Report No. | 22237

ORTECH
AN ALLIANCE TECHNICAL GROUP COMPANY

Report:

Clean Harbors Canada, Inc.
Annual Emission Testing Program for Compliance with Amended ECA No. 8295-CGGLZ3

Date: February 14, 2024



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Report No.: 22237
36 pages, 20 Appendices

Revision History

Version	Date	Summary Changes/Purpose of Revision
1	February 14, 2024	None

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EXECUTIVE SUMMARY

ORTECH Consulting Alliance Inc. (ORTECH) was requested by Clean Harbors to conduct a comprehensive emission testing program at the incineration facility located at 4090 Telfer Road in Corunna, Ontario.

The emission testing program was performed to satisfy the requirements of Ontario Ministry of the Environment, Conservation and Parks (MECP) Amended Environmental Compliance Approval (ECA) No. 8295-CGGLZ3, issued September 1, 2023. Section 9(1) of the ECA states that "the company shall perform Source Testing in accordance with the procedures in Schedule C to determine the rates of emissions of the Test Contaminants from the Targeted Sources listed in Schedule A, within 6 months from the date of this approval.

The emission testing program was completed between November 14 and November 16, 2023. During the emission testing program triplicate tests were completed for particulate matter, metals, acid gases, semi-volatile organic compounds (SVOCs), combustion gases and volatile organic compounds at the Main Stack.

The contaminant groups included in the emission test program and the reference test methods used are summarized below:

Test Groups	Reference Method
Particulate and Metals	US EPA Method 29 (Modified)
SVOCs	Environment Canada Method EPS 1/RM/2
Acid Gases	US EPA Method 26
Volatile Organic Compounds	US EPA SW-846 Method 0030 (SLO VOST modification)
Combustion Gases:	
Carbon Dioxide and Oxygen	US EPA Method 3A
Carbon Monoxide	US EPA Method 10
Sulphur Dioxide	US EPA Method 6C
Oxides of Nitrogen	US EPA Method 7E
Total Hydrocarbons	US EPA Method 25A

Testing was performed at a high feed rate, as specified by the ECA, to demonstrate compliance with MECP emission criteria. During the emission tests the average combined rich, lean and emulsion feed rates was 220 L/min. The maximum combined feed of all waste streams cannot not exceed 245 L/min. The Thermal Desorber Unit (TDU) was exhausting to the incinerator during each test.

In addition to the requirements of Regulation 419, Section 5 of the ECA provides concentration limits for particulate matter, mercury, and the toxic equivalent concentration of dioxins and furans in the stack gases.

Summary results for those compounds with specific limits listed in the ECA, to be confirmed through source testing, are provided below.

Stack Gas Concentration Criterion	Allowable Value	Test Average Value
Particulate Matter	maximum 20 mg/Rm$^{3(1)}$	1.14 mg/Rm$^{3(1)}$
Mercury	maximum 50 µg/Rm$^{3(1)}$	0.59 µg/Rm$^{3(1)}$
Dioxin and Furan TEQ	maximum 80 pg TEQ/Rm$^{3(2)}$	1.75 pg TEQ/Rm$^{3(2)}$

(1) adjusted to 11% oxygen, dry at 25°C and 1 atmosphere

(2) calculated using half the detection limit for compounds reported as <RDL, adjusted to 11% oxygen and dry at 25°C and 1 atmosphere

A tabular comparison of calculated emission rates based on the source testing results for the Test Contaminants to relevant estimates described in the facility's most recent ESDM Report is provided below.

Contaminant	Source Testing Emission Rate (g/s)	ESDM Emission Rate (g/s)	Contaminant	Source Testing Emission Rate (g/s)	ESDM Emission Rate (g/s)
Particulate Matter	2.59E-02	2.36E-01	Acenaphthene	1.74E-07	2.78E-06
Hydrogen Chloride	1.21E-01	1.78E+00	Acenaphthylene	1.15E-06	2.78E-06
Hydrogen Fluoride	9.54E-01	8.35E-02	Anthracene	6.22E-08	5.56E-07
Carbon Monoxide	1.62E+00	8.50E-01	Benzo(a)Anthracene	5.36E-08	2.78E-05
Nitrogen Oxides ***	6.33E+00	2.71E+00	Benzo(b)Fluoranthene	5.36E-08	2.78E-06
Sulphur Dioxide	1.23E+00	1.53E+01	Benzo(k)Fluoranthene	5.36E-08	2.78E-06
Antimony	1.06E-06	3.58E-05	Benzo(g,h,i)Perylene	1.06E-07	2.78E-06
Arsenic	7.88E-07	1.75E-04	Benzo(a)Pyrene	5.36E-08	1.44E-07
Barium	1.75E-04	2.90E-04	Biphenyl	6.80E-07	2.42E-05
Beryllium	6.87E-07	7.68E-07	2-Chloronaphthalene	5.36E-08	2.78E-04
Boron	7.98E-02	1.39E-02	Chrysene/Triphenylene	1.82E-07	2.78E-05
Cadmium	1.23E-06	2.63E-05	Dibenzo(a,c/a,h)Anthracene	5.36E-08	2.78E-06
Chromium	3.94E-05	2.12E-04	Fluoranthene	1.90E-07	2.78E-06
Cobalt	7.25E-07	2.41E-05	Fluorene	8.47E-08	2.78E-06
Copper	6.84E-05	3.05E-04	Indeno(1,2,3-cd)Pyrene	5.36E-08	2.78E-06
Iron	4.89E-04	7.40E-03	1-Methylnaphthalene	6.30E-07	2.78E-06
Lead	5.36E-06	1.40E-04	2-Methylnaphthalene	6.04E-07	2.78E-06
Lithium	5.07E-06	2.58E-05	Naphthalene	5.03E-06	1.45E-04
Manganese	6.92E-05	2.13E-03	Perylene	5.36E-08	2.78E-05
Mercury	1.34E-05	7.26E-02	Phenanthrene	7.50E-07	2.78E-05
Molybdenum	6.30E-05	1.66E-04	Pyrene	1.35E-07	5.56E-05
Nickel	3.25E-05	1.78E-04	Acetone	1.41E-04	2.90E-02
Selenium	1.95E-04	6.68E-04	Benzene	9.73E-04	2.13E-02
Silver	7.76E-07	3.53E-06	Bromodichloromethane	4.21E-05	2.64E-03
Strontium	8.65E-06	7.90E-05	Bromoform	8.04E-05	2.66E-03
Tin	1.72E-04	1.67E-04	Bromomethane	2.81E-04	3.26E-03
Titanium	3.61E-05	2.25E-03	2-Butanone	3.84E-05	2.80E-02
Vanadium	6.25E-07	5.50E-05	Carbon Tetrachloride	3.84E-05	2.64E-03
Zinc	2.20E-04	8.72E-04	Chloroform	3.84E-05	2.66E-03
Octachlorodibenzofuran	2.36E-14	8.33E-14	Dibromochloromethane	6.54E-05	5.28E-04
Total Dioxins, Furans and PCBs	3.96E-11	1.44E-10	Dichlorodifluoromethane	3.84E-05	2.64E-03
Total PCBs	6.96E-07	8.73E-07	1,2-Dichloroethane	3.84E-05	2.97E-03
1,3-Dichlorobenzene	4.54E-06	1.39E-03	trans,1,2-Dichloroethene	3.84E-05	2.64E-03
1,4-Dichlorobenzene	5.88E-07	1.39E-03	1,1-Dichloroethene	3.84E-05	2.64E-03
1,2-Dichlorobenzene	1.06E-06	1.40E-03	1,2-Dichloropropane	3.84E-05	2.64E-03
1,2,4-trichlorobenzene	8.65E-07	1.39E-03	Ethylbenzene	3.84E-05	1.39E-02
1,2,3-trichlorobenzene	1.93E-07	1.39E-03	Mesitylene (1,3,5-Trimethylbenzene)	3.84E-05	1.39E-03
Hexachlorobenzene	5.36E-08	6.60E-04	Methylene Chloride	8.31E-05	2.96E-03
Total Chlorobenzenes	8.29E-06	1.39E-03	Styrene	4.56E-05	1.40E-02
Hexachlorobutadiene	5.36E-08	6.60E-04	Tetrachloroethene	3.84E-05	2.64E-02
Hexachloroethane	5.36E-08	2.64E-03	Toluene	4.29E-04	1.70E-02
2,4/2,5-dichlorophenol	1.21E-06	1.39E-03	1,1,1-Trichloroethane	3.84E-05	2.64E-03
2,4,6-trichlorophenol	4.35E-07	1.39E-03	Trichloroethene/1,1,2-Trichloroethene	3.84E-05	2.64E-03
2,4,5-trichlorophenol	2.68E-07	1.39E-03	Trichlorofluoromethane	3.84E-05	2.64E-03
2,3,4,6-tetrachlorophenol	2.68E-07	1.39E-03	M&P-Xylene	7.69E-05	1.39E-03
Pentachlorophenol	2.68E-07	1.39E-03	O-Xylene	3.84E-05	1.39E-03
			Vinyl Chloride	3.84E-05	2.64E-03

All tables referenced in this report are provided in Appendix 1.

1. INTRODUCTION

ORTECH Consulting Alliance Inc. (ORTECH) was requested by Clean Harbors to conduct a comprehensive emission testing program at the incineration facility located at 4090 Telfer Road in Corunna, Ontario. The Facility NAICS Code is 562210 - Waste Treatment and Disposal.

The emission testing program was performed to satisfy the requirements of Ontario Ministry of the Environment, Conservation and Parks (MECP) Amended Environmental Compliance Approval (ECA) No. 8295-CGGLZ3, issued September 1, 2023. Section 9(1) of the ECA states that "the company shall perform Source Testing in accordance with the procedures in Schedule C to determine the rates of emissions of the Test Contaminants from the Targeted Sources listed in Schedule A, within 6 months from the date of this approval. A copy of the ECA is provided in Appendix 2.

The emission testing program was completed between November 14 and November 16, 2023. During the emission testing program triplicate tests were completed for particulate matter, metals, acid gases, semi-volatile organic compounds (SVOCs), combustion gases and volatile organic compounds at the Main Stack.

2. PROCESS DESCRIPTION

The incineration system consists of a refractory-lined, fixed-chamber combustion reactor and a three-stage gas conditioning and cleaning system. In the combustion chamber there are two reaction zones referred to as the primary zone and secondary zone. In the primary zone, high heating value ("rich") wastes are intimately mixed with combustion air and ignited to produce a turbulent, luminous flame. Intermediate heating value ("emulsion") wastes are also injected into the primary zone. Reaction temperatures are continuously monitored and controlled to maintain temperatures in excess of 1300°C.

Downstream of the luminous primary reaction zone, aqueous ("lean") wastes with a much lower heating value are sprayed into the combustion chamber. This portion of the chamber is known as the secondary zone and temperatures within this zone are maintained in excess of 800°C.

Upon exiting the secondary zone of the combustion chamber, the combustion gases are cooled in a quench chamber to about 550°C by the injection of process water or a mixture of process water and leachate which has been pre-treated through the Dissolved Air Flotation (DAF) unit. The combustion gases are further cooled and acid gases are removed in a spray dryer where alkaline waste liquid ("alkaline") and/or reagent grade lime slurry is injected. The exit temperature of the gases leaving the spray dryer is typically between 160°C and 195°C, and does not exceed 220°C. Powdered activated carbon (PAC) is injected into the air pollution control system to absorb contaminants. The 15-minute rolling average powdered activated carbon (PAC) injection rate must not be less than 9 kilograms per hour during waste feed.

Finally, the gases are directed to a four-compartment baghouse with a total filtering area of 2790 square meters where the fine suspended particulate matter and PAC in the gas phase is filtered out. The hot, humid gases exiting the baghouse are then discharged to the atmosphere through a 68.5 meter high, 1.47 meter inside diameter (tapers to 1.22 m at the stack exit), insulated main stack. The stack gases are monitored by continuous emission monitors (CEMs) located in the induced draft fan discharge ducting with opacity being measured in-situ eight stack diameters downstream of the breaching inlet to the stack (approximately fifteen meters above grade, accessible by a ladder). The CEMs record oxygen, carbon monoxide, sulphur dioxide, total hydrocarbons (THC) and hydrogen chloride concentrations exhausting from the main stack.

Note the Leachate Pretreatment System was still being developed, therefore pre-treated leachate was not being injected into the Quench during the time of the emission test program.

During the emission testing program, the incinerator was operated with an average primary zone temperature of 1488°C. Normal operating temperature must be in excess of 1300°C while achieving the maximum thermal and feed loading practical within the incineration system. The average spray dryer outlet temperature was 195°C (must not exceed 220°C).

Average process feedrates measured for the rich, lean and emulsion streams for the emission testing program were as follows:

Feed Stream	Feedrate (L/min)			
	Test No. 1	Test No. 2	Test No. 3	Average
Rich	36.1	41.4	38.9	38.8
Lean	175	172	172	173
Emulsion	8.58	8.08	8.77	8.48
Total	220	221	220	220

The powdered activated carbon (PAC) injection rate during the test program was 11.9 kg/h (26.4 lb/h).

3. SAMPLING LOCATION

The Main Stack has an inside diameter of 1.47 meters at the sampling platform and 1.22 meters at the stack exit. The stack height above grade is 68.5 meters.

Sampling for particulate and metals and semi-volatile organics was conducted at the sampling platform permanently installed on the stack, through two ports at 90° to each other and at the same vertical height. Acid gases and volatile organics were sampled through a third port located on the same sampling platform.

The sampling ports were located at an "ideal" location as defined by the Ontario Source Testing Code. An "ideal" location is defined as being at least eight stack diameters downstream and at least two stack diameters upstream of flow disturbances.

The combustion gases sampling probe was inserted into the breaching connecting the induced draft fan to the stack. Previous testing programs conducted by ORTECH at the Clean Harbors Main Stack have shown that there is no stack gas stratification between the breaching connecting the induced draft fan to the stack and the stack sampling platform location.

4. SAMPLING METHODOLOGY

4.1 General

This section outlines the sampling procedures as well as pre-test and on-site internal quality assurance/quality control (QA/QC) procedures which were utilized in the testing program. The procedures described in this section ensured that representative samples were collected and that the integrity of the collected samples was maintained. The use of these sampling procedures significantly reduced the possibility of sample contamination from external sources. Sample handling and documentation requirements were key factors in this program.

Triplicate emission tests were completed for particulate matter, metals, semi-volatile organic compounds, acid gases, volatile organic compounds and combustion gases at the Main Stack.

The contaminant groups included in the emission test program and the reference test methods used are summarized below:

Test Groups	Reference Method
Particulate and Metals	US EPA Method 29 (Modified)
SVOCs	Environment Canada Method EPS 1/RM/2
Acid Gases	US EPA Method 26
Volatile Organic Compounds	US EPA SW-846 Method 0030
Combustion Gases:	
Carbon Dioxide and Oxygen	US EPA Method 3A
Carbon Monoxide	US EPA Method 10
Sulphur Dioxide	US EPA Method 6C
Oxides of Nitrogen	US EPA Method 7E
Total Hydrocarbons	US EPA Method 25A

4.2 Particulate and Metals

Particulate and metals were sampled using the sampling procedures outlined in US EPA Method 29. Major components of the sampling train were as follows:

- A one-piece glass nozzle and probe liner assembly
- A quartz fiber filter with low metal background
- The first impinger contained 100 mL of distilled, de-ionized water
- The second (knock-out) impinger was initially empty
- The third and fourth impingers contained 100 mL each of 5% nitric acid/10% hydrogen peroxide solution to collect metals
- The fifth impinger was initially empty
- The sixth and seventh impingers contained 100 mL each of 4% potassium permanganate/10% sulphuric acid solution to collect mercury
- The eighth impinger contained silica gel

Each test for particulate matter and metals involved the collection of stack gas sampled isokinetically at ten points centered on equal areas along each of two traverses (at 90° to each other) of the stack. Each of the twenty points was sampled for twelve minutes for a total actual sampling time of two hundred and forty minutes.

At three minute time increments throughout each test the following information was measured and recorded on field data sheets:

- Elapsed sampling time
- Dry gas meter volume
- Pitot tube pressure
- Stack gas temperature
- Probe, oven and impinger temperatures
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

The particulate and metals field data sheets are provided in Appendix 3.

At the start and finish of sampling each traverse the sampling train was leak-checked. A valid leak-check as specified by the sampling method is a leakage rate of less than 0.00057 cubic meters per minute (m^3/min) or 4% of the estimated sampling rate, whichever is less. All of the leak-checks, as detailed on the field data sheets, were acceptable.

A blank train was prepared and the samples recovered in a manner identical to the test sampling trains.

4.3 Semi-Volatile Organic Compounds

Semi-volatile organic compounds (SVOC), including dioxins and furans, polychlorinated biphenyls (PCBs), chlorobenzenes (CBs), chlorophenols (CPs) and polycyclic aromatic hydrocarbons (PAHs) were sampled using the sampling train and sampling procedures outlined in Environment Canada Report EPS 1/RM/2. Major components of the sampling train were as follows:

- A glass nozzle and probe liner assembly
- A clean and proven glass fiber filter
- Amberlite XAD-2 sorbent resin was used in a trap to collect semi-volatile organics
- The first impinger was initially empty
- The second impinger contained 100 mL of ethylene glycol
- The third impinger was initially empty
- The fourth impinger contained silica gel

All test train and auxiliary glassware were cleaned according to the methods as outlined in Environment Canada EPS 1/RM/2 except that the methods were modified by combining proofing extracts prior to analysis for the target analytes.

Each test for semi-volatile organic compounds involved the collection of stack gas sampled isokinetically at ten points centered on equal areas along each of two traverses (at 90° to each other) of the stack. Each of the twenty points was sampled for twelve minutes for a total actual sampling time of two hundred and forty minutes.

At three minute time increments the following information was measured and recorded on field data sheets:

- Elapsed sampling time
- Dry gas meter volume
- Pitot tube pressure
- Stack gas temperature
- Probe, oven and impinger outlet temperatures
- XAD-2 trap outlet temperature
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

Field data sheets for the SVOC tests are provided in Appendix 4.

At the start and finish of sampling each traverse, the sampling train was leak-checked. A valid leak-check as specified by the sampling method is a leakage rate of less than 0.00057 m^3/min or 4% of the estimated average sampling rate, whichever is less. All of the leak-checks for the tests reported, as detailed on the field data sheets, were acceptable.

A blank train was prepared in a manner identical to the test trains. It was assembled, transported and left at the sampling site for a period of time equal to the test trains. The blank train was treated at the sampling site in the same manner as the test trains and a gas volume was drawn through the blank train approximately equal to the leak-check volume for the test trains.

4.4 Acid Gases

Hydrogen fluoride and hydrogen chloride were sampled together using the sampling train and sampling procedures outlined in US EPA Method 26. Major components of the test train were as follows:

- A glass nozzle and probe liner assembly
- The first two impingers were initially be empty
- The third and fourth impingers contained 15 mL of 0.1N H_2SO_4 each
- The fifth impinger was initially empty
- The sixth impinger contained silica gel

At five minute time increments throughout each test the following information was measured and recorded on field data sheets:

- Elapsed sampling time
- Dry gas meter volume
- Pitot tube pressure
- Stack gas temperature
- Probe, oven and impinger temperatures
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

Field data sheets for the acid gases tests are provided in Appendix 5.

At the start and finish of each test the sampling train was leak-checked. A valid leak-check as specified by the sampling method is a leakage rate of less than 0.00057 m^3/min or 4% of the estimated average sampling rate, whichever is less.

A blank train was prepared and samples recovered in a manner identical to the test sampling trains.

4.5 Volatile Organic Compounds

Volatile Organic Compound (VOC) sampling was performed in accordance with US EPA SW-846 Method 0030 (SLO-VOST modification). Briefly, the sampling method involved withdrawing a sample of the stack gas through a heated glass lined sampling probe containing a glass wool plug to remove particulate material. The sample was then passed through a water cooled condenser and a Tenax GC adsorbent tube, as the primary volatile organic collection device. Condensate was collected in an initial condensate trap and the sample was then drawn through a second condenser and a combined secondary Tenax GC/charcoal adsorbent tube, as the secondary volatile organic collection device. The sampled gas stream then passed through a silica gel trap to remove any remaining traces of moisture prior to the rotameter, pump and dry gas meter.

During each test, a single forty minute run was completed at an approximate flowrate of 0.5 L/min. A fourth run was also conducted and the tube pair was archived in case a sample was lost during desorption or analysis. Note the samples for Test No. 1, Test No. 3 and Test No. 4 were analyzed and reported; VOST Tests No. 1, 3 and 4 coincide with the isokinetic tests performed on November 14, 15, and 16, 2023. Test No. 2, the archived tube pair, was conducted on November 14, 2023.

At five minute time increments throughout sampling each pair of tubes, the following information was measured and recorded:

- Elapsed sampling time
- Dry gas meter volume
- Stack gas temperature
- Probe and first condenser outlet temperatures
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

The sampling train components were cleaned using the procedures in US EPA SW-846 Method 0030, Volatile Organic Sampling Train (VOST).

Field data sheets for the VOST tests are provided in Appendix 6.

4.6 Combustion Gases

Sampling by ORTECH for the combustion gases involved the insertion of a 9 millimeter inside diameter stainless steel probe into the breaching connecting the induced draft fan to the stack. The combustion gases were drawn through the probe and heated filter oven and transferred to the Mobile Source Monitoring Laboratory (MSML) by way of a heated Teflon sampling line that was maintained at a temperature of approximately 160°C throughout the test program to prevent possible condensation.

The combustion gas sample was then conditioned through another heated filter and dried using a two-pass refrigeration unit. The gas was then split into several portions that were metered with rotameters and delivered to each continuous combustion gas analyzer with the exception of the total hydrocarbon analyzer.

A Siemens Ultramat 23 analyzer was used to measure oxygen and carbon dioxide concentrations. The method used for sampling was US EPA Method 3A.

A Teledyne API 200EH chemiluminescence analyzer was used to measure the nitrogen oxides concentrations. The method used for sampling was US EPA Method 7E.

A Teledyne API T100H analyzer was used to measure sulphur dioxide concentrations. The method used was EPA Method 6C.

A Siemens Ultramat 23 analyzer was used to measure carbon monoxide concentrations. The method used for sampling was US EPA Method 10.

