	IS	72.8	30-140		13-Apr-22 19:08	1
13C-PCB-138	IS	89.3	30-140		13-Apr-22 19:08	1
13C-PCB-153	IS	86.7	30-140		13-Apr-22 19:08	1
13C-PCB-156	IS	92.1	30-140		13-Apr-22 19:08	1
13C-PCB-157	IS	93.8	30-140		13-Apr-22 19:08	1
13C-PCB-159	IS	89.8	30-140		13-Apr-22 19:08	1
13C-PCB-167	IS	91.9	30-140		13-Apr-22 19:08	1
13C-PCB-169	IS	95.3	30-140		13-Apr-22 19:08	1
13C-PCB-170	IS	95.4	30-140		13-Apr-22 19:08	1
13C-PCB-180	IS	90.0	30-140		13-Apr-22 19:08	1
13C-PCB-188	IS	85.0	30-140		13-Apr-22 19:08	1
13C-PCB-189	IS	96.3	30-140		13-Apr-22 19:08	1
13C-PCB-194	IS	89.4	30-140		13-Apr-22 19:08	1
13C-PCB-206	IS	92.7	30-140		13-Apr-22 19:08	1

Sample ID: OPR **EPA Method 1668A**

Client Data		Laboratory Data			
Name:	Montrose Air Quality Services	Lab Sample:	B22D009-BS1		
Project:	Covanta Marion / PROJ-010935	QC Batch:	B22D009	Date Extracted:	04-Apr-22 09:05
Matrix:	Air			Column:	ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-209	IS	98.1	30-140		13-Apr-22 19:08	1

Sample ID: 1-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data
Lab Sample: 2203006-01
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	1220				14-Apr-22 03:11	1
PCB-18	835				14-Apr-22 03:11	1
PCB-28	661				14-Apr-22 03:11	1
PCB-44	370			J	14-Apr-22 03:11	1
PCB-52/69	355			J	14-Apr-22 03:11	1
PCB-66/76	181			J, B	14-Apr-22 03:11	1
PCB-77	45.7			J	14-Apr-22 03:11	1
PCB-81	ND	8.95			14-Apr-22 03:11	1
PCB-90/101	308			J	14-Apr-22 03:11	1
PCB-105	110			J	14-Apr-22 03:11	1
PCB-106/118	233			J	14-Apr-22 03:11	1
PCB-114	ND	23.6			14-Apr-22 03:11	1
PCB-123	ND	11.5			14-Apr-22 03:11	1
PCB-126	ND	23.8			14-Apr-22 03:11	1
PCB-128/162	48.8			J	14-Apr-22 03:11	1
PCB-138/163/164	216			J	14-Apr-22 03:11	1
PCB-153	ND		183		14-Apr-22 03:11	1
PCB-156	ND	10.2			14-Apr-22 03:11	1
PCB-157	ND	11.6			14-Apr-22 03:11	1
PCB-167	ND	10.6			14-Apr-22 03:11	1
PCB-169	ND	11.2			14-Apr-22 03:11	1
PCB-170	ND	19.9			14-Apr-22 03:11	1
PCB-180	62.0			J	14-Apr-22 03:11	1
PCB-182/187	55.6			J	14-Apr-22 03:11	1
PCB-189	ND	15.4			14-Apr-22 03:11	1
PCB-195	ND	28.4			14-Apr-22 03:11	1
PCB-206	ND		95.2		14-Apr-22 03:11	1
PCB-209	207			J	14-Apr-22 03:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	101	25 - 150		14-Apr-22 03:11	1
13C-PCB-28	IS	94.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-32	IS	97.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-47	IS	88.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-52	IS	85.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-70	IS	87.4	25 - 150		14-Apr-22 03:11	1
13C-PCB-77	IS	84.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-81	IS	85.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-101	IS	89.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-105	IS	72.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-114	IS	76.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-118	IS	86.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-123	IS	87.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-126	IS	70.8	25 - 150		14-Apr-22 03:11	1
13C-PCB-138	IS	89.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-153	IS	84.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-156	IS	89.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-157	IS	89.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-159	IS	87.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-167	IS	90.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-169	IS	86.0	25 - 150		14-Apr-22 03:11	1

Sample ID: 1-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data

Lab Sample: 2203006-01
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-170	IS	89.4	25 - 150		14-Apr-22 03:11	1
13C-PCB-180	IS	89.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-188	IS	82.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-189	IS	77.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-194	IS	101	25 - 150		14-Apr-22 03:11	1
13C-PCB-206	IS	92.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-209	IS	99.6	25 - 150		14-Apr-22 03:11	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 2-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data
Lab Sample: 2203006-02
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	3620				14-Apr-22 04:12	1
PCB-18	2520				14-Apr-22 04:12	1
PCB-28	926				14-Apr-22 04:12	1
PCB-44	382			J	14-Apr-22 04:12	1
PCB-52/69	442			J	14-Apr-22 04:12	1
PCB-66/76	184			J, B	14-Apr-22 04:12	1
PCB-77	80.0			J	14-Apr-22 04:12	1
PCB-81	ND	8.14			14-Apr-22 04:12	1
PCB-90/101	237			J	14-Apr-22 04:12	1
PCB-105	56.8			J	14-Apr-22 04:12	1
PCB-106/118	160			J	14-Apr-22 04:12	1
PCB-114	ND	14.1			14-Apr-22 04:12	1
PCB-123	ND	9.50			14-Apr-22 04:12	1
PCB-126	ND	14.0			14-Apr-22 04:12	1
PCB-128/162	29.4			J	14-Apr-22 04:12	1
PCB-138/163/164	114			J	14-Apr-22 04:12	1
PCB-153	ND		82.0		14-Apr-22 04:12	1
PCB-156	15.5			J	14-Apr-22 04:12	1
PCB-157	ND	6.94			14-Apr-22 04:12	1
PCB-167	ND	6.23			14-Apr-22 04:12	1
PCB-169	ND	6.38			14-Apr-22 04:12	1
PCB-170	ND		85.1		14-Apr-22 04:12	1
PCB-180	ND		29.5		14-Apr-22 04:12	1
PCB-182/187	ND		21.9		14-Apr-22 04:12	1
PCB-189	ND	7.23			14-Apr-22 04:12	1
PCB-195	ND	18.5			14-Apr-22 04:12	1
PCB-206	74.9			J	14-Apr-22 04:12	1
PCB-209	180			J	14-Apr-22 04:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	84.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-28	IS	99.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-32	IS	85.6	25 - 150		14-Apr-22 04:12	1
13C-PCB-47	IS	86.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-52	IS	86.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-70	IS	90.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-77	IS	93.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-81	IS	92.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-101	IS	94.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-105	IS	78.6	25 - 150		14-Apr-22 04:12	1
13C-PCB-114	IS	79.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-118	IS	97.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-123	IS	100	25 - 150		14-Apr-22 04:12	1
13C-PCB-126	IS	75.1	25 - 150		14-Apr-22 04:12	1
13C-PCB-138	IS	91.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-153	IS	90.5	25 - 150		14-Apr-22 04:12	1
13C-PCB-156	IS	93.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-157	IS	94.2	25 - 150		14-Apr-22 04:12	1
13C-PCB-159	IS	93.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-167	IS	92.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-169	IS	92.4	25 - 150		14-Apr-22 04:12	1

Sample ID: 2-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data

Lab Sample: 2203006-02
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-170	IS	100	25 - 150		14-Apr-22 04:12	1
13C-PCB-180	IS	96.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-188	IS	94.9	25 - 150		14-Apr-22 04:12	1
13C-PCB-189	IS	90.2	25 - 150		14-Apr-22 04:12	1
13C-PCB-194	IS	99.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-206	IS	98.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-209	IS	99.2	25 - 150		14-Apr-22 04:12	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 3-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data
Lab Sample: 2203006-03
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	339			J	14-Apr-22 05:12	1
PCB-18	217			J	14-Apr-22 05:12	1
PCB-28	159			J	14-Apr-22 05:12	1
PCB-44	ND		99.9		14-Apr-22 05:12	1
PCB-52/69	127			J	14-Apr-22 05:12	1
PCB-66/76	83.9			J, B	14-Apr-22 05:12	1
PCB-77	ND		26.5		14-Apr-22 05:12	1
PCB-81	ND	9.08			14-Apr-22 05:12	1
PCB-90/101	95.2			J	14-Apr-22 05:12	1
PCB-105	34.2			J	14-Apr-22 05:12	1
PCB-106/118	72.3			J	14-Apr-22 05:12	1
PCB-114	ND	8.16			14-Apr-22 05:12	1
PCB-123	ND	7.04			14-Apr-22 05:12	1
PCB-126	ND	8.18			14-Apr-22 05:12	1
PCB-128/162	ND		20.5		14-Apr-22 05:12	1
PCB-138/163/164	76.2			J	14-Apr-22 05:12	1
PCB-153	62.2			J	14-Apr-22 05:12	1
PCB-156	ND	7.53			14-Apr-22 05:12	1
PCB-157	ND	8.11			14-Apr-22 05:12	1
PCB-167	ND	7.88			14-Apr-22 05:12	1
PCB-169	ND	7.79			14-Apr-22 05:12	1
PCB-170	ND	9.47			14-Apr-22 05:12	1
PCB-180	43.1			J	14-Apr-22 05:12	1
PCB-182/187	ND		19.3		14-Apr-22 05:12	1
PCB-189	ND	5.95			14-Apr-22 05:12	1
PCB-195	ND	13.8			14-Apr-22 05:12	1
PCB-206	89.8			J	14-Apr-22 05:12	1
PCB-209	214			J	14-Apr-22 05:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	79.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-28	IS	90.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-32	IS	85.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-47	IS	79.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-52	IS	80.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-70	IS	83.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-77	IS	83.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-81	IS	84.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-101	IS	83.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-105	IS	72.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-114	IS	72.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-118	IS	87.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-123	IS	90.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-126	IS	68.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-138	IS	83.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-153	IS	81.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-156	IS	88.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-157	IS	88.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-159	IS	86.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-167	IS	86.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-169	IS	89.2	25 - 150		14-Apr-22 05:12	1

Sample ID: 3-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data

Lab Sample: 2203006-03
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-170	IS	94.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-180	IS	93.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-188	IS	84.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-189	IS	97.5	25 - 150		14-Apr-22 05:12	1
13C-PCB-194	IS	92.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-206	IS	89.1	25 - 150		14-Apr-22 05:12	1
13C-PCB-209	IS	91.6	25 - 150		14-Apr-22 05:12	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: RB **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data
Lab Sample: 2203006-04
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	ND	38.8			14-Apr-22 00:10	1
PCB-18	ND	17.7			14-Apr-22 00:10	1
PCB-28	ND	11.0			14-Apr-22 00:10	1
PCB-44	ND	9.05			14-Apr-22 00:10	1
PCB-52/69	ND	6.65			14-Apr-22 00:10	1
PCB-66/76	ND	5.60			14-Apr-22 00:10	1
PCB-77	ND	6.52			14-Apr-22 00:10	1
PCB-81	ND	6.82			14-Apr-22 00:10	1
PCB-90/101	ND	8.34			14-Apr-22 00:10	1
PCB-105	ND	5.90			14-Apr-22 00:10	1
PCB-106/118	ND	6.22			14-Apr-22 00:10	1
PCB-114	ND	5.53			14-Apr-22 00:10	1
PCB-123	ND	6.20			14-Apr-22 00:10	1
PCB-126	ND	5.95			14-Apr-22 00:10	1
PCB-128/162	ND	6.75			14-Apr-22 00:10	1
PCB-138/163/164	ND	5.57			14-Apr-22 00:10	1
PCB-153	ND	5.89			14-Apr-22 00:10	1
PCB-156	ND	5.09			14-Apr-22 00:10	1
PCB-157	ND	5.93			14-Apr-22 00:10	1
PCB-167	ND	5.41			14-Apr-22 00:10	1
PCB-169	ND	5.47			14-Apr-22 00:10	1
PCB-170	ND	13.1			14-Apr-22 00:10	1
PCB-180	ND	11.3			14-Apr-22 00:10	1
PCB-182/187	ND	10.4			14-Apr-22 00:10	1
PCB-189	ND	7.86			14-Apr-22 00:10	1
PCB-195	ND	4.48			14-Apr-22 00:10	1
PCB-206	ND	4.67			14-Apr-22 00:10	1
PCB-209	ND	3.36			14-Apr-22 00:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	67.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-28	IS	65.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-32	IS	69.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-47	IS	68.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-52	IS	68.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-70	IS	70.1	25 - 150		14-Apr-22 00:10	1
13C-PCB-77	IS	67.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-81	IS	68.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-101	IS	69.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-105	IS	60.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-114	IS	62.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-118	IS	73.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-123	IS	74.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-126	IS	55.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-138	IS	69.5	25 - 150		14-Apr-22 00:10	1
13C-PCB-153	IS	66.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-156	IS	71.2	25 - 150		14-Apr-22 00:10	1
13C-PCB-157	IS	71.2	25 - 150		14-Apr-22 00:10	1
13C-PCB-159	IS	68.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-167	IS	70.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-169	IS	72.8	25 - 150		14-Apr-22 00:10	1

Sample ID: RB **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data

Lab Sample: 2203006-04
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-170	IS	75.7	25 - 150		14-Apr-22 00:10	1
13C-PCB-180	IS	75.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-188	IS	68.7	25 - 150		14-Apr-22 00:10	1
13C-PCB-189	IS	80.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-194	IS	71.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-206	IS	75.1	25 - 150		14-Apr-22 00:10	1
13C-PCB-209	IS	83.1	25 - 150		14-Apr-22 00:10	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Field Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data
Lab Sample: 2203006-05
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	ND	39.5			14-Apr-22 01:10	1
PCB-18	ND	22.0			14-Apr-22 01:10	1
PCB-28	ND	12.0			14-Apr-22 01:10	1
PCB-44	ND	10.9			14-Apr-22 01:10	1
PCB-52/69	ND		22.9		14-Apr-22 01:10	1
PCB-66/76	ND	6.80			14-Apr-22 01:10	1
PCB-77	ND	8.00			14-Apr-22 01:10	1
PCB-81	ND	8.14			14-Apr-22 01:10	1
PCB-90/101	ND	7.64			14-Apr-22 01:10	1
PCB-105	ND	8.48			14-Apr-22 01:10	1
PCB-106/118	ND		9.21		14-Apr-22 01:10	1
PCB-114	ND	7.91			14-Apr-22 01:10	1
PCB-123	ND	5.95			14-Apr-22 01:10	1
PCB-126	ND	8.42			14-Apr-22 01:10	1
PCB-128/162	ND	7.07			14-Apr-22 01:10	1
PCB-138/163/164	15.2			J	14-Apr-22 01:10	1
PCB-153	ND	5.89			14-Apr-22 01:10	1
PCB-156	ND	5.53			14-Apr-22 01:10	1
PCB-157	ND	6.49			14-Apr-22 01:10	1
PCB-167	ND	5.73			14-Apr-22 01:10	1
PCB-169	ND	5.89			14-Apr-22 01:10	1
PCB-170	ND	7.26			14-Apr-22 01:10	1
PCB-180	ND	6.71			14-Apr-22 01:10	1
PCB-182/187	ND	5.52			14-Apr-22 01:10	1
PCB-189	ND	4.49			14-Apr-22 01:10	1
PCB-195	ND	4.26			14-Apr-22 01:10	1
PCB-206	ND	2.02			14-Apr-22 01:10	1
PCB-209	ND	2.90			14-Apr-22 01:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	79.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-28	IS	67.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-32	IS	83.0	25 - 150		14-Apr-22 01:10	1
13C-PCB-47	IS	73.8	25 - 150		14-Apr-22 01:10	1
13C-PCB-52	IS	73.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-70	IS	72.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-77	IS	70.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-81	IS	72.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-101	IS	76.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-105	IS	64.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-114	IS	65.2	25 - 150		14-Apr-22 01:10	1
13C-PCB-118	IS	77.0	25 - 150		14-Apr-22 01:10	1
13C-PCB-123	IS	79.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-126	IS	58.2	25 - 150		14-Apr-22 01:10	1
13C-PCB-138	IS	73.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-153	IS	73.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-156	IS	73.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-157	IS	72.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-159	IS	71.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-167	IS	75.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-169	IS	74.8	25 - 150		14-Apr-22 01:10	1

Sample ID: Field Blank **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data

Lab Sample: 2203006-05
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-170	IS	77.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-180	IS	72.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-188	IS	72.6	25 - 150		14-Apr-22 01:10	1
13C-PCB-189	IS	79.6	25 - 150		14-Apr-22 01:10	1
13C-PCB-194	IS	75.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-206	IS	80.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-209	IS	84.9	25 - 150		14-Apr-22 01:10	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Pennsylvania Department of Environmental Protection	018
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MONTROSE AIR QUALITY SERVICES

CHAIN OF CUSTODY

Portland Location
13585 NE Whitaker Way
Portland, OR 97230
(503) 255-5050

Lab info: 2203006
3.5°C, 2.5°C, 2.9°C Vista Analytical
El Dorado Hills, CA

Client / Project:	**Project / Sample Location:**	**Test / Analytical Method:**
Covanta Maion	Chronic Unit	EPA 23 (PCDD / PCDF/ PCB)
Project No.:	**Purchase Order No:**	**Special Analysis / Reporting Instructions:**
PROJ-010935		
Send Analytical Report To:	**Sampler or PM Signature:**	Dioxins/Furans (PCDD/PCDF), Polychlorinated Biphenyls (PCB),
Portland QA/QC: : PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	Peter Becker	

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-EPA 23	3.10.22	20:20	1	Container 1 - filter	--	
"	3.10.22	20:10	1	Adsorbent module	XAD-2	
"	3.10.22	20:29	1	Cont. 2.1 - F1/2 and B1/2 rinses - acetone	acetone	
"	3.10.22	20:46	1	Container 2.2 - F1/2 and B1/2 rinses - toluene	toluene	
"	3.10.22	20:38	1	Container 3.1 Impinger Contents + Acetone rinse	DI + Acetone + Toluene	
~~"~~			~~1~~	~~Container 3.2 Impinger touene rinse~~	~~Toluene~~	
2-EPA 23	3.10.22	17:05	~~6~~ 5	Same as run 1	acetone / Toluene	
3-EPA 23	3.11.22	19:16	~~6~~ 5	Same as run 1	toluene / Toluene	
RB-Acetone	3.11.22	17:54	1	acetone reagent blank	acetone	
RB-Toluene	3.11.22	17:56	1	toluene reagent blank	toluene	
RB-DI	3.11.22	17:58	1	DI reagent Blank	DI	
Field Blank	3.10.22	13:50	~~6~~ 5	Field Train Proof Blank	Acetone + Toluene	
Total Containers			~~24~~ 27			

Relinquished by	Date	Time	Received by	Date	Time	Temp.
Peter Becker	3.11.22	19:30	Esha	3/14/22	10 00	
Relinquished by	Date	Time	Received by	Date	Time	Temp.
	3/14/22	12:52		03/14/22	1252	
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: PCDD = Polychlorinated Dibenzo-p-Dioxin, PCDF = Polychlorinated Dibenzofuran, FB = Field Blank, RB = Reagent Blank

Vista Analytical Laboratory

Sample Log-In Checklist

Vista Work Order #: 2203006 TAT 5+d

Samples Arrival:	**Date/Time** 03/14/22 1252		**Initials:** MMS		**Location:** WR-2 **Shelf/Rack:** N/A		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 3.6 (uncorrected) **Temp °C:** 3.5 (corrected)			**Probe used: Y / N**			**Thermometer ID:** IR-3	

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill → (1) Trk # ~			✓
Shipping Documentation Present?			✓
Shipping Container: Vista / Client / Retain / Return / Dispose			
Chain of Custody / Sample Documentation Present?			(3) ✓
Chain of Custody / Sample Documentation Complete?			✓
Holding Time Acceptable?			✓

Logged In:	**Date/Time** 03/14/22 14:31	**Initials:** MA	**Location:** R-9 **Shelf/Rack:** N/A
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments: (3) COCs received with cooler (2)
Rinses + filters received in this cooler

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 2 of 3

Vista Work Order #: 2203006 TAT STL

Samples Arrival:	**Date/Time** 03/14/22 1252		**Initials:** WWS		**Location:** WR-2 **Shelf/Rack:** N/A		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 2.6 (uncorrected) **Temp °C:** 2.5 (corrected)			**Probe used: Y / (N)**			**Thermometer ID:** IR-3	

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill — (2) Trk # —			✓
Shipping Documentation Present?			✓
Shipping Container: (Vista) Client (Retain) Return Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 03/14/22 14:31	**Initials:** VA	**Location:** R-9 **Shelf/Rack:** N/A	
COC Anomaly/Sample Acceptance Form completed?			✓	✓

Comments:

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 3 of 3

Vista Work Order #: 2203006 TAT std

Samples Arrival:	**Date/Time** 03/14/22 1252		**Initials:** WWS		**Location:** WR-2 **Shelf/Rack:** N/a		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: -2.9°C (uncorrected) **Temp °C:** -2.9°C (corrected)			**Probe used:** (Y) / N			**Thermometer ID:** DT-3	

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill — (3) Trk # —			✓
Shipping Documentation Present?			✓
Shipping Container: Vista / Client / Retain / Return / Dispose			
Chain of Custody / Sample Documentation Present?			(3) ✓
Chain of Custody / Sample Documentation Complete?			✓
Holding Time Acceptable?			✓

Logged In:	**Date/Time** 03/14/22 14:31	**Initials:** IG	**Location:** R-9 **Shelf/Rack:** N/A
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments: (3) COC received with other cooler (2)

XADs received in this cooler

ID.: LR – SLC *Rev No.:* 6 *Rev Date:* 07/16/2020 *Page:* 1 of 1

CoC/Label Reconciliation Report WO# 2203006

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2203006-01	B 1-EPA 23		10-Mar-22 20:20	Filter	Air	
2203006-01	C 1-EPA 23		10-Mar-22 20:20	XAD	Air	
2203006-01	D 1-EPA 23		10-Mar-22 20:20	FH/BH Rinse-Acetone	Air	
2203006-01	E 1-EPA 23		10-Mar-22 20:20	FH/BH Rinse-Toluene	Air	
2203006-01	F 1-EPA 23		10-Mar-22 20:20	Imp contents + Acetone rinse	Air	
2203006-02	B 2-EPA 23		11-Mar-22 17:05	Filter	Air	
2203006-02	C 2-EPA 23		11-Mar-22 17:05	XAD	Air	
2203006-02	D 2-EPA 23		11-Mar-22 17:05	FH/BH Rinse-Acetone	Air	
2203006-02	E 2-EPA 23		11-Mar-22 17:05	FH/BH Rinse-Toluene	Air	
2203006-02	F 2-EPA 23		11-Mar-22 17:05	Imp contents + Acetone rinse	Air	
2203006-03	B 3-EPA 23		11-Mar-22 19:16	Filter	Air	
2203006-03	C 3-EPA 23		11-Mar-22 19:16	XAD	Air	
2203006-03	D 3-EPA 23		11-Mar-22 19:16	FH/BH Rinse-Acetone	Air	
2203006-03	E 3-EPA 23		11-Mar-22 19:16	FH/BH Rinse-Toluene	Air	
2203006-03	F 3-EPA 23		11-Mar-22 19:16	Imp contents + Acetone rinse	Air	
2203006-04	B RB		11-Mar-22 17:54	Acetone	Air	
2203006-04	C RB		11-Mar-22 17:54	Toluene	Air	
2203006-04	D RB		11-Mar-22 17:54	DI Water	Air	
2203006-05	B Field Blank		11-Mar-22 13:50	Filter	Air	
2203006-05	C Field Blank		11-Mar-22 13:50	XAD	Air	
2203006-05	D Field Blank		11-Mar-22 13:50	FH/BH Rinse-Acetone	Air	
2203006-05	E Field Blank		11-Mar-22 13:50	FH/BH Rinse-Toluene	Air	
2203006-05	F Field Blank		11-Mar-22 13:50	Imp contents + Acetone rinse	Air	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments: A) No time listed on sample label

C1: Cooler 1 of 3

C2: Cooler 2 of 3

C3: Cooler 3 of 3

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None) Other

Verifed by/Date: VA 03/17/22

W006AS-010935D-RT-2059R1
633 of 823

June 27, 2022

Vista Work Order No. 2203006

Mr. Peter Becker
Montrose Air Quality Services
13585 NE Whitaker Way
Portland, OR 97230

Dear Mr. Becker,

Enclosed are the additional results for the sample set received at Vista Analytical Laboratory on March 14, 2022 under your Project Name 'Covanta Marion / PROJ-010935'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Jamie Fox
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2203006
Case Narrative

Sample Condition on Receipt:

Five air train samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements. The report was amended to include the results for PCB homologue totals. The reported results for the selected list of PCB congeners may be different from the previously reported results. This is due to the re-processing of the sample data to obtain the PCB homologue totals.

Analytical Notes:

EPA Method 23

These samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 23 using a ZB-DIOXIN GC column.

Holding Times

The method holding time criteria were met for the samples.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery sample (OPR) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

EPA Method 1668A

The XAD-2 resin was not pre-spiked with PCB surrogates prior to being sent for sampling. As requested, the samples were extracted and analyzed for a selected list of PCB congeners and PCB homologue totals by EPA Method 1668A using a ZB-1 GC column.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the

preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2203006-01	1-EPA 23	10-Mar-22 20:20	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse
2203006-02	2-EPA 23	11-Mar-22 17:05	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse
2203006-03	3-EPA 23	11-Mar-22 19:16	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse
2203006-04	RB	11-Mar-22 17:54	14-Mar-22 12:52	Acetone
				Toluene
				DI Water
2203006-05	Field Blank	11-Mar-22 13:50	14-Mar-22 12:52	Filter
				XAD
				FH/BH Rinse-Acetone
				FH/BH Rinse-Toluene
				Imp contents + Acetone rinse

ANALYTICAL RESULTS

Sample ID: Method Blank **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D008-BLK1
QC Batch: B22D008
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	6.81			18-Apr-22 14:50	1
1,2,3,7,8-PeCDD	ND	6.67			18-Apr-22 14:50	1
1,2,3,4,7,8-HxCDD	ND	6.53			18-Apr-22 14:50	1
1,2,3,6,7,8-HxCDD	ND	6.34			18-Apr-22 14:50	1
1,2,3,7,8,9-HxCDD	ND	6.43			18-Apr-22 14:50	1
1,2,3,4,6,7,8-HpCDD	ND	7.01			18-Apr-22 14:50	1
OCDD	ND	30.2			18-Apr-22 14:50	1
2,3,7,8-TCDF	ND	4.47			18-Apr-22 14:50	1
1,2,3,7,8-PeCDF	ND	5.46			18-Apr-22 14:50	1
2,3,4,7,8-PeCDF	ND	4.92			18-Apr-22 14:50	1
1,2,3,4,7,8-HxCDF	ND	4.83			18-Apr-22 14:50	1
1,2,3,6,7,8-HxCDF	ND	4.72			18-Apr-22 14:50	1
2,3,4,6,7,8-HxCDF	ND	5.05			18-Apr-22 14:50	1
1,2,3,7,8,9-HxCDF	ND	5.81			18-Apr-22 14:50	1
1,2,3,4,6,7,8-HpCDF	ND	10.3			18-Apr-22 14:50	1
1,2,3,4,7,8,9-HpCDF	ND	12.8			18-Apr-22 14:50	1
OCDF	ND	9.25			18-Apr-22 14:50	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	6.81				
Total PeCDD	ND	6.67				
Total HxCDD	ND	6.53				
Total HpCDD	ND	7.01				
Total TCDF	ND	4.47				
Total PeCDF	ND	5.46				
Total HxCDF	ND	5.81				
Total HpCDF	ND	12.8				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.4	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,7,8-PeCDD	IS	87.6	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,6,7,8-HxCDD	IS	82.9	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,6,7,8-HpCDD	IS	88.4	25 - 130		18-Apr-22 14:50	1
13C-OCDD	IS	83.8	25 - 130		18-Apr-22 14:50	1
13C-2,3,7,8-TCDF	IS	89.9	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,7,8-PeCDF	IS	91.4	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,6,7,8-HxCDF	IS	87.5	40 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,6,7,8-HpCDF	IS	91.2	25 - 130		18-Apr-22 14:50	1
13C-OCDF	IS	88.2	25 - 130		18-Apr-22 14:50	1
37Cl-2,3,7,8-TCDD	PS	93.8	70 - 130		18-Apr-22 14:50	1
13C-2,3,4,7,8-PeCDF	PS	103	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,7,8-HxCDD	PS	104	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,7,8-HxCDF	PS	99.3	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,4,7,8,9-HpCDF	PS	96.4	70 - 130		18-Apr-22 14:50	1
13C-1,2,3,7,8,9-HxCDF	AS	81.1	40 - 130		18-Apr-22 14:50	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: OPR **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D008-BS1
QC Batch: B22D008
Date Extracted: 04-Apr-22 09:02
Column: ZB-DIOXIN

Analyte	Amt Found (pg/Sa	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	181	200	90.6	70-130		18-Apr-22 13:21	1
1,2,3,7,8-PeCDD	965	1000	96.5	70-130		18-Apr-22 13:21	1
1,2,3,4,7,8-HxCDD	1000	1000	100	70-130		18-Apr-22 13:21	1
1,2,3,6,7,8-HxCDD	1100	1000	110	70-130		18-Apr-22 13:21	1
1,2,3,7,8,9-HxCDD	1100	1000	110	70-130		18-Apr-22 13:21	1
1,2,3,4,6,7,8-HpCDD	972	1000	97.2	70-130		18-Apr-22 13:21	1
OCDD	2000	2000	100	70-130		18-Apr-22 13:21	1
2,3,7,8-TCDF	182	200	91.1	70-130		18-Apr-22 13:21	1
1,2,3,7,8-PeCDF	940	1000	94.0	70-130		18-Apr-22 13:21	1
2,3,4,7,8-PeCDF	914	1000	91.4	70-130		18-Apr-22 13:21	1
1,2,3,4,7,8-HxCDF	1010	1000	101	70-130		18-Apr-22 13:21	1
1,2,3,6,7,8-HxCDF	1080	1000	108	70-130		18-Apr-22 13:21	1
2,3,4,6,7,8-HxCDF	1060	1000	106	70-130		18-Apr-22 13:21	1
1,2,3,7,8,9-HxCDF	1080	1000	108	70-130		18-Apr-22 13:21	1
1,2,3,4,6,7,8-HpCDF	978	1000	97.8	70-130		18-Apr-22 13:21	1
1,2,3,4,7,8,9-HpCDF	951	1000	95.1	70-130		18-Apr-22 13:21	1
OCDF	1960	2000	97.9	70-130		18-Apr-22 13:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	82.9	40-130		18-Apr-22 13:21	1
13C-1,2,3,7,8-PeCDD	IS	82.9	40-130		18-Apr-22 13:21	1
13C-1,2,3,6,7,8-HxCDD	IS	75.8	40-130		18-Apr-22 13:21	1
13C-1,2,3,4,6,7,8-HpCDD	IS	88.6	25-130		18-Apr-22 13:21	1
13C-OCDD	IS	82.9	25-130		18-Apr-22 13:21	1
13C-2,3,7,8-TCDF	IS	84.8	40-130		18-Apr-22 13:21	1
13C-1,2,3,7,8-PeCDF	IS	87.4	40-130		18-Apr-22 13:21	1
13C-1,2,3,6,7,8-HxCDF	IS	79.2	40-130		18-Apr-22 13:21	1
13C-1,2,3,4,6,7,8-HpCDF	IS	88.1	25-130		18-Apr-22 13:21	1
13C-OCDF	IS	88.3	25-130		18-Apr-22 13:21	1
13C-1,2,3,7,8,9-HxCDF	AS	91.4	40-130		18-Apr-22 13:21	1

Sample ID: 1-EPA 23 **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data
Lab Sample: 2203006-01
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	3.61			18-Apr-22 17:05	1
1,2,3,7,8-PeCDD	ND	3.76			18-Apr-22 17:05	1
1,2,3,4,7,8-HxCDD	ND		3.64		18-Apr-22 17:05	1
1,2,3,6,7,8-HxCDD	12.9			J	18-Apr-22 17:05	1
1,2,3,7,8,9-HxCDD	ND		6.07		18-Apr-22 17:05	1
1,2,3,4,6,7,8-HpCDD	84.9			J	18-Apr-22 17:05	1
OCDD	126			J	18-Apr-22 17:05	1
2,3,7,8-TCDF	17.2			J	18-Apr-22 17:05	1
1,2,3,7,8-PeCDF	ND		9.83		18-Apr-22 17:05	1
2,3,4,7,8-PeCDF	19.1			J	18-Apr-22 17:05	1
1,2,3,4,7,8-HxCDF	ND		13.0		18-Apr-22 17:05	1
1,2,3,6,7,8-HxCDF	17.6			J	18-Apr-22 17:05	1
2,3,4,6,7,8-HxCDF	14.8			J	18-Apr-22 17:05	1
1,2,3,7,8,9-HxCDF	ND	5.97			18-Apr-22 17:05	1
1,2,3,4,6,7,8-HpCDF	49.0			J	18-Apr-22 17:05	1
1,2,3,4,7,8,9-HpCDF	8.24			J	18-Apr-22 17:05	1
OCDF	15.9			J	18-Apr-22 17:05	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	13.4					
Totals						
Total TCDD	ND		100			
Total PeCDD	67.1		162			
Total HxCDD	198		278			
Total HpCDD	166					
Total TCDF	183		281			
Total PeCDF	115		213			
Total HxCDF	145		173			
Total HpCDF	93.0					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.1	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,7,8-PeCDD	IS	93.3	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,6,7,8-HxCDD	IS	88.8	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,6,7,8-HpCDD	IS	98.0	25 - 130		18-Apr-22 17:05	1
13C-OCDD	IS	92.1	25 - 130		18-Apr-22 17:05	1
13C-2,3,7,8-TCDF	IS	95.8	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,7,8-PeCDF	IS	99.6	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,6,7,8-HxCDF	IS	90.5	40 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,6,7,8-HpCDF	IS	94.2	25 - 130		18-Apr-22 17:05	1
13C-OCDF	IS	99.5	25 - 130		18-Apr-22 17:05	1
37Cl-2,3,7,8-TCDD	PS	95.7	70 - 130		18-Apr-22 17:05	1
13C-2,3,4,7,8-PeCDF	PS	96.9	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,7,8-HxCDD	PS	99.8	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,7,8-HxCDF	PS	100	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,4,7,8,9-HpCDF	PS	97.2	70 - 130		18-Apr-22 17:05	1
13C-1,2,3,7,8,9-HxCDF	AS	87.9	40 - 130		18-Apr-22 17:05	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 2-EPA 23 **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data
Lab Sample: 2203006-02
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	4.74			18-Apr-22 17:50	1
1,2,3,7,8-PeCDD	ND	6.62			18-Apr-22 17:50	1
1,2,3,4,7,8-HxCDD	ND		6.25		18-Apr-22 17:50	1
1,2,3,6,7,8-HxCDD	14.6			J	18-Apr-22 17:50	1
1,2,3,7,8,9-HxCDD	11.2			J	18-Apr-22 17:50	1
1,2,3,4,6,7,8-HpCDD	103				18-Apr-22 17:50	1
OCDD	135			J	18-Apr-22 17:50	1
2,3,7,8-TCDF	9.60			J	18-Apr-22 17:50	1
1,2,3,7,8-PeCDF	ND		13.1		18-Apr-22 17:50	1
2,3,4,7,8-PeCDF	21.6			J	18-Apr-22 17:50	1
1,2,3,4,7,8-HxCDF	17.4			J	18-Apr-22 17:50	1
1,2,3,6,7,8-HxCDF	18.6			J	18-Apr-22 17:50	1
2,3,4,6,7,8-HxCDF	ND		9.71		18-Apr-22 17:50	1
1,2,3,7,8,9-HxCDF	5.00			J	18-Apr-22 17:50	1
1,2,3,4,6,7,8-HpCDF	56.2			J	18-Apr-22 17:50	1
1,2,3,4,7,8,9-HpCDF	ND		6.24		18-Apr-22 17:50	1
OCDF	ND		23.3		18-Apr-22 17:50	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	15.8					
Totals						
Total TCDD	ND		65.7			
Total PeCDD	88.6		171			
Total HxCDD	244		331			
Total HpCDD	198					
Total TCDF	254		301			
Total PeCDF	183		232			
Total HxCDF	159		197			
Total HpCDF	71.8		92.3			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	83.6	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,7,8-PeCDD	IS	85.5	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,6,7,8-HxCDD	IS	79.0	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,6,7,8-HpCDD	IS	89.4	25 - 130		18-Apr-22 17:50	1
13C-OCDD	IS	79.7	25 - 130		18-Apr-22 17:50	1
13C-2,3,7,8-TCDF	IS	88.6	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,7,8-PeCDF	IS	91.9	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,6,7,8-HxCDF	IS	83.7	40 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,6,7,8-HpCDF	IS	88.1	25 - 130		18-Apr-22 17:50	1
13C-OCDF	IS	91.3	25 - 130		18-Apr-22 17:50	1
37Cl-2,3,7,8-TCDD	PS	90.3	70 - 130		18-Apr-22 17:50	1
13C-2,3,4,7,8-PeCDF	PS	96.7	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,7,8-HxCDD	PS	104	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,7,8-HxCDF	PS	100	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,4,7,8,9-HpCDF	PS	106	70 - 130		18-Apr-22 17:50	1
13C-1,2,3,7,8,9-HxCDF	AS	89.6	40 - 130		18-Apr-22 17:50	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 3-EPA 23 **EPA Method 23**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data

Lab Sample: 2203006-03
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	3.78			18-Apr-22 18:35	1
1,2,3,7,8-PeCDD	ND	6.78			18-Apr-22 18:35	1
1,2,3,4,7,8-HxCDD	ND	9.01			18-Apr-22 18:35	1
1,2,3,6,7,8-HxCDD	16.4			J	18-Apr-22 18:35	1
1,2,3,7,8,9-HxCDD	ND	8.88			18-Apr-22 18:35	1
1,2,3,4,6,7,8-HpCDD	98.7			J	18-Apr-22 18:35	1
OCDD	111			J	18-Apr-22 18:35	1
2,3,7,8-TCDF	ND		8.63		18-Apr-22 18:35	1
1,2,3,7,8-PeCDF	16.2			J	18-Apr-22 18:35	1
2,3,4,7,8-PeCDF	18.2			J	18-Apr-22 18:35	1
1,2,3,4,7,8-HxCDF	16.0			J	18-Apr-22 18:35	1
1,2,3,6,7,8-HxCDF	19.0			J	18-Apr-22 18:35	1
2,3,4,6,7,8-HxCDF	17.7			J	18-Apr-22 18:35	1
1,2,3,7,8,9-HxCDF	ND	5.09			18-Apr-22 18:35	1
1,2,3,4,6,7,8-HpCDF	51.0			J	18-Apr-22 18:35	1
1,2,3,4,7,8,9-HpCDF	8.87			J	18-Apr-22 18:35	1
OCDF	16.7			J	18-Apr-22 18:35	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	14.5					
Totals						
Total TCDD	65.8		79.3			
Total PeCDD	57.3		166			
Total HxCDD	266		330			
Total HpCDD	184					
Total TCDF	173		326			
Total PeCDF	213		243			
Total HxCDF	164		194			
Total HpCDF	59.9		89.7			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.4	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,7,8-PeCDD	IS	94.6	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,6,7,8-HxCDD	IS	85.8	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,6,7,8-HpCDD	IS	95.3	25 - 130		18-Apr-22 18:35	1
13C-OCDD	IS	85.6	25 - 130		18-Apr-22 18:35	1
13C-2,3,7,8-TCDF	IS	93.7	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,7,8-PeCDF	IS	99.0	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,6,7,8-HxCDF	IS	85.4	40 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,6,7,8-HpCDF	IS	91.6	25 - 130		18-Apr-22 18:35	1
13C-OCDF	IS	95.0	25 - 130		18-Apr-22 18:35	1
37Cl-2,3,7,8-TCDD	PS	92.6	70 - 130		18-Apr-22 18:35	1
13C-2,3,4,7,8-PeCDF	PS	97.4	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,7,8-HxCDD	PS	100	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,7,8-HxCDF	PS	101	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,4,7,8,9-HpCDF	PS	101	70 - 130		18-Apr-22 18:35	1
13C-1,2,3,7,8,9-HxCDF	AS	93.9	40 - 130		18-Apr-22 18:35	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: RB **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data
Lab Sample: 2203006-04
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	2.79			18-Apr-22 15:35	1
1,2,3,7,8-PeCDD	ND	2.82			18-Apr-22 15:35	1
1,2,3,4,7,8-HxCDD	ND	4.63			18-Apr-22 15:35	1
1,2,3,6,7,8-HxCDD	ND	4.50			18-Apr-22 15:35	1
1,2,3,7,8,9-HxCDD	ND	4.56			18-Apr-22 15:35	1
1,2,3,4,6,7,8-HpCDD	ND	4.06			18-Apr-22 15:35	1
OCDD	ND	8.50			18-Apr-22 15:35	1
2,3,7,8-TCDF	ND	1.85			18-Apr-22 15:35	1
1,2,3,7,8-PeCDF	ND	2.03			18-Apr-22 15:35	1
2,3,4,7,8-PeCDF	ND	1.83			18-Apr-22 15:35	1
1,2,3,4,7,8-HxCDF	ND	2.10			18-Apr-22 15:35	1
1,2,3,6,7,8-HxCDF	ND	2.06			18-Apr-22 15:35	1
2,3,4,6,7,8-HxCDF	ND	2.20			18-Apr-22 15:35	1
1,2,3,7,8,9-HxCDF	ND	2.53			18-Apr-22 15:35	1
1,2,3,4,6,7,8-HpCDF	ND	3.34			18-Apr-22 15:35	1
1,2,3,4,7,8,9-HpCDF	ND	4.15			18-Apr-22 15:35	1
OCDF	ND	3.29			18-Apr-22 15:35	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	2.79				
Total PeCDD	ND	2.82				
Total HxCDD	ND	4.63				
Total HpCDD	ND	4.06				
Total TCDF	ND	1.85				
Total PeCDF	ND	2.03				
Total HxCDF	ND	2.53				
Total HpCDF	ND	4.15				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	79.9	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,7,8-PeCDD	IS	86.3	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,6,7,8-HxCDD	IS	79.8	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,4,6,7,8-HpCDD	IS	89.9	25 - 130		18-Apr-22 15:35	1
13C-OCDD	IS	87.6	25 - 130		18-Apr-22 15:35	1
13C-2,3,7,8-TCDF	IS	88.6	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,7,8-PeCDF	IS	89.6	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,6,7,8-HxCDF	IS	82.8	40 - 130		18-Apr-22 15:35	1
13C-1,2,3,4,6,7,8-HpCDF	IS	90.3	25 - 130		18-Apr-22 15:35	1
13C-OCDF	IS	95.2	25 - 130		18-Apr-22 15:35	1
13C-1,2,3,7,8,9-HxCDF	AS	89.6	40 - 130		18-Apr-22 15:35	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Field Blank **EPA Method 23**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data
Lab Sample: 2203006-05
QC Batch: B22D008
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column: ZB-DIOXIN