Total hydrocarbon concentrations were measured using a VIG20 analyzer following the procedures detailed in US EPA Method 25A.

The following data acquisition devices were used in conjunction with the continuous analyzers:

Data Logger: Modicon TSX Momentum data acquisition system, 16 channels
Data Software: CEMView
Data Processing: Lap Top Computer

These data acquisition devices were used to transfer the electrical signals from each analyzer into a data file for later processing in a spreadsheet format.

Calibrations were completed before and after each test run according to the sampling protocols.

Linearization checks were performed on the CEMs prior to and at the conclusion of testing. Zero and span drifts, and bias checks were performed prior to and at the completion of each test.

Leak checks of the CEM system were conducted sporadically throughout the program. ORTECH generally relied on other indicators of leakage problems, such as oxygen interference. However, it should be noted that all leak checks performed were acceptable.

5. ANALYTICAL METHODOLOGY

5.1 Particulate and Metals

Prior to preparing the sampling trains for the field program, recovery data sheets were prepared on which to record initial weights of the test train components. These sheets were also used during sample recovery to record final weights, moisture gains and sample volumes. The sample recovery data sheets are provided in Appendix 7.

Following the conclusion of each test performed with the particulate and metals sampling train, the probe was disconnected and all openings were sealed with Teflon tape. The probe was recovered on the stack platform to reduce the risk of breaking the glass nozzle and probe liner assembly. A nylon bristle probe brush was used to assist in dislodging particulate material, which may have adhered to the inside surfaces of the glass nozzle and probe assembly. This front half rinse was then repeated using 0.1N nitric acid, however no brushing was performed. The test train and probe rinse samples were then transported to the ORTECH laboratory for sample recovery.

Once at the laboratory, the test trains were visually inspected to ensure that no damage during transportation had occurred. The train recovery procedures are detailed in the Pre-Test Plan as well as in the recovery data sheets and are briefly described as follows.

The condition of the test train was noted. Filter and impinger content colors were recorded. The filter housing was disassembled and the filter carefully transferred to its pre-test petri dish with the use of Teflon coated tweezers.

All of the impingers were wiped dry on the outside then weighed and the results used to determine the stack gas moisture content.

The front half of the sampling train (the cyclone by-pass and filter top glassware) was brushed and rinsed thoroughly with acetone. A brush was used to assist in dislodging particulate material which may have adhered to the inside surfaces of the front-half glassware. This front half rinse was then repeated using 0.1N nitric acid, however, no brushing was performed. These rinsings were added to the appropriate probe rinse samples that were previously collected on-site.

The contents of the first five impingers were combined. Triplicate rinses of the impingers and connecting glassware back to and including the Teflon filter support were performed with 0.1N nitric acid and combined with the impinger solution sample.

The contents of the sixth and seventh impingers were combined and the impingers and connecting glassware were rinsed in triplicate with approximately 100 mL of fresh acidified potassium permanganate solution followed by a triplicate rinse with distilled, de-ionized water. All the rinsings of the glassware were added to the impinger solution sample.

Any brown residue which was present in the impingers was removed by rinsing with 8N hydrochloric acid. These acid rinses were added to another sample bottle that initially contained 150 mL of distilled, de-ionized water.

Each sample container was sealed, labeled, and the fluid level marked once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form and refrigerated until they were delivered to ALS for analysis.

Particulate samples (front-half acetone rinse and the filter) collected from the particulate and metals train underwent gravimetric determination prior to metals analysis.

The particulate and metals analytical reports are provided in Appendix 8.

5.2 Semi-Volatile Organics

Prior to loading of the field test trains, recovery data sheets were prepared to record initial weights of the test train components. These sheets were also used during sample recovery to record final weights and determine moisture gains and sample volumes. The train recovery data sheets are provided in Appendix 9.

Following the conclusion of each test performed with the semi-volatile organics trains, the probe was disconnected and all openings were sealed with Teflon tape. The probe was cleaned on-site by brushing and rinsing with a Teflon probe brush and acetone into a pre-cleaned sample bottle. The probe was then rinsed with hexane into the same sample bottle and the test train and probe rinse sample were then transported to the ORTECH laboratory for sample recovery.

Once at the laboratory, the test trains were visually inspected to ensure that no damage during transportation had occurred. The train recovery procedures are detailed in the Pre-Test Plan and recovery data sheets and are briefly described as follows.

The condition of the test train was noted. Filter, XAD-2 trap and impinger content colours were recorded. The filter housing was disassembled and the filter carefully transferred with the use of Teflon coated tweezers to a sheet of pre-cleaned aluminum foil which was then folded in half and the ends crimped and placed in a pre-cleaned glass petri dish.

All of the impingers were wiped dry on the outside then weighed and the results used to determine the stack gas moisture content.

The front half of the sampling train was rinsed thoroughly with acetone. This front half rinse was then repeated using hexane, and these acetone and hexane rinsings were combined with the probe rinse sample collected on-site.

The XAD-2 trap was drained of excess cooling water and weighed. The ends were then sealed with Teflon tape and the trap was labeled and wrapped in aluminum foil. Since ORTECH uses a one piece trap and condenser, the five minute soak of this component was performed by the analytical laboratory.

The contents of the first three impingers were combined in a pre-cleaned amber glass sample bottle. Triplicate rinses of the impingers and connecting glassware back to and including the trap bottom u-tube were performed first with HPLC water, which was added to the impinger solution sample, and then with acetone followed by hexane. The acetone and hexane rinses were combined in a separate sample bottle from the impinger solutions.

Each sample container was sealed, labeled and the fluid level marked (where appropriate) once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form and refrigerated until they were delivered to ALS for analysis.

Semi-volatile organic analyses were performed on single composite extracts for each test according to EPS 1/RM/3 and EPS 1/RM/23. These methods were modified slightly to include other semi-volatile organic compounds following the Environment Canada NITEP/Mid-Connecticut combustion test procedures. These analytical improvements have been implemented over many years and have been identified and approved through laboratory accreditation and acceptance by the MECP.

The SVOC analytical reports are provided in Appendix 10.

5.3 Hydrogen Chloride and Hydrogen Fluoride

Following the conclusion of each test performed with the hydrogen fluoride and hydrogen chloride train the probe was disconnected and all openings were sealed with Teflon tape. The test train was then recovered on site in the ORTECH sample recovery trailer. The train recovery procedure is briefly described as follows.

The condition of the test train was noted. All the impingers were wiped dry on the outside and the contents of the first five impingers were combined and the volume measured. The first five impingers and connecting glassware were rinsed thoroughly with distilled, de-ionized water and these rinsings were added to the impinger solution sample. The final volume of the sample was made up to a known volume with distilled de-ionized water.

Each sample container was sealed, labeled and the fluid level marked (where appropriate) once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form and refrigerated until they were transported to the ALS laboratory for analysis.

Analysis for hydrogen fluoride and hydrogen chloride was performed via ion chromatography.

The acid gases sample recovery data sheet is provided in Appendix 11. The hydrogen chloride and hydrogen fluoride analytical results are presented in Appendix 12.

5.4 Volatile Organics Train Recovery

Following the conclusion of each tube pair run performed with the volatile organic sampling train (VOST), the tubes were removed from the train, capped and placed in appropriately labeled test tubes which were also capped. The tubes were sent to BV Labs for volatile organic compound (VOC) analysis.

The VOST samples were analyzed via SW846 Method 5041A/8260B. Briefly, after spiking with internal and surrogate standards, the traps were thermally desorbed through a clam shell heater then through a chilled aqueous purge to remove the bulk of the moisture onto a secondary trap. These secondary traps are further dried using a counter current flow of helium. The secondary traps are then thermally desorbed into a VOC sample concentrator and again the VOCs are thermally transferred/concentrated onto a GC column. The VOC compounds are separated via gas chromatography (GC) and analyzed via GC/MS.

The condensate collected from each tube pair run was carefully transferred to a glass bottle and combined as a single composite sample. The condensate sample was archived for future analysis if necessary.

The VOST analytical report is provided in Appendix 13.

6. INTERNAL QA/QC PROGRAM

This section of the report documents the quality assurance/quality control (QA/QC) activities performed by ORTECH during the execution of this test program.

Sampling and analysis methods used for the emission testing program have been outlined earlier in this report and are detailed in the Pre-Test Plan. All methods are based on published standard or draft methods.

Prior to commencing the test program, a Pre-Test Plan was submitted to the Ministry of the Environment Conservation and Parks detailing the sampling and analytical methodology. A copy of the Pre-Test Plan acceptance letter indicating acceptance of the sampling methodology is provided in Appendix 14.

6.1 Pre-Test Activities

Prior to the commencement of the emission testing program, the following activities were performed:

- Preparation, pre-cleaning and proofing of the manual stack sampling trains and sample containers.
- Preparation and quality checks of chemicals, reagents, filters and XAD-2 adsorbent resin.
- Calibration of all sampling and monitoring equipment.
- Development (and review) of data acquisition, data reduction and summary procedures.
- Development of internal QA/QC field data sheets.
- Review of equipment calibration logs.
- Review of proposed field and laboratory procedures.

All proving data for the Semi-Volatile Organics Train glassware and auxiliary equipment was deemed acceptable prior to the test program. For each batch of VOST tubes, a minimum of 1 pair in 10 was analyzed to demonstrate an absence of significant background contaminants from the tubes prior to the test program.

All equipment used in the field testing program was calibrated and checked prior to the field testing program. Pertinent equipment calibration data is supplied in Appendix 15.

As part of the pre-test activities linearization checks were performed on the ORTECH CEMs. The linearization check data and daily calibration data for the ORTECH CEMs is provided in Appendix 16.

As part of ORTECH's internal QA/QC, data acquisition, data reduction and summary procedures were already in place and periodic spot checks of the computer programs were performed using known data sets.

6.2 Emission Testing QA/QC Results

Prior to the field testing program, preliminary data was acquired to perform the required calculations for choosing a nozzle size to permit isokinetic sampling.

The internal diameter of each duct was verified and the appropriate number of sampling points was marked on each sampling probe.

The following general QA/QC criteria were satisfied for each of the test trains where applicable:

- All sampling equipment was cleaned and proven clean (where applicable) prior to the commencement of the field testing program.
- All sampling equipment passed a visual and operational check prior to use in the field.
- Oil filled manometer gauges which had been properly leveled and zeroed were used to measure the velocity pressure.

- All sampling data was recorded in ink on preformatted data sheets at least once every 5 minutes and/or at least twice during sampling each traverse point.
- Any unusual occurrences were noted during each test on the appropriate data form.
- The field team leader reviewed all calibration and sampling data forms daily.
- Only tapered edge sampling nozzles and S-type pitot tubes that had been visually inspected and caliper measured, and deemed acceptable, were used for sampling.
- Each leg of the S-type pitot was leak-checked before the start of testing. The leak-checks were all acceptable (no leak detected).
- Each entire sampling train met acceptable leak-check criteria before and after each test, and during any move from one sampling traverse to another. If a test did not meet the leak-check criteria the test was voided and repeated.
- The S-type pitot tube and sampling nozzle were maintained parallel to the flow during testing and care was taken to ensure that they did not scrape the ports when being inserted and removed from the stack.
- The probe and filter components were maintained at 120°C $\pm$ 14°C during testing. If the probe or filter temperature was outside of the acceptable range the test was halted until the temperature could be brought back into the acceptable range.
- Clean Harbors was responsible for monitoring process operations during testing and notified ORTECH when testing was to proceed.

6.3 Sample Recovery, Handling and Custody

ORTECH's sample identification scheme and system for handling and processing samples was initiated as part of ORTECH's sample tracking system for stack emission samples. All samples were identified by a unique sample number comprised of a series of numbers and letters. A master sample log/chain of custody form was maintained by the QA/QC designate and was made available to the ORTECH personnel designated to perform the sample recovery for a specific sampling train. Once a sample was collected it was labeled and checked against the sample log by the QA/QC designate.

The information contained within the sample number and the sample log enabled the sampling, recovery, data reduction and report writing personnel to easily determine the test date, test number, test type and train sample identification for a given sample. To ensure continuity, the analytical laboratory was requested to use the ORTECH number for sample identification.

The ORTECH personnel responsible for delivering samples used the master sample log/chain of custody form to document the transfer of the samples to the analytical laboratory. Appropriate care was taken when shipping the samples in order to maintain sample integrity. Once the samples and master sample log/chain of custody forms were received by the analytical laboratory, the laboratory personnel verified that all samples had been received and their integrity maintained. The laboratory personnel then signed the master log and made a photocopy which ORTECH personnel received as a record of the chain of custody for the samples.

6.4 Analytical Results

Analyses for the present emission testing program were performed using acceptable laboratory procedures in accordance with the specified analytical protocols. Adherence to the prescribed QA/QC procedures ensured data of consistent and measurable quality. Analytical quality control focused on the use of control standards to provide a measure of analytical accuracy. Replicate analysis (usually duplicate analysis) of the same sample was used as a means of determining precision of the various analytical procedures. Also specific acceptance criteria were defined for various analytical operations including calibrations, control standard analysis, drift checks, blanks, etc.

The following general QA/QC procedures were incorporated into the analytical effort:

- the on-site Field Supervisor reviewed all data and QA/QC data on a daily basis for completeness and acceptability
- master sample logs were maintained for all samples collected
- analytical QA/QC data was tabulated by the analytical laboratories using appropriate charts or forms
- all hard copy raw data was maintained in organized files

Specific analytical QA/QC procedures are presented in the analytical reports and are briefly summarized below.

6.4.1 Metals Sample Analysis QA/QC

The analysis of the Method 29 stack samples involved sample digestion followed by Inductively Coupled Argon Plasma Mass Spectroscopy (ICP-MS) analysis. The analysis for mercury employed cold vapour atomic absorption (CVAA). The analytical QA/QC is described as follows and the results are provided in the analytical report.

ICPMS Analysis

The quality assurance activities conducted by the analytical laboratory are detailed in the Quality Assurance Report provided in the analytical report. Specific QA/QC results are summarized below:

- One duplicate sample analysis was performed for the test program. The relative percent difference was less than 6.5% well within the acceptable limit of less than ±20%, for elements that are greater than 5 times the minimum detection limit.
- A blank spike (performed as a pre-digestion spike) was analyzed with the test samples. All of the recovery results were between 84-106%. The acceptable limit is 85-115% of the true value.
- A matrix spike (performed as a post digestion spike) was analyzed with the test samples. All of the recovery results were between 83-117%. The acceptable limit is 75-125% of the true value.

The following general analytical QA/QC requirements must also be met or the samples are re-analyzed:

- An instrument calibration check standard was analyzed immediately after the calibration curve and must be within 90%-110% of the actual concentrations.
- Instrument calibration blank check sample were analyzed with every 10 samples and must be within three times the minimum detection limit.
- A continuing calibration check is run every 10 samples and must be within 85%-115% of the actual concentrations.
- Instrument (interference) check sample for ICP-MS analysis was analyzed before and after each analytical run. The value(s) found for the interference check sample must be within 80%-120% of the true value.

Mercury Analysis

The quality assurance activities conducted by the analytical laboratory are detailed in the Quality Assurance Report provided in the analytical report. Specific QA/QC results are summarized below:

- One duplicate sample analysis was performed for each fraction. The relative percent difference was less than 1.7% well within the acceptable limit of less than ±20%, for fractions that are greater than 5 times the minimum detection limit.
- A blank spike (performed as a pre-digestion spike) was analyzed with the test samples. All of the recovery results were between 85-95%. The acceptable limit is 90-110% of the true value.
- A matrix spike (performed as a post digestion spike) was analyzed with the test samples. All of the recovery results were between 80-96%. The acceptable limit is 75-125% of the true value.

The following general analytical QA/QC requirements must also be met or the samples are re-analyzed:

- A 5 point calibration was performed.
- An instrument check calibration standard was analyzed immediately after the calibration and must be within 90%-110% of the actual concentration
- One mid-range calibration standard was analyzed after 10 samples and at the end of the run and must be within 85%-115% of the actual concentration.
- Instrument calibration blank check sample is analyzed with every 10 samples and must be within three times the minimum detection limit.

6.4.2 Acid Gas Sample Analysis QA/QC

Analyses of the acid gas samples from the Method 26 sampling train was performed by Ion Chromatography (IC). The quality assurance activities conducted by the analytical laboratory are detailed in the Quality Assurance Report provided in the analytical report. Specific QA/QC results are summarized below:

- All of the hydrogen chloride and hydrogen fluoride analyses were conducted in duplicate. The relative percent difference was less than 1.0%, well within the acceptable limit of less than ±20% for compounds that are greater than 5 times the minimum detection limit.
- A blank spike sample was analyzed with the test samples. The recovery results for the blank spike sample were 102% for hydrogen chloride and 105% for hydrogen fluoride, within the acceptable range of 90-110%.
- A matrix spike (spike confirmation) sample was analyzed with every 20 samples to confirm the identity of each peak. The recovery results of the matrix spike sample were 106% for hydrogen chloride and 103% for hydrogen fluoride, within the acceptable range of 85-115%.

The following general analytical QA/QC requirements must also be met or the samples are re-analyzed:

- A 6 point calibration bracketing the expected range.
- An instrument check calibration standard was analyzed immediately after the calibration and must be within 90%-110% of the actual concentration.
- A complete set of calibration standards were analyzed at the end of the analysis and must be within 10% of the true value.
- One mid-range calibration standard was analyzed after 10 samples and at the end of the run and must be within 90%-110% of the actual concentration.
- Instrument calibration blank check samples were analyzed with every 10 samples and must be within three times the minimum detection limit for each ion.

6.4.3 SVOC Sample Analysis QA/QC

ORTECH uses a one piece condenser and XAD-2 trap for SVOC collection, this component of the test train was Teflon sealed and wrapped with foil prior to being transported to the analytical laboratory where it was given the required five minute soaking with each of acetone and hexane.

The combined filter, probe rinse, Amberlite XAD-2 cartridge, impinger solutions and associated rinse and soaking solutions for each of the semi-volatile organics trains were analyzed together as one sample per test.

The analytical laboratory added extraction standards to all samples prior to extraction. Clean-up standards were added just prior to the clean-up process. Recoveries of the clean-up standards provide an indication on the losses that occur during the extract clean-up. The analytical report includes the lists of the field spike, extraction and clean-up standards used. The analysis of samples involved complex sample extraction and cleanup, followed by HRMS/MS analysis.

The dioxin and furan field spike recoveries were between 75-104%.

Per the analytical reports, the recoveries for some standards were marginally above the method control limit, however no impact to data quality is expected.

Per the chlorophenol analytical report, 13C6-2,4-Dichlorophenol was not recovered for Test No. 2. As a result, the laboratory could not provide results for 2,4-dichlorophenol, 2,3-chlorophenol and 2,6-chlorophenol for Test No. 2.

6.4.4 Volatile Organic Compound Analysis QA/QC

Prior to sampling, VOST tube pairs were cleaned and conditioned under helium sweep (approximately 50 mL/min flow) through each tube in an oven at 280°C for at least 12 hours. One VOST pair was proofed for every 10 pairs cleaned. VOST tubes were end-capped and stored sealed in individual screw-capped vials at 4°C between conditioning and shipment to the field.

A field blank and a laboratory method blank were analyzed with the test sample tubes that were taken in the field. VOST tubes were desorbed and analyzed combined as pairs and analyzed according to SW846 Method 5041A/8260B.

The surrogate recoveries for each of the surrogates should be between 50-150%. Recoveries that were below or above the control limit were flagged in the analytical report. The surrogate recoveries for the test samples were between 89-109%.

7. RESULTS AND DISCUSSION

Emission tests were completed for particulate matter, metals, semi-volatile organic compounds, acid gases, combustion gases and volatile organic compounds at the Main Stack between November 14 and November 16, 2023.

Detailed test schedules are provided in Table 1.

7.1 Stack Gas Sampling Parameters

Emission test calculations for the particulate and metals tests are provided in Appendix 17. Emission test calculations for the semi-volatile organics tests are provided in Appendix 18.

Stack gas sampling parameters for the particulate and metals, and semi-volatile organics tests are summarized in Table 2. These parameters include calibration data, nozzle diameter, dry gas volume sampled and average percentage of isokineticity for each test.

7.2 Stack Gas Physical Parameters

Stack gas physical parameters for the particulate and metals, and the semi-volatile organics tests are given in Table 3. Stack gas volumetric flowrate data for the particulate and metals, and the semi-volatile organics tests are given in Table 4.

The average values for each sampling train are summarized below:

Stack Gas Parameter	Particulate and Metals	SVOC
Gas Temperature (°C)	191	190
Moisture in Gas Stream (%)	48.8	49.0
Velocity (m/s)	33.2	32.9
Absolute Pressure (kPa)	100.4	100.4
Actual Flowrate (m^3/s)	56.5	56.1
Dry Reference Flowrate (Rm^3/s)*	18.4	18.2
Dry Adjusted Flowrate (Rm^3/s)**	22.6	22.4
Wet Reference Flowrate (Rm^3/s)*	36.0	35.8

* at 25°C and 1 atmosphere
** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

7.3 Particulate Emission Data

Particulate emission data obtained from the three particulate and metals test trains are given in Table 5. The results for the three particulate tests were consistent. The average particulate emission results are presented below:

Particulate Emission Parameter	Average
Actual Concentration (mg/m^3)	0.46
Dry Reference Concentration (mg/Rm^3)*	1.43
Dry Adjusted Concentration (mg/Rm^3)**	1.14
Wet Reference Concentration (mg/Rm^3)*	0.73
Particulate Emission Rate (mg/s)	0.026

* at 25°C and 1 atmosphere
** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The total particulate matter collected in the blank acetone probe rinse (0.2 mg) and filter sample (4.9 mg) was significant when compared to the amounts collected in the test trains. The particulate emission data was not blank corrected.

7.4 Hydrogen Fluoride and Hydrogen Chloride Emission Data

Hydrogen chloride and hydrogen fluoride emission data obtained from each of the three acid gas tests are given in Table 6.