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	3.29			18-Apr-22 16:20	1
1,2,3,7,8-PeCDD	ND	4.13			18-Apr-22 16:20	1
1,2,3,4,7,8-HxCDD	ND	4.59			18-Apr-22 16:20	1
1,2,3,6,7,8-HxCDD	ND	4.46			18-Apr-22 16:20	1
1,2,3,7,8,9-HxCDD	ND	4.52			18-Apr-22 16:20	1
1,2,3,4,6,7,8-HpCDD	ND	6.61			18-Apr-22 16:20	1
OCDD	ND	15.5			18-Apr-22 16:20	1
2,3,7,8-TCDF	ND	1.87			18-Apr-22 16:20	1
1,2,3,7,8-PeCDF	ND	2.10			18-Apr-22 16:20	1
2,3,4,7,8-PeCDF	ND	1.89			18-Apr-22 16:20	1
1,2,3,4,7,8-HxCDF	ND	1.68			18-Apr-22 16:20	1
1,2,3,6,7,8-HxCDF	ND	1.64			18-Apr-22 16:20	1
2,3,4,6,7,8-HxCDF	ND	1.76			18-Apr-22 16:20	1
1,2,3,7,8,9-HxCDF	ND	2.02			18-Apr-22 16:20	1
1,2,3,4,6,7,8-HpCDF	ND	3.60			18-Apr-22 16:20	1
1,2,3,4,7,8,9-HpCDF	ND	4.48			18-Apr-22 16:20	1
OCDF	ND	3.31			18-Apr-22 16:20	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	3.29				
Total PeCDD	ND	4.13				
Total HxCDD	ND	4.59				
Total HpCDD	ND	6.61				
Total TCDF	ND	1.87				
Total PeCDF	ND	2.10				
Total HxCDF	ND	2.02				
Total HpCDF	ND	4.48				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	79.9	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,7,8-PeCDD	IS	89.3	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,6,7,8-HxCDD	IS	86.6	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,6,7,8-HpCDD	IS	92.3	25 - 130		18-Apr-22 16:20	1
13C-OCDD	IS	84.8	25 - 130		18-Apr-22 16:20	1
13C-2,3,7,8-TCDF	IS	91.6	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,7,8-PeCDF	IS	94.2	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,6,7,8-HxCDF	IS	85.2	40 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,6,7,8-HpCDF	IS	89.8	25 - 130		18-Apr-22 16:20	1
13C-OCDF	IS	93.1	25 - 130		18-Apr-22 16:20	1
37Cl-2,3,7,8-TCDD	PS	86.4	70 - 130		18-Apr-22 16:20	1
13C-2,3,4,7,8-PeCDF	PS	101	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,7,8-HxCDD	PS	98.9	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,7,8-HxCDF	PS	101	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,4,7,8,9-HpCDF	PS	101	70 - 130		18-Apr-22 16:20	1
13C-1,2,3,7,8,9-HxCDF	AS	92.8	40 - 130		18-Apr-22 16:20	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Method Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BLK1
QC Batch: B22D009
Date Extracted: 04-Apr-22
Column: ZB-1

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	ND	35.2			13-Apr-22 23:09	1
PCB-18	ND	15.7			13-Apr-22 23:09	1
PCB-28	ND	9.40			13-Apr-22 23:09	1
PCB-44	ND	8.61			13-Apr-22 23:09	1
PCB-52/69	ND		16.0		13-Apr-22 23:09	1
PCB-66/76	17.0			J	13-Apr-22 23:09	1
PCB-77	ND	6.35			13-Apr-22 23:09	1
PCB-81	ND	6.70			13-Apr-22 23:09	1
PCB-90/101	ND		27.7		13-Apr-22 23:09	1
PCB-105	ND	6.65			13-Apr-22 23:09	1
PCB-106/118	ND	6.44			13-Apr-22 23:09	1
PCB-114	ND	6.24			13-Apr-22 23:09	1
PCB-123	ND	6.80			13-Apr-22 23:09	1
PCB-126	ND	6.66			13-Apr-22 23:09	1
PCB-128/162	ND	5.36			13-Apr-22 23:09	1
PCB-138/163/164	ND		18.6		13-Apr-22 23:09	1
PCB-153	ND		22.0		13-Apr-22 23:09	1
PCB-156	ND	4.26			13-Apr-22 23:09	1
PCB-157	ND	4.90			13-Apr-22 23:09	1
PCB-167	ND	4.61			13-Apr-22 23:09	1
PCB-169	ND	4.37			13-Apr-22 23:09	1
PCB-170	ND	6.17			13-Apr-22 23:09	1
PCB-180	ND	6.03			13-Apr-22 23:09	1
PCB-182/187	ND	5.38			13-Apr-22 23:09	1
PCB-189	ND	4.06			13-Apr-22 23:09	1
PCB-195	ND	3.84			13-Apr-22 23:09	1
PCB-206	ND	4.85			13-Apr-22 23:09	1
PCB-209	ND	5.33			13-Apr-22 23:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	77.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-28	IS	73.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-32	IS	79.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-47	IS	78.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-52	IS	77.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-70	IS	76.8	25 - 150		13-Apr-22 23:09	1
13C-PCB-77	IS	76.0	25 - 150		13-Apr-22 23:09	1
13C-PCB-81	IS	76.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-101	IS	78.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-105	IS	69.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-114	IS	70.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-118	IS	81.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-123	IS	82.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-126	IS	62.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-138	IS	78.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-153	IS	77.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-156	IS	81.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-157	IS	81.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-159	IS	79.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-167	IS	77.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-169	IS	83.8	25 - 150		13-Apr-22 23:09	1
13C-PCB-170	IS	87.0	25 - 150		13-Apr-22 23:09	1

Sample ID: Method Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BLK1
QC Batch: B22D009
Date Extracted: 04-Apr-22
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-180	IS	82.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-188	IS	78.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-189	IS	88.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-194	IS	78.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-206	IS	85.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-209	IS	90.3	25 - 150		13-Apr-22 23:09	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: OPR **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BS1
QC Batch: B22D009
Date Extracted: 04-Apr-22 09:05
Column: ZB-1

Analyte	Amt Found (pg/Sa	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
PCB-77	9870	10000	98.7	50-150		13-Apr-22 19:08	1
PCB-81	9440	10000	94.4	50-150		13-Apr-22 19:08	1
PCB-105	9560	10000	95.6	50-150		13-Apr-22 19:08	1
PCB-106/118	20000	20000	99.9	50-150		13-Apr-22 19:08	1
PCB-114	9730	10000	97.3	50-150		13-Apr-22 19:08	1
PCB-123	10100	10000	101	50-150		13-Apr-22 19:08	1
PCB-126	9840	10000	98.4	50-150		13-Apr-22 19:08	1
PCB-156	9500	10000	95.0	50-150		13-Apr-22 19:08	1
PCB-157	9690	10000	96.9	50-150		13-Apr-22 19:08	1
PCB-167	9760	10000	97.6	50-150		13-Apr-22 19:08	1
PCB-169	9900	10000	99.0	50-150		13-Apr-22 19:08	1
PCB-189	10200	10000	102	50-150		13-Apr-22 19:08	1
PCB-206	9430	10000	94.3	50-150		13-Apr-22 19:08	1
PCB-209	9390	10000	93.9	50-150		13-Apr-22 19:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	81.1	30-140		13-Apr-22 19:08	1
13C-PCB-28	IS	89.2	30-140		13-Apr-22 19:08	1
13C-PCB-32	IS	83.3	30-140		13-Apr-22 19:08	1
13C-PCB-47	IS	81.3	30-140		13-Apr-22 19:08	1
13C-PCB-52	IS	81.9	30-140		13-Apr-22 19:08	1
13C-PCB-70	IS	83.9	30-140		13-Apr-22 19:08	1
13C-PCB-77	IS	85.6	30-140		13-Apr-22 19:08	1
13C-PCB-81	IS	86.9	30-140		13-Apr-22 19:08	1
13C-PCB-101	IS	86.1	30-140		13-Apr-22 19:08	1
13C-PCB-105	IS	76.5	30-140		13-Apr-22 19:08	1
13C-PCB-114	IS	76.8	30-140		13-Apr-22 19:08	1
13C-PCB-118	IS	92.9	30-140		13-Apr-22 19:08	1
13C-PCB-123	IS	92.7	30-140		13-Apr-22 19:08	1
13C-PCB-126	IS	72.8	30-140		13-Apr-22 19:08	1
13C-PCB-138	IS	89.3	30-140		13-Apr-22 19:08	1
13C-PCB-153	IS	86.7	30-140		13-Apr-22 19:08	1
13C-PCB-156	IS	92.1	30-140		13-Apr-22 19:08	1
13C-PCB-157	IS	93.8	30-140		13-Apr-22 19:08	1
13C-PCB-159	IS	89.8	30-140		13-Apr-22 19:08	1
13C-PCB-167	IS	91.9	30-140		13-Apr-22 19:08	1
13C-PCB-169	IS	95.3	30-140		13-Apr-22 19:08	1
13C-PCB-170	IS	95.4	30-140		13-Apr-22 19:08	1
13C-PCB-180	IS	90.0	30-140		13-Apr-22 19:08	1
13C-PCB-188	IS	85.0	30-140		13-Apr-22 19:08	1
13C-PCB-189	IS	96.3	30-140		13-Apr-22 19:08	1
13C-PCB-194	IS	89.4	30-140		13-Apr-22 19:08	1
13C-PCB-206	IS	92.7	30-140		13-Apr-22 19:08	1

Sample ID: OPR **EPA Method 1668A**

Client Data		Laboratory Data			
Name:	Montrose Air Quality Services	Lab Sample:	B22D009-BS1		
Project:	Covanta Marion / PROJ-010935	QC Batch:	B22D009	Date Extracted:	04-Apr-22 09:05
Matrix:	Air			Column:	ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-209	IS	98.1	30-140		13-Apr-22 19:08	1

Sample ID: 1-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data
Lab Sample: 2203006-01
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	1230				14-Apr-22 03:11	1
PCB-18	847				14-Apr-22 03:11	1
PCB-28	661				14-Apr-22 03:11	1
PCB-44	374			J	14-Apr-22 03:11	1
PCB-52/69	357			J	14-Apr-22 03:11	1
PCB-66/76	187			J, B	14-Apr-22 03:11	1
PCB-77	45.7			J	14-Apr-22 03:11	1
PCB-81	ND	8.95			14-Apr-22 03:11	1
PCB-90/101	320			J	14-Apr-22 03:11	1
PCB-105	110			J	14-Apr-22 03:11	1
PCB-106/118	234			J	14-Apr-22 03:11	1
PCB-114	ND	23.6			14-Apr-22 03:11	1
PCB-123	ND	11.5			14-Apr-22 03:11	1
PCB-126	ND	23.8			14-Apr-22 03:11	1
PCB-128/162	49.3			J	14-Apr-22 03:11	1
PCB-138/163/164	218			J	14-Apr-22 03:11	1
PCB-153	ND		182		14-Apr-22 03:11	1
PCB-156	ND	10.2			14-Apr-22 03:11	1
PCB-157	ND	11.6			14-Apr-22 03:11	1
PCB-167	ND	10.6			14-Apr-22 03:11	1
PCB-169	ND	11.2			14-Apr-22 03:11	1
PCB-170	ND	19.9			14-Apr-22 03:11	1
PCB-180	61.6			J	14-Apr-22 03:11	1
PCB-182/187	57.9			J	14-Apr-22 03:11	1
PCB-189	ND	15.4			14-Apr-22 03:11	1
PCB-195	ND	28.4			14-Apr-22 03:11	1
PCB-206	ND		95.2		14-Apr-22 03:11	1
PCB-209	207			J	14-Apr-22 03:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	101	25 - 150		14-Apr-22 03:11	1
13C-PCB-28	IS	94.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-32	IS	97.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-47	IS	88.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-52	IS	85.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-70	IS	87.4	25 - 150		14-Apr-22 03:11	1
13C-PCB-77	IS	84.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-81	IS	85.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-101	IS	89.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-105	IS	72.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-114	IS	76.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-118	IS	86.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-123	IS	87.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-126	IS	70.8	25 - 150		14-Apr-22 03:11	1
13C-PCB-138	IS	89.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-153	IS	84.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-156	IS	89.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-157	IS	89.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-159	IS	87.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-167	IS	90.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-169	IS	86.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-170	IS	89.4	25 - 150		14-Apr-22 03:11	1

Sample ID: 1-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data

Lab Sample: 2203006-01
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-180	IS	89.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-188	IS	82.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-189	IS	77.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-194	IS	101	25 - 150		14-Apr-22 03:11	1
13C-PCB-206	IS	92.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-209	IS	99.6	25 - 150		14-Apr-22 03:11	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 2-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data
Lab Sample: 2203006-02
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	3670				14-Apr-22 04:12	1
PCB-18	2520				14-Apr-22 04:12	1
PCB-28	924				14-Apr-22 04:12	1
PCB-44	384			J	14-Apr-22 04:12	1
PCB-52/69	445			J	14-Apr-22 04:12	1
PCB-66/76	188			J, B	14-Apr-22 04:12	1
PCB-77	80.0			J	14-Apr-22 04:12	1
PCB-81	ND	8.14			14-Apr-22 04:12	1
PCB-90/101	237			J	14-Apr-22 04:12	1
PCB-105	56.8			J	14-Apr-22 04:12	1
PCB-106/118	160			J	14-Apr-22 04:12	1
PCB-114	ND	14.1			14-Apr-22 04:12	1
PCB-123	ND	9.50			14-Apr-22 04:12	1
PCB-126	ND	14.0			14-Apr-22 04:12	1
PCB-128/162	29.4			J	14-Apr-22 04:12	1
PCB-138/163/164	114			J	14-Apr-22 04:12	1
PCB-153	ND		82.0		14-Apr-22 04:12	1
PCB-156	15.5			J	14-Apr-22 04:12	1
PCB-157	ND	6.94			14-Apr-22 04:12	1
PCB-167	ND	6.23			14-Apr-22 04:12	1
PCB-169	ND	6.38			14-Apr-22 04:12	1
PCB-170	ND		85.1		14-Apr-22 04:12	1
PCB-180	ND		29.5		14-Apr-22 04:12	1
PCB-182/187	ND		21.9		14-Apr-22 04:12	1
PCB-189	ND	7.23			14-Apr-22 04:12	1
PCB-195	ND	18.5			14-Apr-22 04:12	1
PCB-206	74.9			J	14-Apr-22 04:12	1
PCB-209	180			J	14-Apr-22 04:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	84.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-28	IS	99.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-32	IS	85.6	25 - 150		14-Apr-22 04:12	1
13C-PCB-47	IS	86.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-52	IS	86.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-70	IS	90.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-77	IS	93.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-81	IS	92.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-101	IS	94.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-105	IS	78.6	25 - 150		14-Apr-22 04:12	1
13C-PCB-114	IS	79.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-118	IS	97.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-123	IS	100	25 - 150		14-Apr-22 04:12	1
13C-PCB-126	IS	75.1	25 - 150		14-Apr-22 04:12	1
13C-PCB-138	IS	91.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-153	IS	90.5	25 - 150		14-Apr-22 04:12	1
13C-PCB-156	IS	93.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-157	IS	94.2	25 - 150		14-Apr-22 04:12	1
13C-PCB-159	IS	93.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-167	IS	92.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-169	IS	92.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-170	IS	100	25 - 150		14-Apr-22 04:12	1

Sample ID: 2-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data

Lab Sample: 2203006-02
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-180	IS	96.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-188	IS	94.9	25 - 150		14-Apr-22 04:12	1
13C-PCB-189	IS	90.2	25 - 150		14-Apr-22 04:12	1
13C-PCB-194	IS	99.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-206	IS	98.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-209	IS	99.2	25 - 150		14-Apr-22 04:12	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 3-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data
Lab Sample: 2203006-03
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	339			J	14-Apr-22 05:12	1
PCB-18	217			J	14-Apr-22 05:12	1
PCB-28	157			J	14-Apr-22 05:12	1
PCB-44	ND		99.9		14-Apr-22 05:12	1
PCB-52/69	127			J	14-Apr-22 05:12	1
PCB-66/76	84.6			J, B	14-Apr-22 05:12	1
PCB-77	ND		26.5		14-Apr-22 05:12	1
PCB-81	ND	9.08			14-Apr-22 05:12	1
PCB-90/101	93.0			J	14-Apr-22 05:12	1
PCB-105	34.2			J	14-Apr-22 05:12	1
PCB-106/118	72.3			J	14-Apr-22 05:12	1
PCB-114	ND	8.16			14-Apr-22 05:12	1
PCB-123	ND	7.04			14-Apr-22 05:12	1
PCB-126	ND	8.18			14-Apr-22 05:12	1
PCB-128/162	ND		20.5		14-Apr-22 05:12	1
PCB-138/163/164	76.8			J	14-Apr-22 05:12	1
PCB-153	61.5			J	14-Apr-22 05:12	1
PCB-156	ND	7.53			14-Apr-22 05:12	1
PCB-157	ND	8.11			14-Apr-22 05:12	1
PCB-167	ND	7.88			14-Apr-22 05:12	1
PCB-169	ND	7.79			14-Apr-22 05:12	1
PCB-170	ND		112		14-Apr-22 05:12	1
PCB-180	41.1			J	14-Apr-22 05:12	1
PCB-182/187	ND		19.3		14-Apr-22 05:12	1
PCB-189	ND	5.95			14-Apr-22 05:12	1
PCB-195	ND	13.8			14-Apr-22 05:12	1
PCB-206	92.5			J	14-Apr-22 05:12	1
PCB-209	214			J	14-Apr-22 05:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	79.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-28	IS	90.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-32	IS	85.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-47	IS	79.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-52	IS	80.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-70	IS	83.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-77	IS	83.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-81	IS	84.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-101	IS	83.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-105	IS	72.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-114	IS	72.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-118	IS	87.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-123	IS	90.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-126	IS	68.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-138	IS	83.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-153	IS	81.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-156	IS	88.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-157	IS	88.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-159	IS	86.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-167	IS	86.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-169	IS	89.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-170	IS	94.6	25 - 150		14-Apr-22 05:12	1

Sample ID: 3-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data

Lab Sample: 2203006-03
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-180	IS	93.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-188	IS	84.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-189	IS	97.5	25 - 150		14-Apr-22 05:12	1
13C-PCB-194	IS	92.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-206	IS	89.1	25 - 150		14-Apr-22 05:12	1
13C-PCB-209	IS	91.6	25 - 150		14-Apr-22 05:12	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: RB **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data
Lab Sample: 2203006-04
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	ND	38.8			14-Apr-22 00:10	1
PCB-18	ND	17.7			14-Apr-22 00:10	1
PCB-28	ND	11.0			14-Apr-22 00:10	1
PCB-44	ND	9.05			14-Apr-22 00:10	1
PCB-52/69	ND	6.65			14-Apr-22 00:10	1
PCB-66/76	ND	5.60			14-Apr-22 00:10	1
PCB-77	ND	6.52			14-Apr-22 00:10	1
PCB-81	ND	6.82			14-Apr-22 00:10	1
PCB-90/101	ND	8.34			14-Apr-22 00:10	1
PCB-105	ND	5.90			14-Apr-22 00:10	1
PCB-106/118	ND	6.22			14-Apr-22 00:10	1
PCB-114	ND	5.53			14-Apr-22 00:10	1
PCB-123	ND	6.20			14-Apr-22 00:10	1
PCB-126	ND	5.95			14-Apr-22 00:10	1
PCB-128/162	ND	6.75			14-Apr-22 00:10	1
PCB-138/163/164	ND	5.57			14-Apr-22 00:10	1
PCB-153	ND	5.89			14-Apr-22 00:10	1
PCB-156	ND	5.09			14-Apr-22 00:10	1
PCB-157	ND	5.93			14-Apr-22 00:10	1
PCB-167	ND	5.41			14-Apr-22 00:10	1
PCB-169	ND	5.47			14-Apr-22 00:10	1
PCB-170	ND	13.1			14-Apr-22 00:10	1
PCB-180	ND	11.3			14-Apr-22 00:10	1
PCB-182/187	ND	10.4			14-Apr-22 00:10	1
PCB-189	ND	7.86			14-Apr-22 00:10	1
PCB-195	ND	4.48			14-Apr-22 00:10	1
PCB-206	ND	4.67			14-Apr-22 00:10	1
PCB-209	ND	3.36			14-Apr-22 00:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	67.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-28	IS	65.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-32	IS	69.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-47	IS	68.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-52	IS	68.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-70	IS	70.1	25 - 150		14-Apr-22 00:10	1
13C-PCB-77	IS	67.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-81	IS	68.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-101	IS	69.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-105	IS	60.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-114	IS	62.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-118	IS	73.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-123	IS	74.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-126	IS	55.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-138	IS	69.5	25 - 150		14-Apr-22 00:10	1
13C-PCB-153	IS	66.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-156	IS	71.2	25 - 150		14-Apr-22 00:10	1
13C-PCB-157	IS	71.2	25 - 150		14-Apr-22 00:10	1
13C-PCB-159	IS	68.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-167	IS	70.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-169	IS	72.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-170	IS	75.7	25 - 150		14-Apr-22 00:10	1

Sample ID: RB **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data

Lab Sample: 2203006-04
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-180	IS	75.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-188	IS	68.7	25 - 150		14-Apr-22 00:10	1
13C-PCB-189	IS	80.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-194	IS	71.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-206	IS	75.1	25 - 150		14-Apr-22 00:10	1
13C-PCB-209	IS	83.1	25 - 150		14-Apr-22 00:10	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Field Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data
Lab Sample: 2203006-05
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-5/8	ND	39.5			14-Apr-22 01:10	1
PCB-18	ND	22.0			14-Apr-22 01:10	1
PCB-28	ND	12.0			14-Apr-22 01:10	1
PCB-44	ND	10.9			14-Apr-22 01:10	1
PCB-52/69	ND		22.9		14-Apr-22 01:10	1
PCB-66/76	ND	6.80			14-Apr-22 01:10	1
PCB-77	ND	8.00			14-Apr-22 01:10	1
PCB-81	ND	8.14			14-Apr-22 01:10	1
PCB-90/101	ND	7.64			14-Apr-22 01:10	1
PCB-105	ND	8.48			14-Apr-22 01:10	1
PCB-106/118	ND		9.21		14-Apr-22 01:10	1
PCB-114	ND	7.91			14-Apr-22 01:10	1
PCB-123	ND	5.95			14-Apr-22 01:10	1
PCB-126	ND	8.42			14-Apr-22 01:10	1
PCB-128/162	ND	7.07			14-Apr-22 01:10	1
PCB-138/163/164	15.2			J	14-Apr-22 01:10	1
PCB-153	ND	5.89			14-Apr-22 01:10	1
PCB-156	ND	5.53			14-Apr-22 01:10	1
PCB-157	ND	6.49			14-Apr-22 01:10	1
PCB-167	ND	5.73			14-Apr-22 01:10	1
PCB-169	ND	5.89			14-Apr-22 01:10	1
PCB-170	ND	7.26			14-Apr-22 01:10	1
PCB-180	ND	6.71			14-Apr-22 01:10	1
PCB-182/187	ND	5.52			14-Apr-22 01:10	1
PCB-189	ND	4.49			14-Apr-22 01:10	1
PCB-195	ND	4.26			14-Apr-22 01:10	1
PCB-206	ND	2.02			14-Apr-22 01:10	1
PCB-209	ND	2.90			14-Apr-22 01:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-9	IS	79.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-28	IS	67.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-32	IS	83.0	25 - 150		14-Apr-22 01:10	1
13C-PCB-47	IS	73.8	25 - 150		14-Apr-22 01:10	1
13C-PCB-52	IS	73.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-70	IS	72.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-77	IS	70.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-81	IS	72.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-101	IS	76.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-105	IS	64.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-114	IS	65.2	25 - 150		14-Apr-22 01:10	1
13C-PCB-118	IS	77.0	25 - 150		14-Apr-22 01:10	1
13C-PCB-123	IS	79.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-126	IS	58.2	25 - 150		14-Apr-22 01:10	1
13C-PCB-138	IS	73.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-153	IS	73.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-156	IS	73.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-157	IS	72.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-159	IS	71.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-167	IS	75.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-169	IS	74.8	25 - 150		14-Apr-22 01:10	1
13C-PCB-170	IS	77.5	25 - 150		14-Apr-22 01:10	1

Sample ID: Field Blank **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data

Lab Sample: 2203006-05
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-180	IS	72.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-188	IS	72.6	25 - 150		14-Apr-22 01:10	1
13C-PCB-189	IS	79.6	25 - 150		14-Apr-22 01:10	1
13C-PCB-194	IS	75.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-206	IS	80.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-209	IS	84.9	25 - 150		14-Apr-22 01:10	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Method Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BLK1
QC Batch: B22D009
Date Extracted: 04-Apr-22
Column: ZB-1

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
Totals						
Total monoCB	ND	6.38			13-Apr-22 23:09	1
Total diCB	ND	45.0			13-Apr-22 23:09	1
Total triCB	ND	16.8			13-Apr-22 23:09	1
Total tetraCB	65.0		95.3	J	13-Apr-22 23:09	1
Total pentaCB	ND		38.6		13-Apr-22 23:09	1
Total hexaCB	ND		40.6		13-Apr-22 23:09	1
Total heptaCB	ND	7.35			13-Apr-22 23:09	1
Total octaCB	ND	6.71			13-Apr-22 23:09	1
Total nonaCB	ND	4.85			13-Apr-22 23:09	1
DecaCB	ND	5.33			13-Apr-22 23:09	1
Total PCB	65.0			J	13-Apr-22 23:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	78.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-3	IS	76.8	25 - 150		13-Apr-22 23:09	1
13C-PCB-4	IS	77.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-11	IS	77.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-9	IS	77.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-19	IS	80.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-28	IS	73.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-32	IS	79.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-37	IS	75.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-47	IS	78.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-52	IS	77.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-54	IS	76.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-70	IS	76.8	25 - 150		13-Apr-22 23:09	1
13C-PCB-77	IS	76.0	25 - 150		13-Apr-22 23:09	1
13C-PCB-80	IS	76.8	25 - 150		13-Apr-22 23:09	1
13C-PCB-81	IS	76.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-95	IS	77.9	25 - 150		13-Apr-22 23:09	1
13C-PCB-97	IS	78.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-101	IS	78.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-104	IS	79.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-105	IS	69.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-114	IS	70.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-118	IS	81.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-123	IS	82.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-126	IS	62.7	25 - 150		13-Apr-22 23:09	1
13C-PCB-127	IS	68.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-138	IS	78.3	25 - 150		13-Apr-22 23:09	1
13C-PCB-141	IS	78.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-153	IS	77.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-155	IS	77.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-156	IS	81.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-157	IS	81.4	25 - 150		13-Apr-22 23:09	1
13C-PCB-159	IS	79.5	25 - 150		13-Apr-22 23:09	1
13C-PCB-167	IS	77.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-169	IS	83.8	25 - 150		13-Apr-22 23:09	1
13C-PCB-170	IS	87.0	25 - 150		13-Apr-22 23:09	1
13C-PCB-180	IS	82.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-188	IS	78.4	25 - 150		13-Apr-22 23:09	1

Sample ID: Method Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BLK1
QC Batch: B22D009
Date Extracted: 04-Apr-22
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-189	IS	88.6	25 - 150		13-Apr-22 23:09	1
13C-PCB-194	IS	78.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-202	IS	79.0	25 - 150		13-Apr-22 23:09	1
13C-PCB-206	IS	85.2	25 - 150		13-Apr-22 23:09	1
13C-PCB-208	IS	85.1	25 - 150		13-Apr-22 23:09	1
13C-PCB-209	IS	90.3	25 - 150		13-Apr-22 23:09	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: OPR **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BS1
QC Batch: B22D009
Date Extracted: 04-Apr-22 09:05
Column: ZB-1

Analyte	Amt Found (pg/Sa	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
PCB-3	10200	10000	102	50-150		13-Apr-22 19:08	1
PCB-15	9720	10000	97.2	50-150		13-Apr-22 19:08	1
PCB-28	9050	10000	90.5	50-150		13-Apr-22 19:08	1
PCB-77	9870	10000	98.7	50-150		13-Apr-22 19:08	1
PCB-106/118	20000	20000	99.9	50-150		13-Apr-22 19:08	1
PCB-156	9500	10000	95.0	50-150		13-Apr-22 19:08	1
PCB-180	10300	10000	103	50-150		13-Apr-22 19:08	1
PCB-202	9590	10000	95.9	50-150		13-Apr-22 19:08	1
PCB-207	10000	10000	100	50-150		13-Apr-22 19:08	1
PCB-209	9390	10000	93.9	50-150		13-Apr-22 19:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	82.3	30-140		13-Apr-22 19:08	1
13C-PCB-3	IS	82.4	30-140		13-Apr-22 19:08	1
13C-PCB-4	IS	78.5	30-140		13-Apr-22 19:08	1
13C-PCB-11	IS	82.4	30-140		13-Apr-22 19:08	1
13C-PCB-9	IS	81.1	30-140		13-Apr-22 19:08	1
13C-PCB-19	IS	81.5	30-140		13-Apr-22 19:08	1
13C-PCB-28	IS	89.2	30-140		13-Apr-22 19:08	1
13C-PCB-32	IS	83.3	30-140		13-Apr-22 19:08	1
13C-PCB-37	IS	87.1	30-140		13-Apr-22 19:08	1
13C-PCB-47	IS	81.3	30-140		13-Apr-22 19:08	1
13C-PCB-52	IS	81.9	30-140		13-Apr-22 19:08	1
13C-PCB-54	IS	80.0	30-140		13-Apr-22 19:08	1
13C-PCB-70	IS	83.9	30-140		13-Apr-22 19:08	1
13C-PCB-77	IS	85.6	30-140		13-Apr-22 19:08	1
13C-PCB-80	IS	81.3	30-140		13-Apr-22 19:08	1
13C-PCB-81	IS	86.9	30-140		13-Apr-22 19:08	1
13C-PCB-95	IS	84.7	30-140		13-Apr-22 19:08	1
13C-PCB-97	IS	87.3	30-140		13-Apr-22 19:08	1
13C-PCB-101	IS	86.1	30-140		13-Apr-22 19:08	1
13C-PCB-104	IS	83.9	30-140		13-Apr-22 19:08	1
13C-PCB-105	IS	76.5	30-140		13-Apr-22 19:08	1
13C-PCB-114	IS	76.8	30-140		13-Apr-22 19:08	1
13C-PCB-118	IS	92.9	30-140		13-Apr-22 19:08	1
13C-PCB-123	IS	92.7	30-140		13-Apr-22 19:08	1
13C-PCB-126	IS	72.8	30-140		13-Apr-22 19:08	1
13C-PCB-127	IS	78.7	30-140		13-Apr-22 19:08	1
13C-PCB-138	IS	89.3	30-140		13-Apr-22 19:08	1
13C-PCB-141	IS	86.0	30-140		13-Apr-22 19:08	1
13C-PCB-153	IS	86.7	30-140		13-Apr-22 19:08	1
13C-PCB-155	IS	84.1	30-140		13-Apr-22 19:08	1
13C-PCB-156	IS	92.1	30-140		13-Apr-22 19:08	1

Sample ID: OPR **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D009-BS1
QC Batch: B22D009
Date Extracted: 04-Apr-22 09:05
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-157	IS	93.8	30-140		13-Apr-22 19:08	1
13C-PCB-159	IS	89.8	30-140		13-Apr-22 19:08	1
13C-PCB-167	IS	91.9	30-140		13-Apr-22 19:08	1
13C-PCB-169	IS	95.3	30-140		13-Apr-22 19:08	1
13C-PCB-170	IS	95.4	30-140		13-Apr-22 19:08	1
13C-PCB-180	IS	90.0	30-140		13-Apr-22 19:08	1
13C-PCB-188	IS	85.0	30-140		13-Apr-22 19:08	1
13C-PCB-189	IS	96.3	30-140		13-Apr-22 19:08	1
13C-PCB-194	IS	89.4	30-140		13-Apr-22 19:08	1
13C-PCB-202	IS	89.5	30-140		13-Apr-22 19:08	1
13C-PCB-206	IS	92.7	30-140		13-Apr-22 19:08	1
13C-PCB-208	IS	98.7	30-140		13-Apr-22 19:08	1
13C-PCB-209	IS	98.1	30-140		13-Apr-22 19:08	1

Sample ID: 1-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data
Lab Sample: 2203006-01
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
Totals						
Total monoCB	1220				14-Apr-22 03:11	1
Total diCB	3810		4010		14-Apr-22 03:11	1
Total triCB	4250		4600		14-Apr-22 03:11	1
Total tetraCB	2540		3170	B	14-Apr-22 03:11	1
Total pentaCB	1440		1690		14-Apr-22 03:11	1
Total hexaCB	561		962		14-Apr-22 03:11	1
Total heptaCB	182		245	J	14-Apr-22 03:11	1
Total octaCB	ND	28.8			14-Apr-22 03:11	1
Total nonaCB	ND		95.2		14-Apr-22 03:11	1
DecaCB	207			J	14-Apr-22 03:11	1
Total PCB	14200			B	14-Apr-22 03:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	97.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-3	IS	98.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-4	IS	94.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-11	IS	92.8	25 - 150		14-Apr-22 03:11	1
13C-PCB-9	IS	101	25 - 150		14-Apr-22 03:11	1
13C-PCB-19	IS	93.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-28	IS	94.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-32	IS	97.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-37	IS	90.4	25 - 150		14-Apr-22 03:11	1
13C-PCB-47	IS	88.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-52	IS	85.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-54	IS	79.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-70	IS	87.4	25 - 150		14-Apr-22 03:11	1
13C-PCB-77	IS	84.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-80	IS	88.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-81	IS	85.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-95	IS	82.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-97	IS	89.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-101	IS	89.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-104	IS	87.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-105	IS	72.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-114	IS	76.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-118	IS	86.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-123	IS	87.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-126	IS	70.8	25 - 150		14-Apr-22 03:11	1
13C-PCB-127	IS	76.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-138	IS	89.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-141	IS	89.5	25 - 150		14-Apr-22 03:11	1
13C-PCB-153	IS	84.6	25 - 150		14-Apr-22 03:11	1
13C-PCB-155	IS	82.3	25 - 150		14-Apr-22 03:11	1
13C-PCB-156	IS	89.2	25 - 150		14-Apr-22 03:11	1
13C-PCB-157	IS	89.1	25 - 150		14-Apr-22 03:11	1
13C-PCB-159	IS	87.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-167	IS	90.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-169	IS	86.0	25 - 150		14-Apr-22 03:11	1
13C-PCB-170	IS	89.4	25 - 150		14-Apr-22 03:11	1
13C-PCB-180	IS	89.9	25 - 150		14-Apr-22 03:11	1
13C-PCB-188	IS	82.7	25 - 150		14-Apr-22 03:11	1

Sample ID: 1-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 20:20

Laboratory Data

Lab Sample: 2203006-01
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-189	IS	77.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-194	IS	101	25 - 150		14-Apr-22 03:11	1
13C-PCB-202	IS	90.3	25 - 150		14-Apr-22 03:11	1
13C-PCB-206	IS	92.7	25 - 150		14-Apr-22 03:11	1
13C-PCB-208	IS	112	25 - 150		14-Apr-22 03:11	1
13C-PCB-209	IS	99.6	25 - 150		14-Apr-22 03:11	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 2-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data
Lab Sample: 2203006-02
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
Totals						
Total monoCB	1990				14-Apr-22 04:12	1
Total diCB	8710		9460		14-Apr-22 04:12	1
Total triCB	8700		8870		14-Apr-22 04:12	1
Total tetraCB	3160		3460	B	14-Apr-22 04:12	1
Total pentaCB	652		1150		14-Apr-22 04:12	1
Total hexaCB	380		535	J	14-Apr-22 04:12	1
Total heptaCB	27.5		164	J	14-Apr-22 04:12	1
Total octaCB	57.3			J	14-Apr-22 04:12	1
Total nonaCB	74.9			J	14-Apr-22 04:12	1
DecaCB	180			J	14-Apr-22 04:12	1
Total PCB	23900			B	14-Apr-22 04:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	80.5	25 - 150		14-Apr-22 04:12	1
13C-PCB-3	IS	84.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-4	IS	80.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-11	IS	86.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-9	IS	84.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-19	IS	83.1	25 - 150		14-Apr-22 04:12	1
13C-PCB-28	IS	99.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-32	IS	85.6	25 - 150		14-Apr-22 04:12	1
13C-PCB-37	IS	100	25 - 150		14-Apr-22 04:12	1
13C-PCB-47	IS	86.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-52	IS	86.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-54	IS	79.5	25 - 150		14-Apr-22 04:12	1
13C-PCB-70	IS	90.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-77	IS	93.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-80	IS	89.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-81	IS	92.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-95	IS	89.1	25 - 150		14-Apr-22 04:12	1
13C-PCB-97	IS	95.2	25 - 150		14-Apr-22 04:12	1
13C-PCB-101	IS	94.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-104	IS	88.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-105	IS	78.6	25 - 150		14-Apr-22 04:12	1
13C-PCB-114	IS	79.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-118	IS	97.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-123	IS	100	25 - 150		14-Apr-22 04:12	1
13C-PCB-126	IS	75.1	25 - 150		14-Apr-22 04:12	1
13C-PCB-127	IS	80.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-138	IS	91.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-141	IS	92.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-153	IS	90.5	25 - 150		14-Apr-22 04:12	1
13C-PCB-155	IS	89.1	25 - 150		14-Apr-22 04:12	1
13C-PCB-156	IS	93.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-157	IS	94.2	25 - 150		14-Apr-22 04:12	1
13C-PCB-159	IS	93.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-167	IS	92.8	25 - 150		14-Apr-22 04:12	1
13C-PCB-169	IS	92.4	25 - 150		14-Apr-22 04:12	1
13C-PCB-170	IS	100	25 - 150		14-Apr-22 04:12	1
13C-PCB-180	IS	96.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-188	IS	94.9	25 - 150		14-Apr-22 04:12	1

Sample ID: 2-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:05

Laboratory Data

Lab Sample: 2203006-02
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-189	IS	90.2	25 - 150		14-Apr-22 04:12	1
13C-PCB-194	IS	99.3	25 - 150		14-Apr-22 04:12	1
13C-PCB-202	IS	92.7	25 - 150		14-Apr-22 04:12	1
13C-PCB-206	IS	98.0	25 - 150		14-Apr-22 04:12	1
13C-PCB-208	IS	110	25 - 150		14-Apr-22 04:12	1
13C-PCB-209	IS	99.2	25 - 150		14-Apr-22 04:12	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: 3-EPA 23 **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data
Lab Sample: 2203006-03
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
Totals						
Total monoCB	1070				14-Apr-22 05:12	1
Total diCB	758				14-Apr-22 05:12	1
Total triCB	620		1110		14-Apr-22 05:12	1
Total tetraCB	502		1110	B	14-Apr-22 05:12	1
Total pentaCB	449		530		14-Apr-22 05:12	1
Total hexaCB	167		278	J	14-Apr-22 05:12	1
Total heptaCB	51.6		212	J	14-Apr-22 05:12	1
Total octaCB	80.1		111	J	14-Apr-22 05:12	1
Total nonaCB	92.5		120	J	14-Apr-22 05:12	1
DecaCB	214			J	14-Apr-22 05:12	1
Total PCB	4000			B	14-Apr-22 05:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	79.0	25 - 150		14-Apr-22 05:12	1
13C-PCB-3	IS	77.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-4	IS	73.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-11	IS	82.5	25 - 150		14-Apr-22 05:12	1
13C-PCB-9	IS	79.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-19	IS	84.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-28	IS	90.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-32	IS	85.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-37	IS	91.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-47	IS	79.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-52	IS	80.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-54	IS	75.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-70	IS	83.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-77	IS	83.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-80	IS	82.0	25 - 150		14-Apr-22 05:12	1
13C-PCB-81	IS	84.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-95	IS	81.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-97	IS	83.1	25 - 150		14-Apr-22 05:12	1
13C-PCB-101	IS	83.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-104	IS	80.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-105	IS	72.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-114	IS	72.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-118	IS	87.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-123	IS	90.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-126	IS	68.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-127	IS	72.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-138	IS	83.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-141	IS	84.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-153	IS	81.9	25 - 150		14-Apr-22 05:12	1
13C-PCB-155	IS	84.3	25 - 150		14-Apr-22 05:12	1
13C-PCB-156	IS	88.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-157	IS	88.4	25 - 150		14-Apr-22 05:12	1
13C-PCB-159	IS	86.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-167	IS	86.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-169	IS	89.2	25 - 150		14-Apr-22 05:12	1
13C-PCB-170	IS	94.6	25 - 150		14-Apr-22 05:12	1
13C-PCB-180	IS	93.8	25 - 150		14-Apr-22 05:12	1
13C-PCB-188	IS	84.6	25 - 150		14-Apr-22 05:12	1

Sample ID: 3-EPA 23 **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 19:16

Laboratory Data

Lab Sample: 2203006-03
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-189	IS	97.5	25 - 150		14-Apr-22 05:12	1
13C-PCB-194	IS	92.7	25 - 150		14-Apr-22 05:12	1
13C-PCB-202	IS	89.1	25 - 150		14-Apr-22 05:12	1
13C-PCB-206	IS	89.1	25 - 150		14-Apr-22 05:12	1
13C-PCB-208	IS	102	25 - 150		14-Apr-22 05:12	1
13C-PCB-209	IS	91.6	25 - 150		14-Apr-22 05:12	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: RB **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data
Lab Sample: 2203006-04
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
Totals						
Total monoCB	ND	6.76			14-Apr-22 00:10	1
Total diCB	ND	50.9			14-Apr-22 00:10	1
Total triCB	ND	19.2			14-Apr-22 00:10	1
Total tetraCB	ND	12.0			14-Apr-22 00:10	1
Total pentaCB	ND	10.7			14-Apr-22 00:10	1
Total hexaCB	ND	8.49			14-Apr-22 00:10	1
Total heptaCB	ND	13.8			14-Apr-22 00:10	1
Total octaCB	ND	5.10			14-Apr-22 00:10	1
Total nonaCB	ND	4.67			14-Apr-22 00:10	1
DecaCB	ND	3.36			14-Apr-22 00:10	1
Total PCB	ND				14-Apr-22 00:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	65.7	25 - 150		14-Apr-22 00:10	1
13C-PCB-3	IS	63.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-4	IS	63.5	25 - 150		14-Apr-22 00:10	1
13C-PCB-11	IS	68.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-9	IS	67.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-19	IS	66.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-28	IS	65.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-32	IS	69.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-37	IS	64.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-47	IS	68.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-52	IS	68.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-54	IS	66.2	25 - 150		14-Apr-22 00:10	1
13C-PCB-70	IS	70.1	25 - 150		14-Apr-22 00:10	1
13C-PCB-77	IS	67.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-80	IS	69.0	25 - 150		14-Apr-22 00:10	1
13C-PCB-81	IS	68.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-95	IS	69.0	25 - 150		14-Apr-22 00:10	1
13C-PCB-97	IS	71.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-101	IS	69.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-104	IS	69.7	25 - 150		14-Apr-22 00:10	1
13C-PCB-105	IS	60.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-114	IS	62.6	25 - 150		14-Apr-22 00:10	1
13C-PCB-118	IS	73.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-123	IS	74.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-126	IS	55.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-127	IS	60.9	25 - 150		14-Apr-22 00:10	1
13C-PCB-138	IS	69.5	25 - 150		14-Apr-22 00:10	1
13C-PCB-141	IS	69.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-153	IS	66.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-155	IS	71.0	25 - 150		14-Apr-22 00:10	1
13C-PCB-156	IS	71.2	25 - 150		14-Apr-22 00:10	1
13C-PCB-157	IS	71.2	25 - 150		14-Apr-22 00:10	1
13C-PCB-159	IS	68.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-167	IS	70.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-169	IS	72.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-170	IS	75.7	25 - 150		14-Apr-22 00:10	1
13C-PCB-180	IS	75.4	25 - 150		14-Apr-22 00:10	1
13C-PCB-188	IS	68.7	25 - 150		14-Apr-22 00:10	1

Sample ID: RB **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 17:54

Laboratory Data

Lab Sample: 2203006-04
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-189	IS	80.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-194	IS	71.3	25 - 150		14-Apr-22 00:10	1
13C-PCB-202	IS	70.8	25 - 150		14-Apr-22 00:10	1
13C-PCB-206	IS	75.1	25 - 150		14-Apr-22 00:10	1
13C-PCB-208	IS	77.7	25 - 150		14-Apr-22 00:10	1
13C-PCB-209	IS	83.1	25 - 150		14-Apr-22 00:10	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: Field Blank **EPA Method 1668A**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data
Lab Sample: 2203006-05
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Analyte	Conc. (pg/Sample)	EDL	EMPC	Qualifiers	Analyzed	Dilution
Totals						
Total monoCB	ND	7.46			14-Apr-22 01:10	1
Total diCB	ND	50.6			14-Apr-22 01:10	1
Total triCB	ND	23.5			14-Apr-22 01:10	1
Total tetraCB	ND		22.9		14-Apr-22 01:10	1
Total pentaCB	ND		23.7		14-Apr-22 01:10	1
Total hexaCB	15.3		30.6	J	14-Apr-22 01:10	1
Total heptaCB	ND	8.18			14-Apr-22 01:10	1
Total octaCB	ND	4.74			14-Apr-22 01:10	1
Total nonaCB	ND	2.02			14-Apr-22 01:10	1
DecaCB	ND	2.90			14-Apr-22 01:10	1
Total PCB	15.3			J, B	14-Apr-22 01:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	76.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-3	IS	78.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-4	IS	76.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-11	IS	77.8	25 - 150		14-Apr-22 01:10	1
13C-PCB-9	IS	79.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-19	IS	81.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-28	IS	67.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-32	IS	83.0	25 - 150		14-Apr-22 01:10	1
13C-PCB-37	IS	70.6	25 - 150		14-Apr-22 01:10	1
13C-PCB-47	IS	73.8	25 - 150		14-Apr-22 01:10	1
13C-PCB-52	IS	73.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-54	IS	70.2	25 - 150		14-Apr-22 01:10	1
13C-PCB-70	IS	72.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-77	IS	70.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-80	IS	72.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-81	IS	72.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-95	IS	74.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-97	IS	76.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-101	IS	76.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-104	IS	77.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-105	IS	64.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-114	IS	65.2	25 - 150		14-Apr-22 01:10	1
13C-PCB-118	IS	77.0	25 - 150		14-Apr-22 01:10	1
13C-PCB-123	IS	79.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-126	IS	58.2	25 - 150		14-Apr-22 01:10	1
13C-PCB-127	IS	62.8	25 - 150		14-Apr-22 01:10	1
13C-PCB-138	IS	73.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-141	IS	72.0	25 - 150		14-Apr-22 01:10	1
13C-PCB-153	IS	73.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-155	IS	72.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-156	IS	73.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-157	IS	72.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-159	IS	71.3	25 - 150		14-Apr-22 01:10	1
13C-PCB-167	IS	75.9	25 - 150		14-Apr-22 01:10	1
13C-PCB-169	IS	74.8	25 - 150		14-Apr-22 01:10	1
13C-PCB-170	IS	77.5	25 - 150		14-Apr-22 01:10	1
13C-PCB-180	IS	72.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-188	IS	72.6	25 - 150		14-Apr-22 01:10	1

Sample ID: Field Blank **EPA Method 1668A**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Marion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 13:50

Laboratory Data

Lab Sample: 2203006-05
QC Batch: B22D009
Date Received: 14-Mar-22 12:52
Date Extracted: 04-Apr-22
Column:

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-189	IS	79.6	25 - 150		14-Apr-22 01:10	1
13C-PCB-194	IS	75.4	25 - 150		14-Apr-22 01:10	1
13C-PCB-202	IS	72.1	25 - 150		14-Apr-22 01:10	1
13C-PCB-206	IS	80.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-208	IS	81.7	25 - 150		14-Apr-22 01:10	1
13C-PCB-209	IS	84.9	25 - 150		14-Apr-22 01:10	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Pennsylvania Department of Environmental Protection	018
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MONTROSE AIR QUALITY SERVICES

CHAIN OF CUSTODY

Portland Location
13585 NE Whitaker Way
Portland, OR 97230
(503) 255-5050

Lab info: 2203006
3.5°C, 2.5°C, 2.9°C Vista Analytical
El Dorado Hills, CA

Client / Project:	**Project / Sample Location:**	**Test / Analytical Method:**
Covanta Maion	Chronic Unit	EPA 23 (PCDD / PCDF/ PCB)
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Reporting Instructions:**
Send Analytical Report To: Portland QA/QC: : PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	**Sampler or PM Signature:** Peter Becker	Dioxins/Furans (PCDD/PCDF), Polychlorinated Biphenyls (PCB),

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-EPA 23	3.10.22	20:20	1	Container 1 - filter	--	
"	3.10.22	20:10	1	Adsorbent module	XAD-2	
"	3.10.22	20:29	1	Cont. 2.1 - F1/2 and B1/2 rinses - acetone	acetone	
"	3.10.22	20:46	1	Container 2.2 - F1/2 and B1/2 rinses - toluene	toluene	
"	3.10.22	20:38	1	Container 3.1 Impinger Contents + Acetone rinse	DI + Acetone + Toluene	
~~"~~			~~1~~	~~Container 3.2 Impinger touene rinse~~	~~Toluene~~	
2-EPA 23	3.10.22	17:05	~~6~~ 5	Same as run 1	acetone / Toluene	
3-EPA 23	3.11.22	19:16	~~6~~ 5	Same as run 1	toluene / Toluene	
RB-Acetone	3.11.22	17:54	1	acetone reagent blank	acetone	
RB-Toluene	3.11.22	17:56	1	toluene reagent blank	toluene	
RB-DI	3.11.22	17:58	1	DI reagent Blank	DI	
Field Blank	3.10.22	13:50	~~6~~ 5	Field Train Proof Blank	Acetone + Toluene	
Total Containers			~~24~~ 27			

Relinquished by	Date	Time	Received by	Date	Time	Temp.
Peter Becker	3.11.22	19:30	Esha	3/14/22	10 00	
Relinquished by	Date	Time	Received by	Date	Time	Temp.
	3/14/22	12:52		03/14/22	1252	
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: PCDD = Polychlorinated Dibenzo-p-Dioxin, PCDF = Polychlorinated Dibenzofuran, FB = Field Blank, RB = Reagent Blank

Vista Analytical Laboratory

Sample Log-In Checklist

Vista Work Order #: 2203006 TAT 5+d

Samples Arrival:	**Date/Time** 03/14/22 1252		**Initials:** WS		**Location:** WR-2 **Shelf/Rack:** N/A		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 3.6 (uncorrected) **Temp °C:** 3.5 (corrected)	**Probe used: Y / N**				**Thermometer ID:** IR-3		

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill → ① Trk # ~			✓
Shipping Documentation Present?			✓
Shipping Container: Vista / Client / Retain / Return / Dispose			
Chain of Custody / Sample Documentation Present?			③✓
Chain of Custody / Sample Documentation Complete?			✓
Holding Time Acceptable?			✓

Logged In:	**Date/Time** 03/14/22 14:31	**Initials:** MA	**Location:** R-9 **Shelf/Rack:** N/A	
COC Anomaly/Sample Acceptance Form completed?			✓	✓

Comments: ③ COCs received with cooler ⑤

Rinses + filters received in this cooler

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 2 of 3

Vista Work Order #: 2203006 TAT STL

Samples Arrival:	**Date/Time** 03/14/22 1252		**Initials:** MWS		**Location:** WR-2 **Shelf/Rack:** N/A		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 2.6 (uncorrected) **Temp °C:** 2.5 (corrected)			**Probe used: Y / (N)**			**Thermometer ID:** IR-3	

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill — (2) Trk # —			✓
Shipping Documentation Present?			✓
Shipping Container: (Vista) Client (Retain) Return Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 03/14/22 14:31	**Initials:** NA	**Location:** R-9 **Shelf/Rack:** N/A	
COC Anomaly/Sample Acceptance Form completed?			✓	✓

Comments:

Vista Analytical Laboratory

Sample Log-In Checklist

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Vista Work Order #: 2203006 TAT std

Samples Arrival:	**Date/Time** 03/14/22 1252		**Initials:** WWS		**Location:** WR-2 **Shelf/Rack:** N/a		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: -2.9°C (uncorrected) **Temp °C:** -2.9°C (corrected)			**Probe used:** (Y) / N			**Thermometer ID:** DT-3	

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill — (3) Trk # —			✓
Shipping Documentation Present?			✓
Shipping Container: Vista / Client / Retain / Return / Dispose			
Chain of Custody / Sample Documentation Present?			(3) ✓
Chain of Custody / Sample Documentation Complete?			✓
Holding Time Acceptable?			✓

Logged In:	**Date/Time** 03/14/22 14:31	**Initials:** KS	**Location:** R-9 **Shelf/Rack:** N/A	
COC Anomaly/Sample Acceptance Form completed?			✓	✓

Comments: (3) COC received with other cooler (2)

XADs received in this cooler

CoC/Label Reconciliation Report WO# 2203006

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2203006-01	B 1-EPA 23		10-Mar-22 20:20 ☐	Filter	Air	
2203006-01	C 1-EPA 23		10-Mar-22 20:20 ☐	XAD	Air	
2203006-01	D 1-EPA 23		10-Mar-22 20:20 ☐	FH/BH Rinse-Acetone	Air	
2203006-01	E 1-EPA 23		10-Mar-22 20:20 ☐	FH/BH Rinse-Toluene	Air	
2203006-01	F 1-EPA 23		10-Mar-22 20:20 ☐	Imp contents + Acetone rinse	Air	
2203006-02	B 2-EPA 23		11-Mar-22 17:05 ☐	Filter	Air	
2203006-02	C 2-EPA 23		11-Mar-22 17:05 ☐	XAD	Air	
2203006-02	D 2-EPA 23		11-Mar-22 17:05 ☐	FH/BH Rinse-Acetone	Air	
2203006-02	E 2-EPA 23		11-Mar-22 17:05 ☐	FH/BH Rinse-Toluene	Air	
2203006-02	F 2-EPA 23		11-Mar-22 17:05 ☐	Imp contents + Acetone rinse	Air	
2203006-03	B 3-EPA 23		11-Mar-22 19:16 ☐	Filter	Air	
2203006-03	C 3-EPA 23		11-Mar-22 19:16 ☐	XAD	Air	
2203006-03	D 3-EPA 23		11-Mar-22 19:16 ☐	FH/BH Rinse-Acetone	Air	
2203006-03	E 3-EPA 23		11-Mar-22 19:16 ☐	FH/BH Rinse-Toluene	Air	
2203006-03	F 3-EPA 23		11-Mar-22 19:16 ☐	Imp contents + Acetone rinse	Air	
2203006-04	B RB		11-Mar-22 17:54 ☐	Acetone	Air	
2203006-04	C RB		11-Mar-22 17:54 ☐	Toluene	Air	
2203006-04	D RB		11-Mar-22 17:54 ☐	DI Water	Air	
2203006-05	B Field Blank		11-Mar-22 13:50 ☐	Filter	Air	
2203006-05	C Field Blank		11-Mar-22 13:50 ☐	XAD	Air	
2203006-05	D Field Blank		11-Mar-22 13:50 ☐	FH/BH Rinse-Acetone	Air	
2203006-05	E Field Blank		11-Mar-22 13:50 ☐	FH/BH Rinse-Toluene	Air	
2203006-05	F Field Blank		11-Mar-22 13:50 ☐	Imp contents + Acetone rinse	Air	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments: A) No time listed on sample label

C1 = Cooler 1 of 3

C2 = Cooler 2 of 3

C3 = Cooler 3 of 3

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None) Other

Verifed by/Date: JA 03/17/22

W006AS-010935D-RT-2059R1
684 of 823

Appendix C.5
PAH Analyses

April 18, 2022

Vista Work Order No. 2203007

Mr. Peter Becker
Montrose Air Quality Services
13585 NE Whitaker Way
Portland, OR 97230

Dear Mr. Becker,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on March 14, 2022 under your Project Name 'Covanta Maion / PROJ-010935'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Oliver Cawdell For

Jamie Fox
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2203007
Case Narrative

Sample Condition on Receipt:

Five air train samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:

CARB Method 429

These samples were extracted and analyzed for PAHs by CARB Method 429 using a ZB-50 GC column.

Holding Times

The method holding time criteria were met for the samples.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) were extracted and analyzed with each preparation batch. No analytes were detected above the sample quantitation limit in the Method Blanks. The LCS/LCSD recoveries and relative percent differences (RPD) associated with batch B22C276 were within the method acceptance criteria. The LCS/LCSD recoveries for Fluorene were greater than 150% in the batch B22D094. This analyte was not detected in the associated sample "1-PAH". The recoveries of all other analytes were within the acceptance criteria.

The labeled standard recoveries outside the method acceptance criteria are listed in the table below:

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
2203007-01	1-PAH	CARB Method 429	d10-Fluorene	H	42.7
2203007-01	1-PAH	CARB Method 429	d10-Phenanthrene	H	31.1
2203007-01	1-PAH	CARB Method 429	d12-Benzo(a)pyrene	H	7.52
2203007-01	1-PAH	CARB Method 429	d14-Terphenyl	H	49.2
2203007-01	1-PAH	CARB Method 429	d10-Anthracene	H	30.8
2203007-02	2-PAH	CARB Method 429	d14-Terphenyl	H	48.2
2203007-03	3-PAH	CARB Method 429	d12-Benzo(a)pyrene	H	40.2
2203007-03	3-PAH	CARB Method 429	d14-Terphenyl	H	49.7
2203007-03	3-PAH	CARB Method 429	d12-Benzo(e)pyrene	H	49.6
2203007-05	FB-PAH	CARB Method 429	d14-Terphenyl	H	48.5
B22C276-BLK1	B22C276-BLK1	CARB Method 429	d14-Terphenyl	H	49.4
B22C276-BLK1	B22C276-BLK1	CARB Method 429	d12-Benzo(e)pyrene	H	44.9
B22D094-BLK1	B22D094-BLK1	CARB Method 429	d10-Fluorene	H	37.8
B22D094-BLK1	B22D094-BLK1	CARB Method 429	d10-Phenanthrene	H	32.0
B22D094-BLK1	B22D094-BLK1	CARB Method 429	d12-Benzo(e)pyrene	H	42.7
B22D094-BLK1	B22D094-BLK1	CARB Method 429	d10-Anthracene	H	33.0
B22D094-BS1	B22D094-BS1	CARB Method 429	d10-Fluorene	H	44.4
B22D094-BS1	B22D094-BS1	CARB Method 429	d10-Phenanthrene	H	37.9
B22D094-BS1	B22D094-BS1	CARB Method 429	d10-Anthracene	H	36.5
B22D094-BSD1	B22D094-BSD1	CARB Method 429	d10-Fluorene	H	42.5
B22D094-BSD1	B22D094-BSD1	CARB Method 429	d10-Phenanthrene	H	36.9
B22D094-BSD1	B22D094-BSD1	CARB Method 429	d10-Anthracene	H	41.1

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2203007-01	1-PAH	10-Mar-22 00:00	14-Mar-22 12:52	FH Rinse
				Filter
				XAD
				BH Rinse
				IMP Contents
				IMP Rinse
2203007-02	2-PAH	11-Mar-22 00:00	14-Mar-22 12:52	FH Rinse
				Filter
				XAD
				BH Rinse
				IMP Contents
				IMP Rinse
2203007-03	3-PAH	11-Mar-22 00:00	14-Mar-22 12:52	FH Rinse
				Filter
				XAD
				BH Rinse
				IMP Contents
				IMP Rinse
2203007-04	RB	11-Mar-22 00:00	14-Mar-22 12:52	Acetone
				Hexane
				MeCl2 Rinse
				NaHCO3
2203007-05	FB-PAH	10-Mar-22 00:00	14-Mar-22 12:52	FH Rinse
				Filter
				XAD
				BH Rinse
				IMP Contents
				IMP Rinse

ANALYTICAL RESULTS

Sample ID: Method Blank **CARB Method 429**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Maion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22C276-BLK1
QC Batch: B22C276
Date Extracted: 28-Mar-22
Column: ZB-50

Analyte	Conc. (ng/Sample)	RL	Qualifiers	Analyzed	Dilution
Naphthalene	ND	50.0		01-Apr-22 16:40	1
2-Methylnaphthalene	ND	20.0		01-Apr-22 16:40	1
Acenaphthylene	ND	20.0		01-Apr-22 16:40	1
Acenaphthene	ND	20.0		01-Apr-22 16:40	1
Fluorene	ND	20.0		01-Apr-22 16:40	1
Phenanthrene	ND	50.0		01-Apr-22 16:40	1
Anthracene	ND	20.0		01-Apr-22 16:40	1
Fluoranthene	ND	20.0		01-Apr-22 16:40	1
Pyrene	ND	20.0		01-Apr-22 16:40	1
Benz(a)anthracene	ND	20.0		01-Apr-22 16:40	1
Chrysene	ND	20.0		01-Apr-22 16:40	1
Benzo(b)fluoranthene	ND	20.0		01-Apr-22 16:40	1
Benzo(k)fluoranthene	ND	20.0		01-Apr-22 16:40	1
Benzo(e)pyrene	ND	20.0		01-Apr-22 16:40	1
Benzo(a)pyrene	ND	20.0		01-Apr-22 16:40	1
Perylene	ND	20.0		01-Apr-22 16:40	1
Indeno(1,2,3-c,d)pyrene	ND	20.0		01-Apr-22 16:40	1
Dibenz(a,h)anthracene	ND	20.0		01-Apr-22 16:40	1
Benzo(g,h,i)perylene	ND	20.0		01-Apr-22 16:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
d8-Naphthalene	IS	67.0	50 - 150		01-Apr-22 16:40	1
d8-Acenaphthylene	IS	78.3	50 - 150		01-Apr-22 16:40	1
d10-Acenaphthene	IS	76.2	50 - 150		01-Apr-22 16:40	1
d10-Fluorene	IS	83.0	50 - 150		01-Apr-22 16:40	1
d10-Phenanthrene	IS	87.2	50 - 150		01-Apr-22 16:40	1
d10-Fluoranthene	IS	88.4	50 - 150		01-Apr-22 16:40	1
d12-Benz(a)anthracene	IS	86.2	50 - 150		01-Apr-22 16:40	1
d12-Chrysene	IS	84.4	50 - 150		01-Apr-22 16:40	1
d12-Benzo(b)fluoranthene	IS	82.2	50 - 150		01-Apr-22 16:40	1
d12-Benzo(k)fluoranthene	IS	89.8	50 - 150		01-Apr-22 16:40	1
d12-Benzo(a)pyrene	IS	80.1	50 - 150		01-Apr-22 16:40	1
d12-Indeno(1,2,3-c,d)pyrene	IS	82.9	50 - 150		01-Apr-22 16:40	1
d14-Dibenz(a,h)anthracene	IS	87.1	50 - 150		01-Apr-22 16:40	1
d12-Benzo(g,h,i)perylene	IS	77.8	50 - 150		01-Apr-22 16:40	1
d14-Terphenyl	PS	49.4	50 - 150	H	01-Apr-22 16:40	1
d12-Benzo(e)pyrene	PS	44.9	50 - 150	H	01-Apr-22 16:40	1
d10-Anthracene	AS	86.6	50 - 150		01-Apr-22 16:40	1

RL - Reporting limit

Results reported to RL.

Sample ID: LCSD **CARB Method 429**

Name:	Montrose Air Quality Services				
Project:	Covanta Maion / PROJ-010935	Lab Sample:	B22C276-BSD1		
Matrix:	Air	QC Batch:	B22C276	Date Extracted:	28-Mar-22
Date Analyzed:	01-Apr-22 15:03	Samp Size:	N/A	Column:	ZB-50
	01-Apr-22 14:15				

Analyte	LCS (ng/Sample	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ng/Sample	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits
Naphthalene	1040	1000	104		1010	1000	101	3.07		50- 150	200
2-Methylnaphthalene	403	400	101		409	400	102	1.33		50- 150	200
Acenaphthylene	412	400	103		419	400	105	1.63		50- 150	200
Acenaphthene	428	400	107		420	400	105	1.73		50- 150	200
Fluorene	426	400	106		427	400	107	0.273		50- 150	200
Phenanthrene	1100	1000	110		1130	1000	113	3.23		50- 150	200
Anthracene	395	400	98.7		408	400	102	3.33		50- 150	200
Fluoranthene	398	400	99.4		394	400	98.6	0.841		50- 150	200
Pyrene	402	400	100		402	400	100	0.0347		50- 150	200
Benz(a)anthracene	435	400	109		443	400	111	1.85		50- 150	200
Chrysene	425	400	106		433	400	108	1.85		50- 150	200
Benzo(b)fluoranthene	424	400	106		424	400	106	0.0703		50- 150	200
Benzo(k)fluoranthene	445	400	111		445	400	111	0.00674		50- 150	200
Benzo(e)pyrene	404	400	101		395	400	98.8	2.05		50- 150	200
Benzo(a)pyrene	442	400	110		437	400	109	1.02		50- 150	200
Perylene	415	400	104		431	400	108	3.80		50- 150	200
Indeno(1,2,3-c,d)pyrene	416	400	104		434	400	108	4.08		50- 150	200
Dibenz(a,h)anthracene	457	400	114		444	400	111	2.89		50- 150	200
Benzo(g,h,i)perylene	405	400	101		430	400	107	6.04		50- 150	200

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits
d8-Naphthalene	IS	66.9		71.6		50 - 150
d8-Acenaphthylene	IS	76.9		77.9		50 - 150
d10-Acenaphthene	IS	74.6		77.3		50 - 150
d10-Fluorene	IS	74.1		75.6		50 - 150
d10-Phenanthrene	IS	70.6		71.0		50 - 150
d10-Fluoranthene	IS	83.2		85.7		50 - 150
d12-Benz(a)anthracene	IS	67.4		78.7		50 - 150
d12-Chrysene	IS	69.7		78.3		50 - 150
d12-Benzo(b)fluoranthene	IS	84.5		80.9		50 - 150
d12-Benzo(k)fluoranthene	IS	90.3		85.8		50 - 150
d12-Benzo(a)pyrene	IS	79.0		78.7		50 - 150
d12-Indeno(1,2,3-c,d)pyrene	IS	87.4		85.2		50 - 150
d14-Dibenz(a,h)anthracene	IS	80.3		81.9		50 - 150
d12-Benzo(g,h,i)perylene	IS	88.1		79.3		50 - 150
d10-Anthracene	AS	85.0		77.6		50 - 150

Sample ID: Method Blank **CARB Method 429**

Client Data
Name: Montrose Air Quality Services
Project: Covanta Maion / PROJ-010935
Matrix: Air

Laboratory Data
Lab Sample: B22D094-BLK1
QC Batch: B22D094
Date Extracted: 28-Mar-22
Column: ZB-50

Analyte	Conc. (ng/Sample)	RL	Qualifiers	Analyzed	Dilution
Naphthalene	ND	50.0		14-Apr-22 21:01	1
2-Methylnaphthalene	ND	20.0		14-Apr-22 21:01	1
Acenaphthylene	ND	20.0		14-Apr-22 21:01	1
Acenaphthene	ND	20.0		14-Apr-22 21:01	1
Fluorene	ND	20.0		14-Apr-22 21:01	1
Phenanthrene	ND	50.0		14-Apr-22 21:01	1
Anthracene	ND	20.0		14-Apr-22 21:01	1
Fluoranthene	ND	20.0		14-Apr-22 21:01	1
Pyrene	ND	20.0		14-Apr-22 21:01	1
Benz(a)anthracene	ND	20.0		14-Apr-22 21:01	1
Chrysene	ND	20.0		14-Apr-22 21:01	1
Benzo(b)fluoranthene	ND	20.0		14-Apr-22 21:01	1
Benzo(k)fluoranthene	ND	20.0		14-Apr-22 21:01	1
Benzo(e)pyrene	ND	20.0		14-Apr-22 21:01	1
Benzo(a)pyrene	ND	20.0		14-Apr-22 21:01	1
Perylene	ND	20.0		14-Apr-22 21:01	1
Indeno(1,2,3-c,d)pyrene	ND	20.0		14-Apr-22 21:01	1
Dibenz(a,h)anthracene	ND	20.0		14-Apr-22 21:01	1
Benzo(g,h,i)perylene	ND	20.0		14-Apr-22 21:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
d8-Naphthalene	IS	61.4	50 - 150		14-Apr-22 21:01	1
d8-Acenaphthylene	IS	52.1	50 - 150		14-Apr-22 21:01	1
d10-Acenaphthene	IS	53.0	50 - 150		14-Apr-22 21:01	1
d10-Fluorene	IS	37.8	50 - 150	H	14-Apr-22 21:01	1
d10-Phenanthrene	IS	32.0	50 - 150	H	14-Apr-22 21:01	1
d10-Fluoranthene	IS	74.8	50 - 150		14-Apr-22 21:01	1
d12-Benz(a)anthracene	IS	70.6	50 - 150		14-Apr-22 21:01	1
d12-Chrysene	IS	71.0	50 - 150		14-Apr-22 21:01	1
d12-Benzo(b)fluoranthene	IS	67.1	50 - 150		14-Apr-22 21:01	1
d12-Benzo(k)fluoranthene	IS	81.7	50 - 150		14-Apr-22 21:01	1
d12-Benzo(a)pyrene	IS	68.6	50 - 150		14-Apr-22 21:01	1
d12-Indeno(1,2,3-c,d)pyrene	IS	76.8	50 - 150		14-Apr-22 21:01	1
d14-Dibenz(a,h)anthracene	IS	69.0	50 - 150		14-Apr-22 21:01	1
d12-Benzo(g,h,i)perylene	IS	73.0	50 - 150		14-Apr-22 21:01	1
d14-Terphenyl	PS	51.0	50 - 150		14-Apr-22 21:01	1
d12-Benzo(e)pyrene	PS	42.7	50 - 150	H	14-Apr-22 21:01	1
d10-Anthracene	AS	33.0	50 - 150	H	14-Apr-22 21:01	1

RL - Reporting limit

Results reported to RL.

Sample ID: LCSD **CARB Method 429**

Name:	Montrose Air Quality Services				
Project:	Covanta Maion / PROJ-010935	Lab Sample:	B22D094-BSD1		
Matrix:	Air	QC Batch:	B22D094	Date Extracted:	28-Mar-22
Date Analyzed:	14-Apr-22 19:24	Samp Size:	N/A	Column:	ZB-50
	14-Apr-22 18:36				

Analyte	LCS (ng/Sample	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ng/Sample	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits
Naphthalene	955	1000	95.5		967	1000	96.7	1.26		50- 150	200
2-Methylnaphthalene	434	400	109		459	400	115	5.62		50- 150	200
Acenaphthylene	487	400	122		514	400	128	5.45		50- 150	200
Acenaphthene	449	400	112		458	400	114	1.86		50- 150	200
Fluorene	638	400	159	H	666	400	166	4.31	H	50- 150	200
Phenanthrene	1210	1000	121		1300	1000	130	7.51		50- 150	200
Anthracene	467	400	117		465	400	116	0.391		50- 150	200
Fluoranthene	391	400	97.8		387	400	96.7	1.07		50- 150	200
Pyrene	392	400	98.1		394	400	98.4	0.271		50- 150	200
Benz(a)anthracene	431	400	108		435	400	109	0.886		50- 150	200
Chrysene	415	400	104		415	400	104	0.0446		50- 150	200
Benzo(b)fluoranthene	441	400	110		410	400	103	7.35		50- 150	200
Benzo(k)fluoranthene	406	400	101		429	400	107	5.65		50- 150	200
Benzo(e)pyrene	367	400	91.8		365	400	91.2	0.585		50- 150	200
Benzo(a)pyrene	431	400	108		426	400	106	1.38		50- 150	200
Perylene	422	400	106		412	400	103	2.38		50- 150	200
Indeno(1,2,3-c,d)pyrene	404	400	101		415	400	104	2.68		50- 150	200
Dibenz(a,h)anthracene	420	400	105		432	400	108	2.85		50- 150	200
Benzo(g,h,i)perylene	381	400	95.2		389	400	97.2	2.14		50- 150	200

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits
d8-Naphthalene	IS	61.4		60.6		50 - 150
d8-Acenaphthylene	IS	58.6		54.2		50 - 150
d10-Acenaphthene	IS	60.9		57.3		50 - 150
d10-Fluorene	IS	44.4	H	42.5	H	50 - 150
d10-Phenanthrene	IS	37.9	H	36.9	H	50 - 150
d10-Fluoranthene	IS	71.5		70.2		50 - 150
d12-Benz(a)anthracene	IS	64.7		61.9		50 - 150
d12-Chrysene	IS	67.2		64.5		50 - 150
d12-Benzo(b)fluoranthene	IS	60.1		60.1		50 - 150
d12-Benzo(k)fluoranthene	IS	74.7		73.3		50 - 150
d12-Benzo(a)pyrene	IS	64.6		65.7		50 - 150
d12-Indeno(1,2,3-c,d)pyrene	IS	71.3		69.7		50 - 150
d14-Dibenz(a,h)anthracene	IS	61.5		61.2		50 - 150
d12-Benzo(g,h,i)perylene	IS	77.4		74.2		50 - 150
d10-Anthracene	AS	36.5	H	41.1	H	50 - 150

Sample ID: 1-PAH **CARB Method 429**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Maion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 00:00

Laboratory Data

Lab Sample: 2203007-01
QC Batch: B22D094
Date Received: 14-Mar-22 12:52
Date Extracted: 28-Mar-22
Column: ZB-50

Analyte	Conc. (ng/Sample)	RL	Qualifiers	Analyzed	Dilution
Naphthalene	294	50.0		14-Apr-22 21:50	1
2-Methylnaphthalene	61.2	20.0		14-Apr-22 21:50	1
Acenaphthylene	ND	20.0		14-Apr-22 21:50	1
Acenaphthene	ND	20.0		14-Apr-22 21:50	1
Fluorene	ND	20.0		14-Apr-22 21:50	1
Phenanthrene	277	50.0		14-Apr-22 21:50	1
Anthracene	ND	20.0		14-Apr-22 21:50	1
Fluoranthene	25.2	20.0		14-Apr-22 21:50	1
Pyrene	ND	20.0		14-Apr-22 21:50	1
Benz(a)anthracene	ND	20.0		14-Apr-22 21:50	1
Chrysene	ND	20.0		14-Apr-22 21:50	1
Benzo(b)fluoranthene	ND	20.0		14-Apr-22 21:50	1
Benzo(k)fluoranthene	ND	20.0		14-Apr-22 21:50	1
Benzo(e)pyrene	ND	20.0		14-Apr-22 21:50	1
Benzo(a)pyrene	ND	20.0		14-Apr-22 21:50	1
Perylene	ND	20.0		14-Apr-22 21:50	1
Indeno(1,2,3-c,d)pyrene	ND	20.0		14-Apr-22 21:50	1
Dibenz(a,h)anthracene	ND	20.0		14-Apr-22 21:50	1
Benzo(g,h,i)perylene	ND	20.0		14-Apr-22 21:50	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
d8-Naphthalene	IS	64.2	50 - 150		14-Apr-22 21:50	1
d8-Acenaphthylene	IS	58.2	50 - 150		14-Apr-22 21:50	1
d10-Acenaphthene	IS	63.2	50 - 150		14-Apr-22 21:50	1
d10-Fluorene	IS	42.7	50 - 150	H	14-Apr-22 21:50	1
d10-Phenanthrene	IS	31.1	50 - 150	H	14-Apr-22 21:50	1
d10-Fluoranthene	IS	80.6	50 - 150		14-Apr-22 21:50	1
d12-Benz(a)anthracene	IS	50.6	50 - 150		14-Apr-22 21:50	1
d12-Chrysene	IS	62.5	50 - 150		14-Apr-22 21:50	1
d12-Benzo(b)fluoranthene	IS	70.2	50 - 150		14-Apr-22 21:50	1
d12-Benzo(k)fluoranthene	IS	70.2	50 - 150		14-Apr-22 21:50	1
d12-Benzo(a)pyrene	IS	7.52	50 - 150	H	14-Apr-22 21:50	1
d12-Indeno(1,2,3-c,d)pyrene	IS	70.7	50 - 150		14-Apr-22 21:50	1
d14-Dibenz(a,h)anthracene	IS	63.0	50 - 150		14-Apr-22 21:50	1
d12-Benzo(g,h,i)perylene	IS	65.5	50 - 150		14-Apr-22 21:50	1
d14-Terphenyl	PS	49.2	50 - 150	H	14-Apr-22 21:50	1
d12-Benzo(e)pyrene	PS	50.5	50 - 150		14-Apr-22 21:50	1
d10-Anthracene	AS	30.8	50 - 150	H	14-Apr-22 21:50	1

RL - Reporting limit

Results reported to RL.

Sample ID: 2-PAH **CARB Method 429**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Maion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 00:00

Laboratory Data

Lab Sample: 2203007-02
QC Batch: B22C276
Date Received: 14-Mar-22 12:52
Date Extracted: 28-Mar-22
Column: ZB-50

Analyte	Conc. (ng/Sample)	RL	Qualifiers	Analyzed	Dilution
Naphthalene	394	50.0		01-Apr-22 19:55	1
2-Methylnaphthalene	88.1	20.0		01-Apr-22 19:55	1
Acenaphthylene	ND	20.0		01-Apr-22 19:55	1
Acenaphthene	ND	20.0		01-Apr-22 19:55	1
Fluorene	64.1	20.0		01-Apr-22 19:55	1
Phenanthrene	408	50.0		01-Apr-22 19:55	1
Anthracene	23.1	20.0		01-Apr-22 19:55	1
Fluoranthene	123	20.0		01-Apr-22 19:55	1
Pyrene	121	20.0		01-Apr-22 19:55	1
Benz(a)anthracene	ND	20.0		01-Apr-22 19:55	1
Chrysene	ND	20.0		01-Apr-22 19:55	1
Benzo(b)fluoranthene	ND	20.0		01-Apr-22 19:55	1
Benzo(k)fluoranthene	ND	20.0		01-Apr-22 19:55	1
Benzo(e)pyrene	49.5	20.0		01-Apr-22 19:55	1
Benzo(a)pyrene	ND	20.0		01-Apr-22 19:55	1
Perylene	ND	20.0		01-Apr-22 19:55	1
Indeno(1,2,3-c,d)pyrene	ND	20.0		01-Apr-22 19:55	1
Dibenz(a,h)anthracene	ND	20.0		01-Apr-22 19:55	1
Benzo(g,h,i)perylene	78.8	20.0		01-Apr-22 19:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
d8-Naphthalene	IS	72.6	50 - 150		01-Apr-22 19:55	1
d8-Acenaphthylene	IS	85.8	50 - 150		01-Apr-22 19:55	1
d10-Acenaphthene	IS	93.0	50 - 150		01-Apr-22 19:55	1
d10-Fluorene	IS	98.4	50 - 150		01-Apr-22 19:55	1
d10-Phenanthrene	IS	94.0	50 - 150		01-Apr-22 19:55	1
d10-Fluoranthene	IS	93.7	50 - 150		01-Apr-22 19:55	1
d12-Benz(a)anthracene	IS	79.8	50 - 150		01-Apr-22 19:55	1
d12-Chrysene	IS	81.9	50 - 150		01-Apr-22 19:55	1
d12-Benzo(b)fluoranthene	IS	99.0	50 - 150		01-Apr-22 19:55	1
d12-Benzo(k)fluoranthene	IS	96.2	50 - 150		01-Apr-22 19:55	1
d12-Benzo(a)pyrene	IS	70.4	50 - 150		01-Apr-22 19:55	1
d12-Indeno(1,2,3-c,d)pyrene	IS	97.1	50 - 150		01-Apr-22 19:55	1
d14-Dibenz(a,h)anthracene	IS	108	50 - 150		01-Apr-22 19:55	1
d12-Benzo(g,h,i)perylene	IS	94.6	50 - 150		01-Apr-22 19:55	1
d14-Terphenyl	PS	48.2	50 - 150	H	01-Apr-22 19:55	1
d12-Benzo(e)pyrene	PS	50.2	50 - 150		01-Apr-22 19:55	1
d10-Anthracene	AS	95.9	50 - 150		01-Apr-22 19:55	1

RL - Reporting limit

Results reported to RL.