Hydrogen chloride and hydrogen fluoride were detected in quantities greater than the detect limit in all three tests. The average acid gas emission results are presented below:

Parameter	Hydrogen Chloride	Hydrogen Fluoride
Actual Conc. (mg/m^3)	2.16	17.0
Dry Reference Conc. (mg/Rm^3)*	6.69	52.2
Dry Adjusted Conc. (mg/Rm^3)**	5.34	42.3
Dry Conc. (ppm)	4.5	63.9
Emission Rate (g/s)	0.12	0.95

* at 25°C and 1 atmosphere
** at 25°C and 1 atmosphere, adjusted to 11% oxygen

7.5 Combustion Gas Emission Data

Average combustion gas analysis data for each of the tests conducted at the Main Stack are summarized in Table 7 as dry concentrations. The average combustion gas analysis data is also shown on a dry basis adjusted to 11% oxygen in Table 7.

Combustion gas emission data for the three tests performed at the Main Stack are given in Table 8. The combustion gas emission data are summarized in Table 9.

The average combustion gas emission results were as follows:

Combustion Gas Parameter	Average Value						
	CO_2	CO	NO_X	NO	O_2	THC	SO_2
Actual Conc. (mg/m^3)	52730	28.7	112	58.9	37074	21.9	5.80
Dry Reference Conc. (mg/Rm^3)*	162097	88.3	345	181	113921	67.7	17.8
Dry Adjusted Conc. (mg/Rm^3)**	131687	71.5	280	147	143873	54.0	14.4
Dry Conc. (ppm)	90100	77.1	184	148	87100	25.9	13.9
Emission Rate (g/s)	2969	1.62	6.33	3.32	2088	1.23	0.33

* at 25°C and 1 atmosphere
** at 25°C and 1 atmosphere, adjusted to 11% oxygen

Combustion gas concentrations measured by the ORTECH continuous emission monitoring system, expressed as 1-minute average concentrations, for the three tests performed at the Main Stack are provided in Appendix 19.

7.6 Metals Emission Data

Metal analytical results are given in Tables 10, 11 and 12 for Test No. 1, Test No. 2 and Test No. 3, respectively. Metal concentrations and emission rates are shown in Tables 13, 14 and 15 for Test No. 1, Test No. 2 and Test No. 3, respectively.

Summaries of the metal actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates including the coefficients of variation for the three tests performed during the emission testing program are provided in Tables 16, 17, 18, 19, and 20, respectively. The highest average metal emission rates were reported for aluminum (6.74 mg/s), boron (79.8 mg/s), calcium (3.08 mg/s), silicon (93.6 mg/s) and sodium (18.3 mg/s). The average sulphur emission rate was 245 mg/s. All other average metal emission rates, including mercury, were at or below 1.0 mg/s.

The metals analysis of the Method 29 test trains is performed on three separate analytical fractions, the probe and filter nitric acid digest, the probe and filter hydrofluoric acid digest, and the analysis of the train impingers and associated rinses. In instances where all analyses were reported to be below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, and the remaining fractions were assigned a value of zero. In instances where any given fraction(s) was detected that value was used to calculate emission data and the remaining undetected fraction(s) was assigned a value of zero. Table 21 summarizes the average metal emission data for the three tests performed.

The relatively high blank analyses for aluminum, boron, calcium, magnesium, silicon and sodium (Table 22) were likely caused by the harsh digestion conditions for the filter.

The ECA provides a stack concentration limit for mercury. A summary of the mercury emission data is provided below.

Emission Parameter	Average Mercury
Actual Concentration (µg/m^3)	0.24
Dry Reference Concentration (µg/Rm^3)*	0.73
Dry Adjusted Concentration (µg/Rm^3)**	0.59
Wet Reference Concentration (µg/Rm^3)*	0.37
Emission Rate (mg/s)	0.013

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The concentrations of mercury was well below the limit listed in the ECA of 50 µg/Rm^3 adjusted to 11% oxygen.

7.7 Semi-Volatile Organic Emission Data

The filter, probe rinse (front half rinse), Amberlite XAD-2 extract, and the impinger solutions with back-half rinse, for each of the semi-volatile organics trains were combined for one analysis per test train for the semi-volatile organic compounds.

7.7.1 Dioxins and Furans Emission Data

Dioxins and furans are groups of chemically related chlorinated organic compounds or congeners. There are seventy-five dioxin congeners and one hundred and thirty five furan congeners. The individual congeners all have different molecular structures and they may also have different molecular formulae. Individual congeners, which have the same molecular formula but different molecular structure, are referred to as isomers. Groups of isomers are referred to as congener groups or homologues. The basic dioxin and furan molecules have the molecular formulae $C_{12}H_8O_2$ and $C_{12}H_8O$, respectively. In chlorinated dioxin and furans, between one and eight chlorine atoms may replace an equal number of hydrogen atoms in the basic molecule.

The following table lists the chlorinated dioxin and furan congener groups, and the number of isomers present in each group:

Congener Group Abbreviation		Number of Chlorine Atoms Per Molecule	Molecular Formula	Number of Isomers Per Congener Group
Dioxins	M1CDD	1	$C_{12}H_7ClO_2$	2
	D2CDD	2	$C_{12}H_6Cl_2O_2$	10
	T3CDD	3	$C_{12}H_5Cl_3O_2$	14
	T4CDD	4	$C_{12}H_4Cl_4O_2$	22
	P5CDD	5	$C_{12}H_3Cl_5O_2$	14
	H6CDD	6	$C_{12}H_2Cl_6O_2$	10
	H7CDD	7	$C_{12}H_1Cl_7O_2$	2
	O8CDD	8	$C_{12}Cl_8O_2$	1
Furans	M1CDF	1	$C_{12}H_7ClO$	4
	D2CDF	2	$C_{12}H_6Cl_2O$	16
	T3CDF	3	$C_{12}H_5Cl_3O$	28
	T4CDF	4	$C_{12}H_4Cl_4O$	38
	P5CDF	5	$C_{12}H_3Cl_5O$	28
	H6CDF	6	$C_{12}H_2Cl_6O$	16
	H7CDF	7	$C_{12}H_1Cl_7O$	4
	O8CDF	8	$C_{12}Cl_8O$	1

In Ontario, the MECP normally requires that only the higher tetra to octa (T4CDD to O8CDD) dioxin congeners and the higher tetra to octa (T4CDF to O8CDF) furan congeners are included in air emission testing. This is because the lower mono to tri congener groups (M1CDD to T3CDD and M1CDF to T3CDF) are considered to be generally less toxic than the higher congener groups and the test procedures have not been validated for these lower groups. In addition, it is acceptable to the MECP to use only specific isomers in the higher congener groups to compare emission data with the MECP interim guideline for dioxin and furan emissions.

Dioxin and furan congener group analytical results and emission data for the three tests performed are given in Table 23, Table 24 and Table 25 for Test No. 1, Test No. 2 and Test No. 3, respectively. These analyses are shown as congener groups from T4CDF to O8CDF and T4CDD to O8CDD, as normally required by the MECP.

For the dioxins and furans, as with the other semi-volatile organic components, amounts collected were assumed to be equivalent to the detection limit, where the analytical results were below the reportable detection limit.

Summaries of the dioxin and furan congener group actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates, including the coefficients of variation for the tests performed during the emission testing program are provided in Tables 26, 27, 28, 29, and 30, respectively. A summary of the dioxin and furan congener group emission data is detailed in Table 31.

The total dioxin and furan congener emission rates were <1.23 ng/s for dioxins and <0.54 ng/s for furans.

The amounts of dioxins and furans detected in the blank sampling train and in the lab blank were significant when compared to the amounts detected in the test trains since most of the congener groups were at or slightly above the detection limit. The blank sampling train analytical results are shown in Table 32. The blank analyses were not subtracted from the test sample analyses during calculation of the dioxin and furan emission data.

Dioxin and furan isomer analytical results and emission data for the three tests performed are given in Table 33, Table 34 and Table 35 for Test No. 1, Test No. 2 and Test No. 3, respectively. The isomers included in these tables are considered the most toxic of all the dioxin and furan isomers. They are characterized by having chlorine atoms located at the 2, 3, 7 and 8 positions of the basic dioxin and furan molecules.

Summaries of the dioxin and furan isomer actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates including the coefficients of variation for the three tests performed during the emission testing program are provided in Tables 36, 37, 38, 39, and 40, respectively.

A summary of the dioxin and furan specific isomer emission data is detailed in Table 41.

The amounts of dioxins and furans detected in the blank sampling train (<57.1 pg) and in the lab blank (<50.2 pg) were significant compared to the amounts detected in the test trains (from <64.7 to <525 pg) since most of the isomers were at or near the reportable detection limit. The blank analyses were not subtracted from the test sample analyses during the calculation of the emission data. The specific isomer blank analysis is provided in Table 42.

Several schemes have been proposed for calculating dioxin and furan toxic equivalents (TEQ's) in which different factors have been assigned to the various isomers and congener groups. Calculations in this report are based on the method preferred by the MECP, which uses International Toxicity Equivalency Factors (I-TEFs).

The purpose in calculating dioxin and furan emission rates as toxic equivalents is to provide a means of assessing and comparing the effects of dioxin and furan emission rates for different emission sources. In these calculations, 2,3,7,8-T4CDD, the most toxic of all the dioxin and furan isomers, is assigned an arbitrary value of 1.0 for a toxic equivalency factor. Then, other dioxin and furan isomers are assigned toxic equivalency factors which are based on their relative toxicity compared with 2,3,7,8-T4CDD. Emission rates for each isomer are multiplied by their assigned factor and the products are summed to provide the toxic equivalency emission rate.

Dioxin and furan TEQ actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations and emission rates are shown in Tables 43, 44, 45, 46 and 47, respectively. A summary of the average dioxin and furan toxicity equivalent emission data is given in Table 48.

The MECP "Summary of Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality", dated April 2012, provided a new framework for calculating dioxin and furan toxicity equivalent concentrations which includes emission data for 12 dioxin-like PCBs. This document was replaced by "Air Contaminants Benchmarks List: standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants", however the dioxin and furan toxicity equivalent calculation methodology remains the same.

Table 43 to 48 show the total dioxins and furan emission data calculated using the toxicity equivalent calculation method detailed in Schedule D of the ECA.

The average test result (<2.46 pg I-TEQ/Rm^3) is well below the Environment Canada level of quantification (LOQ) for dioxin and furan emissions (32 pg I-TEQ Rm^3) at dry reference conditions.

The dioxins and furans point of impingement concentration was calculated using the methodology detailed in the "Air Contaminants Benchmarks List: standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants" and includes the 12 dioxin-like PCBs. Table 49 shows the dioxins, furans and dioxin-like PCBs emission data calculated using the framework detailed in the MECP document (using half the detection limit for those compounds not found in quantities greater than the reportable detection limit).

A summary of the dioxin and furan toxicity equivalent emission data obtained during the test program is presented below:

Dioxin and Furan Emission Parameter	Full Detection Limit Dioxins & Furans Only (Table 48)	Half Detection Limit Dioxins, Furans & PCBs (Table 49)
Actual Conc. (pg TEQ/m^3)	<0.80	0.71
Dry Reference Conc. (pg TEQ/Rm^3)*	<2.46	2.19
Dry Adjusted Conc. (pg TEQ/Rm^3)**	<1.97	1.75
Wet Reference Conc. (pg TEQ/Rm^3)*	<1.26	1.12
Emission Rate (ng TEQ/s)	<0.045	0.040

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

7.7.2 Polychlorinated Biphenyl Emission Data

Polychlorinated Biphenyl's (PCB's) are also a family of congeners with different molecular structures and different numbers of chlorine atoms in the molecular structure. The results are shown as congener groups that include congeners with the same number of chlorine atoms. Normally, the MECP requires that dichlorinated PCB (D2PCB) congeners to decachlorinated PCB (D10PCB) congeners are included in PCB emission data.

PCB analytical results and emission data are given in Table 50, Table 51 and Table 52 for Test No. 1, Test No. 2 and Test No. 3, respectively. The amount collected in a test train was assumed to be equivalent to the detection limit, where the analytical results were below the reportable detection limit.

A summary of the PCB actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates are shown in Tables 53, 54, 55, 56 and 57, respectively. A summary of the average PCB emission data is given in Table 58.

The average total PCB emission rate was calculated to be <0.70 µg/s for the tests performed.

Blank sampling train and laboratory blank analytical results for PCBs are given in Table 59. As with all other analytical results reported the test train samples were not blank corrected.

7.7.3 Chlorobenzene and Chlorophenol Emission Data

As with dioxins and furans, chlorobenzenes and chlorophenols are groups of compounds that have different molecular structures and may also have different numbers of chlorine atoms in the basic molecule. Chlorobenzenes have the structure of the benzene molecule except that between one and six chlorine atoms are substituted for an equal number of hydrogen atoms in the benzene ring. Benzene has the molecular formula C_6H_6. Chlorobenzene congener groups have the molecular formulae C_6H_5Cl, $C_6H_4Cl_2$, $C_6H_3Cl_3$, $C_6H_2Cl_4$, C_6HCl_5 and C_6Cl_6. Chlorophenols have the structure of the phenol molecule except that between one and five chlorine atoms are substituted for an equal number of hydrogen atoms in the benzene ring. Phenol has the molecular formula C_6H_5OH. Chlorophenol congener groups have the molecular formulae C_6H_4ClOH, $C_6H_3Cl_2OH$, $C_6H_2Cl_3OH$, C_6HCl_4OH and C_6Cl_5OH.

Chlorobenzene isomer and congener group analytical results and emission data are provided in Table 60, Table 61 and Table 62 for Test No. 1, Test No. 2 and Test No. 3, respectively. Chlorobenzene isomer and congener group actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates are shown in Tables 63, 64, 65, 66 and 67, respectively.

A summary of the average isomer and congener group emission data for chlorobenzenes, and other related chlorinated compounds, is given in Table 68.

The average chlorobenzene congener group emission rates were as follows:

Congener Group	Average Emission Rates (µg/s)
Dichlorobenzenes	6.19
Trichlorobenzenes	1.59
Tetrachlorobenzenes	<0.40
Pentachlorobenzene	<0.054
Hexachlorobenzene	<0.054

The total chlorobenzene congener group emission rate averaged <8.29 µg/s for the tests performed.

Three additional related chlorinated compounds were analyzed (hexachlorobutadiene, hexachloroethane and octachlorostyrene). However, these compounds were not detected in levels greater than the reportable detection limit in any of the tests performed.

The chlorobenzene isomer and congener lab blank and blank train analyses are summarized in Table 69. The analytical results for the test train samples were not blank corrected.

Chlorophenol isomer and congener group analytical results and emission data are provided in Table 70, Table 71 and Table 72 for Test No. 1, Test No. 2 and Test No. 3, respectively. Chlorophenol isomer and congener group actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates are shown in Tables 73, 74, 75, 76 and 77, respectively.

A summary of the average chlorophenol emission data is given in Table 78.

The average chlorophenol congener emission rates were as follows:

Congener Group	Average Emission Rates (µg/s)
Dichlorophenols	<1.74
Trichlorophenols	<1.24
Tetrachlorophenols	<0.54
Pentachlorophenol	<0.27

The total chlorophenol congener group emission rate averaged <3.20 µg/s for the tests performed.

The blank analyses data for the chlorophenols is detailed in Table 79. The analytical results for the test train samples were not blank corrected.

7.7.4 Polycyclic Aromatic Hydrocarbon Emission Data

The SVOC samples were analyzed for 40 polycyclic aromatic hydrocarbons. Dibenzo(a,h)anthracene co-elutes with dibenzo(a,c)anthracene on the GC/MS. The data reported for dibenzo(a,c)anthracene represents the total of the (a,h) and (a,c) isomers. Similarly, triphenylene and chrysene co-elute. Analytical results and emission data are provided in Table 80, Table 81 and Table 82 for Test No. 1, Test No. 2 and Test No. 3, respectively.

PAH actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates are shown in Tables 83, 84, 85, 86 and 87, respectively.

A summary of the average PAH emission data is given in Table 88.

The total PAH emission rate averaged <15.3 µg/s with naphthalene representing approximately 33% of the total PAH emissions.

Table 89 summarizes the lab blank and blank train PAH analysis. The blank train sample analyses were not subtracted from the test train sample analyses for the purposes of emission rate calculations.

7.8 Volatile Organic Emission Data

Three forty minute test runs were completed for volatile organic compounds using SLO-VOST. One backup pair of tubes was collected and archived in case a sample was lost during the analytical extraction process.

Volatile organic analysis data for the tests is provided in Table 90, 91 and Table 92 for Test No. 1, Test No. 3 and Test No. 4, respectively. Test No. 2 was archived. The average test results of volatile organic actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates are shown in Table 93 to 97, respectively. The average volatile organic emission data is summarized in Table 98.

The average total VOC emission data collected from the VOST sampling train is presented below:

VOC Emission Parameter	Average
Actual Conc. (µg/m^3)	<52.4
Dry Reference Conc. (µg/Rm^3)*	<161
Dry Adjusted Conc. (µg/Rm^3)**	<131
Wet Reference Conc. (µg/Rm^3)*	<82.2
Emission Rate (mg/s)	<2.95

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Analysis of blank adsorbent tubes is provided in Table 99. The field blank tubes were taken to the test site and uncapped in order to expose the tubes to the ambient environment at the sampling location. Test sample analyses were not blank corrected during the calculation of the emission data.

8. FACILITY PROCESS DATA

Incinerator process data was supplied by Clean Harbors personnel for the emission test periods. The process data is provided as average values for each test and as overall average values for the following process parameters:

- daily incineration report of analysis
- incinerator feed rates (rich, lean, emulsion, alkaline and leachate streams)
- volumetric flowrates (TDU, secondary air and stack gases)
- PAC feed rate
- temperatures (primary zone, secondary zone, spray dryer inlet and outlet)
- pressures (spray dryer outlet, baghouse differential)
- combustion gas stack concentrations (CO, HCl, CO_2, H_2O, THC, O_2, SO_2)
- stack gas opacity

The process data is provided in Appendix 20.

Testing was performed at a high feed rate, as specified by the ECA, to demonstrate compliance with MECP emission criteria. The maximum combined feed of all waste streams cannot not exceed 245 L/min. During the emission tests the average combined rich, lean and emulsion feed rates was 220 L/min (89.8% of the maximum combined federate). The Thermal Desorber Unit (TDU) was exhausting to the incinerator during each test.

Note the Leachate Pretreatment System was still being developed, therefore pre-treated leachate was not being injected into the Quench during the time of the emission test program.

APPENDIX 1

Data Tables
(99 pages)

TABLE 1
Clean Harbors Sarnia
Test Schedules

Particulate and Metals

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	November 14, 2023	9:33	14:06	240
2	November 15, 2023	8:49	13:32	240
3	November 16, 2023	9:11	13:38	240

Semi-Volatile Organics

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	November 14, 2023	9:33	14:06	240
2	November 15, 2023	8:49	13:32	240
3	November 16, 2023	9:11	13:38	240

Acid Gases

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	November 14, 2023	9:34	10:34	60
2	November 15, 2023	10:04	11:04	60
3	November 16, 2023	10:17	11:17	60

Volatile Organic Compounds

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	November 14, 2023	11:08	11:48	40
2	November 14, 2023	12:31	13:11	40
3	November 15, 2023	9:01	9:41	40
4	November 16, 2023	9:12	9:52	40

Combustion Gases

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	November 14, 2023	9:33	14:06	240
2	November 15, 2023	8:49	13:32	240
3	November 16, 2023	8:40	13:07	240

* Actual sampling time excluding leak-checks and traverse changes.