Sample ID: 3-PAH **CARB Method 429**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Maion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 00:00

Laboratory Data

Lab Sample: 2203007-03
QC Batch: B22C276
Date Received: 14-Mar-22 12:52
Date Extracted: 28-Mar-22
Column: ZB-50

Analyte	Conc. (ng/Sample)	RL	Qualifiers	Analyzed	Dilution
Naphthalene	501	50.0		01-Apr-22 20:44	1
2-Methylnaphthalene	205	20.0		01-Apr-22 20:44	1
Acenaphthylene	ND	20.0		01-Apr-22 20:44	1
Acenaphthene	ND	20.0		01-Apr-22 20:44	1
Fluorene	ND	20.0		01-Apr-22 20:44	1
Phenanthrene	87.8	50.0		01-Apr-22 20:44	1
Anthracene	ND	20.0		01-Apr-22 20:44	1
Fluoranthene	25.8	20.0		01-Apr-22 20:44	1
Pyrene	24.7	20.0		01-Apr-22 20:44	1
Benz(a)anthracene	ND	20.0		01-Apr-22 20:44	1
Chrysene	ND	20.0		01-Apr-22 20:44	1
Benzo(b)fluoranthene	ND	20.0		01-Apr-22 20:44	1
Benzo(k)fluoranthene	ND	20.0		01-Apr-22 20:44	1
Benzo(e)pyrene	ND	20.0		01-Apr-22 20:44	1
Benzo(a)pyrene	ND	20.0		01-Apr-22 20:44	1
Perylene	ND	20.0		01-Apr-22 20:44	1
Indeno(1,2,3-c,d)pyrene	ND	20.0		01-Apr-22 20:44	1
Dibenz(a,h)anthracene	ND	20.0		01-Apr-22 20:44	1
Benzo(g,h,i)perylene	43.1	20.0		01-Apr-22 20:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
d8-Naphthalene	IS	63.0	50 - 150		01-Apr-22 20:44	1
d8-Acenaphthylene	IS	70.5	50 - 150		01-Apr-22 20:44	1
d10-Acenaphthene	IS	92.5	50 - 150		01-Apr-22 20:44	1
d10-Fluorene	IS	108	50 - 150		01-Apr-22 20:44	1
d10-Phenanthrene	IS	101	50 - 150		01-Apr-22 20:44	1
d10-Fluoranthene	IS	95.7	50 - 150		01-Apr-22 20:44	1
d12-Benz(a)anthracene	IS	70.2	50 - 150		01-Apr-22 20:44	1
d12-Chrysene	IS	77.6	50 - 150		01-Apr-22 20:44	1
d12-Benzo(b)fluoranthene	IS	102	50 - 150		01-Apr-22 20:44	1
d12-Benzo(k)fluoranthene	IS	99.3	50 - 150		01-Apr-22 20:44	1
d12-Benzo(a)pyrene	IS	40.2	50 - 150	H	01-Apr-22 20:44	1
d12-Indeno(1,2,3-c,d)pyrene	IS	97.7	50 - 150		01-Apr-22 20:44	1
d14-Dibenz(a,h)anthracene	IS	108	50 - 150		01-Apr-22 20:44	1
d12-Benzo(g,h,i)perylene	IS	93.0	50 - 150		01-Apr-22 20:44	1
d14-Terphenyl	PS	49.7	50 - 150	H	01-Apr-22 20:44	1
d12-Benzo(e)pyrene	PS	49.6	50 - 150	H	01-Apr-22 20:44	1
d10-Anthracene	AS	98.7	50 - 150		01-Apr-22 20:44	1

RL - Reporting limit

Results reported to RL.

Sample ID: RB **CARB Method 429**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Maion / PROJ-010935
Matrix: Air Train
Date Collected: 11-Mar-22 00:00

Laboratory Data

Lab Sample: 2203007-04
QC Batch: B22C276
Date Received: 14-Mar-22 12:52
Date Extracted: 28-Mar-22
Column: ZB-50

Analyte	Conc. (ng/Sample)	RL	Qualifiers	Analyzed	Dilution
Naphthalene	ND	50.0		01-Apr-22 17:29	1
2-Methylnaphthalene	ND	20.0		01-Apr-22 17:29	1
Acenaphthylene	ND	20.0		01-Apr-22 17:29	1
Acenaphthene	ND	20.0		01-Apr-22 17:29	1
Fluorene	ND	20.0		01-Apr-22 17:29	1
Phenanthrene	ND	50.0		01-Apr-22 17:29	1
Anthracene	ND	20.0		01-Apr-22 17:29	1
Fluoranthene	ND	20.0		01-Apr-22 17:29	1
Pyrene	ND	20.0		01-Apr-22 17:29	1
Benz(a)anthracene	ND	20.0		01-Apr-22 17:29	1
Chrysene	ND	20.0		01-Apr-22 17:29	1
Benzo(b)fluoranthene	ND	20.0		01-Apr-22 17:29	1
Benzo(k)fluoranthene	ND	20.0		01-Apr-22 17:29	1
Benzo(e)pyrene	ND	20.0		01-Apr-22 17:29	1
Benzo(a)pyrene	ND	20.0		01-Apr-22 17:29	1
Perylene	ND	20.0		01-Apr-22 17:29	1
Indeno(1,2,3-c,d)pyrene	ND	20.0		01-Apr-22 17:29	1
Dibenz(a,h)anthracene	ND	20.0		01-Apr-22 17:29	1
Benzo(g,h,i)perylene	ND	20.0		01-Apr-22 17:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
d8-Naphthalene	IS	82.2	50 - 150		01-Apr-22 17:29	1
d8-Acenaphthylene	IS	96.8	50 - 150		01-Apr-22 17:29	1
d10-Acenaphthene	IS	93.0	50 - 150		01-Apr-22 17:29	1
d10-Fluorene	IS	99.7	50 - 150		01-Apr-22 17:29	1
d10-Phenanthrene	IS	95.7	50 - 150		01-Apr-22 17:29	1
d10-Fluoranthene	IS	92.3	50 - 150		01-Apr-22 17:29	1
d12-Benz(a)anthracene	IS	87.2	50 - 150		01-Apr-22 17:29	1
d12-Chrysene	IS	88.8	50 - 150		01-Apr-22 17:29	1
d12-Benzo(b)fluoranthene	IS	92.3	50 - 150		01-Apr-22 17:29	1
d12-Benzo(k)fluoranthene	IS	93.8	50 - 150		01-Apr-22 17:29	1
d12-Benzo(a)pyrene	IS	81.9	50 - 150		01-Apr-22 17:29	1
d12-Indeno(1,2,3-c,d)pyrene	IS	99.9	50 - 150		01-Apr-22 17:29	1
d14-Dibenz(a,h)anthracene	IS	105	50 - 150		01-Apr-22 17:29	1
d12-Benzo(g,h,i)perylene	IS	97.6	50 - 150		01-Apr-22 17:29	1
d10-Anthracene	AS	101	50 - 150		01-Apr-22 17:29	1

RL - Reporting limit

Results reported to RL.

Sample ID: FB-PAH **CARB Method 429**

Client Data

Name: Montrose Air Quality Services
Project: Covanta Maion / PROJ-010935
Matrix: Air Train
Date Collected: 10-Mar-22 00:00

Laboratory Data

Lab Sample: 2203007-05
QC Batch: B22C276
Date Received: 14-Mar-22 12:52
Date Extracted: 28-Mar-22
Column: ZB-50

Analyte	Conc. (ng/Sample)	RL	Qualifiers	Analyzed	Dilution
Naphthalene	199	50.0		01-Apr-22 18:18	1
2-Methylnaphthalene	191	20.0		01-Apr-22 18:18	1
Acenaphthylene	ND	20.0		01-Apr-22 18:18	1
Acenaphthene	ND	20.0		01-Apr-22 18:18	1
Fluorene	ND	20.0		01-Apr-22 18:18	1
Phenanthrene	ND	50.0		01-Apr-22 18:18	1
Anthracene	ND	20.0		01-Apr-22 18:18	1
Fluoranthene	73.0	20.0		01-Apr-22 18:18	1
Pyrene	134	20.0		01-Apr-22 18:18	1
Benz(a)anthracene	ND	20.0		01-Apr-22 18:18	1
Chrysene	ND	20.0		01-Apr-22 18:18	1
Benzo(b)fluoranthene	ND	20.0		01-Apr-22 18:18	1
Benzo(k)fluoranthene	ND	20.0		01-Apr-22 18:18	1
Benzo(e)pyrene	29.2	20.0		01-Apr-22 18:18	1
Benzo(a)pyrene	ND	20.0		01-Apr-22 18:18	1
Perylene	ND	20.0		01-Apr-22 18:18	1
Indeno(1,2,3-c,d)pyrene	ND	20.0		01-Apr-22 18:18	1
Dibenz(a,h)anthracene	ND	20.0		01-Apr-22 18:18	1
Benzo(g,h,i)perylene	74.4	20.0		01-Apr-22 18:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
d8-Naphthalene	IS	71.2	50 - 150		01-Apr-22 18:18	1
d8-Acenaphthylene	IS	87.4	50 - 150		01-Apr-22 18:18	1
d10-Acenaphthene	IS	83.5	50 - 150		01-Apr-22 18:18	1
d10-Fluorene	IS	90.5	50 - 150		01-Apr-22 18:18	1
d10-Phenanthrene	IS	95.1	50 - 150		01-Apr-22 18:18	1
d10-Fluoranthene	IS	81.7	50 - 150		01-Apr-22 18:18	1
d12-Benz(a)anthracene	IS	69.5	50 - 150		01-Apr-22 18:18	1
d12-Chrysene	IS	73.2	50 - 150		01-Apr-22 18:18	1
d12-Benzo(b)fluoranthene	IS	101	50 - 150		01-Apr-22 18:18	1
d12-Benzo(k)fluoranthene	IS	97.8	50 - 150		01-Apr-22 18:18	1
d12-Benzo(a)pyrene	IS	95.4	50 - 150		01-Apr-22 18:18	1
d12-Indeno(1,2,3-c,d)pyrene	IS	108	50 - 150		01-Apr-22 18:18	1
d14-Dibenz(a,h)anthracene	IS	115	50 - 150		01-Apr-22 18:18	1
d12-Benzo(g,h,i)perylene	IS	111	50 - 150		01-Apr-22 18:18	1
d14-Terphenyl	PS	48.5	50 - 150	H	01-Apr-22 18:18	1
d12-Benzo(e)pyrene	PS	50.9	50 - 150		01-Apr-22 18:18	1
d10-Anthracene	AS	114	50 - 150		01-Apr-22 18:18	1

RL - Reporting limit

Results reported to RL.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Pennsylvania Department of Environmental Protection	018
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MONTROSE AIR QUALITY SERVICES

CHAIN OF CUSTODY

Portland Location
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(503) 255-5050

Lab info: 2203007
3.5°C, 2.5°C, 2.9°C
Vista Analytical
El Dorado Hills, CA

Client / Project: Covanta Maion	**Project / Sample Location:** Chronic Unit 2	**Test / Analytical Method:** CARB 429
Project No.: PROJ-010935	**Purchase Order No:**	**Special Analysis / Reporting Instructions:** Polycyclic Aromatic Hydrocarbons (PAH)
Send Analytical Report To: Portland QA/QC: : PortlandQA-QC@montrose-env.com pbecker@montrose-env.com	**Sampler or PM Signature:** Peter Becker	

Run / Sample No.	Date	Time	Containers	Sample Fraction	Reagent	Lab / Sample ID No.
1-PAH	3/10/22		1	Cont. 1 Front Half Acetone, Hexane & MeCl2 rinse	Acetone, Hexane, MeCl2	
"			1	Cont. 2 Filter	filter	
"			1	Sorbent Module -XAD	XAD	
"			1	Cont. 3 Back Half Acetone, Hexane & MeCl2 rinses	Acetone, Hexane, MeCl2	
"			1	Cont. 4 Impinger Contents	NaHCO2/ Na2CO3	
"			1	Cont. 5 Impinger Acetone, Hexane & MeCl2 rinses	Acetone, Hexane, MeCl2	
2-PAH	3/11/22		6	Same as run 1	"	
3-PAH	3/11/22		6	Same as run 1	"	
RB-Acetone	3/11/22		1	acetone reagent blank	acetone	
RB-Hexane	3/11/22		1	Hexane reagent blank	Hexane	
RB-MeCl2	3/11/22		1	MeCL2 reagent blank	MeCl2	
RB-NaHCO3			1	3.0 mM NaHCO3 reagent blank / 2.4mM NaHCO3	NaHCO3 / NaHCO3	
~~RB-Na2CO3~~			~~1~~	~~2.4 mM Na2CO3~~	~~Na2CO3~~	
FB-PAH	3.10.22		6	Field Blank-same as run 1	"	
Total Containers			~~29~~ 28			

Relinquished by	Date	Time	Received by	Date	Time	Temp.
	3.11.22	19:30	Esha	3/14/22	1000	
Relinquished by	Date	Time	Received by	Date	Time	Temp.
	3/14/22	12:52		03/14/22	1252	
Relinquished by	Date	Time	Received by	Date	Time	Temp.

Key: PCDD = Polychlorinated Dibenzo-p-Dioxin, PCDF = Polychlorinated Dibenzofuran, FB = Field Blank, RB = Reagent Blank

Vista Analytical Laboratory

Sample Log-In Checklist

Vista Work Order #: 2203007 TAT 5+d

Samples Arrival:	Date/Time: 03/14/22 1252	Initials: MWS	Location: WR-2 Shelf/Rack: N/A

Delivered By:	FedEx	UPS	On Trac	GLS	DHL	(Hand Delivered)	Other
Preservation:	Ice		(Blue Ice)		Techni Ice	Dry Ice	None

Temp °C: 3.6 (uncorrected)	Probe used: Y / (N)	Thermometer ID: IR-3
Temp °C: 3.5 (corrected)		

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill → (1) Trk # ~~~			✓
Shipping Documentation Present?			✓
Shipping Container: Vista / (Client) / Retain / (Return) / Dispose			
Chain of Custody / Sample Documentation Present?			(2) ✓
Chain of Custody / Sample Documentation Complete?			✓
Holding Time Acceptable?			✓

Logged In:	Date/Time: 03/16/22 14:24	Initials: BB / MA	Location: R-9 Shelf/Rack: N/A

COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments: (2) COCs received with cooler (1)

Rinses + filters received in this cooler

Vista Analytical Laboratory

Sample Log-In Checklist

Vista Work Order #: 2203007 TAT Std

Samples Arrival:	**Date/Time** 03/14/22 1252		**Initials:** WWS		**Location:** WR-2 **Shelf/Rack:** N/A		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 2.6 (uncorrected) **Temp °C:** 2.5 (corrected)			**Probe used:** Y / (N)			**Thermometer ID:** IR-3	

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill — (2) Trk # —			✓
Shipping Documentation Present?			✓
Shipping Container: (Vista) Client (Retain) Return Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 03/16/22 14:22	**Initials:** BC / VA	**Location:** R-9 **Shelf/Rack:** N/A	
COC Anomaly/Sample Acceptance Form completed?			✓	✓

Comments:

Vista Analytical Laboratory

Sample Log-In Checklist

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Vista Work Order #: 2203007 TAT Std

Samples Arrival:	Date/Time 03/14/22 1252	Initials: WMS	Location: WR-2 Shelf/Rack: N/a

Delivered By:	FedEx	UPS	On Trac	GLS	DHL	(Hand Delivered)	Other
Preservation:	Ice		(Blue Ice)		Techni Ice	Dry Ice	None

Temp °C: ~2.9°C (uncorrected)	Probe used: (Y) / N	Thermometer ID: DT-3
Temp °C: ~2.9°C (corrected)		

	YES	NO	NA
Shipping Container(s) Intact?			✓
Shipping Custody Seals Intact?			✓
Airbill — (3) Trk # —			✓
Shipping Documentation Present?			✓
Shipping Container: (Vista) / Client / (Retain) / Return / Dispose			
Chain of Custody / Sample Documentation Present?			(3) ✓
Chain of Custody / Sample Documentation Complete?			✓
Holding Time Acceptable?			✓

Logged In:	Date/Time 03/16/22 14:25	Initials: KS	Location: R-9 Shelf/Rack: N/A
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments: (3) COC received with other cooler (2)

XADs received in this cooler

CoC/Label Reconciliation Report WO# 2203007

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2203007-01	B 1-PAH		10-Mar-22 00:00	FH Rinse	Air	
2203007-01	C 1-PAH		10-Mar-22 00:00	Filter	Air	
2203007-01	D 1-PAH		10-Mar-22 00:00	XAD	Air	
2203007-01	E 1-PAH		10-Mar-22 00:00	BH Rinse	Air	
2203007-01	F 1-PAH		10-Mar-22 00:00	IMP Contents	Air	
2203007-01	G 1-PAH		10-Mar-22 00:00	IMP Rinse	Air	
2203007-02	B 2-PAH		11-Mar-22 00:00	FH Rinse	Air	
2203007-02	C 2-PAH		11-Mar-22 00:00	Filter	Air	
2203007-02	D 2-PAH		11-Mar-22 00:00	XAD	Air	
2203007-02	E 2-PAH		11-Mar-22 00:00	BH Rinse	Air	
2203007-02	F 2-PAH		11-Mar-22 00:00	IMP Contents	Air	
2203007-02	G 2-PAH		11-Mar-22 00:00	IMP Rinse	Air	
2203007-03	B 3-PAH		11-Mar-22 00:00	FH Rinse	Air	
2203007-03	C 3-PAH		11-Mar-22 00:00	Filter	Air	
2203007-03	D 3-PAH		11-Mar-22 00:00	XAD	Air	
2203007-03	E 3-PAH		11-Mar-22 00:00	BH Rinse	Air	
2203007-03	F 3-PAH		11-Mar-22 00:00	IMP Contents	Air	
2203007-03	G 3-PAH		11-Mar-22 00:00	IMP Rinse	Air	
2203007-04	B RB		11-Mar-22 00:00	Acetone	Air	
2203007-04	C RB		11-Mar-22 00:00	Hexane	Air	
2203007-04	D RB		11-Mar-22 00:00	MeCl2 Rinse	Air	
2203007-04	E RB		11-Mar-22 00:00	NaHCO3	Air	
2203007-05	B FB-PAH		10-Mar-22 00:00	FH Rinse	Air	
2203007-05	C FB-PAH		10-Mar-22 00:00	Filter	Air	
2203007-05	D FB-PAH		10-Mar-22 00:00	XAD	Air	
2203007-05	E FB-PAH		10-Mar-22 00:00	BH Rinse	Air	
2203007-05	F FB-PAH		10-Mar-22 00:00	IMP Contents	Air	
2203007-05	G FB-PAH		10-Mar-22 00:00	IMP Rinse	Air	

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Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments: (A) no time listed on COC or sample label used 00:00

C1= Cooler 1 of 3

C2= Cooler 2 of 3

C3= Cooler 3 of 3

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None) Other

Verifed by/Date: VA 03/17/22

APPENDIX D
QUALITY ASSURANCE/QUALITY CONTROL

Appendix D.1
Units and Abbreviations

UNITS AND ABBREVIATIONS

@ X% O_2	corrected to X% oxygen (corrected for dilution air)
|CC|	absolute value of the confidence coefficient
|d|	absolute value of the mean differences
ºC	degrees Celsius (centrigade)
ºF	degrees Fahrenheit
ºR	degrees Rankine
" H_2O	inches of water column
13.6	specific gravity of mercury
ΔH	pressure drop across orifice meter, inches H_2O
ΔP	velocity head of stack gas, inches H_2O
θ	total sampling time, minutes
µg	microgram
ρ_a	density of acetone, mg/ml
ρ_w	density of water, 0.9982 g/ml or 0.002201 lb/ml
acfm	actual cubic feet of gas per minute at stack conditions
A_n	cross-sectional area of nozzle, ft^2
A_s	cross-sectional area of stack, square feet (ft^2)
Btu	British thermal unit
B_{ws}	proportion by volume of water vapor in gas stream
C_a	particulate matter concentration in stack gas, gr/acf
C_{Avg}	average unadjusted gas concentration, ppmv
C_{Dir}	measured concentration of calibration gas, ppmv
cf or ft^3	cubic feet
cfm	cubic feet per minute
C_{Gas}	average gas concentration adjusted for bias, ppmv
C_M	average of initial and final system bias check responses from upscale calibration gas, ppmv
cm or m^3	cubic meters
C_{MA}	actual concentration of the upscale calibration gas, ppmv
C_O	average of initial and final system bias check responses from low-level calibration gas, ppmv
C_p	pitot tube coefficient
C_s	particulate matter concentration in stack gas, gr/dscf
CS	calibration span, % or ppmv
C_S	measured concentration of calibration gas, ppmv
C_V	manufactured certified concentration of calibration gas, ppmv
D	drift assessment, % of span
dcf	dry cubic feet
dcm	dry cubic meters
D_n	diameter of nozzle, inches
D_s	diameter of stack, inches
dscf	dry standard cubic feet
dscfm	dry standard cubic feet per minute
dscm	dry standard cubic meters
F_d	F-factor, dscf/MMBtu of heat input
fpm	feet per minute
fps	feet per second
ft	feet
ft^2	square feet
g	gram
gal	gallons
gr	grains (7000 grains per pound)

UNITS AND ABBREVIATIONS

gr/dscf	grains per dry standard cubic feet
hr	hour
I	percent of isokinetic sampling
in	inch
k	kilo or thousand (metric units, multiply by 10^3)
K	kelvin (temperature)
K_3	conversion factor 0.0154 gr/mg
K_4	conversion factor 0.002669 ((in. Hg)(ft^3))/((ml)(°R))
kg	kilogram
K_p	pitot tube constant (85.49 ft/sec)
kwscfh	thousand wet standard cubic feet per hour
l	liters
lb/hr	pounds per hour
lb/MMBtu	pounds per million Btu
lpm	liters per minute
m	meter or milli
M	thousand (English units) or mega (million, metric units)
m^3	cubic meters
m_a	mass of residue of acetone after evaporation, mg
M_d	molecular weight of stack gas; dry basis, lb/lb-mole
meq	milliequivalent
mg	milligram
Mg	megagram (10^6 grams)
min	minute
ml or mL	milliliter
mm	millimeter
MM	million (English units)
MMBtu/hr	million Btu per hour
m_n	total amount of particulate matter collected, mg
mol	mole
mol. wt. or MW	molecular weight
M_s	molecular weight of stack gas; wet basis, lb/lb-mole
MW	molecular weight or megawatt
n	number of data points
ng	nanogram
nm	nanometer
P_{bar}	barometric pressure, inches Hg
pg	picogram
P_g	stack static pressure, inches H_2O
P_m	barometric pressure of dry gas meter, inches Hg
ppb	parts per billion
ppbv	parts per billion, by volume
ppbvd	parts per billion by volume, dry basis
ppm	parts per million
ppmv	parts per million, by volume
ppmvd	parts per million by volume, dry basis
P_s	absolute stack gas pressure, inches Hg
psi	pounds per square inch
psia	pounds per square inch absolute
psig	pounds per square inch gauge
P_{std}	standard absolute pressure, 29.92 inches Hg
Q_a	volumetric flow rate, actual conditions, acfm

MONTROSE
AIR QUALITY SERVICES

UNITS AND ABBREVIATIONS

Q_s	volumetric flow rate, standard conditions, scfm
Q_{std}	volumetric flow rate, dry standard conditions, dscfm
R	ideal gas constant 21.85 ((in. Hg) ($ft^{3)}$)/((°R) (lbmole))
SB_{final}	post-run system bias check, % of span
SB_i	pre-run system bias check, % of span
scf	standard cubic feet
scfh	standard cubic feet per hour
scfm	standard cubic feet per minute
scm	standard cubic meters
scmh	standard cubic meters per hour
sec	second
sf, sq. ft., or ft^2	square feet
std	standard
t	metric ton (1000 kg)
$T_{0.975}$	t-value
T_a	absolute average ambient temperature, ºR (+460 for English)
T_m	absolute average dry gas meter temperature, ºR (+460 for English)
ton or t	ton = 2000 pounds
tph or tons/hr	tons per hour
tpy or tons/yr	tons per year
T_s	absolute average stack gas meter temperature, ºR (+460 for English)
T_{std}	absolute temperature at standard conditions
V	volt
V_a	volume of acetone blank, ml
V_{aw}	volume of acetone used in wash, ml
V_{lc}	total volume H_2O collected in impingers and silica gel, grams
V_m	volume of gas sampled through dry gas meter, ft^3
$V_{m(std)}$	volume of gas measured by the dry gas meter, corrected to standard conditions, dscf
V_{ma}	stack gas volume sampled, acf
V_n	volume collected at stack conditions through nozzle, acf
V_s	average stack gas velocity, feet per second
$V_{wc(std)}$	volume of water vapor condensed, corrected to standard conditions, scf
$V_{wi(std)}$	volume of water vapor in gas sampled from impingers, scf
$V_{wsg(std)}$	volume of water vapor in gas sampled from silica gel, scf
W	watt
W_a	weight of residue in acetone wash, mg
W_{imp}	total weight of impingers, grams
W_{sg}	total weight of silica gel, grams
Y	dry gas meter calibration factor, dimensionless

ACRONYMS

AAS	atomic absorption spectroscopy
ACDP	air contaminant discharge permit
ACE	analyzer calibration error, percent of span
AD	absolute difference
ADL	above detection limit
AETB	Air Emissions Testing Body
AS	applicable standard (emission limit)
ASTM	American Society For Testing And Materials
BACT	best achievable control technology
BDL	below detection limit
BHP	brake horsepower
BIF	boiler and industrial furnace
BLS	black liquor solids
CC	confidence coefficient
CD	calibration drift
CE	calibration error
CEM	continuous emissions monitor
CEMS	continuous emissions monitoring system
CERMS	continuous emissions rate monitoring system
CET	calibration error test
CFR	Code of Federal Regulations
CGA	cylinder gas audit
CHNOS	elemental analysis for determination of C, H, N, O, and S content in fuels
CNCG	concentrated non-condensable gas
CO	catalytic oxidizer
COC	chain of custody
COMS	continuous opacity monitoring system
CPM	condensible particulate matter
CPMS	continuous parameter monitoring system
CT	combustion turbine
CTM	conditional test method
CTO	catalytic thermal oxidizer
CVAAS	cold vapor atomic absorption spectroscopy
D_e	equivalent diameter
DE	destruction efficiency
Dioxins	polychlorinated dibenzo-p-dioxins (pcdd's)
DLL	detection level limited
DNCG	dilute non-condensable gas
ECD	electron capture detector
EIT	Engineer In Training
ELCD	electoconductivity detector (hall detector)
EMPC	estimated maximum possible concentration
EPA	US Environmental Protection Agency
EPRI	Electric Power Research Institute
ES	emission standard (applicable limit)
ESP	electrostatic precipitator
EU	emission unit
FCCU	fluid catalytic cracking unit
FGD	flue gas desulfurization
FI	flame ionization
FIA	flame ionization analyzer
FID	flame ionization detector
FPD	flame photometric detector
FPM	filterable particulate matter

ACRONYMS

FTIR	Fourier-transform infrared spectroscopy
FTPB	field train proof blank
FTRB	field train recovery blank
Furans	polychlorinated dibenzofurans (pcdf's)
GC	gas chromatography
GC/MS	gas chromatography/mass spectroscopy
GFAAS	graphite furnace atomic absorption spectroscopy
GFC	gas filter correlation
GHG	greenhouse gas
HAP	hazardous air pollutant
HC	hydrocarbons
HHV	higher heating value
HPLC	high performance liquid chromatography
HRGC/HRMS	high-resolution gas chromatography/high-resolution mass spectroscopy
HRSG	heat recovery steam generator
IC	ion chromatography
ICAP	inductively-coupled argon plasmography
ICPCR	ion chromatography with a post-column reactor
IR	infrared radiation
ISO	International Standards Organization
kW	kilowatts
LFG	landfill gas
LHV	lower heating value
LPG	liquified petroleum gas
MACT	maximum achievable control technology
MDI	methylene diphyenyl diisocyanate
MDL	method detection limit
MNOC	maximum normal operating conditions
MRL	method reporting limit
MS	mass spectrometry
NA	not applicable or not available
NCASI	National Council For Air And Steam Improvement
NCG	non-condensable gases
NDIR	non-dispersive infrared
NESHAP	National Emissions Standards For Hazardous Air Pollutants
NG	natural gas
NIOSH	National Institute For Occupational Safety And Health
NIST	National Institute Of Standards And Technology
NMC	non-methane cutter
NMOC	non-methane organic compounds
NMVOC	non-methane volatile organic compounds
NPD	nitrogen phosphorus detector
NSPS	New Source Performance Standards
OSHA	Occupational Safety And Health Administration
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl compounds
PCWP	plywood and composite wood products
PE	Professional Engineer
PFAS	per- and polyfluoroalkyl substances (PFAS)
PI	photoionization
PID	photoionization detector
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in aerodynamic diameter

ACRONYMS

POM	polycyclic organic matter
PS	performance specification
PSD	particle size distribution
PSEL	plant site emission limits
PST	performance specification test
PTE	permanent total enclosure
PTM	performance test method
QA/QC	quality assurance and quality control
QI	Qualified Individual
QSTI	Qualified Source Testing Individual
RA	relative accuracy
RAA	relative accuracy audit
RACT	reasonably available control technology
RATA	relative accuracy test audit
RCTO	rotary concentrator thermal oxidizer
RICE	stationary reciprocating internal combustion engine
RM	reference method
RTO	regenerative thermal oxidizer
SAM	sulfuric acid mist
SCD	sulfur chemiluminescent detector
SCR	selective catalytic reduction system
SD	standard deviation
Semi-VOST	semivolatile organic compounds sample train
SRM	standard reference material
TAP	toxic air pollutant
TBD	to be determined
TCA	thermal conductivity analyzer
TCD	thermal conductivity detector
TGNENMOC	total gaseous non-ethane non-methane organic compounds
TGNMOC	total gaseous non-methane organic compounds
TGOC	total gaseous organic compounds
THC	total hydrocarbons
TIC	tentatively identified compound
TO	thermal oxidizer
TO	toxic organic (as in EPA Method TO-15)
TPM	total particulate matter
TSP	total suspended particulate matter
TTE	temporary total enclosure
ULSD	ultra-low sulfur diesel
UV	ultraviolet radiation range
VE	visible emissions
VOC	volatile organic compounds
VOST	volatile organic sample train
WC	water column
WWTP	waste water treatment plant

CHEMICAL NOMENCLATURE

Ag	silver
As	arsenic
Ba	barium
Be	beryllium
C	carbon
Cd	cadmium
CdS	cadmium sulfide
CH_2O	formaldehyde
CH_3CHO	acetaldehyde
CH_3OH	methanol
CH_4	methane
C_2H_4O	ethylene oxide
C_2H_6	ethane
C_3H_4O	acrolein
C_3H_6O	propionaldehyde
C_3H_8	propane
C_6H_5OH	phenol
Cl_2	chlorine
ClO_2	chlorine dioxide
CO	carbon monoxide
Co	cobalt
CO_2	carbon dioxide
Cr	chromium
Cu	copper
EtO	ethylene oxide
EtOH	ethyl alcohol (ethanol)
H_2	hydrogen
H_2O	water
H_2O_2	hydrogen peroxide
H_2S	hydrogen sulfide
H_2SO_4	sulfuric acid
HCl	hydrogen chloride
Hg	mercury
IPA	isopropyl alcohol
MDI	methylene diphyenyl diisocyanate
MEK	methyl ethyl ketone
MeOH	methanol
Mn	manganese
N_2	nitrogen
NH_3	ammonia
Ni	nickel
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
O_2	oxygen
P	phosphorus
Pb	lead
PCDD	polychlorinated dibenzo-p-dioxins
PCDF	polychlorinated dibenzofurans
Sb	antimony
Se	selenium
SO_2	sulfur dioxide
SO_3	sulfur trioxide
SO_x	sulfur oxides
TCDD	tetrachlorodibenzodioxin
TCDF	tetrachlorodibenzofuran
TGOC	total gaseous organic concentration
THC	total hydrocarbons
Tl	thallium
TRS	total reduced sulfur compounds
Zn	zinc

Appendix D.2
Manual Test Method QA/QC Data

MONTROSE ENVIRONMENTAL

EPA Method 5

Meter Box Calibration by Calibrated Critical Orifice, Leak Check, and Thermocouple Calibration Check

English Meter Box Units, English K' Factor

Meter box ID:	MB 24
Meter ID (if applicable):	
Orifice set ID:	SHOP #1
Calibrated by:	JV
Expires:	6/4/22

Date:	12/4/21
Location:	PDX shop
No. of orifices used (min. 3)	3
Barometric pressure (in. Hg):	30.13 in. Hg
Theoretical critical vacuum	14.21 in. Hg

Yd:	**1.0201**
ΔH@:	**1.6081**

Meter Box Orifice Calibration

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

		Volume			Initial Temps.		Final Temps.		Orifice	K' Orifice		-- Ambient Temperature --		
ΔH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Net (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.28	19.00	546.489	552.271	5.782		61		62	40	0.2400	24.5	59	59	59.4
0.60	17.00	552.271	559.861	7.590		63		64	48	0.3502	23.0	59	60	59.6
1.10	20.00	559.861	571.865	12.004		64		67	55	0.4690	21.0	60	60	59.8

-- SAMPLE RATE --
INDICATED VS. ACTUAL

ΔH (in. H2O)	Sample Rate (scfm)
0.28	0.317
0.60	0.463
1.10	0.620

-- DRY GAS METER --
VOLUME CORRECTED

Vm(std) (cu ft)
5.897
7.717
12.173

------ ORIFICE ------

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME NOMINAL Vcr (cu ft)
6.028	5.890
7.870	7.694
12.396	12.122

-- DRY GAS METER --
CALIBRATION FACTOR Yd

Value (number)	Variation (number)
1.0222	0.002
1.0199	0.000
1.0183	-0.002

------ ORIFICE ------
CALIBRATION FACTOR ΔH@

Value (in H2O)	Variation (in H2O)
1.595	-0.013
1.599	-0.009
1.630	0.022

For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +/-0.02.

For Orifice Calibration Factor ΔH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/-0.2.

QA Criteria:	
Average Yd	1.0201
Average ΔH@	1.6081
Variation of Yd's	PASS
Variation of ΔH@	PASS
Vacuum Criteria	PASS

Meter Box Pressure Leak Check

Test Pressure, (in H_2O):	6	Should be 5-7 in. H_2O
Leak Rate, (in H_2O/min):	0	Must be zero (manometer level stable for 1 minute)

Meter Box Vacuum Leak Check

Test Vacuum, (in. Hg):	26	Coarse adjust valve fully open, fine adjust fully closed, sample inlet plugged
Leak Rate, (cfm):	0	Must be zero (meter dial stable for 1 minute)

Meter Box Thermocouple Readout Calibration Check

Input Temperature	Allowable Temp. Dev.*
25	7
75	8
125	9
250	11
300	11
350	12
400	13
500	14

Stack	Probe	Filter	Exit	Aux.	Meter In	Meter Out
29	29	29	31	32	25	24
80	80	79	81	82	76	76
130	129	130	132	133	126	126
256	255	253				
306	304	305				
355						
405						
504						

Thermocouple simulator	
Make/Model:	Altek Type K
Serial No.	541
Cal Date:	1/18/2021

Meter Thermocouple Calibration

Ref. Temp	Allowable Temp. Dev.*	Meter In	Meter Out
60	8		61
150	9		154

Reference Thermometer	
Make/Model:	Traceable
Serial No.	200456908
Cal Date:	4/2/2021



* Reading values must be within 1.5% of reference thermometer values (based on absolute temperature scale) for calibration to be acceptable.

Performed by: Name: Julian Vacca Signature: Julian Vacca Date: 12/4/21

Approved by: Name: Peter Beh Signature: Peter Beh Date: 12/4/21

MONTROSE ENVIRONMENTAL

EPA Method 5

Meter Box Calibration by Calibrated Critical Orifice: Post-Test, English Meter Box Units, English K' Factor

Meter box ID:	MB24
Meter ID (if applicable):	XXXX
Orifice set ID:	TV1
Calibrated by (initials):	AG
Current 6-month calibration Yd:	1.0201
Date of 6-month calibration:	12/4/21

Date:	3/14/22
Location:	Portland
No. of runs (default 3)	3
Barometric pressure (in. Hg):	30.15 in. Hg
Theoretical critical vacuum:	14.22 in. Hg

Current Cal. Yd:	**1.0201**
Post-test Yd:	**0.9912**
Post-test Result:	**PASS**

Meter Box Orifice Calibration

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

		Volume			Initial Temps.		Final Temps.		Orifice	K' Orifice		-- Ambient Temperature --		
ΔH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Net (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
1.20	21.00	629.487	642.670	13.183	XX	68	XX	71	56	0.4743	18.0	65	65	65.0
1.20	9.00	642.670	648.310	5.640	XX	71	XX	72	56	0.4743	18.0	65	65	65.0
1.20	10.00	648.310	654.576	6.266	XX	72	XX	73	56	0.4743	18.0	65	65	65.0

--- SAMPLE RATE ---
INDICATED VS. ACTUAL

ΔH (in. H2O)	Sample Rate (scfm)
1.20	0.62
1.20	0.62
1.20	0.62

--- DRY GAS METER ---
VOLUME CORRECTED

Vm(std) (cu ft)
13.280
5.660
6.277

------ ORIFICE ------

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME NOMINAL Vcr (cu ft)
13.106	12.937
5.617	5.544
6.241	6.160

-- DRY GAS METER --
CALIBRATION FACTOR Yd

Value (number)	Variation (number)
0.9869	-0.004
0.9923	0.001
0.9943	0.003

------ ORIFICE ------
CALIBRATION FACTOR ΔH@

Value (in H2O)	Variation (in H2O)
1.74	0.005
1.73	-0.001
1.73	-0.004

For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +/-0.02.

For Orifice Calibration Factor ΔH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/-0.2.

QA Criteria:	
Average Yd	0.9912
Average ΔH@	1.7360
Variation of Yd's	PASS
Variation of ΔH@	PASS
Vacuum Criteria	PASS

Meter Box Vacuum Leak Check

Test Vacuum, (in. Hg):	26	Coarse adjust valve fully open, fine adjust fully closed, sample inlet plugged
Leak Rate, (cfm):	0	Must be zero (meter dial stable for 1 minute)

Performed by: Name: Austin Goracke Signature: [signature] Date: 3/14/22

Approved by: Name: PB Signature: [signature] Date: 3/14/22

MONTROSE ENVIRONMENTAL

EPA Method 5

Meter Box Calibration by Calibrated Critical Orifice, Leak Check, and Thermocouple Calibration Check

English Meter Box Units, English K' Factor

Meter box ID:	MB31
Meter ID (if applicable):	METER ID
Orifice set ID:	TV1
Calibrated by:	AG
Expires:	5/19/22

Date:	11/19/21
Location:	Portland
No. of orifices used (min. 3)	3
Barometric pressure (in. Hg):	30.26 in. Hg
Theoretical critical vacuum	14.27 in. Hg

Yd:	**0.9902**
ΔH@:	**1.8162**

Meter Box Orifice Calibration

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above

IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

		Volume			Initial Temps.		Final Temps.		Orifice	K' Orifice		– Ambient Temperature –		
ΔH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Net (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.78	15.00	69.645	77.203	7.558	XX	61	XX	61	51	0.3857	21.0	61	61	61.0
1.30	9.00	77.203	82.838	5.635	XX	61	XX	61	56	0.4819	19.0	61	61	61.0
2.40	7.00	82.838	88.710	5.872	XX	61	XX	XX	65	0.6450	17.0	61	61	61.0

— SAMPLE RATE —
INDICATED VS. ACTUAL

ΔH (in. H2O)	Sample Rate (scfm)
0.78	0.511
1.30	0.639
2.40	0.855

— DRY GAS METER —
VOLUME CORRECTED

Vm(std) (cu ft)
7.758
5.792
6.051

—— ORIFICE ——

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME NOMINAL Vcr (cu ft)
7.670	7.486
5.750	5.612
5.986	5.842

– DRY GAS METER –
CALIBRATION FACTOR Yd

Value (number)	Variation (number)
0.9887	-0.002
0.9927	0.003
0.9892	-0.001

—— ORIFICE ——
CALIBRATION FACTOR ΔH@

Value (in H2O)	Variation (in H2O)
1.720	-0.096
1.836	0.020
1.892	0.076

For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +/-0.02.