TABLE 2
Clean Harbors Sarnia
Stack Gas Sampling Parameters

Particulate and Metals Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.846	1.035	6.71	6.098	109.4
2	0.846	1.035	6.37	5.144	102.7
3	0.846	1.035	6.37	4.946	102.5

Semi-Volatile Organics Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.843	0.963	6.25	4.756	100.6
2	0.843	0.963	6.25	4.805	100.3
3	0.843	0.963	6.25	4.724	101.6

* Dry at 25°C and 1 atmosphere

TABLE 3
Clean Harbors Sarnia
Stack Gas Physical Parameters

Particulate and Metals Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	188	49.1	33.4	101.0	8.82	8.98
2	188	48.9	33.5	100.1	9.11	8.85
3	197	48.5	32.7	100.0	9.11	8.30
Average	191	48.8	33.2	100.4	9.01	8.71

Semi-Volatile Organics Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	187	49.2	32.6	101.0	8.82	8.98
2	187	48.8	33.1	100.1	9.11	8.85
3	196	49.0	32.9	100.0	9.11	8.30
Average	190	49.0	32.9	100.4	9.01	8.71

Averaged Metals and Semi-Volatile Organics Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	188	49.2	33.0	101.0	8.82	8.98
2	187	48.9	33.3	100.1	9.11	8.85
3	196	48.8	32.8	100.0	9.11	8.30
Average	190	48.9	33.0	100.4	9.01	8.71
Coefficient of Variation, %	2.8	0.4	0.7	0.5	1.9	4.1

* Dry basis

TABLE 4
Clean Harbors Sarnia
Stack Gas Volumetric Flowrates

Particulate and Metals Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	56.9	18.7	22.5	36.7
2	57.0	18.6	22.7	36.5
3	55.7	17.9	22.8	34.9
Average	56.5	18.4	22.6	36.0

Semi-Volatile Organics Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	55.6	18.2	22.0	35.9
2	56.5	18.5	22.5	36.2
3	56.1	18.0	22.9	35.2
Average	56.1	18.2	22.4	35.8

Averaged Metals and Semi-Volatile Organics Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	56.3	18.4	22.2	36.3
2	56.7	18.6	22.6	36.3
3	55.9	17.9	22.8	35.0
Average	56.3	18.3	22.5	35.9
Coefficient of Variation, %	0.7	1.8	1.4	2.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 5
Clean Harbors Sarnia
Particulate Emission Data

Test No.	Particulate Collected			Dry Gas		Particulate Concentration			Particulate
	Probe Rinse	Main Filter	Total	Volume Sampled	Actual	Dry Reference	Dry Adjusted	Wet Reference	Emission Rate
	mg	mg	mg	Rm^3*	mg/m^3	mg/Rm^3*	mg/Rm^3**	mg/Rm^3*	g/s
1	3.6	1.2	4.8	6.098	0.26	0.79	0.65	0.40	0.015
2	1.8	1.1	2.9	5.144	0.18	0.56	0.46	0.29	0.010
3	6.5	8.0	14.5	4.946	0.94	2.93	2.30	1.51	0.053
Average					0.46	1.43	1.14	0.73	0.026
Coefficient of Variation, %					90.7	91.6	88.7	92.1	89.4

* At 25 °C and 1 atmosphere

** At 25 °C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 6
Clean Harbors Sarnia
Acid Gas Emission Data

Hydrogen Chloride

Test No.	HCl Collected mg	Dry Volume Sampled Rm^3*	Hydrogen Chloride Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	HCl Emission Rate g/s
1	0.40	0.1285	1.03	3.14	2.60	1.59	0.058
2	0.38	0.1302	0.95	2.90	2.38	1.48	0.054
3	1.87	0.1332	4.50	14.0	11.0	7.19	0.25
Average			2.16	6.69	5.34	3.42	0.12
Blank	0.0942						

Hydrogen Fluoride

Test No.	HF Collected mg	Dry Volume Sampled Rm^3*	Hydrogen Fluoride Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	HF Emission Rate g/s
1	6.87	0.1285	17.5	53.4	44.4	27.2	0.99
2	5.05	0.1302	12.7	38.8	31.9	19.8	0.72
3	8.58	0.1332	20.7	64.4	50.6	33.0	1.16
Average			17.0	52.2	42.3	26.7	0.95
Blank	<0.0362						

* At 25 °C and 1 atmosphere

** At 25 °C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 7
Clean Harbors Sarnia
Combustion Gas Analyses

Average Combustion Gases - As Measured

Test No.	Carbon Dioxide %	Carbon Monoxide ppm	Nitrogen Oxides * ppm	Nitric Oxide ppm	Oxygen %	Sulfur Dioxide ppm	Total Hydrocarbons ** ppm
1	8.82	52.4	154	140	8.98	0.7	8.1
2	9.11	89.7	211	156	8.85	24.5	18.4
3	9.11	89.3	186	147	8.30	52.4	15.3
Average	9.01	77.1	184	148	8.71	25.9	13.9

Average Combustion Gases - Dry Basis Adjusted to 11% Oxygen

Test No.	Carbon Dioxide %	Carbon Monoxide ppm	Nitrogen Oxides * ppm	Nitric Oxide ppm	Oxygen %	Sulfur Dioxide ppm	Total Hydrocarbons ppm
1	7.33	43.5	128	116	-	0.6	13.2
2	7.48	73.7	173	128	-	20.1	29.6
3	7.16	70.2	146	116	-	41.2	23.5
Average	7.32	62.5	149	120	-	20.6	22.1

* Nitric oxide and nitrogen dioxide

** Wet basis as methane, one-minute average data

TABLE 8
Clean Harbors Sarnia
Combustion Gas Emission Data

Test No.	Combustion Gas	Dry Actual Concentration	Dry Adjusted Concentration	Dry Concentration by Weight Reference**	Dry Concentration by Weight Adjusted ***	Wet Concentration by Weight Actual	Wet Concentration by Weight Reference**	Emission Rate
		ppm	ppm	mg/Rm^3	mg/Rm^3	mg/m^3	mg/Rm^3	g/s
1	Carbon Dioxide	88200	73248	158620	131731	52013	80632	2926
	Carbon Monoxide	52.4	43.5	60.0	49.8	19.7	30.5	1.11
	Nitrogen Oxides ****	154	128	290	240	94.9	147	5.34
	Nitric Oxide	140	116	172	143	56.3	87.3	3.17
	Oxygen	89800	110000	117453	143873	38514	59706	2166
	Sulphur Dioxide	0.7	0.6	1.83	1.52	0.60	0.93	0.034
	Total Hydrocarbons	8.1 *	13.2	10.4	8.65	3.42	5.30	0.19
2	Carbon Dioxide	91100	74852	163836	134614	53611	83756	3042
	Carbon Monoxide	89.7	73.7	103	84.3	33.6	52.5	1.91
	Nitrogen Oxides ****	211	173	397	326	130	203	7.36
	Nitric Oxide	156	128	191	157	62.6	97.8	3.55
	Oxygen	88500	110000	115752	143873	37877	59175	2149
	Sulphur Dioxide	24.5	20.1	64.1	52.7	21.0	32.8	1.19
	Total Hydrocarbons	18.4 *	29.6	23.5	19.3	7.70	12.0	0.44
3	Carbon Dioxide	91100	71571	163836	128715	52566	83870	2939
	Carbon Monoxide	89.3	70.2	102	80.3	32.8	52.3	1.83
	Nitrogen Oxides ****	186	146	350	275	112	179	6.27
	Nitric Oxide	147	115	180	142	57.8	92.3	3.23
	Oxygen	83000	110000	108559	143873	34830	55573	1948
	Sulphur Dioxide	52.4	41.2	137	108	44.0	70.2	2.46
	Total Hydrocarbons	15.3 *	23.5	19.5	15.4	6.27	10.0	0.35

* THC concentrations by volume (ppm) are provided on a wet basis

** At 25°C and 1 atmosphere

*** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

**** Nitric oxide and nitrogen dioxide as the equivalent amount of nitrogen dioxide

TABLE 9
Clean Harbors Sarnia
Summary of Combustion Gas Emission Data

Combustion Gas	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	mg/m^3	mg/m^3	mg/m^3	mg/m^3	%
Carbon Dioxide	52013	53611	52566	52730	1.5
Carbon Monoxide	19.7	33.6	32.8	28.7	27.3
Nitrogen Oxides ***	94.9	130	112	112	15.5
Nitric Oxide	56.3	62.6	57.8	58.9	5.6
Oxygen	38514	37877	34830	37074	5.3
Sulphur Dioxide	0.60	21.0	44.0	21.9	99.3
Total Hydrocarbons	3.42	7.70	6.27	5.80	37.6

Combustion Gas	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	mg/Rm^3*	mg/Rm^3*	mg/Rm^3*	mg/Rm^3*	%
Carbon Dioxide	158620	163836	163836	162097	1.9
Carbon Monoxide	60.0	103	102	88.3	27.8
Nitrogen Oxides ***	290	397	350	345	15.6
Nitric Oxide	172	191	180	181	5.4
Oxygen	117453	115752	108559	113921	4.1
Sulphur Dioxide	1.83	64.1	137	67.7	100
Total Hydrocarbons	10.4	23.5	19.5	17.8	37.7

Combustion Gas	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	mg/Rm^3**	mg/Rm^3**	mg/Rm^3**	mg/Rm^3**	%
Carbon Dioxide	131731	134614	128715	131687	2.2
Carbon Monoxide	49.8	84.3	80.3	71.5	26.4
Nitrogen Oxides ***	240	326	275	280	15.3
Nitric Oxide	143	157	142	147	5.9
Oxygen	143873	143873	143873	143873	-
Sulphur Dioxide	1.52	52.7	108	54.0	98.4
Total Hydrocarbons	8.65	19.3	15.4	14.4	37.4

Combustion Gas	Emission Rate				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	g/s	g/s	g/s	g/s	%
Carbon Dioxide	2926	3042	2939	2969	2.1
Carbon Monoxide	1.11	1.91	1.83	1.62	27.4
Nitrogen Oxides ***	5.34	7.36	6.27	6.33	16.0
Nitric Oxide	3.17	3.55	3.23	3.32	6.2
Oxygen	2166	2149	1948	2088	5.8
Sulphur Dioxide	0.034	1.19	2.46	1.23	98.8
Total Hydrocarbons	0.19	0.44	0.35	0.33	38.0

* Dry at 25°C and 1 atmosphere.
** Dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume.
*** Nitrogen oxides are expressed as the equivalent amount of nitrogen dioxide.

TABLE 10
Clean Harbors Sarnia
Metal Analyses, Test No. 1

Metal	Probe & Filter Nitric Acid Digest	Probe & Filter Hydrofluoric Acid Digest	Impingers & Rinses	Total Collected
	µg	µg	µg	µg
Aluminum *	37.0	140	2110	2147
Antimony	<0.2	<0.2	0.43	0.43
Arsenic	<1	<1	<0.2	<0.20
Barium	10.4	33.2	9.42	53.0
Beryllium	<0.2	<0.2	<0.1	<0.20
Boron *	32.8	37.5	21100	21133
Cadmium	0.37	<0.1	0.13	0.50
Calcium *	<500	<500	1170	1170
Chromium	3.50	3.39	10.2	17.1
Cobalt	<0.2	<0.2	0.31	0.31
Copper	2.28	1.38	34.1	37.8
Iron	<200	<200	251	251
Lead	<0.5	<0.5	3.08	3.08
Lithium	<0.5	<0.5	1.64	1.64
Magnesium *	14.5	30.3	62.1	76.6
Manganese	10.3	3.28	26.3	39.9
Mercury **	<0.015	<0.015	3.48	3.48
Molybdenum	0.43	17.5	0.89	18.8
Nickel	6.01	1.75	7.22	15.0
Phosphorus	<100	<100	<25	<100
Potassium	<100	<100	301	301
Selenium	2.16	<2	15.8	18.0
Silicon *	783	-	7050	7833
Silver	<0.2	<0.2	0.27	0.27
Sodium *	653	173	5810	6463
Strontium	0.43	0.60	2.41	3.44
Sulphur	<10000	<10000	5290	5290
Tin	7.07	1.94	63.5	72.5
Titanium	<10	<10	12.4	12.4
Vanadium	<1	<1	0.20	0.20
Zinc	14.8	31.9	24.6	71.3
Total				<45134

* Hydrofluoric acid digest not included in the total.

** Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 11
Clean Harbors Sarnia
Metal Analyses, Test No. 2

Metal	Probe & Filter Nitric Acid Digest	Probe & Filter Hydrofluoric Acid Digest	Impingers & Rinses	Total Collected
	µg	µg	µg	µg
Aluminum *	32.3	144	1450	1482
Antimony	<0.2	<0.2	0.20	0.20
Arsenic	<1	<1	<0.2	<0.20
Barium	9.66	36.1	3.48	49.2
Beryllium	<0.2	<0.2	<0.1	<0.20
Boron *	<30	39.0	19900	19900
Cadmium	0.13	<0.1	0.37	0.50
Calcium *	<500	<500	672	672
Chromium	4.04	2.89	3.19	10.1
Cobalt	<0.2	<0.2	0.14	0.14
Copper	2.93	1.91	13.7	18.5
Iron	<200	<200	75.8	75.8
Lead	<0.5	<0.5	1.16	1.16
Lithium	<0.5	<0.5	1.08	1.08
Magnesium *	12.4	30.7	26.5	38.9
Manganese	3.29	2.14	4.92	10.4
Mercury **	0.034	<0.015	3.94	3.97
Molybdenum	0.38	17.4	0.45	18.2
Nickel	4.59	1.46	3.03	9.08
Phosphorus	<100	<100	<25	<100
Potassium	<100	<100	185	185
Selenium	<2	<2	12.4	12.4
Silicon *	855	-	27300	28155
Silver	<0.2	<0.2	0.26	0.26
Sodium *	433	134	3540	3973
Strontium	0.35	0.62	0.91	1.88
Sulphur	<10000	<10000	19300	19300
Tin	7.77	3.01	22.5	33.3
Titanium	<10	<10	7.01	7.01
Vanadium	<1	<1	0.17	0.17
Zinc	11.2	33.1	16.1	60.4
Total				<74120

* Hydrofluoric acid digest not included in the total.

** Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 12
Clean Harbors Sarnia
Metal Analyses, Test No. 3

Metal	Probe & Filter Nitric Acid Digest	Probe & Filter Hydrofluoric Acid Digest	Impingers & Rinses	Total Collected
	µg	µg	µg	µg
Aluminum *	62.9	145	2220	2283
Antimony	<0.2	<0.2	0.31	0.31
Arsenic	<1	<1	0.28	0.28
Barium	13.8	33.9	2.97	50.7
Beryllium	<0.2	<0.2	<0.1	<0.20
Boron *	158	57.9	28200	28358
Cadmium	<0.1	<0.1	0.099	0.099
Calcium *	<500	<500	892	892
Chromium	3.46	2.81	1.79	8.1
Cobalt	<0.2	<0.2	<0.1	<0.20
Copper	2.45	1.38	2.34	6.17
Iron	<200	<200	117	117
Lead	<0.5	<0.5	0.68	0.68
Lithium	<0.5	<0.5	1.73	1.73
Magnesium *	17.3	31.8	36.2	53.5
Manganese	6.07	2.23	4.94	13.2
Mercury **	0.057	<0.015	4.16	4.22
Molybdenum	0.41	17.2	0.42	18.0
Nickel	2.01	1.01	2.12	5.14
Phosphorus	<100	<100	32.4	32.4
Potassium	<100	<100	242	242
Selenium	6.60	2.49	125	134
Silicon *	1120	-	41700	42820
Silver	<0.2	<0.2	0.15	0.15
Sodium *	596	159	5150	5746
Strontium	0.38	0.57	1.44	2.39
Sulphur	<10000	<10000	179000	179000
Tin	20.7	4.38	23.1	48.2
Titanium	<10	<10	12.4	12.4
Vanadium	<1	<1	0.17	0.17
Zinc	13.4	29.5	18.5	61.4
Total				<259912

* Hydrofluoric acid digest not included in the total.

** Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 13
Clean Harbors Sarnia
Metal Emission Data, Test No. 1

Metal	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m³	µg/Rm³*	µg/Rm³**	µg/Rm³*	mg/s
Aluminum	2147	116	352	293	179	6.58
Antimony	0.43	0.023	0.070	0.058	0.036	0.0013
Arsenic	<0.20	<0.011	<0.033	<0.027	<0.017	<0.00061
Barium	53.0	2.86	8.69	7.23	4.43	0.16
Beryllium	<0.20	<0.011	<0.033	<0.027	<0.017	<0.00061
Boron	21133	1139	3466	2880	1766	64.8
Cadmium	0.50	0.027	0.082	0.068	0.042	0.0015
Calcium	1170	63.1	192	159	97.8	3.59
Chromium	17.1	0.92	2.80	2.33	1.43	0.052
Cobalt	0.31	0.017	0.051	0.043	0.026	0.00096
Copper	37.8	2.04	6.19	5.15	3.16	0.12
Iron	251	13.5	41.2	34.2	21.0	0.77
Lead	3.08	0.17	0.51	0.42	0.26	0.0094
Lithium	1.64	0.088	0.27	0.22	0.14	0.0050
Magnesium	76.6	4.13	12.6	10.4	6.40	0.23
Manganese	39.9	2.15	6.54	5.44	3.33	0.12
Mercury	3.48	0.19	0.57	0.47	0.29	0.011
Molybdenum	18.8	1.01	3.09	2.57	1.57	0.058
Nickel	15.0	0.81	2.46	2.04	1.25	0.046
Phosphorus	<100	<5.39	<16.4	<13.6	<8.36	<0.31
Potassium	301	16.2	49.4	41.0	25.2	0.92
Selenium	18.0	0.97	2.95	2.45	1.50	0.055
Silicon	7833	422	1285	1068	655	24.0
Silver	0.27	0.014	0.044	0.036	0.022	0.00082
Sodium	6463	348	1060	881	540	19.8
Strontium	3.44	0.19	0.56	0.47	0.29	0.011
Sulphur	5290	285	867	721	442	16.2
Tin	72.5	3.91	11.9	9.88	6.06	0.22
Titanium	12.4	0.67	2.03	1.69	1.04	0.038
Vanadium	0.20	0.011	0.033	0.028	0.017	0.00063
Zinc	71.3	3.84	11.7	9.72	5.96	0.22
Total	<45134	<2432	<7401	<6151	<3771	<138

Dry Gas Volume Sampled (Rm³*) :	6.098
Actual Flowrate (m³/s) :	56.9
Dry Reference Flowrate (Rm³/s*) :	18.7
Dry Adjusted Flowrate (Rm³/s**) :	22.5
Wet Reference Flowrate (Rm³/s*) :	36.7

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 14
Clean Harbors Sarnia
Metal Emission Data, Test No. 2

Metal	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m³	µg/Rm³*	µg/Rm³**	µg/Rm³*	mg/s
Aluminum	1482	94.0	288	236	147	5.36
Antimony	0.20	0.013	0.039	0.032	0.020	0.00073
Arsenic	<0.20	<0.013	<0.039	<0.032	<0.020	<0.00072
Barium	49.2	3.12	9.57	7.84	4.88	0.18
Beryllium	<0.20	<0.013	<0.039	<0.032	<0.020	<0.00072
Boron	19900	1262	3869	3170	1971	72.0
Cadmium	0.50	0.032	0.097	0.080	0.050	0.0018
Calcium	672	42.6	131	107	66.6	2.43
Chromium	10.1	0.64	1.97	1.61	1.00	0.037
Cobalt	0.14	0.0086	0.026	0.022	0.013	0.00049
Copper	18.5	1.18	3.60	2.95	1.84	0.067
Iron	75.8	4.81	14.7	12.1	7.51	0.27
Lead	1.16	0.074	0.23	0.18	0.11	0.0042
Lithium	1.08	0.069	0.21	0.17	0.11	0.0039
Magnesium	38.9	2.47	7.56	6.20	3.85	0.14
Manganese	10.4	0.66	2.01	1.65	1.03	0.037
Mercury	3.97	0.25	0.77	0.63	0.39	0.014
Molybdenum	18.2	1.16	3.54	2.90	1.81	0.066
Nickel	9.08	0.58	1.77	1.45	0.90	0.033
Phosphorus	<100	<6.34	<19.4	<15.9	<9.91	<0.36
Potassium	185	11.7	36.0	29.5	18.3	0.67
Selenium	12.4	0.79	2.41	1.98	1.23	0.045
Silicon	28155	1786	5473	4485	2789	102
Silver	0.26	0.017	0.051	0.042	0.026	0.00095
Sodium	3973	252	772	633	394	14.4
Strontium	1.88	0.12	0.36	0.30	0.19	0.0068
Sulphur	19300	1224	3752	3074	1912	69.8
Tin	33.3	2.11	6.47	5.30	3.30	0.12
Titanium	7.01	0.44	1.36	1.12	0.69	0.025
Vanadium	0.17	0.011	0.034	0.028	0.017	0.00063
Zinc	60.4	3.83	11.7	9.62	5.98	0.22
Total	<74120	<4702	<14409	<11807	<7343	<268

Dry Gas Volume Sampled (Rm³*) :	5.144
Actual Flowrate (m³/s) :	57.0
Dry Reference Flowrate (Rm³/s*) :	18.6
Dry Adjusted Flowrate (Rm³/s**) :	22.7
Wet Reference Flowrate (Rm³/s*) :	36.5

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 15
Clean Harbors Sarnia
Metal Emission Data, Test No. 3

Metal	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m³	µg/Rm³*	µg/Rm³**	µg/Rm³*	mg/s
Aluminum	2283	148	462	362	237	8.26
Antimony	0.31	0.020	0.063	0.049	0.032	0.0011
Arsenic	0.28	0.018	0.057	0.045	0.029	0.0010
Barium	50.7	3.29	10.2	8.04	5.25	0.18
Beryllium	<0.20	<0.013	<0.040	<0.032	<0.021	<0.00072
Boron	28358	1843	5734	4501	2941	103
Cadmium	0.099	0.0064	0.020	0.016	0.010	0.00036
Calcium	892	58.0	180	142	92.5	3.23
Chromium	8.1	0.52	1.63	1.28	0.84	0.029
Cobalt	<0.20	<0.013	<0.040	<0.032	<0.021	<0.00072
Copper	6.17	0.40	1.25	0.98	0.64	0.022
Iron	117	7.60	23.7	18.6	12.1	0.42
Lead	0.68	0.044	0.14	0.11	0.070	0.0024
Lithium	1.73	0.11	0.35	0.27	0.18	0.0063
Magnesium	53.5	3.48	10.8	8.49	5.55	0.19
Manganese	13.2	0.86	2.68	2.10	1.37	0.048
Mercury	4.22	0.27	0.85	0.67	0.44	0.015
Molybdenum	18.0	1.17	3.64	2.86	1.87	0.065
Nickel	5.14	0.33	1.04	0.82	0.53	0.019
Phosphorus	32.4	2.11	6.55	5.14	3.36	0.12
Potassium	242	15.7	48.9	38.4	25.1	0.88
Selenium	134	8.71	27.1	21.3	13.9	0.49
Silicon	42820	2782	8658	6797	4440	155
Silver	0.15	0.0099	0.031	0.024	0.016	0.00055
Sodium	5746	373	1162	912	596	20.8
Strontium	2.39	0.15	0.48	0.38	0.25	0.0086
Sulphur	179000	11630	36191	28413	18562	648
Tin	48.2	3.13	9.74	7.65	5.00	0.17
Titanium	12.4	0.81	2.51	1.97	1.29	0.045
Vanadium	0.17	0.011	0.035	0.027	0.018	0.00062
Zinc	61.4	3.99	12.4	9.75	6.37	0.22
Total	<259912	<16888	<52550	<41256	<26953	<941

Dry Gas Volume Sampled (Rm³*) :	4.946
Actual Flowrate (m³/s) :	55.7
Dry Reference Flowrate (Rm³/s*) :	17.9
Dry Adjusted Flowrate (Rm³/s**) :	22.8
Wet Reference Flowrate (Rm³/s*) :	34.9

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 16
Clean Harbors Sarnia
Summary of Metal Actual Concentrations

Metal	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/m³	µg/m³	µg/m³	µg/m³	%
Aluminum	116	94.0	148	119	22.9
Antimony	0.023	0.013	0.020	0.019	27.9
Arsenic	<0.011	<0.013	0.018	<0.014	28.6
Barium	2.86	3.12	3.29	3.09	7.1
Beryllium	<0.011	<0.013	<0.013	<0.012	9.9
Boron	1139	1262	1843	1415	26.6
Cadmium	0.027	0.032	0.0064	0.022	61.9
Calcium	63.1	42.6	58.0	54.5	19.5
Chromium	0.92	0.64	0.52	0.70	29.3
Cobalt	0.017	0.0086	<0.013	<0.013	32.6
Copper	2.04	1.18	0.40	1.20	67.9
Iron	13.5	4.81	7.60	8.65	51.5
Lead	0.17	0.074	0.044	0.094	67.4
Lithium	0.088	0.069	0.11	0.090	24.5
Magnesium	4.13	2.47	3.48	3.36	24.9
Manganese	2.15	0.66	0.86	1.22	66.2
Mercury	0.19	0.25	0.27	0.24	19.0
Molybdenum	1.01	1.16	1.17	1.11	7.8
Nickel	0.81	0.58	0.33	0.57	41.4
Phosphorus	<5.39	<6.34	2.11	<4.61	48.2
Potassium	16.2	11.7	15.7	14.6	16.9
Selenium	0.97	0.79	8.71	3.49	130
Silicon	422	1786	2782	1663	71.2
Silver	0.014	0.017	0.0099	0.014	25.2
Sodium	348	252	373	325	19.7
Strontium	0.19	0.12	0.15	0.15	21.7
Sulphur	285	1224	11630	4380	144
Tin	3.91	2.11	3.13	3.05	29.5
Titanium	0.67	0.44	0.81	0.64	28.5
Vanadium	0.011	0.011	0.011	0.011	0.5
Zinc	3.84	3.83	3.99	3.89	2.3
Total	<2432	<4702	<16888	<8007	97.1

TABLE 17
Clean Harbors Sarnia
Summary of Metal Dry Reference Concentrations

Metal	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Aluminum	352	288	462	367	23.9
Antimony	0.070	0.039	0.063	0.057	27.7
Arsenic	<0.033	<0.039	0.057	<0.043	29.8
Barium	8.69	9.57	10.2	9.50	8.2
Beryllium	<0.033	<0.039	<0.040	<0.037	10.8
Boron	3466	3869	5734	4356	27.8
Cadmium	0.082	0.097	0.020	0.066	61.6
Calcium	192	131	180	168	19.4
Chromium	2.80	1.97	1.63	2.13	28.3
Cobalt	0.051	0.026	<0.040	<0.039	32.1
Copper	6.19	3.60	1.25	3.68	67.2
Iron	41.2	14.7	23.7	26.5	50.7
Lead	0.51	0.23	0.14	0.29	66.5
Lithium	0.27	0.21	0.35	0.28	25.4
Magnesium	12.6	7.56	10.8	10.3	24.6
Manganese	6.54	2.01	2.68	3.74	65.3
Mercury	0.57	0.77	0.85	0.73	19.9
Molybdenum	3.09	3.54	3.64	3.42	8.7
Nickel	2.46	1.77	1.04	1.75	40.4
Phosphorus	<16.4	<19.4	6.55	<14.1	47.7
Potassium	49.4	36.0	48.9	44.8	17.0
Selenium	2.95	2.41	27.1	10.8	130
Silicon	1285	5473	8658	5138	72.0
Silver	0.044	0.051	0.031	0.042	24.5
Sodium	1060	772	1162	998	20.2
Strontium	0.56	0.36	0.48	0.47	21.3
Sulphur	867	3752	36191	13603	144
Tin	11.9	6.47	9.74	9.37	29.1
Titanium	2.03	1.36	2.51	1.97	29.2
Vanadium	0.033	0.034	0.035	0.034	1.7
Zinc	11.7	11.7	12.4	11.9	3.4
Total	<7401	<14409	<52550	<24787	98.0

* At 25°C and 1 atmosphere

TABLE 18
Clean Harbors Sarnia
Summary of Metal Dry Adjusted Concentrations

Metal	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Aluminum	293	236	362	297	21.3
Antimony	0.058	0.032	0.049	0.047	28.1
Arsenic	<0.027	<0.032	0.045	<0.035	26.6
Barium	7.23	7.84	8.04	7.70	5.5
Beryllium	<0.027	<0.032	<0.032	<0.030	8.7
Boron	2880	3170	4501	3517	24.6
Cadmium	0.068	0.080	0.016	0.055	62.5
Calcium	159	107	142	136	19.6
Chromium	2.33	1.61	1.28	1.74	30.8
Cobalt	0.043	0.022	<0.032	<0.032	33.3
Copper	5.15	2.95	0.98	3.03	68.9
Iron	34.2	12.1	18.6	21.6	52.6
Lead	0.42	0.18	0.11	0.24	68.6
Lithium	0.22	0.17	0.27	0.22	23.0
Magnesium	10.4	6.20	8.49	8.38	25.4
Manganese	5.44	1.65	2.10	3.06	67.5
Mercury	0.47	0.63	0.67	0.59	17.6
Molybdenum	2.57	2.90	2.86	2.78	6.6
Nickel	2.04	1.45	0.82	1.43	42.7
Phosphorus	<13.6	<15.9	5.14	<11.6	49.1
Potassium	41.0	29.5	38.4	36.3	16.7
Selenium	2.45	1.98	21.3	8.57	129
Silicon	1068	4485	6797	4116	70.0
Silver	0.036	0.042	0.024	0.034	26.5
Sodium	881	633	912	809	18.9
Strontium	0.47	0.30	0.38	0.38	22.2
Sulphur	721	3074	28413	10736	143
Tin	9.88	5.30	7.65	7.61	30.1
Titanium	1.69	1.12	1.97	1.59	27.3
Vanadium	0.028	0.028	0.027	0.028	1.3
Zinc	9.72	9.62	9.75	9.69	0.7
Total	<6151	<11807	<41256	<19738	95.5

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 19
Clean Harbors Sarnia
Summary of Metal Wet Reference Concentrations

Metal	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Aluminum	179	147	237	188	24.3
Antimony	0.036	0.020	0.032	0.029	27.8
Arsenic	<0.017	<0.020	0.029	<0.022	30.2
Barium	4.43	4.88	5.25	4.85	8.5
Beryllium	<0.017	<0.020	<0.021	<0.019	11.1
Boron	1766	1971	2941	2226	28.2
Cadmium	0.042	0.050	0.010	0.034	61.4
Calcium	97.8	66.6	92.5	85.6	19.5
Chromium	1.43	1.00	0.84	1.09	28.0
Cobalt	0.026	0.013	<0.021	<0.020	32.1
Copper	3.16	1.84	0.64	1.88	67.0
Iron	21.0	7.51	12.1	13.5	50.5
Lead	0.26	0.11	0.070	0.15	66.4
Lithium	0.14	0.11	0.18	0.14	25.8
Magnesium	6.40	3.85	5.55	5.27	24.6
Manganese	3.33	1.03	1.37	1.91	65.1
Mercury	0.29	0.39	0.44	0.37	20.2
Molybdenum	1.57	1.81	1.87	1.75	8.9
Nickel	1.25	0.90	0.53	0.89	40.2
Phosphorus	<8.36	<9.91	3.36	<7.21	47.5
Potassium	25.2	18.3	25.1	22.9	17.2
Selenium	1.50	1.23	13.9	5.54	131
Silicon	655	2789	4440	2628	72.2
Silver	0.022	0.026	0.016	0.021	24.2
Sodium	540	394	596	510	20.5
Strontium	0.29	0.19	0.25	0.24	21.3
Sulphur	442	1912	18562	6972	144
Tin	6.06	3.30	5.00	4.78	29.1
Titanium	1.04	0.69	1.29	1.01	29.5
Vanadium	0.017	0.017	0.018	0.017	2.0
Zinc	5.96	5.98	6.37	6.10	3.8
Total	<3771	<7343	<26953	<12689	98.4

* At 25°C and 1 atmosphere

TABLE 20
Clean Harbors Sarnia
Summary of Metal Emission Rates

Metal	Emission Rate				Coefficient of Variation
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	%
Aluminum	6.58	5.36	8.26	6.74	21.6
Antimony	0.0013	0.00073	0.0011	0.0011	27.7
Arsenic	<0.00061	<0.00072	0.0010	<0.00079	27.2
Barium	0.16	0.18	0.18	0.17	6.2
Beryllium	<0.00061	<0.00072	<0.00072	<0.00069	9.3
Boron	64.8	72.0	103	79.8	25.2
Cadmium	0.0015	0.0018	0.00036	0.0012	62.4
Calcium	3.59	2.43	3.23	3.08	19.2
Chromium	0.052	0.037	0.029	0.039	30.1
Cobalt	0.00096	0.00049	<0.00072	<0.00072	32.7
Copper	0.12	0.067	0.022	0.068	68.4
Iron	0.77	0.27	0.42	0.49	52.0
Lead	0.0094	0.0042	0.0024	0.0054	68.0
Lithium	0.0050	0.0039	0.0063	0.0051	23.3
Magnesium	0.23	0.14	0.19	0.19	24.9
Manganese	0.12	0.037	0.048	0.069	66.9
Mercury	0.011	0.014	0.015	0.013	18.2
Molybdenum	0.058	0.066	0.065	0.063	7.2
Nickel	0.046	0.033	0.019	0.032	42.1
Phosphorus	<0.31	<0.36	0.12	<0.26	49.0
Potassium	0.92	0.67	0.88	0.82	16.4
Selenium	0.055	0.045	0.49	0.20	129
Silicon	24.0	102	155	93.6	70.4
Silver	0.00082	0.00095	0.00055	0.00078	26.3
Sodium	19.8	14.4	20.8	18.3	18.9
Strontium	0.011	0.0068	0.0086	0.0087	21.7
Sulphur	16.2	69.8	648	245	143
Tin	0.22	0.12	0.17	0.17	29.6
Titanium	0.038	0.025	0.045	0.036	27.5
Vanadium	0.00063	0.00063	0.00062	0.00062	0.8
Zinc	0.22	0.22	0.22	0.22	1.0
Total	<138	<268	<941	<449	95.9

TABLE 21
Clean Harbors Sarnia
Summary of Metal Emission Data

Metal	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Aluminum	119	367	297	188	6.74
Antimony	0.019	0.057	0.047	0.029	0.0011
Arsenic	<0.014	<0.043	<0.035	<0.022	<0.00079
Barium	3.09	9.50	7.70	4.85	0.17
Beryllium	<0.012	<0.037	<0.030	<0.019	<0.00069
Boron	1415	4356	3517	2226	79.8
Cadmium	0.022	0.066	0.055	0.034	0.0012
Calcium	54.5	168	136	85.6	3.08
Chromium	0.70	2.13	1.74	1.09	0.039
Cobalt	<0.013	<0.039	<0.032	<0.020	<0.00072
Copper	1.20	3.68	3.03	1.88	0.068
Iron	8.65	26.5	21.6	13.5	0.49
Lead	0.094	0.29	0.24	0.15	0.0054
Lithium	0.090	0.28	0.22	0.14	0.0051
Magnesium	3.36	10.3	8.38	5.27	0.19
Manganese	1.22	3.74	3.06	1.91	0.069
Mercury	0.24	0.73	0.59	0.37	0.013
Molybdenum	1.11	3.42	2.78	1.75	0.063
Nickel	0.57	1.75	1.43	0.89	0.032
Phosphorus	<4.61	<14.1	<11.6	<7.21	<0.26
Potassium	14.6	44.8	36.3	22.9	0.82
Selenium	3.49	10.8	8.57	5.54	0.20
Silicon	1663	5138	4116	2628	93.6
Silver	0.014	0.042	0.034	0.021	0.00078
Sodium	325	998	809	510	18.3
Strontium	0.15	0.47	0.38	0.24	0.0087
Sulphur	4380	13603	10736	6972	245
Tin	3.05	9.37	7.61	4.78	0.17
Titanium	0.64	1.97	1.59	1.01	0.036
Vanadium	0.011	0.034	0.028	0.017	0.00062
Zinc	3.89	11.9	9.69	6.10	0.22
Total	<8007	<24787	<19738	<12689	<449

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 22
Clean Harbors Sarnia
Blank Train Metal Analyses

Metal	Probe & Filter Nitric Acid Digest µg	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Aluminum *	<20	135	10.5	10.5
Antimony	<0.2	<0.2	<0.1	<0.20
Arsenic	<1	<1	<0.2	<0.20
Barium	9.28	32.3	1.12	42.7
Beryllium	<0.2	<0.2	<0.1	<0.20
Boron *	<30	<30	149	149
Cadmium	<0.1	<0.1	<0.05	<0.10
Calcium *	<500	<500	226	226
Chromium	<1	2.14	0.53	2.67
Cobalt	<0.2	<0.2	<0.1	<0.20
Copper	<1	<1	4.77	4.77
Iron	<200	<200	<15	<15.0
Lead	<0.5	<0.5	0.88	0.88
Lithium	<0.5	<0.5	<0.25	<0.50
Magnesium *	<10	29.1	13.9	13.9
Manganese	<0.5	1.10	0.53	1.63
Mercury **	<0.015	<0.015	<0.225	<0.23
Molybdenum	0.23	17.4	<0.1	17.6
Nickel	<0.2	0.62	0.31	0.93
Phosphorus	<100	<100	<25	<100
Potassium	<100	<100	<100	<100
Selenium	<2	<2	<1	<1.00
Silicon *	1550	-	121	1671
Silver	<0.2	<0.2	<0.1	<0.20
Sodium *	365	96.2	403	768
Strontium	<0.2	0.59	0.24	0.83
Sulphur	<10000	<10000	<3000	<3000
Tin	0.40	0.38	25.6	26.4
Titanium	<10	<10	<1	<10.0
Vanadium	<1	<1	<0.1	<1.00
Zinc	<6	29.6	<3	29.6
Total				<6195

* Hydrofluoric acid digest not included in the total.

** Includes the permanganate impingers.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). Where all values are reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate the total collected in the blank, the remaining fractions are assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate the total collected in the blank.

TABLE 23
Clean Harbors Sarnia
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	<2.4	<0.00017	<0.00050	<0.00042	<0.00026	<0.0092
Pentachlorodibenzo-p-dioxins	<3.0	<0.00021	<0.00063	<0.00052	<0.00032	<0.011
Hexachlorodibenzo-p-dioxins	29.9	0.0021	0.0063	0.0052	0.0032	0.11
Heptachlorodibenzo-p-dioxins	113	0.0078	0.024	0.020	0.012	0.43
Octachlorodibenzo-p-dioxin	79.9	0.0055	0.017	0.014	0.0085	0.31
Total	<228	<0.016	<0.048	<0.040	<0.024	<0.87

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	19.0	0.0013	0.0040	0.0033	0.0020	0.073
Pentachlorodibenzofurans	3.29	0.00023	0.0007	0.00057	0.00035	0.013
Hexachlorodibenzofurans	7.57	0.00052	0.0016	0.0013	0.00081	0.029
Heptachlorodibenzofurans	21.7	0.0015	0.0046	0.0038	0.0023	0.083
Octachlorodibenzofuran	16.5	0.0011	0.0035	0.0029	0.0018	0.063
Total	68.1	0.0047	0.014	0.012	0.0073	0.26

Dry Gas Volume Sampled (Rm^3*) :	4.756
Actual Flowrate (m^3/s) :	55.6
Dry Reference Flowrate (Rm^3/s*) :	18.2
Dry Adjusted Flowrate (Rm^3/s**) :	22.0
Wet Reference Flowrate (Rm^3/s*) :	35.9

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the emission data.

TABLE 24
Clean Harbors Sarnia
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	<1.4	<0.000095	<0.00029	<0.00024	<0.00015	<0.0054
Pentachlorodibenzo-p-dioxins	6.23	0.00042	0.0013	0.0011	0.00066	0.024
Hexachlorodibenzo-p-dioxins	<1.7	<0.00012	<0.00035	<0.00029	<0.00018	<0.0065
Heptachlorodibenzo-p-dioxins	11.5	0.00078	0.0024	0.0020	0.0012	0.044
Octachlorodibenzo-p-dioxin	<18	<0.0012	<0.0037	<0.0031	<0.0019	<0.069
Total	<38.8	<0.0026	<0.0081	<0.0066	<0.0041	<0.15

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	1.39	0.000095	0.00029	0.00024	0.00015	0.0054
Pentachlorodibenzofurans	2.26	0.00015	0.00047	0.00039	0.00024	0.0087
Hexachlorodibenzofurans	3.25	0.00022	0.00068	0.00056	0.00035	0.013
Heptachlorodibenzofurans	7.07	0.00048	0.0015	0.0012	0.00075	0.027
Octachlorodibenzofuran	<5.8	<0.00040	<0.0012	<0.00099	<0.00062	<0.022
Total	<19.8	<0.0013	<0.0041	<0.0034	<0.0021	<0.076

Dry Gas Volume Sampled (Rm^3*) :	4.805
Actual Flowrate (m^3/s) :	56.5
Dry Reference Flowrate (Rm^3/s*) :	18.5
Dry Adjusted Flowrate (Rm^3/s**) :	22.5
Wet Reference Flowrate (Rm^3/s*) :	36.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the emission data.

TABLE 25
Clean Harbors Sarnia
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	66.8	0.0045	0.014	0.011	0.0072	0.25
Pentachlorodibenzo-p-dioxins	47.9	0.0033	0.010	0.0080	0.0052	0.18
Hexachlorodibenzo-p-dioxins	147	0.010	0.031	0.024	0.016	0.56
Heptachlorodibenzo-p-dioxins	233	0.016	0.049	0.039	0.025	0.89
Octachlorodibenzo-p-dioxin	205	0.014	0.043	0.034	0.022	0.78
Total	700	0.048	0.15	0.12	0.076	2.67

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	116	0.0079	0.025	0.019	0.013	0.44
Pentachlorodibenzofurans	97.9	0.0066	0.021	0.016	0.011	0.37
Hexachlorodibenzofurans	25.6	0.0017	0.0054	0.0043	0.0028	0.098
Heptachlorodibenzofurans	58.3	0.0040	0.012	0.0097	0.0063	0.22
Octachlorodibenzofuran	42.5	0.0029	0.0090	0.0071	0.0046	0.16
Total	340	0.023	0.072	0.057	0.037	1.30

Dry Gas Volume Sampled (Rm^3*) :	4.724
Actual Flowrate (m^3/s) :	56.1
Dry Reference Flowrate (Rm^3/s*) :	18.0
Dry Adjusted Flowrate (Rm^3/s**) :	22.9
Wet Reference Flowrate (Rm^3/s*) :	35.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 26
Clean Harbors Sarnia
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzo-p-dioxins	<0.00017	<0.000095	0.0045	<0.0016	159
Pentachlorodibenzo-p-dioxins	<0.00021	0.00042	0.0033	<0.0013	131
Hexachlorodibenzo-p-dioxins	0.0021	<0.00012	0.010	<0.0041	129
Heptachlorodibenzo-p-dioxins	0.0078	0.00078	0.016	0.0081	92.6
Octachlorodibenzo-p-dioxin	0.0055	<0.0012	0.014	<0.0069	93.9
Total	<0.016	<0.0026	0.048	<0.022	105

Furans

Congener Group	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzofurans	0.0013	0.000095	0.0079	0.0031	135
Pentachlorodibenzofurans	0.00023	0.00015	0.0066	0.0023	159
Hexachlorodibenzofurans	0.00052	0.00022	0.0017	0.00083	97.2
Heptachlorodibenzofurans	0.0015	0.00048	0.0040	0.0020	90.4
Octachlorodibenzofuran	0.0011	<0.00040	0.0029	<0.0015	86.9
Total	0.0047	<0.0013	0.023	<0.0097	121

TABLE 27
Clean Harbors Sarnia
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Dry Reference Concentration				Coefficient of Variation
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	<0.00050	<0.00029	0.014	<0.0050	159
Pentachlorodibenzo-p-dioxins	<0.00063	0.0013	0.010	<0.0040	132
Hexachlorodibenzo-p-dioxins	0.0063	<0.00035	0.031	<0.013	130
Heptachlorodibenzo-p-dioxins	0.024	0.0024	0.049	0.025	93.4
Octachlorodibenzo-p-dioxin	0.017	<0.0037	0.043	<0.021	94.8
Total	<0.048	<0.0081	0.15	<0.068	106

Furans

Congener Group	Dry Reference Concentration				Coefficient of Variation
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	%
Tetrachlorodibenzofurans	0.0040	0.00029	0.025	0.0096	136
Pentachlorodibenzofurans	0.00069	0.00047	0.021	0.0073	159
Hexachlorodibenzofurans	0.0016	0.00068	0.0054	0.0026	98.2
Heptachlorodibenzofurans	0.0046	0.0015	0.012	0.0061	91.4
Octachlorodibenzofuran	0.0035	<0.0012	0.0090	<0.0046	87.9
Total	0.014	<0.0041	0.072	<0.030	121

* At 25°C and 1 atmosphere

TABLE 28
Clean Harbors Sarnia
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	<0.00042	<0.00024	0.011	<0.0039	159
Pentachlorodibenzo-p-dioxins	<0.00052	0.0011	0.0080	<0.0032	130
Hexachlorodibenzo-p-dioxins	0.0052	<0.00029	0.024	<0.010	128
Heptachlorodibenzo-p-dioxins	0.020	0.0020	0.039	0.020	91.4
Octachlorodibenzo-p-dioxin	0.014	<0.0031	0.034	<0.017	92.5
Total	<0.040	<0.0066	0.12	<0.054	104

Furans

Congener Group	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	%
Tetrachlorodibenzofurans	0.0033	0.00024	0.019	0.0076	134
Pentachlorodibenzofurans	0.00057	0.00039	0.016	0.0057	159
Hexachlorodibenzofurans	0.0013	0.00056	0.0043	0.0020	95.7
Heptachlorodibenzofurans	0.0038	0.0012	0.0097	0.0049	89.0
Octachlorodibenzofuran	0.0029	<0.00099	0.0071	<0.0036	85.4
Total	0.012	<0.0034	0.057	<0.024	119

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 29
Clean Harbors Sarnia
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	<0.00026	<0.00015	0.0072	<0.0025	159
Pentachlorodibenzo-p-dioxins	<0.00032	0.00066	0.0052	<0.0021	132
Hexachlorodibenzo-p-dioxins	0.0032	<0.00018	0.016	<0.0064	130
Heptachlorodibenzo-p-dioxins	0.012	0.0012	0.025	0.013	93.7
Octachlorodibenzo-p-dioxin	0.0085	<0.0019	0.022	<0.011	95.1
Total	<0.024	<0.0041	0.076	<0.035	106

Furans

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	%
Tetrachlorodibenzofurans	0.0020	0.00015	0.013	0.0049	136
Pentachlorodibenzofurans	0.00035	0.00024	0.011	0.0037	159
Hexachlorodibenzofurans	0.00081	0.00035	0.0028	0.0013	98.5
Heptachlorodibenzofurans	0.0023	0.00075	0.0063	0.0031	91.7
Octachlorodibenzofuran	0.0018	<0.00062	0.0046	<0.0023	88.2
Total	0.0073	<0.0021	0.037	<0.015	122