For Orifice Calibration Factor ΔH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/-0.2.

QA Criteria:	
Average Yd	0.9902
Average ΔH@	1.8162
Variation of Yd's	PASS
Variation of ΔH@	PASS
Vacuum Criteria	PASS

Meter Box Pressure Leak Check

Test Pressure, (in H_2O):	6	Should be 5-7 in. H_2O
Leak Rate, (in H_2O/min):	0	Must be zero (manometer level stable for 1 minute)

Meter Box Vacuum Leak Check

Test Vacuum, (in. Hg):	25	Coarse adjust valve fully open, fine adjust fully closed, sample inlet plugged
Leak Rate, (cfm):	0	Must be zero (meter dial stable for 1 minute)

Meter Box Thermocouple Readout Calibration Check

Input Temperature	Allowable Temp. Dev.*
25	7
75	8
125	9
250	11
350	12
500	14

Stack	Probe	Filter	Exit	Aux.	Meter In	Meter Out
25	24	25	23	28	25	25
75	77	77	75	77	74	78
126	125	126	125	125	126	125
248	253	250				
350	351	347				
498						
XX						
XX						

Thermocouple simulator	
Make/Model:	Omega CL300
Serial No.	647
Cal Date:	1/10/2020

Meter Thermocouple Calibration

Ref. Temp	Allowable Temp. Dev.*	Meter In	Meter Out
61.5	8	61	62
61.5	8	62	63

Reference Thermometer	
Make/Model:	Traceable
Serial No.	170865315
Cal Date:	6/16/2020

* Reading values must be within 1.5% of reference thermometer values (based on absolute temperature scale) for calibration to be acceptable.

Performed by: Name: Austin Goracke Signature: [signature] Date: 11/19/21

Approved by: Name: Preston Bander Signature: [signature] Date: 11/19/21

MONTROSE ENVIRONMENTAL

EPA Method 5

Meter Box Calibration by Calibrated Critical Orifice: Post-Test, English Meter Box Units, English K' Factor

Meter box ID:	MB31
Meter ID (if applicable):	XXXX
Orifice set ID:	TV1
Calibrated by (initials):	AG
Current 6-month calibration Yd:	0.9902
Date of 6-month calibration:	11/19/21

Date:	3/14/22
Location:	Portland
No. of runs (default 3)	3
Barometric pressure (in. Hg):	30.15 in. Hg
Theoretical critical vacuum:	14.22 in. Hg

Current Cal. Yd:	**0.9902**
Post-test Yd:	**0.9853**
Post-test Result:	**PASS**

Meter Box Orifice Calibration

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

		Volume			Initial Temps.		Final Temps.		Orifice	K' Orifice		-- Ambient Temperature --		
ΔH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Net (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
1.20	18.00	484.548	495.838	11.290	XX	66	XX	67	56	0.4743	20.0	65	65	65.0
1.20	13.00	495.838	503.978	8.140	XX	67	XX	68	56	0.4743	20.0	65	65	65.0
1.20	15.00	503.978	513.365	9.387	XX	68	XX	69	56	0.4743	20.0	65	65	65.0

— SAMPLE RATE —
INDICATED VS. ACTUAL

ΔH (in. H2O)	Sample Rate (scfm)
1.20	0.62
1.20	0.62
1.20	0.62

— DRY GAS METER —
VOLUME CORRECTED

Vm(std) (cu ft)
11.438
8.231
9.474

—— ORIFICE ——
VOLUME CORRECTED / VOLUME NOMINAL

Vcr(std) (cu ft)	Vcr (cu ft)
11.233	11.089
8.113	8.009
9.361	9.241

-- DRY GAS METER --
CALIBRATION FACTOR Yd

Value (number)	Variation (number)
0.9821	-0.003
0.9857	0.000
0.9881	0.003

—— ORIFICE ——
CALIBRATION FACTOR ΔH@

Value (in H2O)	Variation (in H2O)
1.75	0.003
1.75	0.000
1.74	-0.003

For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +/-0.02.

For Orifice Calibration Factor ΔH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/-0.2.

QA Criteria:	
Average Yd	0.9853
Average ΔH@	1.7480
Variation of Yd's	PASS
Variation of ΔH@	PASS
Vacuum Criteria	PASS

Meter Box Vacuum Leak Check

Test Vacuum, (in. Hg):	25	Coarse adjust valve fully open, fine adjust fully closed, sample inlet plugged
Leak Rate, (cfm):	0	Must be zero (meter dial stable for 1 minute)

Performed by: Name: Austin Gonzalez Signature _____ Date: 3/14/22

Approved by: Name: PB Signature _____ Date: 3/14/22

MONTROSE ENVIRONMENTAL

EPA Method 5

Meter Box Calibration by Calibrated Critical Orifice, Leak Check, and Thermocouple Calibration Check

English Meter Box Units, English K' Factor

Meter box ID:	MB 32
Meter ID (if applicable):	
Orifice set ID:	SHOP #2
Calibrated by:	JV
Expires:	6/6/22

Date:	12/6/21
Location:	PDX shop
No. of orifices used (min. 3)	3
Barometric pressure (in. Hg):	30.10 in. Hg
Theoretical critical vacuum	14.20 in. Hg

Yd:	**0.9940**
ΔH@:	**1.6681**

Meter Box Orifice Calibration

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above

IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

		Volume			Initial Temps.		Final Temps.		Orifice	K' Orifice		-- Ambient Temperature --		
ΔH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Net (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.25	30.00	703.310	712.415	9.105	N/A	58	N/A	60	NR-40	0.2343	22.0	62	62	61.9
0.59	18.00	712.415	720.333	7.918	N/A	60	N/A	61	NR-48	0.3407	21.0	62	62	62.1
1.10	12.00	720.333	727.333	7.000	N/A	61	N/A	61	NR-55	0.4478	19.0	62	62	62.1

— SAMPLE RATE —

INDICATED VS. ACTUAL

ΔH (in. H2O)	Sample Rate (scfm)
0.25	0.309
0.59	0.449
1.10	0.590

— DRY GAS METER —

VOLUME CORRECTED

Vm(std) (cu ft)
9.321
8.089
7.153

—— ORIFICE ——

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME NOMINAL Vcr (cu ft)
9.262	9.104
8.079	7.943
7.078	6.960

-- DRY GAS METER --

CALIBRATION FACTOR Yd

Value (number)	Variation (number)
0.9937	0.000
0.9988	0.005
0.9895	-0.004

—— ORIFICE ——

CALIBRATION FACTOR ΔH@

Value (in H2O)	Variation (in H2O)
1.510	-0.158
1.681	0.013
1.813	0.145

For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +/-0.02.

For Orifice Calibration Factor ΔH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/-0.2.

QA Criteria:	
Average Yd	0.9940
Average ΔH@	1.6681
Variation of Yd's	PASS
Variation of ΔH@	PASS
Vacuum Criteria	PASS

Meter Box Pressure Leak Check

Test Pressure, (in H_2O):	6	Should be 5-7 in. H_2O
Leak Rate, (in H_2O/min):	0	Must be zero (manometer level stable for 1 minute)

Meter Box Vacuum Leak Check

Test Vacuum, (in. Hg):	25	Coarse adjust valve fully open, fine adjust fully closed, sample inlet plugged
Leak Rate, (cfm):	0	Must be zero (meter dial stable for 1 minute)

Meter Box Thermocouple Readout Calibration Check

Input Temperature	Allowable Temp. Dev.*
25	7
75	8
125	9
250	11
300	11
350	12
400	13
500	14

Stack	Probe	Filter	Exit	Aux.	Meter In	Meter Out
26	26	26	27	26		22
76	76	76	77	76		72
126	126	127	127	127		121
252	253	253				
301	302	303				
351						
401						
500						

Thermocouple simulator	
Make/Model:	Altek Type K
Serial No.	541
Cal Date:	1/18/2021

Meter Thermocouple Calibration

Ref. Temp	Allowable Temp. Dev.*	Meter In	Meter Out
61	8		61
150	9		149

Reference Thermometer	
Make/Model:	Traceable
Serial No.	200456908
Cal Date:	due Aug 2 2022

* Reading values must be within 1.5% of reference thermometer values (based on absolute temperature scale) for calibration to be acceptable.

Performed by: Name: Julian Vaca Signature: Julian Vaca Date: 12/6/21

Approved by: Name: Austin Goracke Signature: [signature] Date: 12/9/21

MONTROSE ENVIRONMENTAL

EPA Method 5

Meter Box Calibration by Calibrated Critical Orifice: Post-Test, English Meter Box Units, English K' Factor

Meter box ID:	MB32
Meter ID (if applicable):	XXXX
Orifice set ID:	TV1
Calibrated by (initials):	AG
Current 6-month calibration Yd:	0.9940
Date of 6-month calibration:	12/6/21

Date:	3/14/22
Location:	Portland
No. of runs (default 3)	3
Barometric pressure (in. Hg):	30.15 in. Hg
Theoretical critical vacuum:	14.22 in. Hg

Current Cal. Yd:	**0.9940**
Post-test Yd:	**0.9841**
Post-test Result:	**PASS**

Meter Box Orifice Calibration

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

		Volume			Initial Temps.		Final Temps.		Orifice	K' Orifice		-- Ambient Temperature --		
ΔH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Net (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.80	18.00	546.586	555.607	9.021	XX	64	XX	65	51	0.3796	22.0	65	65	65.0
0.80	13.00	555.607	562.151	6.544	XX	65	XX	67	55	0.3796	22.0	65	65	65.0
0.80	15.00	562.151	569.630	7.479	XX	67	XX	68	51	0.3796	22.0	65	65	65.0

-- SAMPLE RATE --
INDICATED VS. ACTUAL

ΔH (in. H2O)	Sample Rate (scfm)
0.80	0.50
0.80	0.50
0.80	0.50

-- DRY GAS METER --
VOLUME CORRECTED

Vm(std) (cu ft)
9.165
6.630
7.555

------ ORIFICE ------

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME NOMINAL Vcr (cu ft)
8.991	8.875
6.494	6.410
7.493	7.396

-- DRY GAS METER --
CALIBRATION FACTOR Yd

Value (number)	Variation (number)
0.9810	-0.003
0.9795	-0.005
0.9917	0.008

------ ORIFICE ------
CALIBRATION FACTOR ΔH@

Value (in H2O)	Variation (in H2O)
1.83	0.005
1.82	0.000
1.82	-0.005

For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +/-0.02.

For Orifice Calibration Factor ΔH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/-0.2.

QA Criteria:	
Average Yd	0.9841
Average ΔH@	1.8243
Variation of Yd's	PASS
Variation of ΔH@	PASS
Vacuum Criteria	PASS

Meter Box Vacuum Leak Check

Test Vacuum, (in. Hg):	26	Coarse adjust valve fully open, fine adjust fully closed, sample inlet plugged
Leak Rate, (cfm):	0	Must be zero (meter dial stable for 1 minute)

Performed by: Name: Austin Govacke Signature _____ Date: 3/14/22

Approved by: Name: PB Signature _____ Date: 3/14/22

Critical Orifice Calibration

Client	MONTROSE										6/10/21	Date
Set ID	SHOP #1										in house	Job
DGM (Y) =	1.0043		Fluke ID	526		PLC	0 at		6 inH2O		0	Calibrated
DGM ID #	19461089		Std Manometer	537		NLC	0 at		22 inHg		0	QA/QC
Dry Gas Meter			Orifice ID #	40	Orifice ID #	48	Orifice ID #	55	Orifice ID #	63	Orifice ID #	73
K' Critical Orifice Coefficient				**0.23996**		**0.35024**		**0.46898**		**0.60258**		**0.82426**
	Symbol	Units	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
Initial volume	V_i	ft³	250.239	258.575	267.550	279.343	300.234	307.535	315.455	324.863	331.915	337.274
Final Volume	V_f	ft³	258.575	267.550	279.343	300.234	307.535	315.455	324.863	331.915	337.274	342.655
Difference	V_m	ft³	8.336	8.975	11.793	20.891	7.301	7.920	9.408	7.052	5.359	5.381
Temperatures												
Ambient	T_a	°F	80.0	82.0	82.9	83.6	83.5	84.2	84.4	83.8	84.4	84.5
Absolute ambient	T_a	°R	539.67	541.67	542.57	543.27	543.17	543.87	544.07	543.47	544.07	544.17
Initial Inlet	T_i	°F	68.9	73.3	74.3	78.5	78.9	83.9	82.6	89.1	88.5	93.8
Outlet	T_f	°F	68.7	69.9	70.9	71.6	72.5	73.3	73.8	71.7	75.4	76.1
Final Inlet	T_i	°F	73.3	74.9	78.5	80.1	83.9	84.9	89.1	89.9	93.8	94.1
Outlet	T_f	°F	69.9	70.9	71.6	82.7	73.3	73.8	71.7	75.3	76.1	76.4
Avg. Temp	T_m	°R	529.87	531.92	533.495	537.895	536.82	538.645	538.97	541.17	543.12	544.77
Time		min	27	29	26	46	12	13	12	9	5	5
		sec	0	0	0	0	0	0	0	0	0	0
			27.00	29.00	26.00	46.00	12.00	13.00	12.00	9.00	5.00	5.00
SAMPLE RATE		ACFM	0.3078	0.3095	0.4536	0.4542	0.6084	0.6092	0.7840	0.7836	1.0718	1.0762
Orifice man. rdg	dH@	in H_2O	0.31	0.31	0.70	0.70	1.30	1.30	2.20	2.20	4.30	4.30
Barometric. Pressure	Pbar	inHg	30.21	30.21	30.21	30.21	30.21	30.21	30.21	30.21	30.21	30.21
Pump vacuum		inHg	23.0	23.0	21.0	21.0	20.0	20.0	17.0	17.0	15.0	15.0
K' factor			0.2399	0.2400	0.3513	0.3491	0.4693	0.4686	0.6041	0.6010	0.8238	0.8247
K' factor Average				0.2400		0.3502		0.4690		0.6026		0.8243
% Error (+/- 0.5)		%	PASS	0.019%	PASS	0.315%	PASS	0.071%	PASS	0.260%	PASS	0.058%

Client	MONTROSE										6/8/21	Date
Set ID	TV1										in house	Job
DGM (Y) =	1.0043		Fluke ID	526		PLC	0 at		6 inH2O			Calibrated
DGM ID #	19461089		Std Manometer	537		NLC	0 at		22 inHg			QA/QC
Dry Gas Meter			Orifice ID #	35	Orifice ID #	44	Orifice ID #	51	Orifice ID #	56	Orifice ID #	65
K' Critical Orifice Coefficient				**0.18118**		**0.29561**		**0.38571**		**0.48188**		**0.64503**
	Symbol	Units	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
Initial volume	V_i	ft³	950.255	959.124	964.043	974.337	919.608	932.158	979.755	989.768	995.407	1001.285
Final Volume	V_f	ft³	959.124	964.043	974.337	979.715	932.158	950.255	989.768	995.407	1001.285	1006.340
Difference	V_m	ft³	8.869	4.919	10.294	5.378	12.550	18.097	10.013	5.639	5.878	5.055
Temperatures												
Ambient	T_a	°F	78.2	80.9	81.8	81.9	77.7	81.5	82.3	82.2	82.7	82.2
Absolute ambient	T_a	°R	537.87	540.57	541.47	541.57	537.37	541.17	541.97	541.87	542.37	541.87
Initial Inlet	T_i	°F	68.3	73.2	73.1	77.5	76.3	80.9	76.4	83.5	83.5	89.3
Outlet	T_f	°F	68.3	71.1	72.1	73.1	74.5	74.1	73.3	74.4	74.5	75.5
Final Inlet	T_i	°F	73.2	73.3	77.5	76.8	80.9	81.5	83.5	83.5	89	88.1
Outlet	T_f	°F	71.1	72	73.1	73.1	74.1	74.6	74.4	74.5	75.5	75.5
Avg. Temp	T_m	°R	529.895	532.07	533.62	534.795	536.12	537.445	536.57	538.645	540.295	541.77
Time		min	38	21	27	14	25	36	16	9	7	6
		sec	0	0	0	0	0	0	0	0	0	0
			38.00	21.00	27.00	14.00	25.00	36.00	16.00	9.00	7.00	6.00
SAMPLE RATE		ACFM	0.2334	0.2342	0.3813	0.3841	0.5020	0.5027	0.6258	0.6266	0.8397	0.8425
Orifice man. rdg	dH@	in H_2O	0.17	0.17	0.48	0.48	0.85	0.85	1.40	1.40	2.50	2.50
Barometric. Pressure	Pbar	inHg	29.97	29.97	29.97	29.97	29.94	29.94	29.97	29.97	29.97	29.97
Pump vacuum		inHg	24.0	24.0	22.0	22.0	21.0	21.0	19.0	19.0	16.0	16.0
K' factor			0.1810	0.1814	0.2948	0.2964	0.3852	0.3862	0.4825	0.4812	0.6450	0.6451
K' factor Average				0.1812		0.2956		0.3857		0.4819		0.6450
% Error (+/- 0.5)		%	PASS	0.101%	PASS	0.270%	PASS	0.122%	PASS	0.138%	PASS	0.006%

Critical Orifice Calibration

MONTROSE ENVIRONMENTAL

Set ID	TV1										1/7/22	Date
DGM (Y) =	1.0043		Fluke ID	0		PLC	0 at		6 in H_2O		PDX in house	Job
DGM ID #	19461089		Std Manometer	0		NLC	0 at		22 in Hg		MW	JV Calibrated QA/QC
Dry Gas Meter			Orifice ID #	35	Orifice ID #	44	Orifice ID #	51	Orifice ID #	56	Orifice ID #	65
K' Critical Orifice Coefficient				**0.17795**		**0.29057**		**0.37961**		**0.47422**		**0.63473**
	Symbol	Units	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
Initial volume	V_i	ft³	1.100	6.660	11.965	17.635	24.050	29.990	60.430	67.202	74.622	82.916
Final Volume	V_f	ft³	6.660	11.965	17.635	24.050	29.990	35.920	67.202	74.622	82.916	92.058
Difference	V_m	ft³	5.560	5.305	5.670	6.415	5.940	5.930	6.772	7.420	8.294	9.142
Temperatures												
Ambient	T_a	°F	65.0	65.0	65.0	65.0	65.0	65.0	64.4	64.8	65.0	65.0
Absolute ambient	T_a	°R	524.67	524.67	524.67	524.67	524.67	524.67	524.07	524.47	524.67	524.67
Initial Inlet	T_i	°F	70.5	68.7	68.2	71.4	71	73.3	70.1	73.7	76	80.2
Outlet	T_f	°F	66.5	65.8	65.6	65.5	65.7	66.1	63.8	64.6	65.5	66.7
Final Inlet	T_i	°F	68.7	68.5	71.4	72.1	74.7	75.5	75.4	78.3	83.6	84.9
Outlet	T_f	°F	65.8	65.6	65.5	65.7	66.3	66.4	64.5	65.5	66.8	67.9
Avg. Temp	T_m	°R	527.545	526.82	527.345	528.345	529.095	529.995	528.12	530.195	532.645	534.595
Time		min	24	23	15	17	12	12	11	12	10	11
		sec	0	0	0	0	0	0	0	0	0	0
			24.00	23.00	15.00	17.00	12.00	12.00	11.00	12.00	10.00	11.00
SAMPLE RATE		ACFM	0.3078	0.2307	0.3780	0.3774	0.4950	0.4942	0.6156	0.6183	0.8294	0.8311
Orifice man. rdg	dH@	in H_2O	0.14	0.14	0.42	0.42	0.75	0.75	1.20	1.20	2.30	2.30
Barometric. Pressure	Pbar	inHg	29.61	29.61	29.61	29.61	29.61	29.61	30.21	30.21	30.21	30.21
Pump vacuum		inHg	22.0	22.0	20.5	20.5	19.5	19.5	18.0	18.0	16.0	16.0
K' factor			0.1782	0.1777	0.2911	0.2900	0.3802	0.3790	0.4740	0.4744	0.6352	0.6342
K' factor Average				0.1779		0.2906		0.3796		0.4742		0.6347
% Error (+/- 0.5)		%	PASS	0.151%	PASS	0.180%	PASS	0.169%	PASS	0.042%	PASS	0.081%

Client	MONTROSE										1/26/21	Date
Set ID	Shop #2										PDX Shop	Job
DGM (Y) =	0.9906		Fluke ID	605		PLC	0 at		6 inH2O		MG	Calibrated
DGM ID #	19461089		Std Manometer	537		NLC	0 at		22 inHg		PB	QA/QC
Dry Gas Meter			Orifice ID #	NR-40	Orifice ID #	NR-48	Orifice ID #	NR-55	Orifice ID #	NR-63	Orifice ID #	NR-73
K' Critical Orifice Coefficient				**0.23432**		**0.34070**		**0.44776**		**0.57708**		**0.78714**
	Symbol	Units	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
Initial volume	V_i	ft³	404.600	409.790	415.000	420.360	425.720	433.400	440.480	445.820	451.160	458.450
Final Volume	V_f	ft³	409.790	414.980	420.360	425.720	433.400	440.480	445.820	451.160	458.450	465.760
Difference	V_m	ft³	5.190	5.190	5.360	5.360	7.680	7.080	5.340	5.340	7.290	7.310
Temperatures												
Ambient	T_a	°F	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0
Absolute ambient	T_a	°R	516.67	516.67	516.67	516.67	516.67	516.67	516.67	516.67	516.67	516.67
Initial Inlet	T_i	°F	57.7	59.5	61.9	66.3	67.1	71.9	71.5	74.7	76.5	82.1
Outlet	T_f	°F	55.3	56.4	57.5	58.2	58.8	59.9	60.5	61.1	61.7	63.2
Final Inlet	T_i	°F	59.5	62.4	66.3	67.1	72	73.2	76.4	76.5	82.1	80.9
Outlet	T_f	°F	56.4	57.5	58.2	58.8	60	60.8	61.5	61.7	63	63.6
Avg. Temp	T_m	°R	516.895	518.62	520.645	522.27	524.145	526.12	527.145	528.17	530.495	532.12
Time		min	17	17	12	12	13	12	7	7	7	7
		sec	0	0	0	0	0	0	0	0	0	0
			17.00	17.00	12.00	12.00	13.00	12.00	7.00	7.00	7.00	7.00
SAMPLE RATE		ACFM	0.3078	0.3053	0.4467	0.4467	0.5908	0.5900	0.7629	0.7629	1.0414	1.0443
Orifice man. rdg	dH@	in H_2O	0.30	0.30	0.67	0.67	1.20	1.20	2.10	2.10	4.00	4.00
Barometric. Pressure	Pbar	inHg	29.64	29.64	29.64	29.64	29.64	29.64	29.64	29.64	29.64	29.64
Pump vacuum		inHg	22.0	22.0	20.5	20.5	19.0	19.0	17.5	17.5	14.5	14.5
K' factor			0.2347	0.2339	0.3412	0.3402	0.4489	0.4466	0.5776	0.5765	0.7873	0.7870
K' factor Average				0.2343		0.3407		0.4478		0.5771		0.7871
% Error (+/- 0.5)		%	PASS	0.167%	PASS	0.156%	PASS	0.253%	PASS	0.097%	PASS	0.016%

Secondary Standard Calibration

DATE: 6/20/2020

Operator: Joe Camodeca

Meter Box No:	19461089	Meter Box ¯H@:	0.0000	Meter Box Yd	0.9906	Barometric Pressure:	29.69

				Standard Meter Gas Volume			Meter Box Gas Volume (ft‹)			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.41	-1.00	0.00	1.0000	0.0	5.000	5.000	339.600	344.644	5.044	72.0	72.0	72.0	72.0	72.0	72.0	12.00	0.9937	0.0000
0.41	-1.00	0.00	1.0000	0.0	5.000	5.000	344.644	349.673	5.029	72.0	72.0	72.0	72.0	72.0	72.0	12.00	0.9967	0.0000
0.41	-1.00	0.00	1.0000	0.0	5.000	5.000	349.673	354.723	5.050	72.0	72.0	72.0	72.0	72.0	72.0	12.00	0.9926	0.0000
0.60	-1.00	0.00	1.0000	0.0	5.000	5.000	355.287	360.337	5.050	72.0	72.0	72.0	72.0	72.0	72.0	8.25	0.9926	0.0000
0.60	-1.00	0.00	1.0000	0.0	5.000	5.000	360.337	365.400	5.063	72.0	72.0	72.0	72.0	72.0	72.0	8.25	0.9900	0.0000
0.61	-1.00	0.00	1.0000	0.0	5.100	5.100	365.400	370.540	5.140	72.0	72.0	72.0	72.0	72.0	72.0	8.25	0.9947	0.0000
0.78	-1.10	0.00	1.0000	0.0	5.000	5.000	373.737	378.797	5.060	72.0	72.0	72.0	72.0	72.0	72.0	6.33	0.9908	0.0000
0.78	-1.10	0.00	1.0000	0.0	5.000	5.000	378.797	383.872	5.075	72.0	72.0	72.0	72.0	72.0	72.0	6.33	0.9879	0.0000
0.78	-1.10	0.00	1.0000	0.0	5.000	5.000	383.872	388.923	5.051	72.0	72.0	72.0	72.0	72.0	72.0	6.33	0.9926	0.0000
0.98	-1.10	0.00	1.0000	0.0	5.000	5.000	390.040	395.133	5.093	72.0	72.0	72.0	73.0	73.0	73.0	5.00	0.9863	0.0000
0.98	-1.10	0.00	1.0000	0.0	5.000	5.000	395.133	400.211	5.078	72.0	72.0	72.0	73.0	73.0	73.0	5.00	0.9892	0.0000
0.98	-1.10	0.00	1.0000	0.0	5.000	5.000	400.211	405.296	5.085	72.0	72.0	72.0	73.0	73.0	73.0	5.00	0.9878	0.0000
1.43	-1.20	0.00	1.0000	0.0	6.000	6.000	407.165	413.276	6.111	72.0	72.0	72.0	74.0	74.0	74.0	5.05	0.9885	0.0000
1.19	-1.20	0.00	1.0000	0.0	5.000	5.000	413.286	418.382	5.096	72.0	72.0	72.0	74.0	74.0	74.0	4.12	0.9878	0.0000
1.19	-1.20	0.00	1.0000	0.0	5.000	5.000	418.382	423.480	5.098	72.0	72.0	72.0	74.0	74.0	74.0	4.12	0.9874	0.0000
															AVERAGE		0.9906	0.0000

Millennium Instruments Inc.
2402 Springridge Drive unit A
Spring Grove IL. 60081
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www.millinst.com

Calibrated By: Joe Camodeca

Signature:

Vacuum Gauge

(in. Hg)	Gauge
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0
25.0	25.0

Secondary Standard Calibration

DATE: 5/19/2021

Operator: Joe Camodeca

Meter Box No:	19461089	Meter Box ¯H@:	0.0000	Meter Box Yd	1.0043	Barometric Pressure:	29.69

				Standard Meter Gas Volume			Meter Box Gas Volume (ft‹)			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
1.24	-1.00	0.00	1.0000	0.0	5.000	5.000	848.000	853.046	5.046	71.0	71.0	71.0	73.0	73.0	73.0	3.98	0.9971	0.0000
1.24	-1.00	0.00	1.0000	0.0	5.000	5.000	853.046	858.103	5.057	71.0	71.0	71.0	73.0	73.0	73.0	3.98	0.9949	0.0000
1.24	-1.00	0.00	1.0000	0.0	5.000	5.000	858.103	863.151	5.048	71.0	71.0	71.0	73.0	73.0	73.0	3.98	0.9967	0.0000
0.97	-0.90	0.00	1.0000	0.0	5.000	5.000	828.701	833.727	5.026	71.0	71.0	71.0	73.0	73.0	73.0	5.08	1.0008	0.0000
0.98	-0.90	0.00	1.0000	0.0	5.000	5.000	833.727	838.746	5.019	71.0	71.0	71.0	73.0	73.0	73.0	5.05	1.0022	0.0000
0.97	-0.90	0.00	1.0000	0.0	5.000	5.000	838.746	843.760	5.014	71.0	71.0	71.0	73.0	73.0	73.0	5.08	1.0032	0.0000
0.75	-0.70	0.00	1.0000	0.0	5.000	5.000	813.102	818.098	4.996	71.0	71.0	71.0	73.0	73.0	73.0	6.55	1.0063	0.0000
0.76	-0.70	0.00	1.0000	0.0	5.000	5.000	818.098	823.100	5.002	71.0	71.0	71.0	73.0	73.0	73.0	6.53	1.0051	0.0000
0.76	-0.70	0.00	1.0000	0.0	5.000	5.000	823.100	828.089	4.989	71.0	71.0	71.0	73.0	73.0	73.0	6.52	1.0077	0.0000
0.61	-0.50	0.00	1.0000	0.0	5.000	5.000	794.500	799.481	4.981	71.0	71.0	71.0	73.0	73.0	73.0	8.15	1.0088	0.0000
0.61	-0.50	0.00	1.0000	0.0	5.000	5.000	799.481	804.457	4.976	71.0	71.0	71.0	73.0	73.0	73.0	8.15	1.0099	0.0000
0.61	-0.50	0.00	1.0000	0.0	5.000	5.000	804.457	809.441	4.984	71.0	71.0	71.0	73.0	73.0	73.0	8.05	1.0082	0.0000
0.39	-0.50	0.00	1.0000	0.0	5.000	5.000	771.200	776.184	4.984	71.0	71.0	71.0	73.0	73.0	73.0	12.63	1.0082	0.0000
0.39	-0.50	0.00	1.0000	0.0	5.000	5.000	776.184	781.168	4.984	71.0	71.0	71.0	73.0	73.0	73.0	12.63	1.0082	0.0000
0.39	-0.50	0.00	1.0000	0.0	5.000	5.000	781.168	786.157	4.989	71.0	71.0	71.0	73.0	73.0	73.0	12.65	1.0072	0.0000
															AVERAGE		1.0043	0.0000

Millennium Instruments Inc.
2402 Springridge Drive unit I
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Calibrated By: Joe Camodeca

Signature:

Vacuum Gauge

(in. Hg)	Gauge
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0
25.0	25.0

W006AS-010935D-RT-2059R1

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MONTROSE
ENVIRONMENTAL

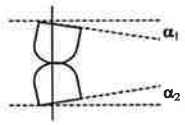
Pitot Tube Calibration Data Sheet

Calibration Date:	March 14, 2022	**Performed by:**	AG	**Expiration Date:**	N/A
		ID No.:	5--22	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	5--22	**No damage:**	Yes
Probe Description:	Nonself Supporting Probe (NP)	**Effective Length (ft):**	5	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?	Yes	**Thermocouple passed calibration?**			Yes

Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: N/A
Caliper ID: 705

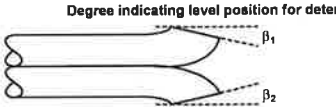
Calibration performed using the procedures of EPA Method 2, Section 10.1

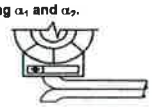
Alignment and Tubing Dimensions





Degree indicating level position for determining α_1 and α_2.



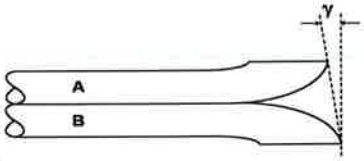


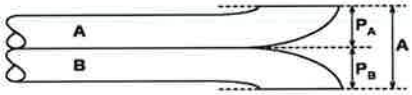




Degree indicating level position for determining θ.

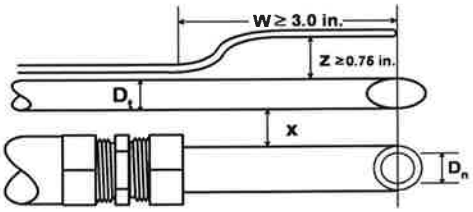
α_1 $(-10° < \alpha_1 < +10°)$	1.0	
α_2 $(-10° < \alpha_2 < +10°)$	0.5	
β_1 $(-5° < \beta_1 < +5°)$	1.0	
β_2 $(-5° < \beta_2 < +5°)$	0.3	
γ	1.0	
θ	0.9	
A	0.8270	
z= A tan γ (± 0.125")	0.0144	Pass
w= A tan θ (± 0.03125")	0.0134	Pass
D_t (0.1875" < D_t < 0.375")	0.3749	Pass
P_A (1.05D_t < P_A < 1.5D_t)	0.4645	Pass
P_B (1.05D_t < P_B < 1.5D_t)	0.4645	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	0.0000	Pass

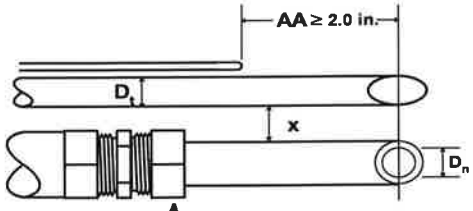




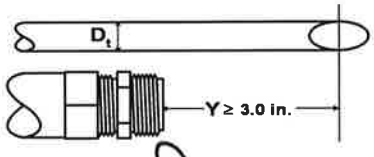
Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")	4.045	Pass	Offset TC only
-or- AA (≥ 2.0")			Setback TC only
X	1.100		
D_n	0.240		
X / D_n (≥ 1.5)	4.450	Pass	
Y (≥ 3.0")	3.300	Pass	
Z ≥ 0.75"	0.930	Pass	Offset TC only



Performed By: AG Signature: _____ Date: 3/14/22

Approved By: PB Signature: _____ Date: 3/14/22

MONTROSE ENVIRONMENTAL

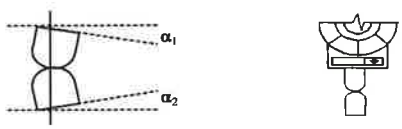
Pitot Tube Calibration Data Sheet

Calibration Date:	March 18, 2022	**Performed by:**	AG	**Expiration Date:**	N/A
		ID No.:	6--1	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	6--1	**No damage:**	Yes
Probe Description:	Self Supporting Probe (SP)	**Effective Length (ft):**	6	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?	Yes	**Thermocouple passed calibration?**			Yes

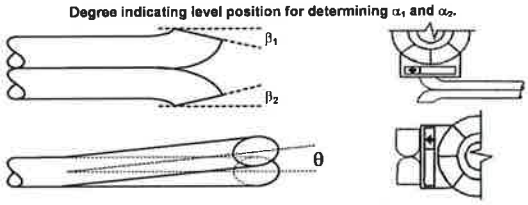
Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: N/A
Caliper ID: 705

Calibration performed using the procedures of EPA Method 2, Section 10.1

Alignment and Tubing Dimensions

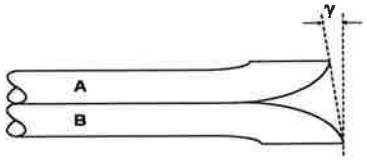


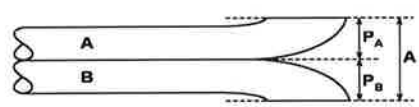
Degree indicating level position for determining α_1 and α_2.



Degree indicating level position for determining θ.

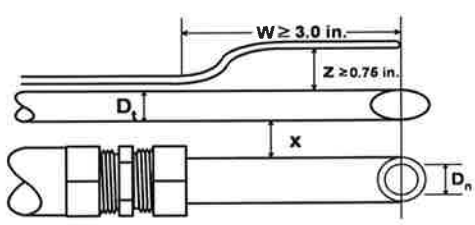
α_1 $(-10° < \alpha_1 < +10°)$	2.5	
α_2 $(-10° < \alpha_2 < +10°)$	2.8	
β_1 $(-5° < \beta_1 < +5°)$	1.9	
β_2 $(-5° < \beta_2 < +5°)$	2.2	
γ	1.2	
θ	0.5	
A	1.1165	
z= A tan γ (± 0.125")	0.0234	Pass
w= A tan θ (± 0.03125")	0.0097	Pass
D_t (0.1875" < D_t < 0.375")	0.3749	Pass
P_A $(1.05D_t < P_A < 1.5D_t)$	0.5583	Pass
P_B $(1.05D_t < P_B < 1.5D_t)$	0.5583	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	0.0000	Pass

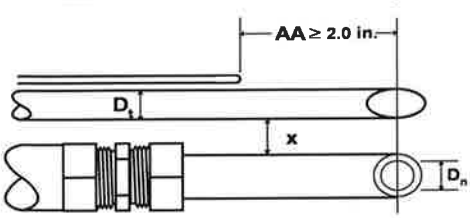




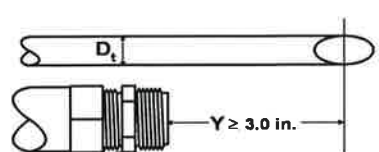
Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")	6.300	Pass	Offset TC only
-or- AA (≥ 2.0")			Setback TC only
X	0.803		
D_n	0.345		
X / D_n (≥ 1.5)	2.326	Pass	
Y (≥ 3.0")	3.520	Pass	
Z ≥ 0.75"	0.925	Pass	Offset TC only



Performed By: Austin Goracke Signature: [signature] Date: 3/18/22

Approved By: Max Gouveia Signature: [signature] Date: 3/18/22

MONTROSE
ENVIRONMENTAL

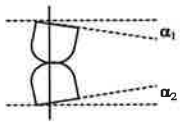
Pitot Tube Calibration Data Sheet

Calibration Date:	March 14, 2022	**Performed by:**	AG	**Expiration Date:**	N/A
		ID No.:	6--6	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	6--6	**No damage:**	Yes
Probe Description:	Nonself Supporting Probe (NP)	**Effective Length (ft):**	6	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?	Yes	**Thermocouple passed calibration?**			Yes

Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: N/A
Caliper ID: 705

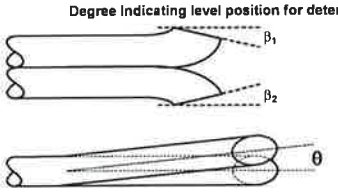
Calibration performed using the procedures of EPA Method 2, Section 10.1

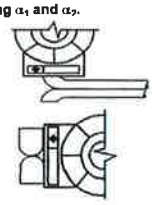
Alignment and Tubing Dimensions





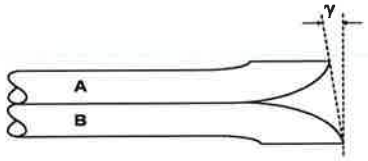
Degree indicating level position for determining α_1 and α_2.

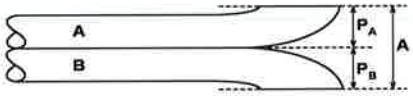




Degree indicating level position for determining θ.

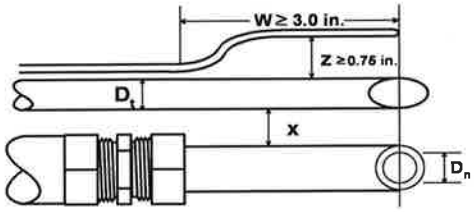
α_1 ($-10° < \alpha_1 < +10°$)	2.0	
α_2 ($-10° < \alpha_2 < +10°$)	2.1	
β_1 ($-5° < \beta_1 < +5°$)	2.0	
β_2 ($-5° < \beta_2 < +5°$)	1.1	
γ	0.5	
θ	0.6	
A	0.9610	
z= A tan γ (± 0.125")	0.0084	Pass
w= A tan θ (± 0.03125")	0.0092	Pass
D_t (0.1875" < D_t < 0.375")	0.3749	Pass
P_A ($1.05D_t < P_A < 1.5D_t$)	0.4805	Pass
P_B ($1.05D_t < P_B < 1.5D_t$)	0.4805	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	0.0000	Pass

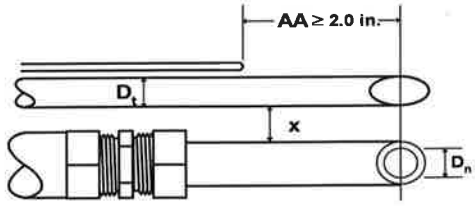




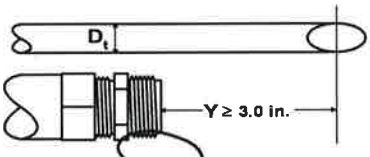
Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")	5.500	Pass	Offset TC only
-or- AA (≥ 2.0")			Setback TC only
X	1.100		
D_n	0.630		
X / D_n (≥ 1.5)	1.746	Pass	
Y (≥ 3.0")	4.220	Pass	
Z ≥ 0.75"	1.255	Pass	Offset TC only



Performed By: AG Signature: Date: 3/14/22

Approved By: PB Signature: Date: 3/14/22

MONTROSE ENVIRONMENTAL

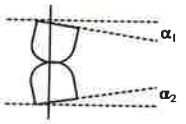
Pitot Tube Calibration Data Sheet

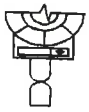
Calibration Date:	February 25, 2022	**Performed by:**	Julian Vaca	**Expiration Date:**	August 25, 2022
		ID No.:	118-NP-4	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	118-NP-4	**No damage:**	Yes
Probe Description:	Self Supporting Probe (SP)	**Effective Length (ft):**	4	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?		**Thermocouple passed calibration?**			Yes

Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: 720
Caliper ID: 705

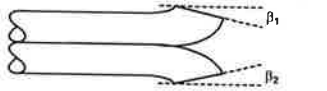
Calibration performed using the procedures of EPA Method 2, Section 10.1

Alignment and Tubing Dimensions



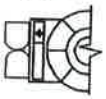


Degree indicating level position for determining α_1 and α_2.



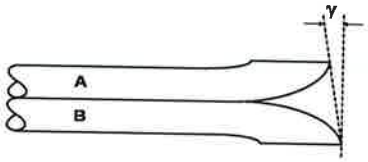


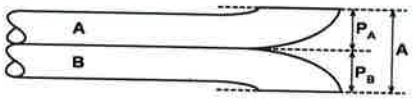




Degree indicating level position for determining θ.

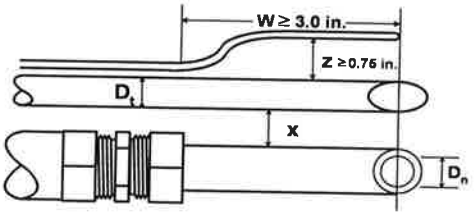
α_1 ($-10° < \alpha_1 < +10°$)	1.0	
α_2 ($-10° < \alpha_2 < +10°$)	0.3	
β_1 ($-5° < \beta_1 < +5°$)	2.7	
β_2 ($-5° < \beta_2 < +5°$)	-1.2	
γ	0.3	
θ	0.8	
A	0.9220	
z= A tan γ (± 0.125")	0.0048	Pass
w= A tan θ (± 0.03125")	0.0129	Pass
D_t (0.1875" < D_t < 0.375")	0.3730	Pass
P_A ($1.05D_t < P_A < 1.5D_t$)	0.4500	Pass
P_B ($1.05D_t < P_B < 1.5D_t$)	0.4505	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	-0.0005	Pass

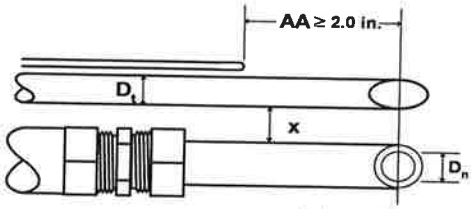




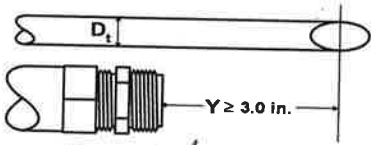
Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")	5.000		
-or- AA (≥ 2.0")			Offset TC only
X	0.554		Setback TC only
D_n	0.207		
X / D_n (≥ 1.5)	2.674	Pass	
Y (≥ 3.0")	3.513	Pass	
Z ≥ 0.75"	1.434	Pass	Offset TC only



Performed By: Julian Vaca Signature: Julian Vaca Date: 2/25/22

Approved By: Colin Rodkey Signature: Colin Rodkey Date: 2/25/22

MONTROSE ENVIRONMENTAL

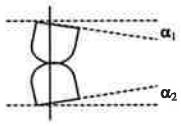
Pitot Tube Calibration Data Sheet

Calibration Date:	February 28, 2022	**Performed by:**	AG	**Expiration Date:**	N/A
		ID No.:	4--14	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	4--14	**No damage:**	Yes
Probe Description:	Nonself Supporting Probe (NP)	**Effective Length (ft):**	4	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?	Yes	**Thermocouple passed calibration?**			Yes

Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: N/A
Caliper ID: 705

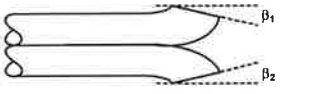
Calibration performed using the procedures of EPA Method 2, Section 10.1

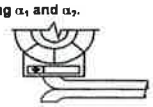
Alignment and Tubing Dimensions



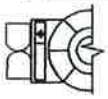


Degree indicating level position for determining α_1 and α_2.



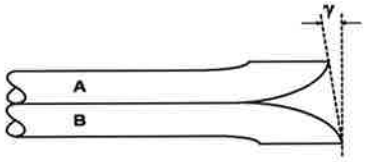


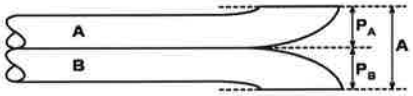




Degree indicating level position for determining θ.

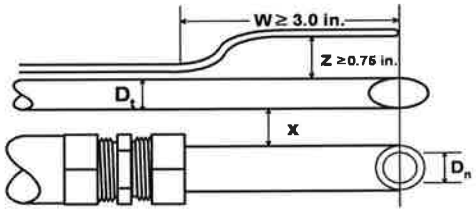
α_1 ($-10° < \alpha_1 < +10°$)	5.8	
α_2 ($-10° < \alpha_2 < +10°$)	4.0	
β_1 ($-5° < \beta_1 < +5°$)	2.3	
β_2 ($-5° < \beta_2 < +5°$)	2.0	
γ	1.0	
θ	0.5	
A	0.9254	
z= A tan γ (± 0.125")	0.0162	Pass
w= A tan θ (± 0.03125")	0.0081	Pass
D_t (0.1875" < D_t < 0.375")	0.3740	Pass
P_A ($1.05D_t < P_A < 1.5D_t$)	0.4627	Pass
P_B ($1.05D_t < P_B < 1.5D_t$)	0.4627	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	0.0000	Pass

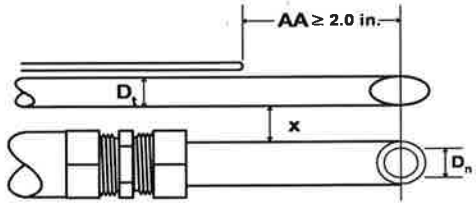




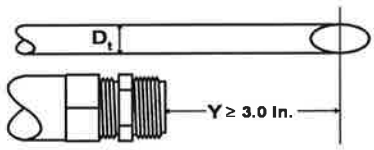
Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")	5.750	Pass	Offset TC only
-or- AA (≥ 2.0")			Setback TC only
X	1.000		
D_n	0.155		
X / D_n (≥ 1.5)	6.600	Pass	
Y (≥ 3.0")	4.050	Pass	
Z ≥ 0.75"	1.255	Pass	Offset TC only



Performed By: Austin Gorecke Signature: Date: 2/28/22

Approved By: Preston Bowden Signature: Date: 2/28/22

MONTROSE
ENVIRONMENTAL

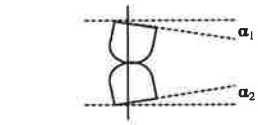
Pitot Tube Calibration Data Sheet

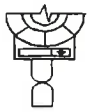
Calibration Date:	March 14, 2022	**Performed by:**	AG	**Expiration Date:**	N/A
		ID No.:	117-Np-4	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	117-Np-4	**No damage:**	Yes
Probe Description:	Nonself Supporting Probe (NP)	**Effective Length (ft):**	4	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?	Yes	**Thermocouple passed calibration?**			Yes

Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: N/A
Caliper ID: 705

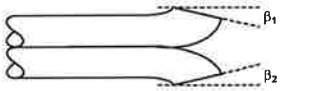
Calibration performed using the procedures of EPA Method 2, Section 10.1

Alignment and Tubing Dimensions

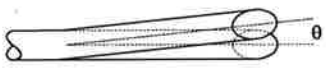


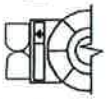


Degree indicating level position for determining α_1 and α_2.



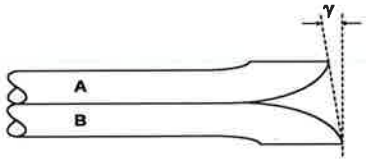


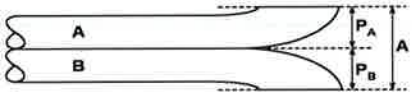




Degree indicating level position for determining θ.

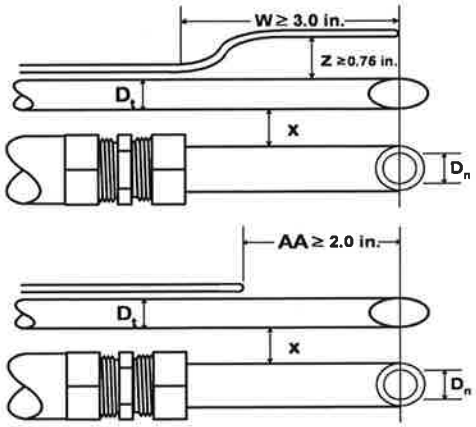
α_1 ($-10° < \alpha_1 < +10°$)	2.3	
α_2 ($-10° < \alpha_2 < +10°$)	2.0	
β_1 ($-5° < \beta_1 < +5°$)	1.0	
β_2 ($-5° < \beta_2 < +5°$)	1.6	
γ	0.5	
θ	1.5	
A	0.9468	
z= A tan γ (± 0.125")	0.0083	Pass
w= A tan θ (± 0.03125")	0.0248	Pass
D_t (0.1875" < D_t < 0.375")	0.3740	Pass
P_A (1.05D_t < P_A < 1.5D_t)	0.4734	Pass
P_B (1.05D_t < P_B < 1.5D_t)	0.4734	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	0.0000	Pass

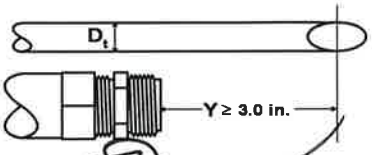




Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")	5.600	Pass	Offset TC only
-or- AA (≥ 2.0")			Setback TC only
X	0.950		
D_n	0.150		
X / D_n (≥ 1.5)	6.275	Pass	
Y (≥ 3.0")	3.995	Pass	
Z ≥ 0.75"	2.050	Pass	Offset TC only

Performed By: AG Signature: Date: 3/14/22

Approved By: PB Signature: Date: 3/14/22

MONTROSE
ENVIRONMENTAL

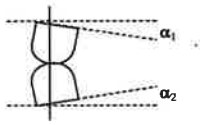
Pitot Tube Calibration Data Sheet

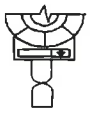
Calibration Date:	March 14, 2022	**Performed by:**	AG	**Expiration Date:**	N/A
		ID No.:	169-Np-6	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	169-Np-6	**No damage:**	Yes
Probe Description:	Nonself Supporting Probe (NP)	**Effective Length (ft):**	6	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?	Yes	**Thermocouple passed calibration?**			Yes

Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: N/A
Caliper ID: 705

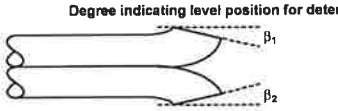
Calibration performed using the procedures of EPA Method 2, Section 10.1

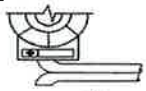
Alignment and Tubing Dimensions

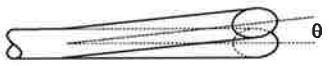


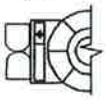


Degree indicating level position for determining α_1 and α_2.



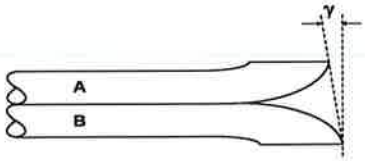


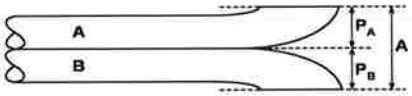




Degree indicating level position for determining θ.

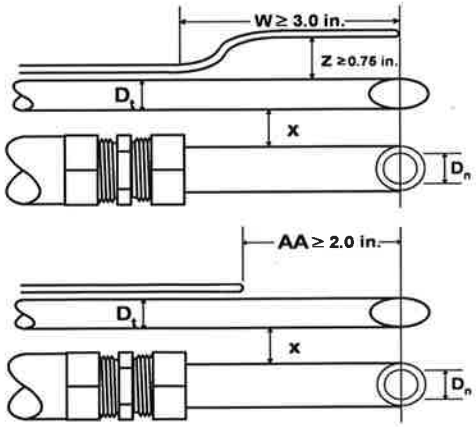
α_1 ($-10° < \alpha_1 < +10°$)	1.2	
α_2 ($-10° < \alpha_2 < +10°$)	1.0	
β_1 ($-5° < \beta_1 < +5°$)	1.2	
β_2 ($-5° < \beta_2 < +5°$)	1.5	
γ	0.5	
θ	1.2	
A	0.9560	
z= A tan γ (± 0.125")	0.0083	Pass
w= A tan θ (± 0.03125")	0.0200	Pass
D_t (0.1875" < D_t < 0.375")	0.3749	Pass
P_A ($1.05D_t < P_A < 1.5D_t$)	0.4780	Pass
P_B ($1.05D_t < P_B < 1.5D_t$)	0.4780	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	0.0000	Pass

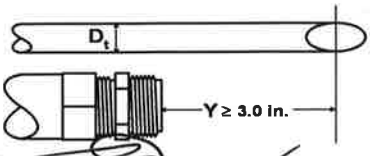




Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")	5.460	Pass	Offset TC only
-or- AA (≥ 2.0")			Setback TC only
X	1.400		
D_n	0.250		
X / D_n (≥ 1.5)	5.600	Pass	
Y (≥ 3.0")	3.320	Pass	
Z ≥ 0.75"	1.500	Pass	Offset TC only

Performed By: AG Signature: [signature] Date: 3/14/22

Approved By: RB Signature: [signature] Date: 3/14/22

MONTROSE
ENVIRONMENTAL

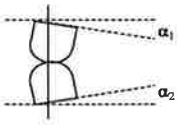
Pitot Tube Calibration Data Sheet

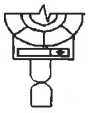
Calibration Date:	May 5, 2022	**Performed by:**	Julian Vaca	**Expiration Date:**	November 5, 2022
		ID No.:	17-NP-6	**No obstructions:**	Yes
Calibrated Pitot Tube:	S-type	**Probe/Pitot ID No:**	17-NP-6	**No damage:**	Yes
Probe Description:	Self Supporting Probe (SP)	**Effective Length (ft):**	6	**Level and Perpendicular:**	Yes
Thermocouple calibration performed?		**Thermocouple passed calibration?**			Yes

Protractor or Digital Angle Finder ID: 708
Measuring Tape ID: 720
Caliper ID: 705

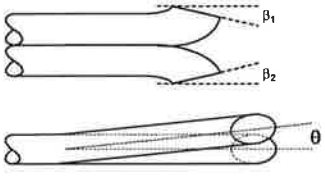
Calibration performed using the procedures of EPA Method 2, Section 10.1

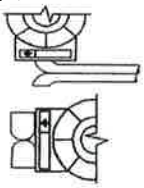
Alignment and Tubing Dimensions





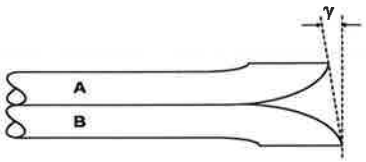
Degree indicating level position for determining α_1 and α_2.

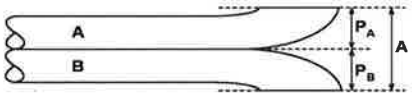




Degree indicating level position for determining θ.

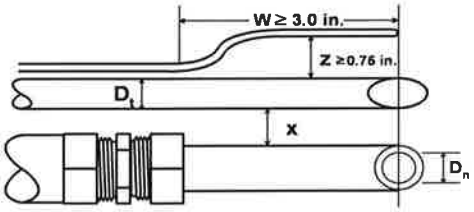
α_1 ($-10° < \alpha_1 < +10°$)	0.3	
α_2 ($-10° < \alpha_2 < +10°$)	-2.2	
β_1 ($-5° < \beta_1 < +5°$)	4.6	
β_2 ($-5° < \beta_2 < +5°$)	3.6	
γ	6.2	
θ	1.2	
A	0.9465	
$z = A \tan \gamma$ ($\pm$ 0.125")	0.1028	Pass
$w = A \tan \theta$ ($\pm$ 0.03125")	0.0198	Pass
D_t (0.1875" < D_t < 0.375")	0.3740	Pass
P_A ($1.05D_t < P_A < 1.5D_t$)	0.4605	Pass
P_B ($1.05D_t < P_B < 1.5D_t$)	0.4605	Pass
$\lvert P_A - P_B \rvert \leq 0.0625$	0.0000	Pass

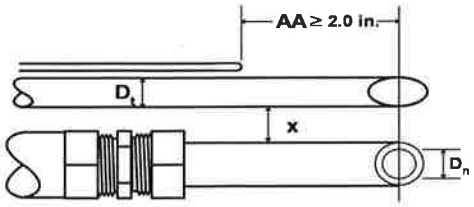




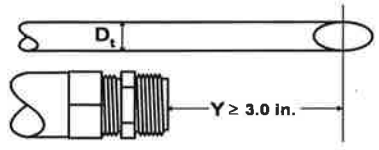
Degree indicating level position for determining γ then calculating Z.

Assembly Inter-Component Spacing Requirements





W (≥ 3.0")			Offset TC only
-or- AA (≥ 2.0")	2.800	Pass	Setback TC only
X	0.966		
D_n	0.281		
X / D_n (≥ 1.5)	3.442	Pass	
Y (≥ 3.0")	4.000	Pass	
Z ≥ 0.75"			Offset TC only



Performed By: Julian Vaca Signature: Julian Vaca Date: 5/9/22

Approved By: Peter Boda Signature: Peter Boda Date: 5/5/2022

Calibration complies with ISO/IEC 17025, ANSI/NCSL Z540-1, and 9001

ACCREDITED A2LA Certificate No. 1750.01 Calibration

Cert. No.: 4371-12034579

Traceable® Certificate of Calibration for Lollipop Thermometer

Manufactured for and distributed by : Thomas Scientific Box 99,99 High Hill Road,Swedeboro,NJ,08085-0099,U.S.A.

Instrument Identification:

Model: 1235D23, S/N: 210187011 Manufacturer: Control Company

Standards/Equipment:

Description	Serial Number	Due Date	NIST Traceable Reference
Temperature Calibration Bath	A73332		
Temperature Calibration Bath	B3A444		
Thermistor Module	B96381	21 Aug 2021	1000457544
Temperature Probe	5392	04 Aug 2021	C0804052
Temperature Probe	5398	04 Aug 2021	C0804051

Certificate Information:

Technician: 420 Procedure: CAL-03 Cal Date: 09 Mar 2021 Cal Due Date: 09 Mar 2023

Test Conditions: 54.91%RH 22.53°C 1026mBar

Calibration Data: (New Instrument)

Unit(s)	Nominal	As Found	In Tol	Nominal	As Left	In Tol	Min	Max	±U	TUR
°C	N.A.	N.A.		0.00	0.0	Y	-1	1	0.058	>4:1
°C	N.A.	N.A.		100.00	100.2	Y	99	101	0.058	>4:1

This certificate indicates Traceability to standards provided by (NIST) National Institute of Standards and Technology and/or a National Standards Laboratory.

A Test Uncertainty Ratio of at least 4:1 is maintained unless otherwise stated and is calculated using the expanded measurement uncertainty. Uncertainty evaluation includes the instrument under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement : (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level. In tolerance conditions are based on test results falling within specified limits with no reduction by the uncertainty of the measurement. The results contained herein relate only to the item calibrated. This certificate shall not be reproduced except in full, without written approval of Control Company.

Nominal=Standard's Reading; As Left=Instrument's Reading; In Tol=In Tolerance; Min/Max=Acceptance Range; ± U=Expanded Measurement Uncertainty; TUR=Test Uncertainty Ratio; Accuracy=±(Max-Min)/2; Min=As Left Nominal(Rounded) – Tolerance; Max= As Left Nominal(Rounded) + Tolerance;

Nicol Rodriguez

Nicol Rodriguez, Quality Manager

Marisa Elms

Marisa Elms, Technical Manager

Note :

Maintaining Accuracy:

In our opinion once calibrated your Lollipop Thermometer should maintain its accuracy. There is no exact way to determine how long calibration will be maintained. Lollipop Thermometer change little, if any at all, but can be affected by aging, temperature, shock, and contamination.

Recalibration:

For factory calibration and re-certification traceable to National Institute of Standards and Technology contact Control Company.

Issue Date : 09 Mar 2021

CONTROL COMPANY 12554 Galveston RD Suite B230 Webster TX USA 77598
Phone 281 482-1714 Fax 281 482-9448 sales@control3.com www.traceable.com

Control Company is an ISO/IEC 17025:2017 Calibration Laboratory Accredited by (A2LA) American Association for Laboratory Accreditation, Certificate No. 1750.01.
Control Company is ISO 9001:2015 Quality Certified by DNV GL, Certificate No. CERT-01805-2006-AQ-HOU-ANAB.
International Laboratory Accreditation Cooperation - Multilateral Recognition Arrangement (ILAC-MRA).

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Barometric Pressure Determination

Date: 03/09/22

Time: 08:40

Data By: Becker

Reference: http://forecast.weather.gov/MapClick.php?CityName=Orange&state

Reference Barometer ID	**Salem - McNary Field (KSLE)**
Reference Barometer Location	Lat: 44.90493 Lon: 123.00096 Elev: 207
Reference Barometer Other Info.	Last Update on March 9 08:20 PST
Reference Barometer Indication, corrected to sea level	**30.14**
Reference Barometer Reference Elevation	**207**
Reference Barometer Actual Pressure	29.93
Test Barometer Location/Site	**Brooks, OR**
Location/Site Elevation	**184**
Location/Site Barometric Pressure	29.96
Sampling Location Height (above/below site elevation)	**120**
Sampling Location Barometric Pressure	**29.84**

Barometric Pressure Determination

Date: 03/10/22

Time: 09:10

Data By: Becker

Reference: http://forecast.weather.gov/MapClick.php?CityName=Orange&state

Reference Barometer ID	**Salem - McNary Field (KSLE)**
Reference Barometer Location	Lat: 44.90493 Lon: 123.00096 Elev: 207
Reference Barometer Other Info.	Last Update on March 10 08:35 PST
Reference Barometer Indication, corrected to sea level	**30.35**
Reference Barometer Reference Elevation	**207**
Reference Barometer Actual Pressure	30.14
Test Barometer Location/Site	**Brooks, OR**
Location/Site Elevation	**184**
Location/Site Barometric Pressure	30.17
Sampling Location Height (above/below site elevation)	**120**
Sampling Location Barometric Pressure	**30.05**

Barometric Pressure Determination

Date: 03/11/22

Time: 08:29

Data By: Becker

Reference: http://forecast.weather.gov/MapClick.php?CityName=Orange&state

Reference Barometer ID	**Salem - McNary Field (KSLE)**
Reference Barometer Location	Lat: 44.90493 Lon: 123.00096 Elev: 207
Reference Barometer Other Info.	Last Update on March 11 08:00 PST
Reference Barometer Indication, corrected to sea level	**30.33**
Reference Barometer Reference Elevation	**207**
Reference Barometer Actual Pressure	30.12
Test Barometer Location/Site	**Brooks, OR**
Location/Site Elevation	**184**
Location/Site Barometric Pressure	30.15
Sampling Location Height (above/below site elevation)	**120**
Sampling Location Barometric Pressure	**30.03**

Appendix D.3
Instrumental Test Method QA/QC Data

MONTROSE AIR QUALITY SERVICES

CEMS CONFIGURATION DATA

Project Information

Client / Facility: Covanta Marion — Project No.: PROJ-010935

Source / Location: Unit 2 Chronic — Method(s): 3A

Test Dates: 3.9.22 - 3.10.22 — Project Manager / Team (initials): PB / AG, PB, SW, Esche Chetty

Analyzers In Service

Please circle all applicable: (O2) (CO2) CO NO_x SO_2 _____ _____ TRS THC

Response Time (seconds): 61 61 ____ ____ ____ ____ ____ ____ ____

Filtration (circle)

Filter Type	In-Stack	(Out-of-Stack)	Sintered	Other _____	
Filter Material	Glass	Quartz	(Steel)	N/A	Other _____

Sample Probe (circle)

Length	4'	(6')	8'	10'	12'	14'	Other _____	
Material	(Steel)	Glass	Teflon	Titanium	Quartz	Inconel	Other _____	
Heated	Yes	(No)						
Probe Temperature	_____ °F	(N/A)						

Conditioner / Moisture Knock-Out (circle)

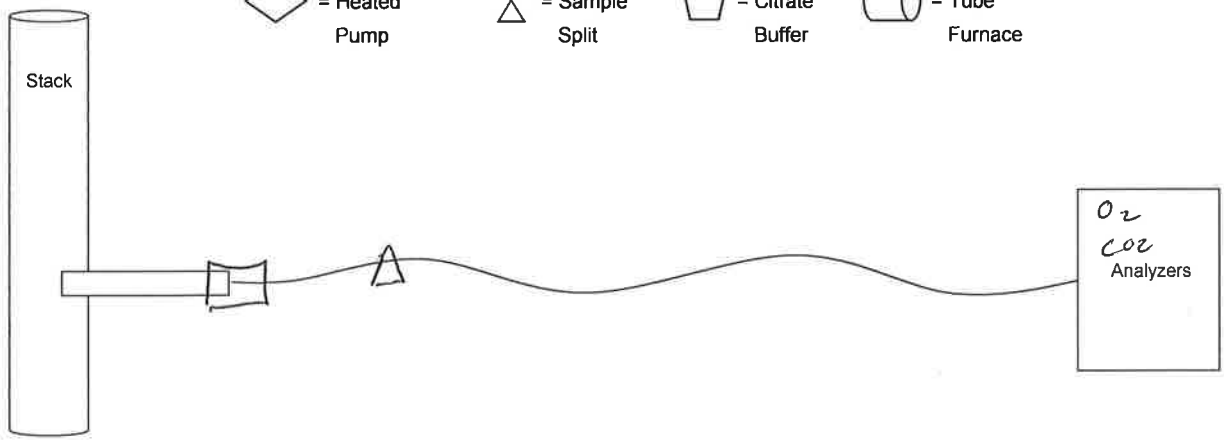
In Use?	(Yes)	No			
Coolant	Ice and Water	Anti-Freeze	Electric	Other _____	
Trap Material	Steel	(Glass)	Teflon	Other _____	

Leak Checks

	3.9.2022	3.10.2022	3.11.2022
Pre-Test	0.0 cfh @ 24.0 in. Hg	0.0 @ 25 in Hg	0.0 cfh @ 24 in. Hg
Post-Test	0.0 cfh @ 25.0 in. Hg	0.0 @ 24 in Hg	0.0 cfh @ 24 in. Hg
System Flow Rate	4.0 cfh	4.0 Lpm	4.0 cfh
Leak Rate	Post-Test (cfh) / System Flow Rate (cfh) * 100 = 0.0 %	0.0	0.0 %

Fill in locations of elements of the CEM system, as applicable

Legend: ⊗ = Cal Tee; □ = Filter; △ = Gas Conditioner; ◇ = Heated Pump; ⧖ = Sample Split; ⏢ = Citrate Buffer; ⬭ = Tube Furnace



Upstream of conditioner

Sample Line Length: 10 feet

Sample Line Material: Teflon

Sample Line Temp.: N/A deg. F

Downstream of conditioner

Sample Line Length: 240 feet

Sample Line Material: Teflon

Sample Line Temp.: N/A deg. F

If this information is not accurate for all runs, note exceptions here.

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Analyzer Configuration

Name:	O2-741	CO2-695						
Make/Model:								
25A or 7E:	7E	7E						
Voltage max:	10	10						
Voltage offset:	0	0						
Range:	10	10						
Upscale:								
Downscale:								

Cylinder Information

Zero Number:	EB0142014	EB0142014						
Zero Conc:	0	0						
Low Number:								
Low Conc:								
Mid Number:	EB0063296	EB0063296						
Mid Conc:	10.19	9.923						
High Number:	EB0089025	EB0089025						
High Conc:	23.04	22.66						
Bias Number:	EB0063296	EB0063296						
Bias Conc:	10.19	9.923						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Calibration

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:	0.000	0.000						
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 120	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 3	DAQ Device: DT9806(00)

Initial bias

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.015						
	Low reading:	0.000	0.000						
	Mid reading:	10.19	9.879						
	High reading:	23.05	22.69						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.066						
Mid %Err:	**<2.0**	0.000	-0.194						
High %Err:	**<2.0**	0.043	0.132						

Initial Bias Data									
	Zero reading:	0.013	0.086						
	Span reading:	10.000	9.617						
Zero % bias:	**<5.0**	0.048	0.446						
Span % bias:	**<5.0**	-0.825	-1.156						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Analyzer Configuration

Name:	O2-741	CO2-695						
Make/Model:								
25A or 7E:	7E	7E						
Voltage max:	10	10						
Voltage offset:	0	0						
Range:	10	10						
Upscale:								
Downscale:								

Cylinder Information

Zero Number:	EB0142014	EB0142014						
Zero Conc:	0	0						
Low Number:								
Low Conc:								
Mid Number:	EB0063296	EB0063296						
Mid Conc:	10.19	9.923						
High Number:	EB0089025	EB0089025						
High Conc:	23.04	22.66						
Bias Number:	EB0063296	EB0063296						
Bias Conc:	10.19	9.923						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Calibration

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.011	0.007						
	Low reading:	0.000	0.000						
	Mid reading:	10.18	9.846						
	High reading:	23.04	22.66						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.048	0.031						
Mid %Err:	**<2.0**	-0.043	-0.340						
High %Err:	**<2.0**	0.000	0.000						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Initial bias

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.011	0.007						
	Low reading:	0.000	0.000						
	Mid reading:	10.18	9.846						
	High reading:	23.04	22.66						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.048	0.031						
Mid %Err:	**<2.0**	-0.043	-0.340						
High %Err:	**<2.0**	0.000	0.000						

Initial Bias Data									
	Zero reading:	0.087	0.114						
	Span reading:	10.04	9.644						
Zero % bias:	**<5.0**	0.330	0.472						
Span % bias:	**<5.0**	-0.608	-0.891						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Analyzer Configuration

Name:	O2-741	CO2-695						
Make/Model:								
25A or 7E:	7E	7E						
Voltage max:	10	10						
Voltage offset:	0	0						
Range:	10	10						
Upscale:								
Downscale:								

Cylinder Information

Zero Number:	EB0142014	EB0142014						
Zero Conc:	0	0						
Low Number:								
Low Conc:								
Mid Number:	EB0063296	EB0063296						
Mid Conc:	10.19	9.923						
High Number:	EB0089025	EB0089025						
High Conc:	23.04	22.66						
Bias Number:	EB0063296	EB0063296						
Bias Conc:	10.19	9.923						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Calibration

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.026						
	Low reading:	0.000	0.000						
	Mid reading:	10.20	9.834						
	High reading:	23.04	22.67						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.115						
Mid %Err:	**<2.0**	0.043	-0.393						
High %Err:	**<2.0**	0.000	0.044						

MAQDAQ 1.0			
Project Name: Covanta	Project Number: PROJ-010935	CEMS Operator: PB	Unit/Condition: Unit 2
Run Length: 240	Record Interval: 6	Average Interval: 60	Triplicate Sampling: False
Traverse: True	Ports: 2	Points per port: 6	DAQ Device: DT9806(00)

Initial bias

	Name:	O2-741	CO2-695						
	Make/Model:								
	25A or 7E:	7E	7E						

Cylinder Concentrations									
	Zero:	0.000	0.000						
	Low:								
	Mid:	10.19	9.923						
	High:	23.04	22.66						

Calibration Readings									
	Zero reading:	0.002	-0.026						
	Low reading:	0.000	0.000						
	Mid reading:	10.20	9.834						
	High reading:	23.04	22.67						

EPA Method 7E Error Calculations									
Zero %Err:	**<2.0**	0.009	-0.115						
Mid %Err:	**<2.0**	0.043	-0.393						
High %Err:	**<2.0**	0.000	0.044						

Initial Bias Data									
	Zero reading:	0.018	0.061						
	Span reading:	10.14	9.786						
Zero % bias:	**<5.0**	0.069	0.384						
Span % bias:	**<5.0**	-0.260	-0.212						

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
525 North Industrial Loop Road
Tooele, UT 84074
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number:	E03NI80E15A0138	Reference Number:	153-401899133-1
Cylinder Number:	EB0063296	Cylinder Volume:	150.9 CF
Laboratory:	124 - Tooele (SAP) - UT	Cylinder Pressure:	2015 PSIG
PGVP Number:	B72020	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Sep 09, 2020

Expiration Date: Sep 09, 2028

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	10.00 %	9.923 %	G1	+/- 0.7% NIST Traceable	09/09/2020
OXYGEN	10.00 %	10.19 %	G1	+/- 0.8% NIST Traceable	09/09/2020
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060802	CC411741	13.359 % CARBON DIOXIDE/NITROGEN	0.6%	May 14, 2025
NTRM	98051017	SG9142416BAL	12.05 % OXYGEN/NITROGEN	0.7%	Dec 14, 2023

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Horiba VIA-510 SV4MEUTJ CO2	CO2 NDIR (Dixon)	Sep 03, 2020
Horiba MPA-510 W603MM58 O2	O2 Paramagnetic (Mason)	Aug 13, 2020

Triad Data Available Upon Request

Signature on file
Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
525 North Industrial Loop Road
Tooele, UT 84074
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number:	E03NI54E15A3808	Reference Number:	153-401795443-1
Cylinder Number:	EB0089025	Cylinder Volume:	162.7 CF
Laboratory:	124 - Tooele (SAP) - UT	Cylinder Pressure:	2015 PSIG
PGVP Number:	B72020	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Apr 24, 2020

Expiration Date: Apr 24, 2028

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	23.00 %	22.66 %	G1	+/- 0.6% NIST Traceable	04/24/2020
OXYGEN	23.00 %	23.04 %	G1	+/- 0.5% NIST Traceable	04/24/2020
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	06011806	K012669	23.04 % CARBON DIOXIDE/NITROGEN	0.5%	Jun 27, 2022
NTRM	09061437	CC282504	22.53 % OXYGEN/NITROGEN	0.4%	May 13, 2025

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Horiba VIA-510 SV4MEUTJ CO2	CO2 NDIR (Dixon)	Apr 16, 2020
Horiba MPA-510 W603MM58 O2	O2 Paramagnetic (Mason)	Apr 23, 2020

Triad Data Available Upon Request

Signature on file
Approved for Release

Airgas Specialty Gases
Airgas USA LLC
525 North Industrial Loop Road
Tooele, UT 84074
Airgas.com

CERTIFICATE OF BATCH ANALYSIS

Grade of Product: CEM-CAL ZERO

Part Number:	NI CZ15A	Reference Number:	153-402093072-1
Cylinder Analyzed:	EB0081640	Cylinder Volume:	142.0 CF
Laboratory:	124 - Tooele (SAP) - UT	Cylinder Pressure:	2000 PSIG
Analysis Date:	Apr 19, 2021	Valve Outlet:	580
Lot Number:	153-402093072-1		

Expiration Date: Apr 19, 2029

ANALYTICAL RESULTS

Component	Requested Purity		Certified Concentration
NITROGEN	99.9995 %		99.9995 %
CARBON DIOXIDE	1.0 PPM	<LDL	0.03 PPM
NOx	0.1 PPM	<LDL	0.02 PPM
SO2	0.1 PPM	<LDL	0.1 PPM
THC	0.1 PPM	<LDL	0.04 PPM
CARBON MONOXIDE	0.5 PPM	<LDL	0.03 PPM

Permanent Notes: Airgas certifies that the contents of this cylinder meet the requirements of 40 CFR 72.2

Cylinders in Batch:

CC134046, CC247343, CC252996, CC63009, CC733241, EB0081640, EB0122693, EB0141671, EB0141772, EB0141850, EB0141975, EB0141977, EB0141979, EB0141988, EB0141994, EB0141997, EB0142004, EB0142014, EB0142042, EB0142046, EB0142047, EB0142052, EB0142056, EB0142078, EB0142084, EB0142088, EB0142089, EB0142106

Impurities verified against analytical standards traceable to NIST by weight and/or analysis.

Signature on file
Approved for Release

MONTROSE
AIR QUALITY SERVICES

INTERFERENCE RESPONSE TEST

Date of Test: 12/5/17 Name: Brett Sherwood
Analyzer: Type / Model: O2/CO2 CAI 700 HE# 741
Serial Number: 1708026

Method Referenced: EPA Method 7E

O_2 Results:

Test Gas	Concentration, ppmv or %	Analyzer Output Response %	Interference % of Span (21.42 %)
SO_2	490.2	0.01	0.04
CO_2	19.52	0.02	0.09
NO	475.5	-0.01	0.04
NO_2	50.08	0.13	0.61
H_2	40	0.21	0.98
CO	445.3	0.04	0.19

A Calibration Cylinder containing 21.42% oxygen was used to Span Analyzer

Interference Response Results:

Sum of Absolute Differences	Sum of Individual Gases Percent Interferences	Max Allowable Percent of Span Interference (%)
0.42	1.95	2.5

O_2 Results:

Test Gas	Concentration, ppmv or %	Analyzer Output Response %	Interference % of Span (19.52 %)
SO_2	490.2	0.00	0.0
CO_2	4.945	0.00	0.0
NO	475.5	0.00	0.0
NO_2	50.08	0.00	0.0
H_2	40	0.00	0.0
CO	445.3	0.02	0.01

A Calibration Cylinder containing 19.52% carbon dioxide was used to Span Analyzer

Interference Response Results:

Sum of Absolute Differences	Sum of Individual Gases Percent Interferences	Max Allowable Percent of Span Interference (%)
0.02	0.01	2.5

MONTROSE
AIR QUALITY SERVICES

INTERFERENCE RESPONSE TEST

Date of Test: 2/7/2018 Name: Sleight Halley
Analyzer: Type / Model: NO_x, O_2 / CAI 700 Series
Serial Number: 92/ PN # 1712003

Method Referenced: EPA Method 7E

NO_x Results:

Test Gas	Concentration, ppmv or %	Analyzer Output Response ppmv	Interference % of Span (127.0 ppmv)
SO_2	50.59	-0.1	0.08
O_2	21.1	-0.1	0.08
CO	24.21	-0.1	0.08
CO_2	19.43	-0.1	0.08
CH_4	909	-0.1	0.08

A Calibration Cylinder containing 127.0 ppm NO_x was used to calibrate the analyzer.

Results:

Test Gas	Sum of Absolute Differences	Sum of Individual Gases % Interferences	Max Allowable Percent of Span Interference (%)
NO_x	0.5	0.4	2.5

O_2 Results:

Test Gas	Concentration, ppmv or %	Analyzer Output Response %	Interference % of Span (21.1%)
SO_2	50.59	0.01	0.00
CO_2	19.43 / 5.05 O_2	4.97	0.38
CO.	24.21	-0.01	0.00
NO	126.2	-0.01	0.00
NO_2	50.15	0.12	0.57
CH_4	909 / 20.95 O_2	20.95	0.00

A Calibration Cylinder containing 21.1% Oxygen was used to Span Analyzer.

Results:

Test Gas	Sum of Absolute Differences	Sum of Individual Gases % Interferences	Max Allowable Percent of Span Interference (%)
O_2	0.20	0.95	2.5

Appendix D.4
Accreditation Information/Certifications

STAC STACK TESTING ACCREDITATION COUNCIL

A2LA American Association for Laboratory Accreditation

Accredited Air Emission Testing Body

A2LA has accredited

MONTROSE AIR QUALITY SERVICES

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036:2004 - Standard Practice for Competence of Air Emission Testing Bodies.



Presented this 4th day of February 2022.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3925.01
Valid to February 29, 2024

This accreditation program is not included under the A2LA ILAC Mutual Recognition Arrangement.

CERTIFICATE OF COMPLETION

Peter Becker

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

Source Evaluation Society Group 1: *EPA Manual Gas Volume and Flow Measurements and Isokinetic Particulate Sampling Methods*

Certificate Number: 011-2017-10

Tate Strickler, Accreditation Director

DATE OF ISSUE: 8/4/17

DATE OF EXPIRATION: 8/4/22

MONTROSE ENVIRONMENTAL

CERTIFICATE OF COMPLETION

Peter Becker

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

Source Evaluation Society Group 2: *EPA Manual Gaseous Pollutants Source Sampling Methods*

Certificate Number: 006-2020-46

Tate Strickler, VP – Quality Systems

DATE OF ISSUE: 5/29/20

DATE OF EXPIRATION: 5/28/25

MONTROSE ENVIRONMENTAL

CERTIFICATE OF COMPLETION

Peter Becker

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

Source Evaluation Society Group 3: *EPA Gaseous Pollutants Instrumental Sampling Methods*

Certificate Number: 006-2020-24

Tate Strickler, Accreditation Director

DATE OF ISSUE: 2/12/20

DATE OF EXPIRATION: 2/12/25

MONTROSE ENVIRONMENTAL

CERTIFICATE OF COMPLETION

Peter Becker

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

Source Evaluation Society Group 4: *EPA Hazardous Metals Measurement Methods*

Certificate Number: 006-2020-47

Tate Strickler, VP – Quality Systems

DATE OF ISSUE: 7/22/20

DATE OF EXPIRATION: 7/21/25

MONTROSE ENVIRONMENTAL

Certificate of Completion

Peter Becker

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

EPA Method 23

Certificate Number: 006-2021-48

Tate Strickler, VP – Quality Systems

Date of issue: 12/04/2021

Date of expiration: 12/03/2026

MONTROSE ENVIRONMENTAL

CERTIFICATE OF COMPLETION

Peter Becker

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

CARB Methods 410A, 428, 429 and 430

Certificate Number: 011-2018-20

Tate Strickler, Accreditation Director

DATE OF ISSUE: 11/7/18

DATE OF EXPIRATION: 11/7/23

MONTROSE ENVIRONMENTAL

Certificate of Completion

Peter Becker

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

EPA SW846 Methods 0050, 0060 & 0061

Certificate Number: 006-2021-49

Tate Strickler, VP – Quality Systems

Date of issue: 12/04/2021

Date of expiration: 12/03/2026

MONTROSE ENVIRONMENTAL

Appendix D.5
Quality Assurance Program Summary and Equipment Calibration Schedule

QUALITY ASSURANCE PROGRAM SUMMARY AND CERTIFICATIONS

Montrose Air Quality Services, LLC (Montrose) ensures the quality and validity of its emission measurement and reporting procedures through a rigorous quality assurance (QA) program. The program is developed and administered by internal QA personnel and encompasses seven major areas:

1. Development and use of an internal QA manual
2. QA reviews of reports, laboratory work, and field testing
3. Equipment calibration and maintenance
4. Chain of custody
5. Continuous training
6. Knowledge of current test methods
7. Audit program

Each of these areas is discussed individually below.