* At 25°C and 1 atmosphere

TABLE 30
Clean Harbors Sarnia
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate				Coefficient of Variation
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	%
Tetrachlorodibenzo-p-dioxins	<0.0092	<0.0054	0.25	<0.090	159
Pentachlorodibenzo-p-dioxins	<0.011	0.024	0.18	<0.073	131
Hexachlorodibenzo-p-dioxins	0.11	<0.0065	0.56	<0.23	129
Heptachlorodibenzo-p-dioxins	0.43	0.044	0.89	0.45	92.8
Octachlorodibenzo-p-dioxin	0.31	<0.069	0.78	<0.39	94.1
Total	<0.87	<0.15	2.67	<1.23	105

Furans

Congener Group	Emission Rate				Coefficient of Variation
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	%
Tetrachlorodibenzofurans	0.073	0.0054	0.44	0.17	136
Pentachlorodibenzofurans	0.013	0.0087	0.37	0.13	159
Hexachlorodibenzofurans	0.029	0.013	0.098	0.046	97.3
Heptachlorodibenzofurans	0.083	0.027	0.22	0.11	90.6
Octachlorodibenzofuran	0.063	<0.022	0.16	<0.082	87.0
Total	0.26	<0.076	1.30	<0.54	121

TABLE 31
Clean Harbors Sarnia
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	<0.0016	<0.0050	<0.0039	<0.0025	<0.090
Pentachlorodibenzo-p-dioxins	<0.0013	<0.0040	<0.0032	<0.0021	<0.073
Hexachlorodibenzo-p-dioxins	<0.0041	<0.013	<0.010	<0.0064	<0.23
Heptachlorodibenzo-p-dioxins	0.0081	0.025	0.020	0.013	0.45
Octachlorodibenzo-p-dioxin	<0.0069	<0.021	<0.017	<0.011	<0.39
Total	<0.022	<0.068	<0.054	<0.035	<1.23

Furans

Congener Group	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	0.0031	0.0096	0.0076	0.0049	0.17
Pentachlorodibenzofurans	0.0023	0.0073	0.0057	0.0037	0.13
Hexachlorodibenzofurans	0.00083	0.0026	0.0020	0.0013	0.046
Heptachlorodibenzofurans	0.0020	0.0061	0.0049	0.0031	0.11
Octachlorodibenzofuran	<0.0015	<0.0046	<0.0036	<0.0023	<0.082
Total	<0.0097	<0.030	<0.024	<0.015	<0.54

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 32
Clean Harbors Sarnia
Blank Dioxin and Furan Congener Group Analyses

Dioxins

Congener Group	Blank Train pg	Laboratory Blank pg
Tetrachlorodibenzo-p-dioxins	<3.9	<2.6
Pentachlorodibenzo-p-dioxins	<2.1	<2.1
Hexachlorodibenzo-p-dioxins	<4.8	<2.7
Heptachlorodibenzo-p-dioxins	<5.3	<3.1
Octachlorodibenzo-p-dioxin	<6.2	<11
Total	<22.3	<21.5

Furans

Congener Group	Blank Train pg	Laboratory Blank pg
Tetrachlorodibenzofurans	<3.9	<1.7
Pentachlorodibenzofurans	<2.7	2.82
Hexachlorodibenzofurans	<2.0	<1.8
Heptachlorodibenzofurans	<2.8	<3.0
Octachlorodibenzofuran	<4.0	<4.4
Total	<15.4	<13.7

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 33
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<2.4	<0.17	<0.50	<0.42	<0.26	<0.0092
12378-pentachlorodibenzo-p-dioxin	<3.0	<0.21	<0.63	<0.52	<0.32	<0.011
123478-hexachlorodibenzo-p-dioxin	<3.2	<0.22	<0.67	<0.56	<0.34	<0.012
123678-hexachlorodibenzo-p-dioxin	<5.0	<0.34	<1.05	<0.87	<0.53	<0.019
123789-hexachlorodibenzo-p-dioxin	<3.0	<0.21	<0.63	<0.52	<0.32	<0.011
1234678-heptachlorodibenzo-p-dioxin	61.7	4.25	13.0	10.7	6.58	0.24
Octachlorodibenzo-p-dioxin	79.9	5.50	16.8	13.9	8.52	0.31
2378-tetrachlorodibenzofuran	<3.7	<0.25	<0.78	<0.64	<0.39	<0.014
12378-pentachlorodibenzofuran	3.29	0.23	0.69	0.57	0.35	0.013
23478-pentachlorodibenzofuran	<1.7	<0.12	<0.36	<0.30	<0.18	<0.0065
123478-hexachlorodibenzofuran	<1.6	<0.11	<0.34	<0.28	<0.17	<0.0061
123678-hexachlorodibenzofuran	<3.1	<0.21	<0.65	<0.54	<0.33	<0.012
234678-hexachlorodibenzofuran	4.49	0.31	0.94	0.78	0.48	0.017
123789-hexachlorodibenzofuran	<1.8	<0.12	<0.38	<0.31	<0.19	<0.0069
1234678-heptachlorodibenzofuran	18.2	1.25	3.83	3.17	1.94	0.070
1234789-heptachlorodibenzofuran	3.48	0.24	0.73	0.61	0.37	0.013
Octachlorodibenzofuran	16.5	1.14	3.47	2.87	1.76	0.063
PCB 77	686	47.2	144	119	73.1	2.63
PCB 81	<14	<0.96	<2.94	<2.44	<1.49	<0.054
PCB 126	15.8	1.09	3.32	2.75	1.68	0.060
PCB 169	<3.1	<0.21	<0.65	<0.54	<0.33	<0.012
PCB 105	2430	167	511	423	259	9.30
PCB 114	186	12.8	39.1	32.4	19.8	0.71
PCB 118	6750	465	1419	1174	720	25.8
PCB 123	126	8.67	26.5	21.9	13.4	0.48
PCB 156/157	195	13.4	41.0	33.9	20.8	0.75
PCB 167	66.4	4.57	14.0	11.5	7.08	0.25
PCB 189	<2.8	<0.19	<0.59	<0.49	<0.30	<0.011
Total Dioxins & Furans Only	<216	<14.9	<45.4	<37.6	<23.0	<0.83

Dry Gas Volume Sampled (Rm³*) :	4.756
Actual Flowrate (m³/s) :	55.6
Dry Reference Flowrate (Rm³/s*) :	18.2
Dry Adjusted Flowrate (Rm³/s**) :	22.0
Wet Reference Flowrate (Rm³/s*) :	35.9

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 34
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m^3	pg/Rm^3*	pg/Rm^3**	pg/Rm^3*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<1.4	<0.095	<0.29	<0.24	<0.15	<0.0054
12378-pentachlorodibenzo-p-dioxin	<2.0	<0.14	<0.42	<0.34	<0.21	<0.0077
123478-hexachlorodibenzo-p-dioxin	<1.7	<0.12	<0.35	<0.29	<0.18	<0.0065
123678-hexachlorodibenzo-p-dioxin	<1.8	<0.12	<0.37	<0.31	<0.19	<0.0069
123789-hexachlorodibenzo-p-dioxin	<1.6	<0.11	<0.33	<0.27	<0.17	<0.0062
1234678-heptachlorodibenzo-p-dioxin	11.5	0.78	2.39	1.97	1.22	0.044
Octachlorodibenzo-p-dioxin	<18	<1.23	<3.75	<3.08	<1.91	<0.069
2378-tetrachlorodibenzofuran	<1.4	<0.095	<0.29	<0.24	<0.15	<0.0054
12378-pentachlorodibenzofuran	<3.2	<0.22	<0.67	<0.55	<0.34	<0.012
23478-pentachlorodibenzofuran	2.26	0.15	0.47	0.39	0.24	0.0087
123478-hexachlorodibenzofuran	<1.1	<0.075	<0.23	<0.19	<0.12	<0.0042
123678-hexachlorodibenzofuran	<1.5	<0.10	<0.31	<0.26	<0.16	<0.0058
234678-hexachlorodibenzofuran	<1.1	<0.075	<0.23	<0.19	<0.12	<0.0042
123789-hexachlorodibenzofuran	<1.3	<0.089	<0.27	<0.22	<0.14	<0.0050
1234678-heptachlorodibenzofuran	7.07	0.48	1.47	1.21	0.75	0.027
1234789-heptachlorodibenzofuran	<2.0	<0.14	<0.42	<0.34	<0.21	<0.0077
Octachlorodibenzofuran	<5.8	<0.40	<1.21	<0.99	<0.62	<0.022
PCB 77	308	21.0	64.1	52.7	32.8	1.19
PCB 81	8.41	0.57	1.75	1.44	0.89	0.032
PCB 126	18.2	1.24	3.79	3.11	1.94	0.070
PCB 169	<4.0	<0.27	<0.83	<0.68	<0.43	<0.015
PCB 105	1300	88.6	271	222	138	5.01
PCB 114	119	8.11	24.8	20.4	12.7	0.46
PCB 118	4180	285	870	715	445	16.1
PCB 123	<61	<4.16	<12.7	<10.4	<6.49	<0.23
PCB 156/157	114	7.77	23.7	19.5	12.1	0.44
PCB 167	38.9	2.65	8.10	6.66	4.14	0.15
PCB 189	<3.8	<0.26	<0.79	<0.65	<0.40	<0.015
Total Dioxins & Furans Only	<64.7	<4.41	<13.5	<11.1	<6.88	<0.25

Dry Gas Volume Sampled (Rm^3*) :	4.805
Actual Flowrate (m^3/s) :	56.5
Dry Reference Flowrate (Rm^3/s*) :	18.5
Dry Adjusted Flowrate (Rm^3/s**) :	22.5
Wet Reference Flowrate (Rm^3/s*) :	36.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 35
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m^3	pg/Rm^3*	pg/Rm^3**	pg/Rm^3*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<2.7	<0.18	<0.57	<0.45	<0.29	<0.010
12378-pentachlorodibenzo-p-dioxin	<3.5	<0.24	<0.74	<0.58	<0.38	<0.013
123478-hexachlorodibenzo-p-dioxin	5.78	0.39	1.22	0.96	0.63	0.022
123678-hexachlorodibenzo-p-dioxin	14.9	1.01	3.15	2.48	1.61	0.057
123789-hexachlorodibenzo-p-dioxin	<8.3	<0.56	<1.76	<1.38	<0.90	<0.032
1234678-heptachlorodibenzo-p-dioxin	133	9.03	28.2	22.1	14.4	0.51
Octachlorodibenzo-p-dioxin	205	13.9	43.4	34.1	22.2	0.78
2378-tetrachlorodibenzofuran	<8.7	<0.59	<1.84	<1.45	<0.94	<0.033
12378-pentachlorodibenzofuran	<7.5	<0.51	<1.59	<1.25	<0.81	<0.029
23478-pentachlorodibenzofuran	15.9	1.08	3.37	2.65	1.72	0.061
123478-hexachlorodibenzofuran	<5.0	<0.34	<1.06	<0.83	<0.54	<0.019
123678-hexachlorodibenzofuran	<8.9	<0.60	<1.88	<1.48	<0.96	<0.034
234678-hexachlorodibenzofuran	<11	<0.75	<2.33	<1.83	<1.19	<0.042
123789-hexachlorodibenzofuran	<4.5	<0.31	<0.95	<0.75	<0.49	<0.017
1234678-heptachlorodibenzofuran	37.8	2.57	8.00	6.29	4.09	0.14
1234789-heptachlorodibenzofuran	9.66	0.66	2.04	1.61	1.05	0.037
Octachlorodibenzofuran	42.5	2.89	9.00	7.07	4.60	0.16
PCB 77	454	30.8	96.1	75.5	49.1	1.73
PCB 81	<19	<1.29	<4.02	<3.16	<2.06	<0.072
PCB 126	34.0	2.31	7.20	5.66	3.68	0.13
PCB 169	<7.7	<0.52	<1.63	<1.28	<0.83	<0.029
PCB 105	5080	345	1075	845	550	19.4
PCB 114	386	26.2	81.7	64.2	41.8	1.47
PCB 118	13700	931	2900	2280	1483	52.2
PCB 123	239	16.2	50.6	39.8	25.9	0.91
PCB 156/157	442	30.0	93.6	73.5	47.8	1.68
PCB 167	123	8.35	26.0	20.5	13.3	0.47
PCB 189	<12	<0.82	<2.54	<2.00	<1.30	<0.046
Total Dioxins & Furans Only	<525	<35.6	<111	<87.3	<56.8	<2.00

Dry Gas Volume Sampled (Rm^3*) :	4.724
Actual Flowrate (m^3/s) :	56.1
Dry Reference Flowrate (Rm^3/s*) :	18.0
Dry Adjusted Flowrate (Rm^3/s**) :	22.9
Wet Reference Flowrate (Rm^3/s*) :	35.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 36
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/m³	pg/m³	pg/m³	pg/m³	%
2378-tetrachlorodibenzo-p-dioxin	<0.17	<0.095	<0.18	<0.15	31.4
12378-pentachlorodibenzo-p-dioxin	<0.21	<0.14	<0.24	<0.19	26.8
123478-hexachlorodibenzo-p-dioxin	<0.22	<0.12	0.39	<0.24	57.5
123678-hexachlorodibenzo-p-dioxin	<0.34	<0.12	1.01	<0.49	93.9
123789-hexachlorodibenzo-p-dioxin	<0.21	<0.11	<0.56	<0.29	81.7
1234678-heptachlorodibenzo-p-dioxin	4.25	0.78	9.03	4.69	88.4
Octachlorodibenzo-p-dioxin	5.50	<1.23	13.9	<6.88	93.9
2378-tetrachlorodibenzofuran	<0.25	<0.095	<0.59	<0.31	80.7
12378-pentachlorodibenzofuran	0.23	<0.22	<0.51	<0.32	52.2
23478-pentachlorodibenzofuran	<0.12	0.15	1.08	<0.45	121
123478-hexachlorodibenzofuran	<0.11	<0.075	<0.34	<0.17	82.2
123678-hexachlorodibenzofuran	<0.21	<0.10	<0.60	<0.31	86.0
234678-hexachlorodibenzofuran	0.31	<0.075	<0.75	<0.38	90.5
123789-hexachlorodibenzofuran	<0.12	<0.089	<0.31	<0.17	67.4
1234678-heptachlorodibenzofuran	1.25	0.48	2.57	1.43	73.5
1234789-heptachlorodibenzofuran	0.24	<0.14	0.66	<0.34	80.0
Octachlorodibenzofuran	1.14	<0.40	2.89	<1.47	86.9
PCB 77	47.2	21.0	30.8	33.0	40.1
PCB 81	<0.96	0.57	<1.29	<0.94	38.1
PCB 126	1.09	1.24	2.31	1.55	43.1
PCB 169	<0.21	<0.27	<0.52	<0.34	48.9
PCB 105	167	88.6	345	200	65.6
PCB 114	12.8	8.11	26.2	15.7	59.8
PCB 118	465	285	931	560	59.5
PCB 123	8.67	<4.16	16.2	<9.69	63.0
PCB 156/157	13.4	7.77	30.0	17.1	67.8
PCB 167	4.57	2.65	8.35	5.19	55.9
PCB 189	<0.19	<0.26	<0.82	<0.42	80.9
Total Dioxins & Furans Only	<14.9	<4.41	<35.6	<18.3	86.8

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 37
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<0.50	<0.29	<0.57	<0.46	32.1
12378-pentachlorodibenzo-p-dioxin	<0.63	<0.42	<0.74	<0.60	27.7
123478-hexachlorodibenzo-p-dioxin	<0.67	<0.35	1.22	<0.75	58.7
123678-hexachlorodibenzo-p-dioxin	<1.05	<0.37	3.15	<1.53	94.9
123789-hexachlorodibenzo-p-dioxin	<0.63	<0.33	<1.76	<0.91	82.8
1234678-heptachlorodibenzo-p-dioxin	13.0	2.39	28.2	14.5	89.3
Octachlorodibenzo-p-dioxin	16.8	<3.75	43.4	<21.3	94.8
2378-tetrachlorodibenzofuran	<0.78	<0.29	<1.84	<0.97	81.7
12378-pentachlorodibenzofuran	0.69	<0.67	<1.59	<0.98	53.5
23478-pentachlorodibenzofuran	<0.36	0.47	3.37	<1.40	122
123478-hexachlorodibenzofuran	<0.34	<0.23	<1.06	<0.54	83.3
123678-hexachlorodibenzofuran	<0.65	<0.31	<1.88	<0.95	87.1
234678-hexachlorodibenzofuran	0.94	<0.23	<2.33	<1.17	91.5
123789-hexachlorodibenzofuran	<0.38	<0.27	<0.95	<0.53	68.7
1234678-heptachlorodibenzofuran	3.83	1.47	8.00	4.43	74.6
1234789-heptachlorodibenzofuran	0.73	<0.42	2.04	<1.06	81.2
Octachlorodibenzofuran	3.47	<1.21	9.00	<4.56	87.9
PCB 77	144	64.1	96.1	101	39.8
PCB 81	<2.94	1.75	<4.02	<2.91	39.1
PCB 126	3.32	3.79	7.20	4.77	44.4
PCB 169	<0.65	<0.83	<1.63	<1.04	50.1
PCB 105	511	271	1075	619	66.7
PCB 114	39.1	24.8	81.7	48.5	61.0
PCB 118	1419	870	2900	1730	60.7
PCB 123	26.5	<12.7	50.6	<29.9	64.1
PCB 156/157	41.0	23.7	93.6	52.8	68.9
PCB 167	14.0	8.10	26.0	16.0	57.1
PCB 189	<0.59	<0.79	<2.54	<1.31	82.1
Total Dioxins & Furans Only	<45.4	<13.5	<111	<56.7	87.8

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 38
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<0.42	<0.24	<0.45	<0.37	30.6
12378-pentachlorodibenzo-p-dioxin	<0.52	<0.34	<0.58	<0.48	25.9
123478-hexachlorodibenzo-p-dioxin	<0.56	<0.29	0.96	<0.60	56.0
123678-hexachlorodibenzo-p-dioxin	<0.87	<0.31	2.48	<1.22	92.5
123789-hexachlorodibenzo-p-dioxin	<0.52	<0.27	<1.38	<0.73	80.1
1234678-heptachlorodibenzo-p-dioxin	10.7	1.97	22.1	11.6	87.1
Octachlorodibenzo-p-dioxin	13.9	<3.08	34.1	<17.0	92.5
2378-tetrachlorodibenzofuran	<0.64	<0.24	<1.45	<0.78	79.2
12378-pentachlorodibenzofuran	0.57	<0.55	<1.25	<0.79	50.4
23478-pentachlorodibenzofuran	<0.30	0.39	2.65	<1.11	120
123478-hexachlorodibenzofuran	<0.28	<0.19	<0.83	<0.43	80.5
123678-hexachlorodibenzofuran	<0.54	<0.26	<1.48	<0.76	84.5
234678-hexachlorodibenzofuran	0.78	<0.19	<1.83	<0.93	89.1
123789-hexachlorodibenzofuran	<0.31	<0.22	<0.75	<0.43	65.7
1234678-heptachlorodibenzofuran	3.17	1.21	6.29	3.56	72.1
1234789-heptachlorodibenzofuran	0.61	<0.34	1.61	<0.85	78.4
Octachlorodibenzofuran	2.87	<0.99	7.07	<3.64	85.4
PCB 77	119	52.7	75.5	82.5	41.0
PCB 81	<2.44	1.44	<3.16	<2.35	36.9
PCB 126	2.75	3.11	5.66	3.84	41.3
PCB 169	<0.54	<0.68	<1.28	<0.83	47.1
PCB 105	423	222	845	497	64.0
PCB 114	32.4	20.4	64.2	39.0	58.2
PCB 118	1174	715	2280	1390	57.9
PCB 123	21.9	<10.4	39.8	<24.0	61.5
PCB 156/157	33.9	19.5	73.5	42.3	66.1
PCB 167	11.5	6.66	20.5	12.9	54.3
PCB 189	<0.49	<0.65	<2.00	<1.04	79.3
Total Dioxins & Furans Only	<37.6	<11.1	<87.3	<45.3	85.4

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 39
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<0.26	<0.15	<0.29	<0.23	32.1
12378-pentachlorodibenzo-p-dioxin	<0.32	<0.21	<0.38	<0.30	27.7
123478-hexachlorodibenzo-p-dioxin	<0.34	<0.18	0.63	<0.38	58.9
123678-hexachlorodibenzo-p-dioxin	<0.53	<0.19	1.61	<0.78	95.2
123789-hexachlorodibenzo-p-dioxin	<0.32	<0.17	<0.90	<0.46	83.1
1234678-heptachlorodibenzo-p-dioxin	6.58	1.22	14.4	7.40	89.5
Octachlorodibenzo-p-dioxin	8.52	<1.91	22.2	<10.9	95.1
2378-tetrachlorodibenzofuran	<0.39	<0.15	<0.94	<0.50	82.0
12378-pentachlorodibenzofuran	0.35	<0.34	<0.81	<0.50	53.8
23478-pentachlorodibenzofuran	<0.18	0.24	1.72	<0.71	122
123478-hexachlorodibenzofuran	<0.17	<0.12	<0.54	<0.28	83.6
123678-hexachlorodibenzofuran	<0.33	<0.16	<0.96	<0.48	87.4
234678-hexachlorodibenzofuran	0.48	<0.12	<1.19	<0.60	91.7
123789-hexachlorodibenzofuran	<0.19	<0.14	<0.49	<0.27	69.0
1234678-heptachlorodibenzofuran	1.94	0.75	4.09	2.26	74.9
1234789-heptachlorodibenzofuran	0.37	<0.21	1.05	<0.54	81.4
Octachlorodibenzofuran	1.76	<0.62	4.60	<2.33	88.2
PCB 77	73.1	32.8	49.1	51.7	39.3
PCB 81	<1.49	0.89	<2.06	<1.48	39.2
PCB 126	1.68	1.94	3.68	2.43	44.7
PCB 169	<0.33	<0.43	<0.83	<0.53	50.4
PCB 105	259	138	550	316	67.0
PCB 114	19.8	12.7	41.8	24.8	61.3
PCB 118	720	445	1483	882	61.0
PCB 123	13.4	<6.49	25.9	<15.3	64.3
PCB 156/157	20.8	12.1	47.8	26.9	69.2
PCB 167	7.08	4.14	13.3	8.18	57.3
PCB 189	<0.30	<0.40	<1.30	<0.67	82.4
Total Dioxins & Furans Only	<23.0	<6.88	<56.8	<28.9	88.1

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 40
Clean Harbors Sarnia
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/s	ng/s	ng/s	ng/s	%
2378-tetrachlorodibenzo-p-dioxin	<0.0092	<0.0054	<0.010	<0.0083	31.0
12378-pentachlorodibenzo-p-dioxin	<0.011	<0.0077	<0.013	<0.011	26.5
123478-hexachlorodibenzo-p-dioxin	<0.012	<0.0065	0.022	<0.014	57.5
123678-hexachlorodibenzo-p-dioxin	<0.019	<0.0069	0.057	<0.028	94.1
123789-hexachlorodibenzo-p-dioxin	<0.011	<0.0062	<0.032	<0.016	81.8
1234678-heptachlorodibenzo-p-dioxin	0.24	0.044	0.51	0.26	88.6
Octachlorodibenzo-p-dioxin	0.31	<0.069	0.78	<0.39	94.1
2378-tetrachlorodibenzofuran	<0.014	<0.0054	<0.033	<0.018	80.8
12378-pentachlorodibenzofuran	0.013	<0.012	<0.029	<0.018	52.2
23478-pentachlorodibenzofuran	<0.0065	0.0087	0.061	<0.025	121
123478-hexachlorodibenzofuran	<0.0061	<0.0042	<0.019	<0.0098	82.3
123678-hexachlorodibenzofuran	<0.012	<0.0058	<0.034	<0.017	86.2
234678-hexachlorodibenzofuran	0.017	<0.0042	<0.042	<0.021	90.7
123789-hexachlorodibenzofuran	<0.0069	<0.0050	<0.017	<0.0097	67.5
1234678-heptachlorodibenzofuran	0.070	0.027	0.14	0.080	73.6
1234789-heptachlorodibenzofuran	0.013	<0.0077	0.037	<0.019	80.1
Octachlorodibenzofuran	0.063	<0.022	0.16	<0.082	87.0
PCB 77	2.63	1.19	1.73	1.85	39.3
PCB 81	<0.054	0.032	<0.072	<0.053	37.9
PCB 126	0.060	0.070	0.13	0.087	43.2
PCB 169	<0.012	<0.015	<0.029	<0.019	49.0
PCB 105	9.30	5.01	19.4	11.2	65.6
PCB 114	0.71	0.46	1.47	0.88	59.9
PCB 118	25.8	16.1	52.2	31.4	59.5
PCB 123	0.48	<0.23	0.91	<0.54	63.0
PCB 156/157	0.75	0.44	1.68	0.96	67.8
PCB 167	0.25	0.15	0.47	0.29	55.9
PCB 189	<0.011	<0.015	<0.046	<0.024	81.0
Total Dioxins & Furans Only	<0.83	<0.25	<2.00	<1.03	87.0

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 41
Clean Harbors Sarnia
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<0.15	<0.46	<0.37	<0.23	<0.0083
12378-pentachlorodibenzo-p-dioxin	<0.19	<0.60	<0.48	<0.30	<0.011
123478-hexachlorodibenzo-p-dioxin	<0.24	<0.75	<0.60	<0.38	<0.014
123678-hexachlorodibenzo-p-dioxin	<0.49	<1.53	<1.22	<0.78	<0.028
123789-hexachlorodibenzo-p-dioxin	<0.29	<0.91	<0.73	<0.46	<0.016
1234678-heptachlorodibenzo-p-dioxin	4.69	14.5	11.6	7.40	0.26
Octachlorodibenzo-p-dioxin	<6.88	<21.3	<17.0	<10.9	<0.39
2378-tetrachlorodibenzofuran	<0.31	<0.97	<0.78	<0.50	<0.018
12378-pentachlorodibenzofuran	<0.32	<0.98	<0.79	<0.50	<0.018
23478-pentachlorodibenzofuran	<0.45	<1.40	<1.11	<0.71	<0.025
123478-hexachlorodibenzofuran	<0.17	<0.54	<0.43	<0.28	<0.0098
123678-hexachlorodibenzofuran	<0.31	<0.95	<0.76	<0.48	<0.017
234678-hexachlorodibenzofuran	<0.38	<1.17	<0.93	<0.60	<0.021
123789-hexachlorodibenzofuran	<0.17	<0.53	<0.43	<0.27	<0.0097
1234678-heptachlorodibenzofuran	1.43	4.43	3.56	2.26	0.080
1234789-heptachlorodibenzofuran	<0.34	<1.06	<0.85	<0.54	<0.019
Octachlorodibenzofuran	<1.47	<4.56	<3.64	<2.33	<0.082
PCB 77	33.0	101	82.5	51.7	1.85
PCB 81	<0.94	<2.91	<2.35	<1.48	<0.053
PCB 126	1.55	4.77	3.84	2.43	0.087
PCB 169	<0.34	<1.04	<0.83	<0.53	<0.019
PCB 105	200	619	497	316	11.2
PCB 114	15.7	48.5	39.0	24.8	0.88
PCB 118	560	1730	1390	882	31.4
PCB 123	<9.69	<29.9	<24.0	<15.3	<0.54
PCB 156/157	17.1	52.8	42.3	26.9	0.96
PCB 167	5.19	16.0	12.9	8.18	0.29
PCB 189	<0.42	<1.31	<1.04	<0.67	<0.024
Total Dioxins & Furans Only	<18.3	<56.7	<45.3	<28.9	<1.03

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 42
Clean Harbors Sarnia
Blank Dioxin and Furan Specific Isomer Analyses

Specific Isomer	Blank Train pg	Laboratory Blank pg
2378-tetrachlorodibenzo-p-dioxin	<3.9	<2.6
12378-pentachlorodibenzo-p-dioxin	<2.1	<2.1
123478-hexachlorodibenzo-p-dioxin	<4.8	<2.7
123678-hexachlorodibenzo-p-dioxin	<4.7	<2.7
123789-hexachlorodibenzo-p-dioxin	<4.5	<2.6
1234678-heptachlorodibenzo-p-dioxin	<5.3	<3.1
Octachlorodibenzo-p-dioxin	<6.2	<11
2378-tetrachlorodibenzofuran	<3.9	<1.7
12378-pentachlorodibenzofuran	<2.7	2.82
23478-pentachlorodibenzofuran	<2.5	<1.1
123478-hexachlorodibenzofuran	<1.7	<1.6
123678-hexachlorodibenzofuran	<1.7	<1.6
234678-hexachlorodibenzofuran	<1.7	<1.6
123789-hexachlorodibenzofuran	<2.0	<1.8
1234678-heptachlorodibenzofuran	<2.6	<3.8
1234789-heptachlorodibenzofuran	<2.8	<3.0
Octachlorodibenzofuran	<4.0	<4.4
PCB 77	<7.2	<2.3
PCB 81	<3.6	<2.6
PCB 126	<6.5	<1.6
PCB 169	<2.3	<1.6
PCB 105	24.2	<1.8
PCB 114	<5.5	<2.3
PCB 118	67.3	<2.1
PCB 123	<5.3	<2.2
PCB 156/157	<4.4	3.53
PCB 167	<2.5	<1.6
PCB 189	<2.3	<1.2
Total Dioxins & Furans Only	<57.1	<50.2

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 43
Clean Harbors Sarnia
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration Test No. 1 pg TEQ/m³	Test No. 2 pg TEQ/m³	Test No. 3 pg TEQ/m³	Average pg TEQ/m³
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.17	<0.095	<0.18	<0.15
12378-pentachlorodibenzo-p-dioxin	0.500	<0.10	<0.068	<0.12	<0.097
123478-hexachlorodibenzo-p-dioxin	0.100	<0.022	<0.012	0.039	<0.024
123678-hexachlorodibenzo-p-dioxin	0.100	<0.034	<0.012	0.10	<0.049
123789-hexachlorodibenzo-p-dioxin	0.100	<0.021	<0.011	<0.056	<0.029
1234678-heptachlorodibenzo-p-dioxin	0.010	0.042	0.0078	0.090	0.047
Octachlorodibenzo-p-dioxin	0.001	0.0055	<0.0012	0.014	<0.0069
2378-tetrachlorodibenzofuran	0.100	<0.025	<0.0095	<0.059	<0.031
12378-pentachlorodibenzofuran	0.050	0.011	<0.011	<0.025	<0.016
23478-pentachlorodibenzofuran	0.500	<0.059	0.077	0.54	<0.23
123478-hexachlorodibenzofuran	0.100	<0.011	<0.0075	<0.034	<0.017
123678-hexachlorodibenzofuran	0.100	<0.021	<0.010	<0.060	<0.031
234678-hexachlorodibenzofuran	0.100	0.031	<0.0075	<0.075	<0.038
123789-hexachlorodibenzofuran	0.100	<0.012	<0.0089	<0.031	<0.017
1234678-heptachlorodibenzofuran	0.010	0.013	0.0048	0.026	0.014
1234789-heptachlorodibenzofuran	0.010	0.0024	<0.0014	0.0066	<0.0034
Octachlorodibenzofuran	0.001	0.0011	<0.00040	0.0029	<0.0015
PCB 77	0.0001	0.0047	0.0021	0.0031	0.0033
PCB 81	0.0003	<0.00029	0.00017	<0.00039	<0.00028
PCB 126	0.1000	0.11	0.12	0.23	0.15
PCB 169	0.0300	<0.0064	<0.0082	<0.016	<0.010
PCB 105	0.00003	0.0050	0.0027	0.010	0.0060
PCB 114	0.00003	0.00038	0.00024	0.00079	0.00047
PCB 118	0.00003	0.014	0.0085	0.028	0.017
PCB 123	0.00003	0.00026	<0.00012	0.00049	<0.00029
PCB 156/157	0.00003	0.00040	0.00023	0.00090	0.00051
PCB 167	0.00003	0.00014	0.000080	0.00025	0.00016
PCB 189	0.00003	<0.0000058	<0.0000078	<0.000024	<0.000013
Total Dioxins & Furans Only		<0.58	<0.35	<1.46	<0.80

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 44
Clean Harbors Sarnia
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.50	<0.29	<0.57	<0.46
12378-pentachlorodibenzo-p-dioxin	0.500	<0.32	<0.21	<0.37	<0.30
123478-hexachlorodibenzo-p-dioxin	0.100	<0.067	<0.035	0.12	<0.075
123678-hexachlorodibenzo-p-dioxin	0.100	<0.11	<0.037	0.32	<0.15
123789-hexachlorodibenzo-p-dioxin	0.100	<0.063	<0.033	<0.18	<0.091
1234678-heptachlorodibenzo-p-dioxin	0.010	0.13	0.024	0.28	0.15
Octachlorodibenzo-p-dioxin	0.001	0.017	<0.0037	0.043	<0.021
2378-tetrachlorodibenzofuran	0.100	<0.078	<0.029	<0.18	<0.097
12378-pentachlorodibenzofuran	0.050	0.035	<0.033	<0.079	<0.049
23478-pentachlorodibenzofuran	0.500	<0.18	0.24	1.68	<0.70
123478-hexachlorodibenzofuran	0.100	<0.034	<0.023	<0.11	<0.054
123678-hexachlorodibenzofuran	0.100	<0.065	<0.031	<0.19	<0.095
234678-hexachlorodibenzofuran	0.100	0.094	<0.023	<0.23	<0.12
123789-hexachlorodibenzofuran	0.100	<0.038	<0.027	<0.095	<0.053
1234678-heptachlorodibenzofuran	0.010	0.038	0.015	0.080	0.044
1234789-heptachlorodibenzofuran	0.010	0.0073	<0.0042	0.020	<0.011
Octachlorodibenzofuran	0.001	0.0035	<0.0012	0.0090	<0.0046
PCB 77	0.0001	0.014	0.0064	0.0096	0.010
PCB 81	0.0003	<0.00088	0.00053	<0.0012	<0.00087
PCB 126	0.1000	0.33	0.38	0.72	0.48
PCB 169	0.0300	<0.020	<0.025	<0.049	<0.031
PCB 105	0.00003	0.015	0.0081	0.032	0.019
PCB 114	0.00003	0.0012	0.00074	0.0025	0.0015
PCB 118	0.00003	0.043	0.026	0.087	0.052
PCB 123	0.00003	0.00079	<0.00038	0.0015	<0.00090
PCB 156/157	0.00003	0.0012	0.00071	0.0028	0.0016
PCB 167	0.00003	0.00042	0.00024	0.00078	0.00048
PCB 189	0.00003	<0.000018	<0.000024	<0.000076	<0.000039
Total Dioxins & Furans Only		<1.77	<1.06	<4.56	<2.46

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 45
Clean Harbors Sarnia
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.42	<0.24	<0.45	<0.37
12378-pentachlorodibenzo-p-dioxin	0.500	<0.26	<0.17	<0.29	<0.24
123478-hexachlorodibenzo-p-dioxin	0.100	<0.056	<0.029	0.096	<0.060
123678-hexachlorodibenzo-p-dioxin	0.100	<0.087	<0.031	0.25	<0.12
123789-hexachlorodibenzo-p-dioxin	0.100	<0.052	<0.027	<0.14	<0.073
1234678-heptachlorodibenzo-p-dioxin	0.010	0.11	0.020	0.22	0.12
Octachlorodibenzo-p-dioxin	0.001	0.014	<0.0031	0.034	<0.017
2378-tetrachlorodibenzofuran	0.100	<0.064	<0.024	<0.14	<0.078
12378-pentachlorodibenzofuran	0.050	0.029	<0.027	<0.062	<0.039
23478-pentachlorodibenzofuran	0.500	<0.15	0.19	1.32	<0.55
123478-hexachlorodibenzofuran	0.100	<0.028	<0.019	<0.083	<0.043
123678-hexachlorodibenzofuran	0.100	<0.054	<0.026	<0.15	<0.076
234678-hexachlorodibenzofuran	0.100	0.078	<0.019	<0.18	<0.093
123789-hexachlorodibenzofuran	0.100	<0.031	<0.022	<0.075	<0.043
1234678-heptachlorodibenzofuran	0.010	0.032	0.012	0.063	0.036
1234789-heptachlorodibenzofuran	0.010	0.0061	<0.0034	0.016	<0.0085
Octachlorodibenzofuran	0.001	0.0029	<0.00099	0.0071	<0.0036
PCB 77	0.0001	0.012	0.0053	0.0076	0.0083
PCB 81	0.0003	<0.00073	0.00043	<0.00095	<0.00070
PCB 126	0.1000	0.27	0.31	0.57	0.38
PCB 169	0.0300	<0.016	<0.021	<0.038	<0.025
PCB 105	0.00003	0.013	0.0067	0.025	0.015
PCB 114	0.00003	0.00097	0.00061	0.0019	0.0012
PCB 118	0.00003	0.035	0.021	0.068	0.042
PCB 123	0.00003	0.00066	<0.00031	0.0012	<0.00072
PCB 156/157	0.00003	0.0010	0.00059	0.0022	0.0013
PCB 167	0.00003	0.00035	0.00020	0.00061	0.00039
PCB 189	0.00003	<0.000015	<0.000020	<0.000060	<0.000031
Total Dioxins & Furans Only		<1.47	<0.87	<3.58	<1.97

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 46
Clean Harbors Sarnia
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Wet Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.26	<0.15	<0.29	<0.23
12378-pentachlorodibenzo-p-dioxin	0.500	<0.16	<0.11	<0.19	<0.15
123478-hexachlorodibenzo-p-dioxin	0.100	<0.034	<0.018	0.063	<0.038
123678-hexachlorodibenzo-p-dioxin	0.100	<0.053	<0.019	0.16	<0.078
123789-hexachlorodibenzo-p-dioxin	0.100	<0.032	<0.017	<0.090	<0.046
1234678-heptachlorodibenzo-p-dioxin	0.010	0.066	0.012	0.14	0.074
Octachlorodibenzo-p-dioxin	0.001	0.0085	<0.0019	0.022	<0.011
2378-tetrachlorodibenzofuran	0.100	<0.039	<0.015	<0.094	<0.050
12378-pentachlorodibenzofuran	0.050	0.018	<0.017	<0.041	<0.025
23478-pentachlorodibenzofuran	0.500	<0.091	0.12	0.86	<0.36
123478-hexachlorodibenzofuran	0.100	<0.017	<0.012	<0.054	<0.028
123678-hexachlorodibenzofuran	0.100	<0.033	<0.016	<0.096	<0.048
234678-hexachlorodibenzofuran	0.100	0.048	<0.012	<0.12	<0.060
123789-hexachlorodibenzofuran	0.100	<0.019	<0.014	<0.049	<0.027
1234678-heptachlorodibenzofuran	0.010	0.019	0.0075	0.041	0.023
1234789-heptachlorodibenzofuran	0.010	0.0037	<0.0021	0.010	<0.0054
Octachlorodibenzofuran	0.001	0.0018	<0.00062	0.0046	<0.0023
PCB 77	0.0001	0.0073	0.0033	0.0049	0.0052
PCB 81	0.0003	<0.00045	0.00027	<0.00062	<0.00044
PCB 126	0.1000	0.17	0.19	0.37	0.24
PCB 169	0.0300	<0.0099	<0.013	<0.025	<0.016
PCB 105	0.00003	0.0078	0.0041	0.016	0.0095
PCB 114	0.00003	0.00059	0.00038	0.0013	0.00074
PCB 118	0.00003	0.022	0.013	0.044	0.026
PCB 123	0.00003	0.00040	<0.00019	0.00078	<0.00046
PCB 156/157	0.00003	0.00062	0.00036	0.0014	0.00081
PCB 167	0.00003	0.00021	0.00012	0.00040	0.00025
PCB 189	0.00003	<0.0000090	<0.000012	<0.000039	<0.000020
Total Dioxins & Furans Only		<0.90	<0.54	<2.33	<1.26

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 47
Clean Harbors Sarnia
Dioxin and Furan Toxicity Equivalent Emission Rates

Specific Isomer	Toxicity Equivalency Factor	Emission Rate Test No. 1 ng TEQ/s	Test No. 2 ng TEQ/s	Test No. 3 ng TEQ/s	Average ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.0092	<0.0054	<0.010	<0.0083
12378-pentachlorodibenzo-p-dioxin	0.500	<0.0057	<0.0039	<0.0067	<0.0054
123478-hexachlorodibenzo-p-dioxin	0.100	<0.0012	<0.00065	0.0022	<0.0014
123678-hexachlorodibenzo-p-dioxin	0.100	<0.0019	<0.00069	0.0057	<0.0028
123789-hexachlorodibenzo-p-dioxin	0.100	<0.0011	<0.00062	<0.0032	<0.0016
1234678-heptachlorodibenzo-p-dioxin	0.010	0.0024	0.00044	0.0051	0.0026
Octachlorodibenzo-p-dioxin	0.001	0.00031	<0.000069	0.00078	<0.00039
2378-tetrachlorodibenzofuran	0.100	<0.0014	<0.00054	<0.0033	<0.0018
12378-pentachlorodibenzofuran	0.050	0.00063	<0.00062	<0.0014	<0.00089
23478-pentachlorodibenzofuran	0.500	<0.0033	0.0044	0.030	<0.013
123478-hexachlorodibenzofuran	0.100	<0.00061	<0.00042	<0.0019	<0.00098
123678-hexachlorodibenzofuran	0.100	<0.0012	<0.00058	<0.0034	<0.0017
234678-hexachlorodibenzofuran	0.100	0.0017	<0.00042	<0.0042	<0.0021
123789-hexachlorodibenzofuran	0.100	<0.00069	<0.00050	<0.0017	<0.00097
1234678-heptachlorodibenzofuran	0.010	0.00070	0.00027	0.0014	0.00080
1234789-heptachlorodibenzofuran	0.010	0.00013	<0.000077	0.00037	<0.00019
Octachlorodibenzofuran	0.001	0.000063	<0.000022	0.00016	<0.000082
PCB 77	0.0001	0.00026	0.00012	0.00017	0.00018
PCB 81	0.0003	<0.000016	0.0000097	<0.000022	<0.000016
PCB 126	0.1000	0.0060	0.0070	0.013	0.0087
PCB 169	0.0300	<0.00036	<0.00046	<0.00088	<0.00057
PCB 105	0.00003	0.00028	0.00015	0.00058	0.00034
PCB 114	0.00003	0.000021	0.000014	0.000044	0.000026
PCB 118	0.00003	0.00077	0.00048	0.0016	0.00094
PCB 123	0.00003	0.000014	<0.0000070	0.000027	<0.000016
PCB 156/157	0.00003	0.000022	0.000013	0.000051	0.000029
PCB 167	0.00003	0.0000076	0.0000045	0.000014	0.0000087
PCB 189	0.00003	<0.00000032	<0.00000044	<0.0000014	<0.00000071
Total Dioxins & Furans Only		<0.032	<0.020	<0.082	<0.045

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 48
Clean Harbors Sarnia
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	<0.15	<0.46	<0.37	<0.23	<0.0083
12378-pentachlorodibenzo-p-dioxin	<0.097	<0.30	<0.24	<0.15	<0.0054
123478-hexachlorodibenzo-p-dioxin	<0.024	<0.075	<0.060	<0.038	<0.0014
123678-hexachlorodibenzo-p-dioxin	<0.049	<0.15	<0.12	<0.078	<0.0028
123789-hexachlorodibenzo-p-dioxin	<0.029	<0.091	<0.073	<0.046	<0.0016
1234678-heptachlorodibenzo-p-dioxin	0.047	0.15	0.12	0.074	0.0026
Octachlorodibenzo-p-dioxin	<0.0069	<0.021	<0.017	<0.011	<0.00039
2378-tetrachlorodibenzofuran	<0.031	<0.097	<0.078	<0.050	<0.0018
12378-pentachlorodibenzofuran	<0.016	<0.049	<0.039	<0.025	<0.00089
23478-pentachlorodibenzofuran	<0.23	<0.70	<0.55	<0.36	<0.013
123478-hexachlorodibenzofuran	<0.017	<0.054	<0.043	<0.028	<0.00098
123678-hexachlorodibenzofuran	<0.031	<0.095	<0.076	<0.048	<0.0017
234678-hexachlorodibenzofuran	<0.038	<0.12	<0.093	<0.060	<0.0021
123789-hexachlorodibenzofuran	<0.017	<0.053	<0.043	<0.027	<0.00097
1234678-heptachlorodibenzofuran	0.014	0.044	0.036	0.023	0.00080
1234789-heptachlorodibenzofuran	<0.0034	<0.011	<0.0085	<0.0054	<0.00019
Octachlorodibenzofuran	<0.0015	<0.0046	<0.0036	<0.0023	<0.000082
PCB 77	0.0033	0.010	0.0083	0.0052	0.00018
PCB 81	<0.00028	<0.00087	<0.00070	<0.00044	<0.000016
PCB 126	0.15	0.48	0.38	0.24	0.0087
PCB 169	<0.010	<0.031	<0.025	<0.016	<0.00057
PCB 105	0.0060	0.019	0.015	0.0095	0.00034
PCB 114	0.00047	0.0015	0.0012	0.00074	0.000026
PCB 118	0.017	0.052	0.042	0.026	0.00094
PCB 123	<0.00029	<0.00090	<0.00072	<0.00046	<0.000016
PCB 156/157	0.00051	0.0016	0.0013	0.00081	0.000029
PCB 167	0.00016	0.00048	0.00039	0.00025	0.0000087
PCB 189	<0.000013	<0.000039	<0.000031	<0.000020	<0.00000071
Total Dioxins & Furans Only	<0.80	<2.46	<1.97	<1.26	<0.045

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: Emission data calculated using the full detection limit for those isomers below the analytical detection limit.