Quality Assurance Manual. Montrose has prepared a QA Manual according to EPA guidelines and ASTM D-7036. The manual serves to document and formalize all of Montrose's QA efforts. The manual is constantly updated, and each employee involved in technical services for emission measurements is required to read, understand its contents, and sign a statement that all work they perform will conform to its practices. The manual includes details on the other seven QA areas discussed below.

QA Reviews. Montrose 's review procedure includes review of each source test report by the QA Manager or equivalent position including data input, calculations and averages, and report text. The laboratory manager or equivalent reviews all laboratory work, and the qualified individual on-site reviews all field work and data sheets.

The most important review is the one that takes place before a test program begins. The QA Manager works with testing personnel to prepare and review test protocols. Test protocol review includes selection of appropriate test procedures, evaluation of any interferences or other restrictions that might preclude use of standard test procedures, and evaluation and/or development of alternate procedures.

Equipment Calibration and Maintenance. The equipment used to conduct the emission measurements is maintained according to the manufacturer's instructions to ensure proper operation. In addition to the maintenance program, calibrations are carried out on each measurement device according to the schedule outlined below. The schedules for maintenance and calibrations are given in Tables A-1 and A-2.

Quality control checks are also conducted in the field for each test program. A partial list of checks made as part of each continuous analyzer system test series is included below as an example of the field QA procedures.

- Sample acquisition and conditioning system leak check
- 3-point analyzer calibrations (all analyzers)
- Complete system calibration check ("dynamic calibration" through entire sample system)

- Periodic analyzer calibration checks are conducted at the start and end of each test run. Any change between pre- and post-test readings are recorded.
- All calibrations are conducted using EPA Protocol gases certified by the manufacturer
- Calibration and continuous analyzer performance data are fully documented, and are included in each source test report

Chain of Custody. Montrose maintains full chain of custody documentation on all samples and data sheets. In addition to normal documentation of changes between field sample custodians, laboratory personnel, and field test personnel, Montrose documents every individual who handles any test component in the field (e.g., probe wash, impinger loading and recovery, filter loading and recovery, etc.).

Samples are stored in a locked area to which only laboratory personnel have access. Neither other Montrose employees nor cleaning crews have keys to this area.

Training. Personnel training is essential to ensure quality testing. Montrose has formal and informal training programs which may include some or all of the following:

1. Attendance at EPA-sponsored training courses
2. A requirement for all technicians to read, understand, and sign Montrose 's QA Manual
3. In-house training and Montrose meetings on a regular basis
4. Maintenance of training records
5. Administration of internal qualified individual (QI) tests for all methods performed
6. Participation in the Qualified Source Testing Individual (QSTI) program administered by the Source Evaluation Society (SES)

Knowledge of Current Test Methods. With the constant updating of standard test methods and the wide variety of emerging test methods, it is essential that any qualified source tester keep abreast of new developments. Montrose subscribes to services which provide updates on EPA reference methods, and on EPA and local agency rules and regulations. Additionally, source test personnel regularly attend and present papers at testing and emission-related seminars and conferences.

Audit Program. Montrose participates in the TNI Stationary Source Audit Sample (SSAS) audit program for all methods for which audit samples are available.

TABLE A-1
SAMPLING INSTRUMENTS AND
EQUIPMENT CALIBRATION SCHEDULE

Instrument Type	Frequency of Calibration[1]	Standard of Comparison or Method of Calibration	Acceptance Limits
Orifice Meter(large)	12 months	Calibrated dry test meter	± 2% of volume measured
Dry Gas Meter	6 months or when repaired	Calibrated dry test meter	± 2% of volume measured
Critical Orifice	6 months	Calibrated dry test meter	± 0.5% of average K’
S-Type Pitot (for use with EPA-type sampling train)	6 months	EPA Method 2	Geometric measurements within method-specified ranges
Vacuum Gauges	12 months	NIST-traceable gauge	≤ 1.0 in Hg difference
Temperature Measurement (thermocouples)	12 months	NBS mercury thermometer or NBS calibrated platinum RTD	±4 °F for <400 °F ± 1.5% for >400 °F
Temperature Readout Devices	6 months	Thermocouple simulator	± 2% full scale reading
Analytical Balance	12 months (check prior to each use)	NIST-traceable weights	± 0.5 mg of stated weight
Probe Nozzles	12 months	Nozzle diameter check	Range <± 0.10 mm for micrometer three measurements
Continuous Analyzers	Every field day, Depends upon use, frequency and performance	As specified by manufacturers’ operating manuals, EPA NBS gases and/or reference methods	Satisfy all limits specified in operating specifications

[1] The tabulated calibration frequencies are minimum standards. In certain instances, calibrations are performed more frequently.

TABLE A-2
EQUIPMENT MAINTENANCE SCHEDULE
Based on Manufacturer's Specifications and Montrose's Experience

Equipment	Performance Requirement	Maintenance Interval[2]	Corrective Action
Pumps	1. Absence of leaks 2. Ability to draw manufacturer required vacuum and flow	6 months	1. Visual inspection 2. Clean 3. Replace worn parts 4. Leak check
Flow Measuring Device	1. Free mechanical movement 2. Absence of malfunction	6 months	1. Visual inspection 2. Clean 3. Calibrate
Sampling Instruments	1. Absence of malfunction 2. Proper response to zero, span gas	As required by the manufacturer	As recommended by manufacturer
Mobile Van Sampling Systems	Absence of leaks	Depends on nature of use	1. Change filters 2. Leak check 3. Check for system contamination
Sampling Lines	Sample degradation less than 2%	After each test or test series	Blow filtered air through line until dry

[2] The tabulated maintenance intervals are minimum standards. In certain instances, maintenance is performed more frequently.

APPENDIX E
REGULATORY INFORMATION

Appendix E.1
Regulatory Correspondence

Oregon
Kate Brown, Governor

Department of Environmental Quality
Agency Headquarters
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5696
FAX (503) 229-6124
TTY 711

December 3, 2021

Andrew Willis
Covanta Marion, Inc.
4850 Brooklake Road NE
Brooks, OR 97305

Mr. Willis,

DEQ has reviewed the revised source test plan submitted by Covanta Marion, Inc. (CMI) on November 8, 2021. Based on this review, DEQ approves the source test plan with the following comments.

General Comments

1. DEQ will require that data used for CAO risk assessment purposes result from source tests conducted under typical worst-case conditions that generate the highest emissions. Consistent with DEQ's Source Sampling Manual, it will be imperative to describe in detail the proposed process conditions that generate such "worst-case conditions". Because the facility accepts and burns a wide variety of materials (municipal solid waste, regulated medical waste, industrial solid waste, special waste, liquid), multiple source testing events may be required for DEQ to understand the facility's range of toxic air contaminant emissions and approve a risk assessment that covers the broad range of operational conditions.
2. Only regular operating staff may adjust the production process and emission control parameters during the source performance tests and within two (2) hours prior to the tests. Any operating adjustments made during the source performance tests, which are a result of consultation during the tests with source testing personnel, equipment vendors or consultants, may render the source performance test invalid.
3. DEQ must be notified of any changes in the source test plan and/or the specified methods prior to testing. Significant changes not acknowledged by DEQ could be the basis for invalidating a test run and potentially the entire testing program. Documentation of any deviations must include an evaluation of the impact of the deviation on the test data.
4. It is acceptable to postpone a scheduled test or suspend a test in progress if the discontinuation is due to equipment failure beyond the facility's control, construction delays beyond the facility's control, severe meteorological conditions, and situations that would jeopardize the safety of the testing contractors and/or operators. If the test is underway, the permittee must make every effort to complete the test run. If the test run cannot be finished the sample must still be analyzed and results must be included in the test report unless written permission is received from DEQ stating otherwise. All recoverable test information(process & sample data) must be included in the test report along with a detailed explanation of why the test run could not be finished. Covanta may include discussions regarding the validity of such test runs and DEQ will determine if a run is valid.

   It is unacceptable to postpone or suspend a test run in progress if it is discontinued because the source is not able to comply with an emission limit or verify an emission factor.

Specific Comments

1. Upon review of annual steam data, high-fire testing steam rate must be greater than or equal to 67 klbs/hr.
2. EPA Method 5/26A must be sampled isokinetically if used for analysis of particulate matter (MoO3).
3. Analysis for chloride, total metals, and total halogenated organics must be completed on the liquid that is used for Liquid Direct Injection (LDI).
4. Supplemental natural gas fuel (if used) will be reported as scf.

Approved Deviations

1. DEQ approves the requested EPA Method 0061 deviation to use 0.1M sodium bicarbonate as the impinger solution in place of 0.1M KOH.
2. DEQ approves the requested CARB Method 430 deviation to use a calibrated dry gas meter in place of a rotameter.
3. DEQ approves the requested CARB Method 430 deviation to use a toluene "float" in the DNPH impingers to capture acrolein and to prevent interference from NOx.
4. DEQ approves the requested EPA Method 26A deviation for constant rate sampling only for halogens and hydrogen halides.

Any further modifications and/or alternatives to testing methods or procedures that are implemented to satisfy DEQ testing requirements must receive approval from DEQ prior to their use in the field. Changes not acknowledged by the DEQ could be the basis for invalidating an entire test run and potentially the entire testing program.

The DEQ extension request approval letter dated June 23, 2021 requires source testing to be completed by December 31, 2021. DEQ recognizes the unique challenges this testing pose to your facility and operations, and the results will provide valuable information for completing the risk assessment. If you have any questions or concerns, please contact me directly at (503) 229-5534 or thomas.rhodes@deq.state.or.us. Thank you for your continued efforts with this process.

Sincerely,

Thomas Rhodes

Thomas Rhodes
DEQ CAO Source Test Coordinator

Cc: Jeffery Hahn, Covanta Marion, Inc.
Kirk Little, Covanta Marion, Inc.
Keith Johnson, DEQ
Kenzie Billings, DEQ
Claudia Davis, DEQ
Michael Eisele, DEQ
File

Oregon
Kate Brown, Governor

Department of Environmental Quality
Agency Headquarters
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5696
FAX (503) 229-6124
TTY 711

December 14, 2021

Andrew Willis
Covanta Marion, Inc.
4850 Brookdale Rd. NE
Brooks, OR 97305

Re: Request for Extension Pursuant to OAR 340-245-0030(3) for Completion of Cleaner Air Oregon Air Toxics Test Program

Mr. Willis,

On December 3, 2021, DEQ approved Covanta Marion, Inc.'s (CMI) source test plan (test plan) for testing scheduled for December 7-9, 2021. This test plan included a requirement that CMI complete testing with minimum liquid injection rates of 3 gallons per minute and 3.75 gallons per minute of leachate from the Marion County monofill during sampling of the stack emissions for high fire and low fire operating scenarios, respectively.

Testing was performed on December 7-8, 2021 while injecting the minimum proposed leachate rate. However, on December 7, 2021, CMI was informed that two pumps used to transfer leachate from the Marion County monofill's onsite storage lagoon into tankers for delivery to CMI had failed. Furthermore, CMI was informed that leachate delivery to the Marion facility would not resume until the new year (2022).

CMI provided a status update of which testing was completed and which testing was pending in the December 8, 2021 extension request. At least two additional days of testing are required to fulfill Cleaner Air Oregon (CAO) source testing requirements. Based on source testing contractor availability, and conditions proposed in the approved testing plan, CMI requested to extend the date by which CAO source testing must be completed to April 30, 2022.

DEQ will allow CMI to complete source testing by no later than March 31, 2022. The source test report for this testing must be submitted within 60 days of the completion of testing. An updated testing schedule to the approved source test plan must be submitted at least 30 days prior to testing.

In regards to the testing that was completed successfully on December 7-8, 2021, a source test report must be submitted to DEQ by February 6, 2022 as required in DEQ's March 11, 2021 letter. DEQ encourages CMI to complete source testing as soon as is feasible. Please contact me directly at 503.229.5247, billings.kenzie@deq.state.or.us if you have any questions regarding this extension.

Sincerely,

Kenzie Billings, P.E.
Air Toxics Project Manager

Cc: Terry Coble, CMI
Jeffrey Hahn, CMI
Kirk Little, CMI
Gary Pierce, CMI
Claudia Davis, DEQ
Mike Eisele, DEQ
J.R. Giska, DEQ
Keith Johnson, DEQ
Thomas Rhodes, DEQ
File

Covanta Marion, Inc.
A Covanta Energy Company
PO Box 9126
4850 Brooklake Road NE
Brooks, OR 97305
Tel: (503) 393-0890
Fax: (503) 393-0890

COVANTA
Powering Today. Protecting Tomorrow.

SOURCE TEST PLAN - COV REPORT NO. 4503
Revised November 24, 2021

Source Information

Facility:	Covanta Marion, Inc. 4850 Brooklake Road, N.E. Brooks, OR 97305
Purpose of Test:	To conduct source sampling for specific reportable Toxic Air Contaminants (TAC) included under OAR 340-245-8020 for the purposes of generating a representative emissions inventory pursuant to OAR 340-245-0040 for the Cleaner Air Oregon (CAO) program.
Person(s) to Contact:	Mr. Kirk Little, Facility Manager (503) 393-0890 Mr. Paul Kantola Director, Environmental Compliance Testing (862) 591-9087

Testing Information

Procedure:	Testing two (2) municipal solid waste-fired boilers for specific toxic air contaminants.
Proposed Test Dates:	December 7 – 9, 2021

Certification Statement

Statement of Certification: *Based on information and belief formed after reasonable inquiry, the statements and information in this document and any attachments are true, accurate and complete. I also certify that all statements made concerning compliance, which are based on monitoring required by the permit but not required to be submitted to the Department, are true, accurate and complete based on information and belief formed after reasonable inquiry.*

Kirk Little	Facility Manager
Name of Designated Responsible Official	Title of Responsible Official
Signature of Responsible Official	Date (mm/dd/yy)

Testing Firm Information

Company: Montrose Air Quality Services, LLC
Address: 13585 NE Whitaker Way Portland, OR 97230
Project Manager: Peter Becker
Email: pbecker@montrose-env.com
Phone Number: 330-285-6884
Field Chemist: Esha Chetty
Report Writer: Andy Vella

Lab Information

Emission Parameter	**Analytical Lab**
Hydrogen Chloride (HCl), Hydrogen Fluoride (HF), Hydrogen Bromide (HBr), Chloride (Cl_2), and Bromide (Br)	Enthalpy Analytical, Durham, NC (Montrose)
Multimetals (MMTL), plus Al, Fe, Mo, K and V	Enthalpy Analytical, Durham, NC (Montrose)
Fraction of Mo that is MoO_3	MVA Scientific, Duluth GA
Dioxins/Furans (PCDD/PCDF), Polychlorinated Biphenyls (PCB), Chlorobenzene and Chlorophenols	Vista Analytical, El Dorado Hills CA (Montrose) Vista Analytical, El Dorado Hills CA (Montrose) Enthalpy Analytical, Wilmington and Durham NC (Montrose)
Polycyclic Aromatic Hydrocarbons (PAH)	Vista Analytical, El Dorado Hills CA (Montrose)
Hexavalent Chromium	Chester LabNet, Tigard, OR
Ammonia	Montrose Air Quality Services, Antioch, CA
Formaldehyde, acetaldehyde, acrolein	Atmospheric Analysis & Consulting, Ventura, CA
Volatile Organic Compounds (VOC) and VOC-derivatives	Eurofins Test America, Knoxville TN

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1.0 INTRODUCTION

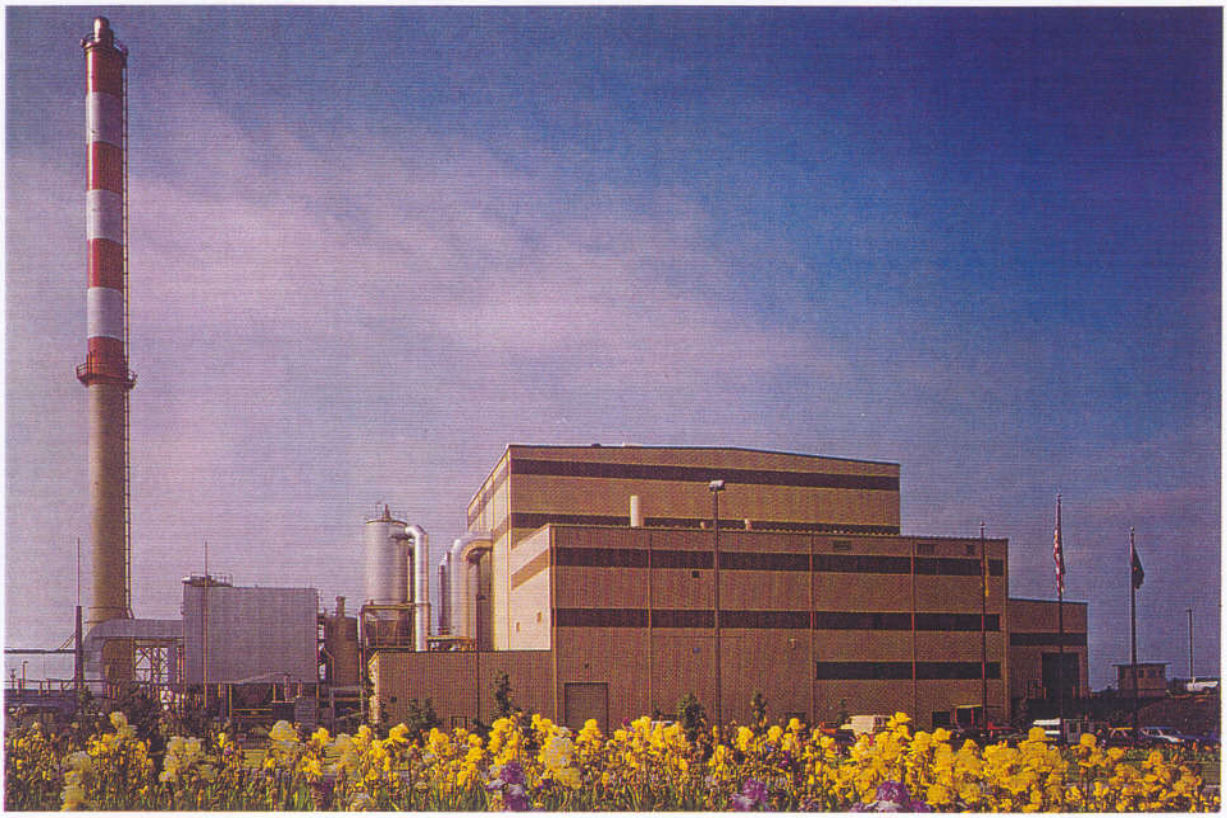
A contractor for Covanta Marion, Inc. (CMI) will test various air emissions of the CMI Municipal Solid Energy-From-Waste Facility. This testing is being conducted to fulfill requirements of the Cleaner Air Oregon (CAO) program pursuant to OAR 340-245-0040(1). Results from this testing will be used for the purpose of CAO compliance and not for demonstrating compliance with Covanta's Title V source testing requirements as applicable in conditions 35 through 44 of CMI's Title V permit. The Oregon Department of Environmental Quality (DEQ) Source Sampling Manual identifies specific conditions that must be met for compliance testing. It should be noted that not all conditions will be met for the purpose of the CAO testing. The test is scheduled for the week of December 5, 2021. Source testing for CAO may be performed on either a single municipal waste combustor (MWC) or both MWC's. It is presumed that test results obtained from one unit will be representative of the other unit.

During acute toxicity testing for metal and acid gases at a reduced load, every effort will be made to replicate a regulated medical waste (RMW) processing rate that is representative of a daily maximum of approximately 75 tons, which is slightly more than 3 tons/hr. CMI will not deviate from operating conditions that would risk non-compliance with the provisions of our Title V permit. Should such an event arise, the priority will be to mitigate the environmental upset, which may require altering operating conditions, such as utilizing auxiliary burners as necessary to stabilize combustion conditions. Individual test runs may or may not continue depending on the nature of the event. All such instances will be documented and reported to include at a minimum, a description of the event, what operational changes were made (if any), and whether testing was paused, continued or terminated.

2.0 DESCRIPTION OF OPERATIONS

Covanta Marion, Inc.

Brooks, Oregon



The Marion County Solid Waste-to-Energy Facility began commercial operation in March 1987, servicing the solid waste management needs of the more than 270,000 people of Marion County. The facility processes 550 tons per day of solid waste, which generates up to 13.1 megawatts of renewable energy that is sold to Portland General Electric. The Marion facility was the first mass burn waterwall resource recovery facility burning municipal solid waste in the United States to use dry flue gas scrubbers and fabric filter baghouses to control acid gases and particulates. In addition to municipal solid waste, Marion processes about 90 tons per month of supplemental waste including non-hazardous medical waste. The facility is located in Brooks, a small farming community about four miles north of Salem, the state capital, and 40 miles south of Portland.

The Marion County Solid Waste-to-Energy Facility

COVANTA ENERGY

Covanta Marion, Inc.

Recycling Waste Into Energy

The facility's mass burn combustion system incorporates the technology of German-based Martin GmbH. Waste is combusted at furnace temperatures exceeding 1,800 degrees Fahrenheit and reduced to an inert ash residue which is approximately 10% of its original volume; combustion ash is disposed of in a specially lined ash monofill which is owned and operated by the County and located about 10 miles north of the facility. Before leaving the facility, combustion air is directed through technologically advanced air pollution control equipment, including dry flue gas scrubbers and fabric filter baghouses.



An Integrated System

The Marion County Solid Waste-to-Energy Facility is the cornerstone of the County's integrated waste management system. In addition to converting waste into energy, the County provides curbside pick-up of recyclable materials such as metals, glass and newspaper. The County also runs a drop-off program for collection of yard waste; these organic materials are then composted and used in agricultural applications. Ferrous metal recovered from combustion ash is also a major contributor to the County's recycling efforts. A unique feature of the County's integrated system is its state-of-the-art ash monofill and leachate system. Leachate from the ash monofill is treated through a vacuum distillation process and clean drinking-quality water is discharged.

The Marion County Solid Waste-to-Energy Facility is located in Brooks, about 4 miles north of Salem. For information or to arrange a tour, please call 503-393-0890.

Facility Specifications

Rated Refuse Combustion Capacity
550 tons per day

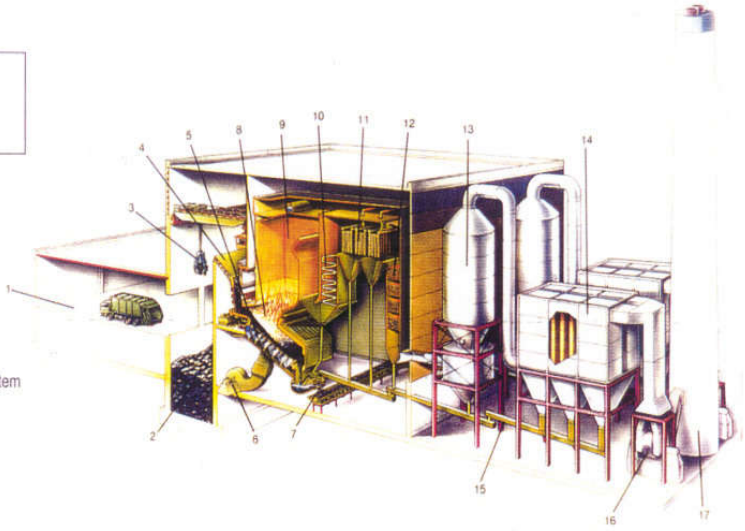
Unit Design
Two 275 ton-per-day waterwall furnaces

Guaranteed Throughput
170,000 tons per year

Guaranteed Waste Delivery
145,000 tons per year

Energy Generation at Rated Capacity
Up to 13.1 MW, sold to Portland General Electric Company

A Typical COVANTA Waste-to-Energy Facility



1. Tipping Floor
2. Refuse Holding Pit
3. Grapple Feed Chute
4. Feed Chute
5. Martin Stoker Grate
6. Combustion Air Fan
7. Martin Ash Discharger
8. Combustion Chamber
9. Radiant Zone (furnace)
10. Convection Zone
11. Superheater
12. Economizer
13. Dry Gas Scrubber
14. Baghouse
15. Fly Ash Handling System
16. Induced Draft Air Fan
17. Stack

Refuse collection trucks are weighed at the scalehouse and monitored for safety. Once cleared, they enter the tipping building and dump their waste into the storage pit. An overhead crane mixes the waste in the pit and lifts the waste up into a feed chute leading to the furnace. From the feed chute, waste is pushed by hydraulic ram feeders onto a stoker grate. The MARTIN Reverse-Reciprocating Stoker is sloped downward and is composed of alternate rows of fixed and moving grate bars. The grate bars push upward against the natural downward movement of the waste bed. This constant movement ensures that the burning waste is continually agitated and pushed back, thus serving as underfire for freshly-fed waste. A forced draft fan supplies the primary combustion air underneath the grate. In addition, overfire air is injected through the front and rear walls of the furnace.

Inside the steel tubes that form the furnace walls and the boiler, heat from the combustion process converts water to steam. The superheater further heats the steam before it is sent to a turbine generator to produce electricity. After passing through the boiler sections, the hot combustion gases are used to preheat boiler feedwater in the economizer.

While the combustion gases move through the boiler, the bottom ash slowly makes its way to the end of the grate where it falls into the water quench trough of the Martin Ash Discharger.

From the boiler, the cooled gases enter the advanced air pollution control system. Using the lime slurry, the dry scrubber neutralizes any acid-forming gases, such as sulfur oxides and hydrogen chloride.

As the gas stream travels through these filter devices, more than 99 percent of particulate matter is removed. Captured fly ash particles fall into hoppers and are transported by an enclosed conveyor system to the Martin Ash Discharger where they are wetted to prevent dust, and mixed with the bottom ash from the grate. The ash residue is then conveyed to an enclosed building where it is loaded into trucks and taken to a landfill designed to protect against groundwater contamination. Ash residue from the furnace can be processed for removal of recyclable scrap iron.

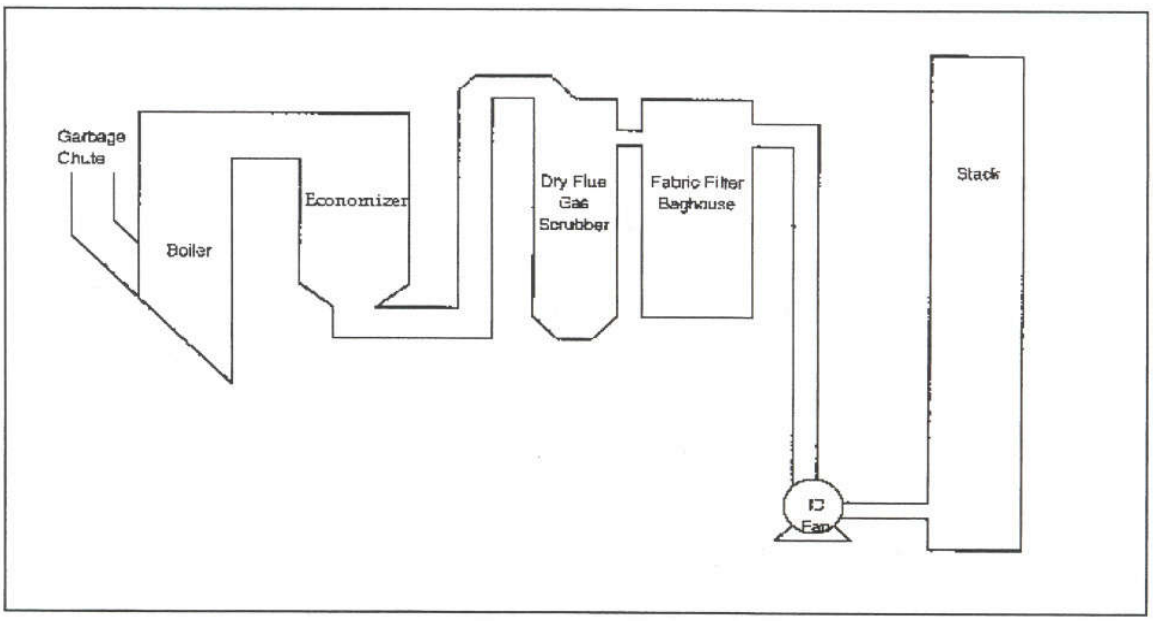
All aspects of the plant's operation are monitored from the central control room 24 hours a day, seven days a week, 365 days a year.

COVANTA ENERGY

Covanta Marion, Inc.
4850 Brooklake Road,
Brooks, OR 97305
503-393-0890

Printed on Recycled Paper

2.2 Flow Diagram of Process



The Marion County Solid Waste-to-Energy Facility is located in Brooks, Oregon. The facility consists of two identical municipal solid waste-fired boilers of Martin GmbH Stoker Combustion System design. The combustors each have a capacity greater than 250 tons per day. The facility produces up to 13.1 MW of electricity daily. Each MWC unit exhausts through a common flue stack. Air pollution equipment for each independent train includes semi-dry flue gas scrubbers for acid gas control, fabric filter for particulate removal, selective non-catalytic reduction (SNCR) for control of nitrogen oxides and dry activated carbon injection for mercury emission controls. Each unit is also equipped with a continuous emission monitoring system to provide feedback on the effectiveness of the air pollution control (APC) equipment.

2.3 OPERATING CONDITIONS

CMI will conduct testing under two distinct operating scenarios which include:

- a low fire/reduced steam load (80-90% of design steam load) to provide results used in calculation of acute health risk, and
- a high fire/increased steam load (90-110% of design steam load) to characterize chronic health risk.

Design steam load capacity is approximately 67 Klbs/hr. A summary detailing which test methods will be conducted under each scenario can be found in Sections 3.1 and 3.2. CMI will test under 'worst case' conditions (refer to operating scenarios referenced above) for the Cleaner Air Oregon required testing, as described in detail in Section 2.9 of the DEQ Source Sampling Manual, i.e., both the low fire/reduced steam load and the high fire/increased steam load operating scenarios.

Since the "high fire/increased steam load" operating scenario includes a significant portion of the operating hours in a year for each boiler, the testing program found in Section 3.1 will adequately address the chronic cancer and non-cancer health effects in an HRA prepared using those test results, which will also include the startup and shutdown dioxin/furan and HCl results obtained during ODEQ approved testing at CMI earlier this year.

The testing of those toxic air contaminants that typically comprise the majority of the chronic cancer and non-cancer health effects in an HRA will include: PCDD/F's, PCB's, PAH's, VOC's, Metals, Acid gases (including all halides and halogens), Ammonia, Formaldehyde and other aldehydes, Chlorophenols and Chlorobenzenes. These will be tested as discussed in Section 3.1.

The "low fire/reduced steam load" scenario, which represents the maximum "worst case" boiler operating condition, would only occur in a few hours of operation in any given year. Only those components of an HRA that could affect an acute health risk are included in the testing program found in Section 3.2.

Thus, for the testing in Section 3.2, the acid gases (including all halides and halogens) and metals, which typically comprise more than 95% of the acute health risk in an HRA, will be tested as shown in Section 3.2.

The fuel processed during testing will primarily consist of municipal solid waste and other approved wastes (e.g., regulated medical waste, industrial solid wastes). CMI will track the amounts of regulated medical waste and industrial waste that is received during each testing day. CMI will not operate under any process state that may jeopardize compliance with any condition of the Title V permit. In the event that the Continuous Emissions Monitoring System (CEMS), Continuous Opacity Monitoring System (COMS), or other Parametric Monitoring System indicate that an emission or air pollution control device parameter is at or near a permitted limit, CMI will adjust operating conditions accordingly in order to ensure continuous compliance.

The two operating conditions for the two scenarios will include:

a) High fire
   I. Minimum steam load (Klbs/hr) ≥ 90% of design or ~60 Klbs/hr
   II. Minimum rate of regulated medical waste per unit (tons/hr) = 1.5
   III. Minimum rate of liquid direct injection per unit (gal/hr) = 180
   IV. Wastes deliveries during the days of testing will be quantified and listed in the source test report.

b) Low Fire
   I. Maximum steam load (Klbs/hr) ≤ 90% of design or ~60 Klbs
   II. Minimum rate of regulated medical waste (tons/hr) = 1.5
   III. Minimum rate of liquid direct injection (gal/hr) = 225
   IV. Waste deliveries during the days of testing will be quantified and listed in the source test report.

3.0 SOURCE TEST INFORMATION

3.0 SOURCE TEST INFORMATION

3.1 EMISSION TEST PARAMETERS – CHRONIC TOXICITY TESTING SCENARIO

Emission Parameter	Sampling Method	Location	Unit No.	Replicates	Approximate Sampling Time (Min)
Dioxins/Furans (PCDD/PCDF), Polychlorinated Biphenyls (PCB)	U.S. EPA Method 23	Stack	1	1, 2, 3	240
Chlorobenzenes, and Chlorophenols	U.S. EPA SW-846 0023	Stack	1	1, 2, 3	240
Polycyclic Aromatic Hydrocarbons (PAH)	CARB Method 429	Stack	1	1, 2, 3	240
Volatile Organic Compounds (VOC) and VOC-derivatives	U.S. EPA SW-846 0031	Stack	1	1, 2, 3	40x3 per run
Formaldehyde, acetaldehyde, acrolein	CARB 430	Stack	2	1, 2, 3	60
Ammonia	BAAQMD ST-1B	Stack	2	1, 2, 3	60
Multimetals (MMTL), plus Al, Fe, Mo, K and V (1)	U.S. EPA Method 29	Stack	2	1, 2, 3	120
Hexavalent Chromium (2)	U.S. EPA SW-846 0061	Stack	2	1, 2, 3	120
Hydrogen Chloride (HCl), Hydrogen Fluoride (HF), Hydrogen Bromide (HBr), Chloride (Cl_2), and Bromide (Br)	U.S. EPA Method 26A (Modified)	Stack	1	1, 2, 3	60

(1) The Molybdenum compounds on the filter will be analyzed using scanning electron microscopy with energy dispersive X-ray spectrometry from the filter used in EPA Method 29.

(2) Hexavalent chromium testing will follow EPA SW-846 Method 0061 procedures, with substitution for the reagent used in CARB 425 $NaHCO_3$) for improved pH control and lower detection limit.

3.2 EMISSION TEST PARAMETERS – ACUTE TOXICITY TESTING SCENARIO (1)

Emission Parameter	Sampling Method	Location	Unit No.	Replicates	Approximate Sampling Time (Min)
Multimetals (MMTL), plus Al, Fe, Mo, K, and V (2)	U.S. EPA Method 29	Stack	2	1, 2, 3	120
Hydrogen Chloride (HCl), Hydrogen Fluoride (HF),	U.S. EPA Method 5/Method 26A (Modified)	Stack	2	1, 2, 3	60 (minimum)

(1) Conditions to include operating at 80-90% of designed load (55-60 Klbs/hr) and an RMW feed rate of approximately 3 tons per hour.

(2) The Molybdenum compounds on the filter will be analyzed using scanning electron microscopy with energy dispersive X-ray spectrometry from the filter used in EPA Method 5/26A. Sampling time may increase to meet the Minimum Detection Limit of the method and analysis.

3.3 ESTIMATED DETECTION LIMITS FOR TOXIC AIR CONTAMINANTS TO BE TESTED

Note: Analytical and in stack detection limits have been provided as estimates only. The analytical detection limits are the best available pre-test estimates from the analytical laboratories. The in-stack detection limit estimates are based on the expected total sampled volume of stack gas for each test method. Actual analytical and in stack detection limits will be affected by the actual volumes of stack gas and the contents of each sample matrix, so may not exactly match these estimated values. Montrose will work up to the test dates to achieve the lowest DL's from all available laboratories and if another laboratory is found with lower DL's, for example for chlorobenzenes and chlorophenols, DEQ-CAO will be notified.

3.3.1 Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (EPA Method 23)

CAS Number	Compound	Analytical Det. Limit, pg/sample	In Stack Det Limit, ng/dscm
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	3	8.8E-4
40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	4	1.2e-3
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5	1.5E-3
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5	1.5E-3
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	5	1.5E-3
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3	8.8E-4
3268-87-9	Octachlorodibenzo-p-dioxin (OCDD)	9	2.7E-3
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran (TcDF)	3	8.8E-4
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	3	8.8E-4
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	3	8.8E-4
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	3	8.8E-4
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	3	8.8E-4
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	3	8.8E-4
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	3	8.8E-4
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	3	8.8E-4
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	4	1.2e-3
39001-02-0	Octachlorodibenzofuran (OCDF)	9	2.7E-3

Note: The estimated detection limits shown are from Enthalpy Analytical, Wilmington NC. Actual values will vary depending on the characteristics of each sample.

3.3.2 Polychlorinated biphenyls (EPA Method 23)

CAS Number	Compound	Analytical Det. Limit, pg/sample	In Stack Det Limit ng/dscm
34883-43-7	PCB-8 [2,4'-dichlorobiphenyl]	3	8.8E-4
37680-65-2	PCB 18 [2,2',5-trichlorobiphenyl]	3	8.8E-4
7012-37-5	PCB-28 [2,4,4'-trichlorobiphenyl]	3	8.8E-4
41464-39-5	PCB-44 [2,2',3,5'-tetrachlorobiphenyl]	3	8.8E-4
35693-99-3	PCB-52 [2,2',5,5'-tetrachlorobiphenyl]	3	8.8E-4
32598-10-0	PCB-66 [2,3',4,4'-tetrachlorobiphenyl]	3	8.8E-4
32598-13-3	PCB 77 [3,3',4,4'-tetrachlorobiphenyl]	3	8.8E-4
70362-50-4	PCB 81 [3,4,4',5-tetrachlorobiphenyl]	3	8.8E-4
37680-73-2	PCB-101 [2,2',4,5,5'-pentachlorobiphenyl]	3	8.8E-4
32598-14-4	PCB 105 [2,3,3',4,4'-pentachlorobiphenyl]	3	8.8E-4
74472-37-0	PCB 114 [2,3,4,4',5-pentachlorobiphenyl]	3	8.8E-4
31508-00-6	PCB 118 [2,3',4,4',5-pentachlorobiphenyl]	3	8.8E-4
65510-44-3	PCB 123 [2,3',4,4',5'-pentachlorobiphenyl]	3	8.8E-4
57465-28-8	PCB 126 [3,3',4,4',5-pentachlorobiphenyl]	3	8.8E-4
38380-07-3	PCB-128 [2,2',3,3',4,4'-hexachlorobiphenyl]	3	8.8E-4
35065-28-2	PCB-138 [2,2',3,4,4',5'-hexachlorobiphenyl]	3	8.8E-4
35065-27-1	PCB-153 [2,2',4,4',5,5'-hexachlorobiphenyl]	3	8.8E-4
38380-08-4	PCB 156 [2,3,3',4,4',5-hexachlorobiphenyl]	3	8.8E-4
69782-90-7	PCB 157 [2,3,3',4,4',5'-hexachlorobiphenyl]	3	8.8E-4
52663-72-6	PCB 167 [2,3',4,4',5,5'-hexachlorobiphenyl]	3	8.8E-4
32774-16-6	PCB 169 [3,3',4,4',5,5'-hexachlorobiphenyl]	3	8.8E-4
35065-30-6	PCB-170 [2,2',3,3',4,4',5-heptachlorobiphenyl]	3	8.8E-4
35065-29-3	PCB-180 [2,2',3,4,4',5,5'-heptachlorobiphenyl]	3	8.8E-4
52663-68-0	PCB-187 [2,2',3,4',5,5',6-heptachlorobiphenyl]	3	8.8E-4
39635-31-9	PCB 189 [2,3,3',4,4',5,5'-heptachlorobiphenyl]	3	8.8E-4
52663-78-2	PCB-195 [2,2',3,3',4,4',5,6-octachlorobiphenyl]	3	8.8E-4
40186-72-9	PCB-206 [2,2',3,3',4,4',5,5',6-nonachlorobiphenyl]	3	8.8E-4
2051-24-3	PCB-209 [2,2'3,3',4,4',5,5',6,6 '-decachlorobiphenyl]	3	8.8E-4

Note: The estimated detection limits shown are from Enthalpy Analytical, Wilmington NC. Actual values will vary (e.g. from 2 to 6 pg/sample) depending on the characteristics of each sample.

3.3.3 Chlorobenzenes and Chlorophenols (SW-846 Method 0023)

CAS Number	Compound	Analytical Det Limit µg/sample	In Stack Det Limit ng/dscm
108-90-7	Chlorobenzene	2.5	740
(various)	Chlorophenols (various)	2.5	740

Note: The estimated detection limits shown are from Enthalpy Analytical, Wilmington and Durham NC. These are the best estimates available as of writing this test plan; lower detection may be possible. Actual values will vary depending on the characteristics of each sample.

3.3.4 Polycyclic aromatic hydrocarbons (CARB Method 429)

CAS Number	Compound	Analytical Detection Limit, ng per sample	In Stack Detection Limit, ng/dscm
91-20-3	Naphthalene	2620	514
91-57-6	2-Methylnaphthalene	11.0	2.16
83-32-9	Acenaphthene	443	86.9
208-96-8	Acenaphthylene	494	96.9
86-73-7	Fluorene	167	32.8
85-01-8	Phenanthrene	90.3	17.7
120-12-7	Anthracene	118	23.2
206-44-0	Fluoranthene	3.68	0.72
129-00-0	Pyrene	3.34	0.66
56-55-3	Benzo(a)anthracene	2.08	0.41
218-01-9	Chrysene	2.09	0.41
205-99-2	Benzo(b)fluoranthene	1.53	0.30
207-08-9	Benzo(k)fluoranthene	1.55	0.30
192-97-2	Benzo(e)pyrene	1.63	0.32
50-32-8	Benzo(a)pyrene	2.39	0.47
198-55-0	Perylene	2.76	0.54
193-39-5	Indeno(1,2,3-cd)pyrene	2.58	0.51
53-70-3	Dibenz(a,h)anthracene	2.79	0.55
191-24-2	Benzo(g,h,i)perylene	2.72	0.53

Note: The detection limits shown are from Vista Analytical- Enthalpy, El Dorado Hills, CA

3.3.5 Volatile organic compounds (SW-846 Method 0031)

CAS Number	Compound	Analytical Detection Limit, µg	In Stack Detection Limit, ng/dscm
67-64-1	Acetone	0.284	1.42E-02
71-43-2	Benzene	0.0133	6.65E-04
108-86-1	Bromobenzene	0.0083	4.15E-04
74-97-5	Bromochloromethane	0.0191	9.55E-04

75-27-4	Bromodichloromethane	0.0113	5.65E-04
75-25-2	Bromoform	0.0134	6.70E-04
74-83-9	Bromomethane	0.059	2.95E-03
78-93-3	2-Butanone (MEK)	0.144	7.20E-03
104-51-8	n-Butylbenzene	0.028	1.40E-03
135-98-8	sec-Butylbenzene	0.023	1.15E-03
98-06-6	tert-Butylbenzene	0.0151	7.55E-04
75-15-0	Carbon disulfide	0.022	1.10E-03
56-23-5	Carbon tetrachloride	0.0314	1.57E-03
108-90-7	Chlorobenzene	0.0065	3.25E-04
124-48-1	Chlorodibromomethane	0.0167	8.35E-04
75-00-3	Chloroethane	0.0401	2.01E-03
67-66-3	Chloroform	0.0175	8.75E-04
74-87-3	Chloromethane	0.0515	2.58E-03
95-49-8	2-Chlorotoluene	0.0133	6.65E-04
106-43-4	4-Chlorotoluene	0.0154	7.70E-04
96-12-8	1,2-Dibromo-3-Chloropropane	0.0316	1.58E-03
106-93-4	1,2-Dibromoethane (EDB)	0.0183	9.15E-04
74-95-3	Dibromomethane	0.0152	7.60E-04
95-50-1	1,2-Dichlorobenzene	0.0159	7.95E-04
541-73-1	1,3-Dichlorobenzene	0.0139	6.95E-04
106-46-7	1,4-Dichlorobenzene	0.0155	7.75E-04
75-71-8	Dichlorodifluoromethane	0.0452	2.26E-03
75-34-3	1,1-Dichloroethane	0.0122	6.10E-04
107-06-2	1,2-Dichloroethane	0.0113	5.65E-04
75-35-4	1,1-Dichloroethene	0.0153	7.65E-04
156-59-2	cis-1,2-Dichloroethene	0.011	5.50E-04
156-60-5	trans-1,2-Dichloroethene	0.0111	5.55E-04
78-87-5	1,2-Dichloropropane	0.0123	6.15E-04
142-28-9	1,3-Dichloropropane	0.0102	5.10E-04
594-20-7	2,2-Dichloropropane	0.0123	6.15E-04
563-58-6	1,1-Dichloropropene	0.0121	6.05E-04
10061-01-5	cis-1,3-Dichloropropene	0.0088	4.40E-04
10061-02-6	trans-1,3-Dichloropropene	0.0144	7.20E-04
100-41-4	Ethylbenzene	0.016	8.00E-04
87-68-3	Hexachlorobutadiene	0.03	1.50E-03
591-78-6	2-Hexanone	0.1065	5.33E-03
98-82-8	Isopropylbenzene	0.019	9.50E-04
99-87-6	4-Isopropyltoluene	0.022	1.10E-03
75-09-2	Methylene Chloride	0.166	8.30E-03
108-10-1	4-Methyl-2-pentanone (MIBK)	0.1041	5.21E-03
91-20-3	Naphthalene	0.0899	4.50E-03
103-65-1	N-Propylbenzene	0.0202	1.01E-03

100-42-5	Styrene	0.0121	6.05E-04
630-20-6	1,1,1,2-Tetrachloroethane	0.0092	4.60E-04
79-34-5	1,1,2,2-Tetrachloroethane	0.0324	1.62E-03
127-18-4	Tetrachloroethene	0.0105	5.25E-04
108-88-3	Toluene	0.0307	1.54E-03
87-61-6	1,2,3-Trichlorobenzene	0.0452	2.26E-03
120-82-1	1,2,4-Trichlorobenzene	0.0365	1.83E-03
71-55-6	1,1,1-Trichloroethane	0.0168	8.40E-04
79-00-5	1,1,2-Trichloroethane	0.0163	8.15E-04
79-01-6	Trichloroethene	0.0118	5.90E-04
75-69-4	Trichlorofluoromethane	0.0363	1.82E-03
96-18-4	1,2,3-Trichloropropane	0.0374	1.87E-03
95-63-6	1,2,4-Trimethylbenzene	0.0181	9.05E-04
108-67-8	1,3,5-Trimethylbenzene	0.012	6.00E-04
75-01-4	Vinyl chloride	0.0294	1.47E-03
95-47-6	o-Xylene	0.0159	7.95E-04
179601-23-1	m,p-Xylene	0.016	8.00E-04

Note: The detection limits shown are from Eurofins TestAmerica, Knoxville, TN

3.3.6 Aldehydes (CARB Method 430)

CAS Number	Compound	Analytical Detection Limit, µg per sample	In Stack Detection Limit, µg/dscm
50-00-0	Formaldehyde	0.25	8.9
75-07-0	Acetaldehyde	0.25	8.9
107-02-8	Acrolein	0.25	8.9

Note: The detection limits shown are from Atmospheric Analysis & Consulting, Ventura, CA

3.3.7 Ammonia (BAAQMD Method ST-1B)

CAS Number	Compound	Analytical Detection Limit, µg per sample	In Stack Detection Limit, µg/dscm
7664-41-7	Ammonia	100	147

Note: The detection limits shown are from Atmospheric Analysis & Consulting, Ventura, CA

3.3.8 Metals (EPA Method 29)

CAS Number	Compound	Analytical Detection Limit	In Stack Detection Limit
7429-90-5	Aluminum	15.00 µg/L	3.97 µg/dscm
7440-36-0	Antimony	5.00 µg/L	1.32 µg/dscm
7440-38-2	Arsenic	7.00 µg/L	1.85 µg/dscm
7440-39-3	Barium	0.50 µg/L	0.05 µg/dscm
7440-41-7	Beryllium	0.20 µg/L	0.13 µg/dscm

7440-43-9	Cadmium	0.40 µg/L	0.11 µg/dscm
7440-47-3	Total Chromium	0.80 µg/L	0.21 µg/dscm
7440-48-4	Cobalt	0.50 µg/L	0.13 µg/dscm
7440-50-8	Copper	5.00 µg/L	1.32 µg/dscm
7439-89-6	Iron	7.00 µg/L	1.85 µg/dscm
7439-92-1	Lead	5.00 µg/L	1.32 µg/dscm
7439-96-5	Manganese	0.30 µg/L	0.08 µg/dscm
7439-97-6	Mercury	0.007 µg/L	0.00µg/dscm
1313-27-5	Total Molybdenum	2.00 µg/L	0.53 µg/dscm
7440-02-0	Nickel	3.00 µg/L	0.79 µg/dscm
7723-14-0	Phosphorus	20.00 µg/L	5.30 µg/dscm
7440-09-7	Potassium	6.00 µg/L	1.59 µg/dscm
7782-49-2	Selenium	15.00 µg/L	3.97 µg/dscm
7440-22-4	Silver	2.00 µg/L	0.53 µg/dscm
7440-28-0	Thallium	10.00 µg/L	2.65 µg/dscm
7440-62-2	Vanadium	1.00 µg/L	0.26 µg/dscm
7440-66-6	Zinc	3.00 µg/L	0.79 µg/dscm

Note: The detection limits shown are from Enthalpy Analytical, Durham, NC. Actual values may vary depending on the characteristics of each sample.

3.3.9 Hexavalent Chromium. (SW-846 Method 0061)

CAS Number	Compound	Analytical Detection Limit	In Stack Detection Limit
--	Hexavalent Chromium	0.02 µg/sample	1.21E-2 µg/dscm

Note: The detection limits shown are from Chester Labnet, Tigard, OR

3.3.10 Hydrogen chloride, halides, and halogens. (EPA Method 26A)

CAS Number	Compound	Analytical Detection Limit	In Stack Detection Limit
7726-95-6	Bromine	200 µg/sample	59 µg/dscm
7782-50-5	Chlorine	200 µg/sample	59 µg/dscm
7647-01-0	Hydrochloric acid	200 µg/sample	59 µg/dscm
10035-10-6	Hydrogen bromide	100 µg/sample	29 µg/dscm
7664-39-3	Hydrogen fluoride	100 µg/sample	29 µg/dscm

Note: The detection limits shown are from Enthalpy Analytical, Durham, NC

4.0 SCHEDULE OF ACTIVITIES

4.0 SCHEDULE OF ACTIVITIES [1]

Day	Unit/Location	Parameter	Reference Method	Replicates	Sampling Time (Minutes)
0 – Dec 6	----------	Setup			
1 – Dec 7					
	1 Stack	HCl, HF, HBr, Cl2 & Br2	EPA 26A (Modified)	1, 2, 3	60
	1 Stack	SLO-SMVOC and SMVOC [4]	EPA SW-846 0031	1, 2, 3	120
	2 Stack	MMTL, plus Al, Fe, Mo, K, and V [2]	EPA 29	1, 2, 3	120
	2 Stack	Chromium VI [3]	EPA SW-846 0061	1, 2, 3	120
2 – Dec 8					
	2 Stack	Ammonia	BAAQMD ST1B	1, 2, 3	60
	2 Stack	Formaldehyde, acetaldehyde, acrolein	CARB 430	1, 2, 3	60
	2 Stack	Chlorobenzene, Chlorophenol	EPA SW-846 0023a	1, 2	240
	1 Stack	PCDD/F, PCB	EPA 23	1, 2	240
	1 Stack	PAH	CARB 429	1, 2	240
3 – Dec 9					
	1 Stack	PCDD/F, PCB	EPA 23	3	240
	1 Stack	PAH	CARB 429	3	240
	1 Stack *	Chlorobenzene, Chlorophenol	EPA SW-846 0023a	3 *	240
	2 Stack [5]	MMTL, plus Al, Fe, Mo and V	EPA 29	1, 2, 3	120
	2 Stack [5]	HCl, HF	EPA 26A (Modified)	1, 2, 3	60 (minimum)

* Runs 1 and 2 on Stack 2, then Run 3 on Stack 1 after completion of the EPA 23 and CARB 429 test runs.

[1] Schedule may be changed during testing to accommodate site conditions and/or contractor availability. Every effort will be made to keep CAO/ODEQ informed of any schedule changes.

[2] Multi-metals include target metals for Method 29. Additional metals not listed in Method 29 but referenced in OAR 340-245-8020 to be analyzed include aluminum, iron, potassium, and vanadium. The Molybdenum compounds on the filter will be analyzed using scanning electron microscopy with energy dispersive X-ray spectrometry.

[3] Hexavalent chromium testing will follow EPA SW-846 Method 0061 procedures, with substitution of $NaHCO_3$ solution in place of the KOH solution cited in the Method.

[4] SLO-VOC will test for bromomethane, chloroethane, vinyl bromide, and vinyl chloride.

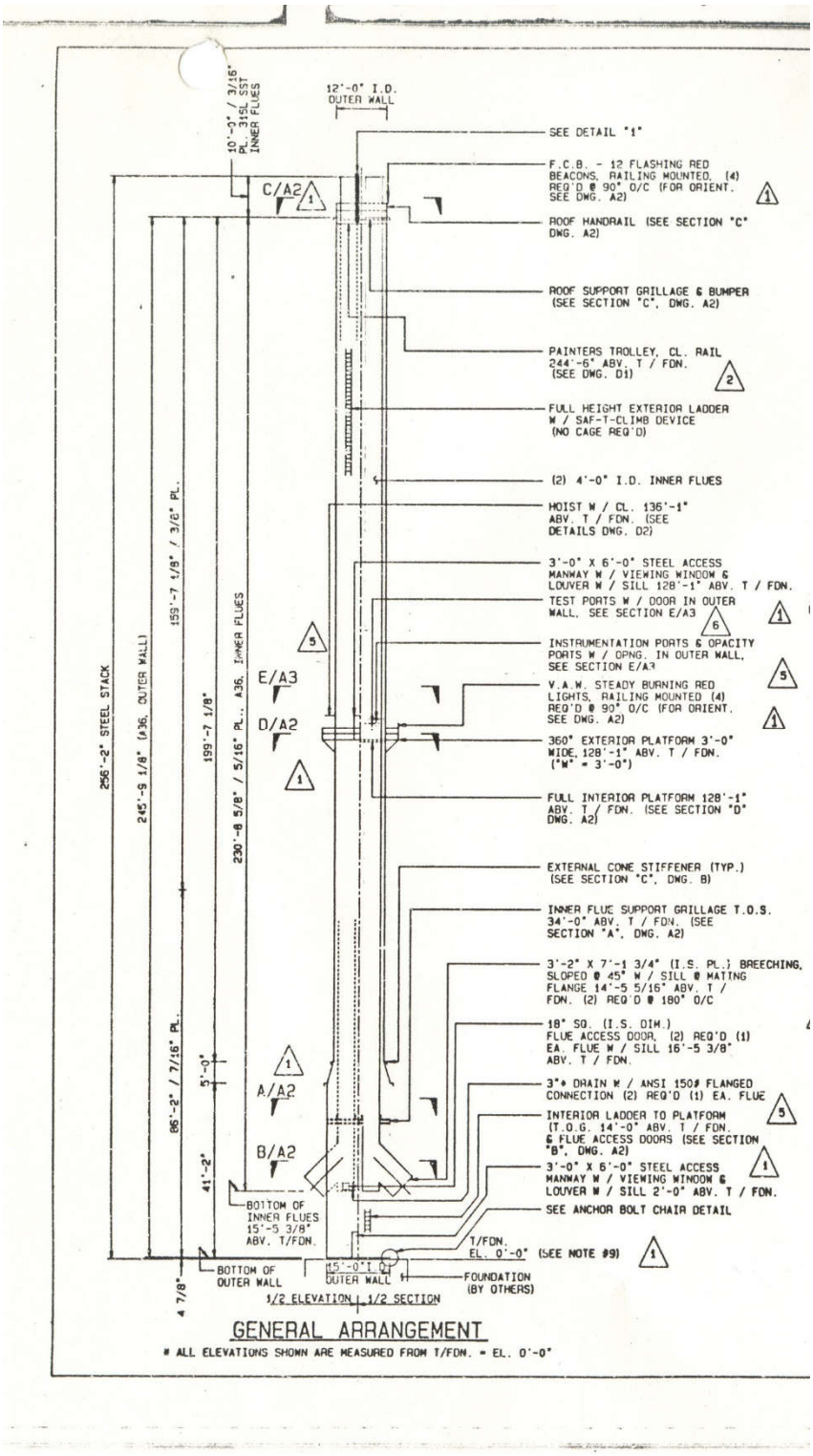
[5] Acute toxicity testing with unit load at 80-90% of design.

5.0 SAMPLING AREA DESCRIPTIONS

5.0 SAMPLING AREA DESCRIPTIONS

The outlet sampling area at Covanta Marion, Inc. (CMI) is located on a platform 128 feet above the ground outside of the steel stack (see Figure 1). The stack is equipped with a rope and pulley to facilitate hauling equipment up and down. The ladder is equipped with a Saf-T-Climb® climbing device. Each stack has two 4 inch diameter test ports at 90° and one 4 inch single port available.

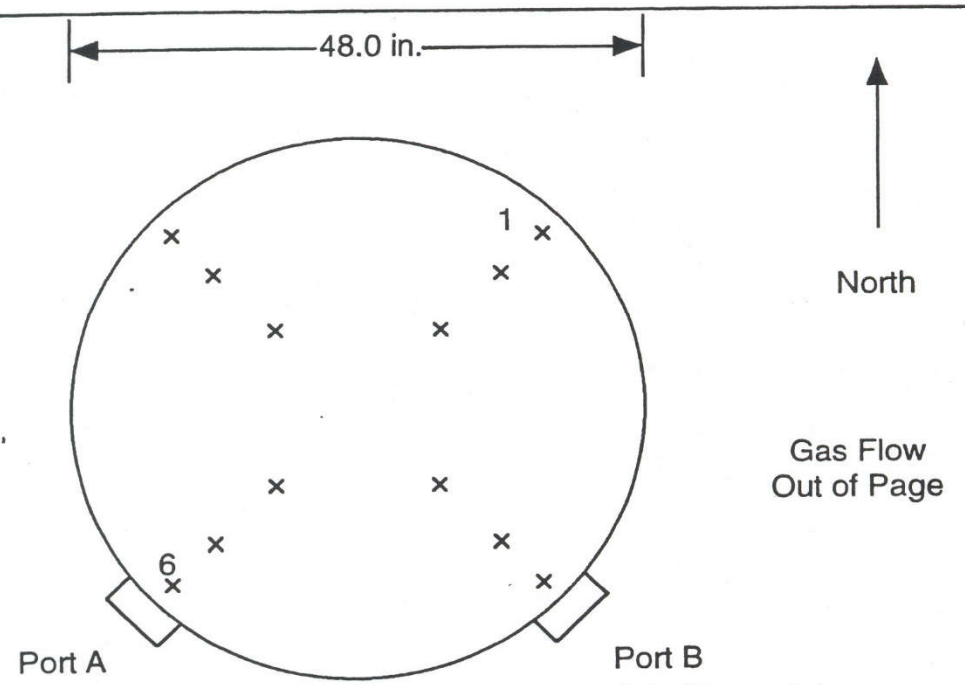
	Sampling Area Parameters
Testing platform elevation above ground:	128 ft.
Test ports elevation:	131 ft.
Test ports flange size:	4 in.
Flue diameter:	4 ft.
Nearest downstream disturbance:	120 ft.
Nearest upstream disturbance:	100 ft.



Figures 2 and 3 depict the sampling point determinations.

METHODOLOGY

SAMPLING POINT DETERMINATION (CONTINUED)



Traverse Point	Port to Point Distance (in.)
1	45.9
2	41.0
3	33.8
4	14.2
5	7.0
6	2.1

CEM Sampling Point	Port to Point Distance (in.)
1	40.0
2	24.0
3	8.0

Diameters to upstream disturbance: >8 Limit: 2
Diameters to downstream disturbance: >2 Limit: 0.5

Units 1 and 2 Stack Sampling Point Determination (EPA Method 1)

Figure 3

6.0 TEST METHODS DESCRIPTIONS

6.1 Sampling and Analytical Methods

This section briefly describes the sampling and analytical procedures that are used and any deviations from the methods. The planned methods, techniques and laboratories have been chosen to provide the lowest feasible detection limits for the planned test run times and sampled volumes. For example:

- EPA Method 23 will be used to measure Dioxins, Furans and PCBs.
- A separate sampling train will be operated (according to SW-846 Method 0023) to measure chlorobenzenes and chlorophenols. This will be done to eliminate the need to "split" the samples in the laboratory, to provide lower detection limits for all the analytes.
- Another separate sampling train will be operated (according to CARB 429) to measure PAH compounds. Again, this will be done to provide lower detection limits.

The EPA Method 29 analysis does not discern the metal compounds present, as it measures only each sample's total amount of each analyzed metal. Since Molybdenum Trioxide is a target analyte, a non-destructive analysis will be conducted on each Method 29 filter before the filter is processed for the Method 29 analysis. The non-destructive analysis will include scanning electron microscopy with energy dispersive X-ray spectrometry, which can discern and count Mo Oxides relative to Mo Chlorides and MoS2 (and other Mo compounds). The analysis cannot tell MoO2 apart from MoO3, but should provide a reasonable estimate of the fraction of the total Mo that is Mo oxides versus other phases. Note that Mo complexed with Fe can make identification difficult, and that could increase the uncertainty of the analysis.

The Mo oxide fraction will be used (with the Method 29 result for total Mo from each test run) to calculate a conservative estimate of the emissions of Molybdenum trioxide.

EPA Methods 1-4. EPA Methods 1 through 4 are utilized in conjunction with each isokinetic test method. EPA Method 1 is used to determine the location of the sampling points. EPA Method 2 is used to measure the flue gas flow rate. EPA Methods 3A/3B are used to determine the flue gas molecular weight. EPA Method 4 is used to determine the flue gas moisture content. The information provided by these methods is used in determining isokinetics, parameter concentrations, and parameter emission rates.

EPA Method 23. The concentrations and emissions rates of polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans (PCDD/PCDF), polychlorinated biphenyls (PCB),

chlorobenzene, and chlorophenol are determined utilizing the proposed revision to EPA Method 23 from the January 2020 Federal Register. The proposed EPA Method 23 sampling train consists of a glass nozzle, a heated glass probe liner, a heated glass fiber filter, a condenser, an XAD resin trap, four chilled impingers in series (the knock out impinger will be omitted as provided for in the proposed revisions to EPA Method 23) , a dry gas metering console and a calibrated orifice. A heated sample transfer line of Teflon tubing may be used between the filter holder and the condenser, as described in Section 2.1.2 of Method 23. The first and second impingers contain ~100mL of DI water, the third is empty, and the fourth impinger contains pre-weighed silica gel. The weight of each impinger and the adsorbent module, including the fitting caps will be recorded to the nearest 0.5 g before and after sampling. The equipment is operated in accordance with proposed EPA Method 23 with no exceptions. Each test run is four (4) hours in duration.

At the end of each test run, each impinger and the XAD adsorbent module is weighed to compare with pre-sampling weights for determination of the stack gas moisture content (i.e. EPA Method 4). The samples are recovered, processed and analyzed in accordance with proposed EPA Method 23. The samples are extracted and concentrated in the laboratory, then analyzed by High-Resolution GC with High-Resolution Mass Spectroscopy for PCDD/PCDF and PCB. Results are converted to stack concentrations (ng/dscm or pg/dscm) and mass emission rates (e.g. lb/hr) for reporting.

EPA SW-846 Method 0023a. The concentrations and emissions rates of chlorobenzene and chlorophenol are determined utilizing the proposed revision to EPA Method 23 from the January 2020 Federal Register. The sampling train consists of a glass nozzle, a heated glass probe liner, a heated glass fiber filter, a condenser, an XAD resin trap, four chilled impingers in series, a dry gas metering console and a calibrated orifice. A heated sample transfer line may be used between the filter holder and the condenser. The first and second impingers contain ~100mL of DI water, the third is empty, and the fourth impinger contains pre-weighed silica gel. The weight of each impinger and the adsorbent module, including the fitting caps will be recorded to the nearest 0.5 g before and after sampling. The equipment is operated in accordance with proposed EPA Method 23 with no exceptions. Each test run is four (4) hours in duration.

At the end of each test run, each impinger and the XAD adsorbent module is weighed to compare with pre-sampling weights for determination of the stack gas moisture content (i.e. EPA Method 4). The samples are recovered, processed and analyzed in accordance with SW-

846 Method 0023a. The samples are extracted and concentrated in the laboratory, then analyzed by Gas Chromatography - Mass Spectroscopy (GC-MS) according to EPA Method 8270D for its list of calibrated Semi-Volatile Organic Compounds, which includes some of the chlorobenzenes and chorophenols. The analysis includes a scan to measure the top ten ten tentatively identified compounds (TIC) to include any additional chlorobenzenes and chlorophenols (Chlorobenzene may be too volatile to be captured, but will be captured and analyzed in the Method 0031 samples). Results are converted to stack concentrations (ng/dscm or pg/dscm) and mass emission rates (e.g. lb/hr) for reporting.

CARB Method 429. The sampling and analytical procedures outlined in CARB Method 429 are used to determine the polycyclic aromatic hydrocarbons (PAHs) emissions.

Sampling Train Description. The sampling train consists of a glass nozzle, a heated probe with a glass liner, a heated Teflon-coated glass fiber filter, a water-cooled condenser, a XAD sorbent trap, four chilled impingers in series, a pump, a dry gas meter and a calibrated orifice. A sample transfer line (Teflon tubing) may be used to connect from the filter holder to the condenser. The filter is housed in glass filter holder and supported on a Teflon frit. The condenser is placed above the XAD sorbent trap allowing the condensate to drain vertically through the sorbent for removal of the organic constituents in the gas. The sorbent trap is charged with the precleaned, spiked resin. The first and second impingers each are charged with sodium carbonate/sodium bicarbonate buffer solution, the third is empty and the fourth contains silica gel. Sealing greases are not used on the sample train connections.

The samples are recovered, processed and analyzed in accordance with CARB Method 429. The samples are extracted and concentrated in the laboratory, then analyzed by high resolution capillary column gas chromatography coupled with high resolution mass spectrometry (HRGC/HRMS) for the PAH compounds. Results are converted to stack concentrations (ng/dscm) and mass emission rates (e.g. lb/hr) for reporting.

EPA Method 26A (Modified). Concentrations of Halogens and halides are measured using EPA Method 26A with isokinetic sampling. This provides sampling similar to Method 26 but using full-size impingers and the larger sampled volume in place of the midget impingers and smaller sampled volume of Method 26.
The following will also apply:

1.) The probe & filter must be kept above the exhaust temperature and greater than 248°F.

2.) A separate blank solution of the absorbing reagent should be prepared for analysis with the field samples.

3.) At a minimum, results of testing are to be reported in the following units. Test results shall be reported as not blank corrected.
- ppmdv
- ppmdv @ 7% O_2
- lb/hr (outlet only)
- lb/1,000 lbs of steam produced

The equipment is operated in accordance with EPA Method 26A except that:
- The sampling will be conducted at a constant sampling rate rather than at isokinetic sampling rates,
- The sampling probe may be a "straight" tube rather than including a nozzle for isokinetic sampling.
- The sampled volume will be measured using a "Method 5" style dry gas meter console.
Each test run will be 1 hour in duration.

At the end of each test run, each impinger is weighed to compare with pre-sampling weights for determination of the stack gas moisture content (i.e. EPA Method 4). The contents of the H_2SO_4 impingers are recovered into one sample bottle, and the contents of the NaOH impingers are recovered into a separate sample bottle for each test run.

The full load test samples are analyzed in accordance with EPA Method 26A for the halides and halogens identified in Section 1.1 of EPA Method 26 (i.e. HCl, HBr, HF, Cl_2 and Br_2), but the low load tests samples will only be analyzed for the halides (HCl and HF).

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EPA Method 29. Metal concentrations and emission rates are determined utilizing EPA Method 29. The EPA Method 29 sampling train consists of a glass nozzle, a heated probe with a glass liner, a heated (low-metal blank) quartz filter, an empty impinger (optional), two chilled impingers each with 100mL of 5% HNO_3/10% H_2O_2, an empty impinger, two chilled impingers each with 100mL of 4% $KMnO_4$/10% H_2SO_4, an impinger with a known mass of of silica gel, and a dry gas metering console. Each test run is a minimum of two (2) hours in duration. Borosilicate glass or quartz probe liners and nozzles are used to avoid possible contamination.

After completion of each test run, each impinger is weighed to compare with pre-sampling weights for determination of the stack gas moisture content (i.e. EPA Method 4). The samples

are recovered, preserved, processed and analyzed in the analytical laboratory in accordance with EPA Method 29.

The Method 29 filter from each test run (and a reagent blank filter) will be sent first to a laboratory for non-destructive analysis of the Molybdenum compounds. The non-destructive analysis will include scanning electron microscopy with energy dispersive X-ray spectrometry, which can discern and count Mo Oxides relative to Mo Chlorides and MoS2 (and other Mo compounds). The results of the analysis will be used to estimate the fraction of the total Molybdenum emissions that may be Molybdenum Trioxide. After completion of the non-destructive analysis, the filters will be sent to the separate laboratory for processing by EPA Method 29 along with the other Method 29 sample fractions.

EPA SW-846 Method 0061. Hexavalent chromium emissions will be determined using the SW846 Method 0061, modified to use a different impinger solution. The sampling train will consist of a glass nozzle, Teflon probe liner with Teflon aspirator, four Teflon impingers and one glass impinger connected in series, a leak-free sampling pump assembly and a dry gas metering console.

The impingers will be charged as described in Section 7.1.4 of Method 0061, except that the 0.1M KOH will be replaced by 0.1M sodium bicarbonate solution. Recent sampling and laboratory practice has evolved to improve the maintenance of the valence state of the hexavalent and trivalent chromium and to provide lower blank values. The bicarbonate solution has been found to have non-detectable chromium content, even at laboratory detection limit of 0.01 μg/L. The solution also improves the maintenance of the proper pH range during sampling, as studies have shown that low pH drives hexavalent chromium to the trivalent state, and high pH drives trivalent chromium to the hexavalent state. The bicarbonate solution facilitates maintenance of the pH in the 8.5 to 10 range that is ideal for valence-state maintenance.

At the completion of each test run, the pH of the solution in the first impinger is determined (and recorded) using pH indicator strip. If the pH is not above 8.5, the solution is discarded. If the pH is above 8.5, the impingers are purged for 30 minutes with N_2 at a rate of 10 liters/min. At the conclusion of the N_2 purge, the contents of the impingers are recovered into a sample container. The entire sampling train up to the silica gel impinger is rinsed with DI water into a sample container. The sample is filtered through an acetate membrane filter with a 0.45 um

pore size. Nitrogen is used to accelerate the filtering period. The filtered sample is then placed into a chilled ice chest for storage and transport to the analytical laboratory.

The samples are analyzed in accordance with SW846 Method 0061 by Chester LabNet of Tigard, Oregon. Chester's SOP for the method includes important updates that provide a detection limit of 0.01 µg/L (as compared with older techniques that have a typical detection limit of 0.5 µg/L).

EPA SW-846 Method 0031. Concentrations of volatile organic compounds are measured using a single sampling train for SW-846 Method 0031 The system includes a sampling rate of 0.5 L/min for 40 minutes as in the "SLO-SMVOC" criteria to collect the very volatile compounds without significant breakthrough (i.e. less than 5% in the final Tenax trap). Three such samplings are made during each 120-minute test run, with trap changes between samplings. A separate fourth 40-minute sampling run may be made to provide a "spare" set of traps to archive for each test run in case of issues with any of the normal set of three. The only compounds not analyzed by 0031 are Ethylene, Propylene and 1,3-Dichloropropene; measurement of these may be provided by a TIC scan by EPA Method 8270. A list of the normally applicable compounds is available in Section 1.1 of the method.

The method employs a sampling module and meter box to withdraw a 20-L sample of effluent gas containing volatile organic compounds from a stationary source at a flow rate of 0.5 L/min, using a glass-lined probe heated to 130 ± 5°C and a "Sampling method for volatile organic compounds" (SMVOC) train. The gas stream is cooled to 20°C by passage through a water-cooled condenser and volatile organic compounds are collected on a set of sorbent traps (Tenax®-GC/Tenax®-GC/Anasorb®-747). Liquid condensate is collected in an impinger placed between the two Tenax®-GC traps and the Anasorb®-747 trap.

Sample fractions are recovered, stored, shipped and analyzed as described in Method 0031.

CARB Method 430. Sampling and analysis are conducted in accordance with CARB Method 430, modified to include sampling and analysis of acrolein and to mitigate interference from NO_X in the stack gas. Gaseous emissions are drawn through a probe and sample line (tubing) and two impingers in series, each impinger containing an aqueous acidic solution of 2,4-dinitrophenyl-hydrazine (DNPH). The sampling train includes a probe of heated glass or Teflon

tubing, a connecting sample line of Teflon tubing, the two impingers, vacuum pump, control valves and dry gas meter.

Modifications for sampling include the use of a calibrated liter-range dry gas meter to measure the volume of sampled dry stack gas (in place of the rotameter described in the Method, as the rotameter measures only the sampling rate). Note that the meter box includes a rotameter or similar device for measurement of the sampling rate so that the rate will be no higher than 500 ml per minute.

Sampling is also modified by the addition of a toluene “float” to each DNPH impinger. This modification has been well-studied by several researchers and has become common practice among testers who routinely use CARB Method 430. The modification prevents interference from NO_X, allows accurate measurement of acrolein, and provides immediate, continuous extraction to stay within the 7-day hold-time for extraction described in Section 8.3 of Method 430.

Approximately 2 to 5 ml of toluene is added to each DNPH impinger prior to sampling and is recovered from the impinger with the DNPH solution. This modification provides continuous extraction of the hydrozone derivatives (formed from the aldehydes reacting with the DNPH) as the samples are collected. Since the derivative for acrolein is not water-soluble, it is continuously extracted into and preserved in the toluene; this allows for accurate laboratory analysis of the acrolein content (which would not be possible using the Method as written). The continuous extraction of the other derivatives (from formaldehyde and acetaldehyde) into the toluene prevents interference from NO_X, as the reactions with NO_X take place only in an aqueous solution.

At the completion of sampling, the probe is rinsed with 2 ml of impinger solution into the first impinger. Each impinger is recovered separately into a glass sample vials with a gas tight lid and each impinger is rinsed with 2 ml of impinger solution. An aldehyde reacts with DNPH by nucleophilic addition on the carbonyl followed by 1,2- elimination of water and the formation of a 2,4-dinitrophenylhydrazone. Acid is required to promote protonation of the carbonyl because DNPH is a weak nucleophile. After organic solvent extraction, the sample is analyzed using reverse phase HPLC with an ultraviolet (UV) absorption detector operated at 360 nm. Impingers are analyzed separately. Formaldehyde and acetaldehyde in the sample are identified and

quantified by comparison of retention times and area counts of sample extracts with those of standards.

Bay Area Air Quality Management District (BAAQMD) Source Test Procedure ST-1B.
The sampling procedures outlined in BAAQMD Method ST-1B is used to determine the ammonia emissions. The sampling train consists of a heated glass or titanium probe liner, a heated borosilicate glass filter holder with a Teflon filter support, four chilled impingers in series, a pump, a dry gas meter and a calibrated orifice. The impingers are placed in an ice bath to maintain the impinger temperature at 45° F or less.

All glassware is precleaned by washing with soap, hot tap water and rinsed with deionized water. For sampling, the first two impingers are each charged with 100 ml of 0.1 N hydrochloric acid (HCl). The third impinger is empty, and the fourth impinger contain silica gel. The leak check and sampling procedures are performed according to the method. Each impinger is weighed before and after sampling.

The contents of the first impinger are transferred to a Nalgene sample bottle. The contents of the second impinger are transferred to a separate Nalgene sample bottle.
The samples are delivered to the laboratory for separate analysis of the first and second impinger contents for the ammonia concentrations using a calibrated ion specific electrode.

7.0 QUALITY ASSURANCE / QUALITY CONTROL

7.0 QUALITY ASSURANCE / QUALITY CONTROL

Covanta has instituted a rigorous Quality Assurance/Quality Control (QA/QC) program for all its compliance source testing. This program ensures that the emission data reported for Covanta facilities are as accurate and meaningful as possible.

Glass or Teflon® is employed in all the sampling equipment in contact with the sample gas. This includes the nozzle, probe liner, filter housing, sample line and impingers. Calibration of all gas meters, thermocouples, and pitot tubes used in the test program will be performed using reference methods with calibration sheets included in the final report.

Transportation blanks, method blanks, inert sample containers, field data and chain of custody forms from the U.S. EPA QA Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods, EPA-600/4-77-027b, are used during all phases of the test program.

All test programs include a supervising engineer from Covanta's corporate office to ensure the integrity of the test program according to the Source Test Plan. All field data sheets for each test run listed in the source test plan including any aborted test runs will be included in the final test report. The draft report with laboratory analyses will be available to CMI within 25 calendar days following the completion of testing.

8.0 OPERATIONAL PARAMETERS

8.1 OPERATIONAL PARAMETERS

During the source testing, plant process data will be monitored and collected by Covanta personnel to ensure representative operation of the facility. Steam flow rate will be documented to ensure representative heat input at design conditions.

The following operating parameters will be included in the final report:

Steam Production: Steam Flow (lb/hr)

Steam Flow will be measured and reported for all test runs. Reduced steam load (i.e. low fire) will be 80-90% of design steam load capacity and increased/normal steam load (i.e. high fire) will be 90-110% of design steam load capacity.

Temperature: Baghouse Inlet

Lime slurry feed rate: dry lbs/hr

Ammonia injection rate: gal/hr

Air Pollution Control: Carbon Feed Rate (lb/hr to each unit)

Supplemental fuel usage during the tests, if used

Municipal Solid Waste totals during testing

Regulated Medical Waste :

Regulated Medical Waste (RMW) is composed of several subcategories, which include pathology, trace chemotherapy, pharmaceuticals, sharps, and biohazardous waste. Due to state-specific requirements for treatment technologies, CMI primarily processes pathology, trace chemotherapy, and pharmaceutical wastes. These wastes are packaged in either U.S. Department of Transportation (DOT) approved single-use packaging or reusable packaging. Processing of single use packaged RMW will likely contain higher quantities of plastic and corrugated cardboard. CMI does not refer to either packaging or waste type as ‘grey bin’ or ‘blue bin.’ In addition, this terminology is not identified in any regulatory context. CMI will track volumes of medical waste processed and will differentiate between single-use and reusable packaging for reporting purposes.

- Packaging type (reusable or single use)
- Number of containers or pallets
- Total tons processed

Liquid Direct Injection (LDI) waste totals during testing to include:

- Waste description
- Approximate injection rates
- Total tons and/or gallons processed

- Analysis of leachate injected during the testing
  - Chloride – Method 300.0 – Data already obtained for LDI
  - Total Metals – Method 6020A - Data already obtained for LDI
  - Total Halogenated Organics – Method 9020B - As Andrew indicated, additional data may be required for Total Halogenated Organics - Method 9020B

Supplemental waste (also referred to as Special waste) during testing to include:

- Waste description
- Total tons received

9.0 SOURCE TEST RESULTS

9.1 SOURCE TEST RESULTS

Source test results will be submitted to the ODEQ Agency Headquarters, 700 NE Multnomah Street, Suite 600, Portland, OR 97232 within 60 days following the completion of the source test.

Emissions to be tested shall be reported as:

PCDD/PCDF:	ng/dscm @ 7% O_2, lb/hr, lb/1000lb steam
PCBs:	ng/dscm @ 7% O_2, lb/hr, lb/1000lb steam
PAHs:	ng/dscm @ 7% O_2, lb/hr, lb/1000lb steam
VOCs:	ppb @ 7% O_2, lb/hr, lb/1000lb steam
Metals:	mg/dscm @ 7% O_2, lb/hr, lb/1000lb steam
Hydrogen chloride, halides, and halogens:	ppm @ 7%, lb/hr, lb/1000lb steam
Formaldehyde and other aldehydes:	ppm @ 7%, lb/hr, lb/1000lb steam
Ammonia:	ppm @ 7%, lb/hr, lb/1000lb steam
Chlorophenols:	ng/dscm @ 7% O2, lb/hr, lb/1000lb steam
Chlorobenzenes:	ng/dscm @ 7% O2, lb/hr, lb/1000lb steam
Molybdenum chloride and trioxide	weight percentage of solid particulate matter and of total Mo, lb/hr, lb/1000lb steam

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