TABLE 49
Clean Harbors Sarnia
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	0.074	0.23	0.18	0.12	0.0041
12378-pentachlorodibenzo-p-dioxin	0.097	0.30	0.24	0.15	0.0054
123478-hexachlorodibenzo-p-dioxin	0.019	0.058	0.046	0.030	0.0010
123678-hexachlorodibenzo-p-dioxin	0.042	0.13	0.10	0.066	0.0023
123789-hexachlorodibenzo-p-dioxin	0.015	0.045	0.036	0.023	0.00082
1234678-heptachlorodibenzo-p-dioxin	0.047	0.15	0.12	0.074	0.0026
Octachlorodibenzo-p-dioxin	0.0020	0.0062	0.0050	0.0032	0.00011
2378-tetrachlorodibenzofuran	0.016	0.049	0.039	0.025	0.00088
12378-pentachlorodibenzofuran	0.0059	0.018	0.015	0.0093	0.00033
23478-pentachlorodibenzofuran	0.13	0.40	0.32	0.21	0.0073
123478-hexachlorodibenzofuran	0.0087	0.027	0.022	0.014	0.00049
123678-hexachlorodibenzofuran	0.015	0.047	0.038	0.024	0.00086
234678-hexachlorodibenzofuran	0.024	0.074	0.060	0.038	0.0013
123789-hexachlorodibenzofuran	0.0086	0.027	0.021	0.014	0.00048
1234678-heptachlorodibenzofuran	0.014	0.044	0.036	0.023	0.00080
1234789-heptachlorodibenzofuran	0.0032	0.0099	0.0079	0.0051	0.00018
Octachlorodibenzofuran	0.00042	0.0013	0.0010	0.00067	0.000024
PCB 77	0.0033	0.010	0.0083	0.0052	0.00018
PCB 81	0.00017	0.00052	0.00042	0.00027	0.0000095
PCB 126	0.15	0.48	0.38	0.24	0.0087
PCB 169	0.0050	0.016	0.013	0.0079	0.00028
PCB 105	0.0060	0.019	0.015	0.0095	0.00034
PCB 114	0.00047	0.0015	0.0012	0.00074	0.000026
PCB 118	0.017	0.052	0.042	0.026	0.00094
PCB 123	0.00027	0.00083	0.00067	0.00043	0.000015
PCB 156/157	0.00051	0.0016	0.0013	0.00081	0.000029
PCB 167	0.00016	0.00048	0.00039	0.00025	0.0000087
PCB 189	0.0000063	0.000020	0.000016	0.000010	0.00000036
Total Dioxins & Furans Only	0.52	1.61	1.29	0.82	0.029
Total Dioxins, Furans and PCBs	0.71	2.19	1.75	1.12	0.040

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: Emission data calculated using half the detection limit for those isomers below the analytical detection limit.

TABLE 50
Clean Harbors Sarnia
Polychlorinated Biphenyl Congener Group Emission Data
Test No. 1

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m^3	ng/Rm^{3*}	ng/Rm^{3**}	ng/Rm^{3*}	µg/s
Dichlorinated biphenyls	10600	0.73	2.23	1.84	1.13	0.041
Trichlorinated biphenyls	5410	0.37	1.14	0.94	0.58	0.021
Tetrachlorinated biphenyls	36500	2.51	7.67	6.35	3.89	0.14
Pentachlorinated biphenyls	74500	5.13	15.7	13.0	7.94	0.29
Hexachlorinated biphenyls	20700	1.42	4.35	3.60	2.21	0.079
Heptachlorinated biphenyls	1800	0.12	0.38	0.31	0.19	0.0069
Octachlorinated biphenyls	427	0.029	0.090	0.074	0.046	0.0016
Nonachlorinated biphenyls	25.0	0.0017	0.0053	0.0043	0.0027	0.000096
Decachlorinated biphenyl	5.00	0.00034	0.0011	0.00087	0.00053	0.000019
Total	149967	10.3	31.5	26.1	16.0	0.57

Dry Gas Volume Sampled (Rm^{3*}) :	4.756
Actual Flowrate (m^3/s) :	55.6
Dry Reference Flowrate (Rm^3/s^*) :	18.2
Dry Adjusted Flowrate (Rm^3/s^{**}) :	22.0
Wet Reference Flowrate (Rm^3/s^*) :	35.9

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 51
Clean Harbors Sarnia
Polychlorinated Biphenyl Congener Group Emission Data
Test No. 2

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Dichlorinated biphenyls	2450	0.17	0.51	0.42	0.26	0.0094
Trichlorinated biphenyls	3220	0.22	0.67	0.55	0.34	0.012
Tetrachlorinated biphenyls	13400	0.91	2.79	2.29	1.43	0.052
Pentachlorinated biphenyls	30200	2.06	6.29	5.17	3.21	0.12
Hexachlorinated biphenyls	7730	0.53	1.61	1.32	0.82	0.030
Heptachlorinated biphenyls	820	0.056	0.17	0.14	0.087	0.0032
Octachlorinated biphenyls	155	0.011	0.032	0.027	0.016	0.00060
Nonachlorinated biphenyls	<7.0	<0.00048	<0.0015	<0.0012	<0.00074	<0.000027
Decachlorinated biphenyl	<2.7	<0.00018	<0.00056	<0.00046	<0.00029	<0.000010
Total	<57985	<3.95	<12.1	<9.92	<6.17	<0.22

Dry Gas Volume Sampled (Rm^3*) :	4.805
Actual Flowrate (m^3/s) :	56.5
Dry Reference Flowrate (Rm^3/s*) :	18.5
Dry Adjusted Flowrate (Rm^3/s**) :	22.5
Wet Reference Flowrate (Rm^3/s*) :	36.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 52
Clean Harbors Sarnia
Polychlorinated Biphenyl Congener Group Emission Data
Test No. 3

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Dichlorinated biphenyls	21200	1.44	4.49	3.53	2.29	0.081
Trichlorinated biphenyls	6040	0.41	1.28	1.00	0.65	0.023
Tetrachlorinated biphenyls	63700	4.33	13.5	10.6	6.90	0.24
Pentachlorinated biphenyls	195000	13.2	41.3	32.4	21.1	0.74
Hexachlorinated biphenyls	47600	3.23	10.1	7.92	5.15	0.18
Heptachlorinated biphenyls	3960	0.27	0.84	0.66	0.43	0.015
Octachlorinated biphenyls	826	0.056	0.17	0.14	0.089	0.0031
Nonachlorinated biphenyls	121	0.0082	0.026	0.020	0.013	0.00046
Decachlorinated biphenyl	11.0	0.00075	0.0023	0.0018	0.0012	0.000042
Total	338458	23.0	71.6	56.3	36.6	1.29

Dry Gas Volume Sampled (Rm^3*) :	4.724
Actual Flowrate (m^3/s) :	56.1
Dry Reference Flowrate (Rm^3/s*) :	18.0
Dry Adjusted Flowrate (Rm^3/s**) :	22.9
Wet Reference Flowrate (Rm^3/s*) :	35.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 53
Clean Harbors Sarnia
Polychlorinated Biphenyl Congener Group Actual Concentrations

Congener Group	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Dichlorinated biphenyls	0.73	0.17	1.44	0.78	81.9
Trichlorinated biphenyls	0.37	0.22	0.41	0.33	30.2
Tetrachlorinated biphenyls	2.51	0.91	4.33	2.58	66.1
Pentachlorinated biphenyls	5.13	2.06	13.2	6.81	84.9
Hexachlorinated biphenyls	1.42	0.53	3.23	1.73	79.8
Heptachlorinated biphenyls	0.12	0.056	0.27	0.15	72.8
Octachlorinated biphenyls	0.029	0.011	0.056	0.032	71.5
Nonachlorinated biphenyls	0.0017	<0.00048	0.0082	<0.0035	120
Decachlorinated biphenyl	0.00034	<0.00018	0.00075	<0.00043	68.3
Total	10.3	<3.95	23.0	<12.4	78.0

TABLE 54
Clean Harbors Sarnia
Polychlorinated Biphenyl Congener Group Dry Reference Concentrations

Congener Group	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Dichlorinated biphenyls	2.23	0.51	4.49	2.41	82.8
Trichlorinated biphenyls	1.14	0.67	1.28	1.03	31.0
Tetrachlorinated biphenyls	7.67	2.79	13.5	7.98	67.1
Pentachlorinated biphenyls	15.7	6.29	41.3	21.1	85.9
Hexachlorinated biphenyls	4.35	1.61	10.1	5.35	80.8
Heptachlorinated biphenyls	0.38	0.17	0.84	0.46	73.9
Octachlorinated biphenyls	0.090	0.032	0.17	0.099	72.5
Nonachlorinated biphenyls	0.0053	<0.0015	0.026	<0.011	121
Decachlorinated biphenyl	0.0011	<0.00056	0.0023	<0.0013	69.4
Total	31.5	<12.1	71.6	<38.4	79.1

* At 25°C and 1 atmosphere

TABLE 55
Clean Harbors Sarnia
Polychlorinated Biphenyl Congener Group Dry Adjusted Concentrations

Congener Group	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Dichlorinated biphenyls	1.84	0.42	3.53	1.93	80.6
Trichlorinated biphenyls	0.94	0.55	1.00	0.83	29.5
Tetrachlorinated biphenyls	6.35	2.29	10.6	6.41	64.8
Pentachlorinated biphenyls	13.0	5.17	32.4	16.9	83.4
Hexachlorinated biphenyls	3.60	1.32	7.92	4.28	78.3
Heptachlorinated biphenyls	0.31	0.14	0.66	0.37	71.2
Octachlorinated biphenyls	0.074	0.027	0.14	0.079	70.1
Nonachlorinated biphenyls	0.0043	<0.0012	0.020	<0.0086	119
Decachlorinated biphenyl	0.00087	<0.00046	0.0018	<0.0011	66.7
Total	26.1	<9.92	56.3	<30.8	76.5

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 56
Clean Harbors Sarnia
Polychlorinated Biphenyl Congener Group Wet Reference Concentrations

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Dichlorinated biphenyls	1.13	0.26	2.29	1.23	83.1
Trichlorinated biphenyls	0.58	0.34	0.65	0.52	30.9
Tetrachlorinated biphenyls	3.89	1.43	6.90	4.07	67.3
Pentachlorinated biphenyls	7.94	3.21	21.1	10.8	86.2
Hexachlorinated biphenyls	2.21	0.82	5.15	2.73	81.1
Heptachlorinated biphenyls	0.19	0.087	0.43	0.24	74.2
Octachlorinated biphenyls	0.046	0.016	0.089	0.050	72.7
Nonachlorinated biphenyls	0.0027	<0.00074	0.013	<0.0055	121
Decachlorinated biphenyl	0.00053	<0.00029	0.0012	<0.00067	69.7
Total	16.0	<6.17	36.6	<19.6	79.4

* At 25°C and 1 atmosphere

TABLE 57
Clean Harbors Sarnia
Polychlorinated Biphenyl Emission Rates

Congener Group	Emission Rate				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
Dichlorinated biphenyls	0.041	0.0094	0.081	0.044	82.1
Trichlorinated biphenyls	0.021	0.012	0.023	0.019	29.8
Tetrachlorinated biphenyls	0.14	0.052	0.24	0.14	66.1
Pentachlorinated biphenyls	0.29	0.12	0.74	0.38	85.0
Hexachlorinated biphenyls	0.079	0.030	0.18	0.097	79.9
Heptachlorinated biphenyls	0.0069	0.0032	0.015	0.0084	72.9
Octachlorinated biphenyls	0.0016	0.00060	0.0031	0.0018	71.5
Nonachlorinated biphenyls	0.000096	<0.000027	0.00046	<0.00019	120
Decachlorinated biphenyl	0.000019	<0.000010	0.000042	<0.000024	68.3
Total	0.57	<0.22	1.29	<0.70	78.1

TABLE 58
Clean Harbors Sarnia
Summary of Polychlorinated Biphenyl Emission Data

Congener Group	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Dichlorinated biphenyls	0.78	2.41	1.93	1.23	0.044
Trichlorinated biphenyls	0.33	1.03	0.83	0.52	0.019
Tetrachlorinated biphenyls	2.58	7.98	6.41	4.07	0.14
Pentachlorinated biphenyls	6.81	21.1	16.9	10.8	0.38
Hexachlorinated biphenyls	1.73	5.35	4.28	2.73	0.097
Heptachlorinated biphenyls	0.15	0.46	0.37	0.24	0.0084
Octachlorinated biphenyls	0.032	0.099	0.079	0.050	0.0018
Nonachlorinated biphenyls	<0.0035	<0.011	<0.0086	<0.0055	<0.00019
Decachlorinated biphenyl	<0.00043	<0.0013	<0.0011	<0.00067	<0.000024
Total	<12.4	<38.4	<30.8	<19.6	<0.70

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 59
Clean Harbors Sarnia
Blank Polychlorinated Biphenyl Analyses

Congener Group	Blank Train pg	Laboratory Blank pg
Dichlorinated biphenyls	316	133
Trichlorinated biphenyls	160	47.2
Tetrachlorinated biphenyls	307	36.6
Pentachlorinated biphenyls	546	24.6
Hexachlorinated biphenyls	155	16.2
Heptachlorinated biphenyls	36.9	1.50
Octachlorinated biphenyls	10.5	4.35
Nonachlorinated biphenyls	<4.5	<3.1
Decachlorinated biphenyl	3.70	1.60
Total	<1540	<268

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 60
Clean Harbors Sarnia
Emission Data for Chlorobenzenes and Related Chlorinated Compounds
Test No. 1

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
1,3-Dichlorobenzene	859	59.1	181	149	91.6	3.29
1,4-Dichlorobenzene	156	10.7	32.8	27.1	16.6	0.60
1,2-Dichlorobenzene	208	14.3	43.7	36.2	22.2	0.80
Total Dichlorobenzene	1223	84.2	257	213	130	4.68
1,3,5-trichlorobenzene	71.3	4.91	15.0	12.4	7.60	0.27
1,2,4-trichlorobenzene	122	8.40	25.7	21.2	13.0	0.47
1,2,3-trichlorobenzene	37.1	2.55	7.80	6.45	3.95	0.14
Total Trichlorobenzene	230	15.9	48.4	40.1	24.6	0.88
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	51.9	3.57	10.9	9.03	5.53	0.20
1,2,3,4-tetrachlorobenzene	15.6	1.07	3.28	2.71	1.66	0.060
Total Tetrachlorobenzene	67.5	4.65	14.2	11.7	7.20	0.26
Pentachlorobenzene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Hexachlorobenzene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Total Chlorobenzenes	<1549	<107	<326	<269	<165	<5.93
Hexachlorobutadiene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Hexachloroethane	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Octachlorostyrene	<14	<0.96	<2.94	<2.44	<1.49	<0.054

Dry Gas Volume Sampled (Rm^3*) :	4.756
Actual Flowrate (m^3/s) :	55.6
Dry Reference Flowrate (Rm^3/s*) :	18.2
Dry Adjusted Flowrate (Rm^3/s**) :	22.0
Wet Reference Flowrate (Rm^3/s*) :	35.9

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 61
Clean Harbors Sarnia
Emission Data for Chlorobenzenes and Related Chlorinated Compounds
Test No. 2

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m^3	ng/Rm^3*	ng/Rm^3**	ng/Rm^3*	µg/s
1,3-Dichlorobenzene	786	53.6	164	134	83.6	3.03
1,4-Dichlorobenzene	136	9.27	28.3	23.3	14.5	0.52
1,2-Dichlorobenzene	249	17.0	51.8	42.6	26.5	0.96
Total Dichlorobenzene	1171	79.8	244	200	125	4.51
1,3,5-trichlorobenzene	64.2	4.37	13.4	11.0	6.83	0.25
1,2,4-trichlorobenzene	127	8.65	26.4	21.7	13.5	0.49
1,2,3-trichlorobenzene	35.7	2.43	7.43	6.11	3.80	0.14
Total Trichlorobenzene	227	15.5	47.2	38.8	24.1	0.87
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	47.9	3.26	9.97	8.20	5.09	0.18
1,2,3,4-tetrachlorobenzene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Total Tetrachlorobenzene	<61.9	<4.22	<12.9	<10.6	<6.58	<0.24
Pentachlorobenzene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Hexachlorobenzene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Total Chlorobenzenes	<1488	<101	<310	<255	<158	<5.73
Hexachlorobutadiene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Hexachloroethane	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Octachlorostyrene	<14	<0.95	<2.91	<2.40	<1.49	<0.054

Dry Gas Volume Sampled (Rm^3*) :	4.805
Actual Flowrate (m^3/s) :	56.5
Dry Reference Flowrate (Rm^3/s*) :	18.5
Dry Adjusted Flowrate (Rm^3/s**) :	22.5
Wet Reference Flowrate (Rm^3/s*) :	36.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 62
Clean Harbors Sarnia
Emission Data for Chlorobenzenes
Related Chlorinated Compounds
Test No. 3

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
1,3-Dichlorobenzene	1920	130	406	319	208	7.32
1,4-Dichlorobenzene	169	11.5	35.8	28.1	18.3	0.64
1,2-Dichlorobenzene	371	25.2	78.5	61.7	40.2	1.41
Total Dichlorobenzene	2460	167	521	409	266	9.37
1,3,5-trichlorobenzene	284	19.3	60.1	47.3	30.7	1.08
1,2,4-trichlorobenzene	430	29.2	91.0	71.5	46.5	1.64
1,2,3-trichlorobenzene	78.7	5.35	16.7	13.1	8.52	0.30
Total Trichlorobenzene	793	53.8	168	132	85.8	3.02
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	150	10.2	31.8	25.0	16.2	0.57
1,2,3,4-tetrachlorobenzene	36.5	2.48	7.73	6.07	3.95	0.14
Total Tetrachlorobenzene	187	12.7	39.5	31.0	20.2	0.71
Pentachlorobenzene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Hexachlorobenzene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Total Chlorobenzenes	<3467	<235	<734	<577	<375	<13.2
Hexachlorobutadiene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Hexachloroethane	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Octachlorostyrene	<14	<0.95	<2.96	<2.33	<1.52	<0.053

Dry Gas Volume Sampled (Rm^3*) :	4.724
Actual Flowrate (m^3/s) :	56.1
Dry Reference Flowrate (Rm^3/s*) :	18.0
Dry Adjusted Flowrate (Rm^3/s**) :	22.9
Wet Reference Flowrate (Rm^3/s*) :	35.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 63
Clean Harbors Sarnia
Actual Concentrations for Chlorobenzenes and Related Chlorinated Compounds

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
1,3-Dichlorobenzene	59.1	53.6	130	81.0	52.9
1,4-Dichlorobenzene	10.7	9.27	11.5	10.5	10.7
1,2-Dichlorobenzene	14.3	17.0	25.2	18.8	30.1
Total Dichlorobenzene	84.2	79.8	167	110	44.6
1,3,5-trichlorobenzene	4.91	4.37	19.3	9.52	88.8
1,2,4-trichlorobenzene	8.40	8.65	29.2	15.4	77.4
1,2,3-trichlorobenzene	2.55	2.43	5.35	3.44	47.8
Total Trichlorobenzene	15.9	15.5	53.8	28.4	77.7
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	3.57	3.26	10.2	5.67	68.9
1,2,3,4-tetrachlorobenzene	1.07	<0.95	2.48	<1.50	56.5
Total Tetrachlorobenzene	4.65	<4.22	12.7	<7.18	66.3
Pentachlorobenzene	<0.96	<0.95	<0.95	<0.96	0.7
Hexachlorobenzene	<0.96	<0.95	<0.95	<0.96	0.7
Total Chlorobenzenes	<107	<101	<235	<148	51.4
Hexachlorobutadiene	<0.96	<0.95	<0.95	<0.96	0.7
Hexachloroethane	<0.96	<0.95	<0.95	<0.96	0.7
Octachlorostyrene	<0.96	<0.95	<0.95	<0.96	0.7

TABLE 64
Clean Harbors Sarnia
Dry Reference Concentrations for Chlorobenzenes and Related Chlorinated Compounds

Specific Isomer	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
1,3-Dichlorobenzene	181	164	406	250	54.2
1,4-Dichlorobenzene	32.8	28.3	35.8	32.3	11.6
1,2-Dichlorobenzene	43.7	51.8	78.5	58.0	31.4
Total Dichlorobenzene	257	244	521	341	45.9
1,3,5-trichlorobenzene	15.0	13.4	60.1	29.5	90.0
1,2,4-trichlorobenzene	25.7	26.4	91.0	47.7	78.7
1,2,3-trichlorobenzene	7.80	7.43	16.7	10.6	49.2
Total Trichlorobenzene	48.4	47.2	168	87.8	78.9
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	10.9	9.97	31.8	17.5	70.2
1,2,3,4-tetrachlorobenzene	3.28	<2.91	7.73	<4.64	57.7
Total Tetrachlorobenzene	14.2	<12.9	39.5	<22.2	67.6
Pentachlorobenzene	<2.94	<2.91	<2.96	<2.94	0.9
Hexachlorobenzene	<2.94	<2.91	<2.96	<2.94	0.9
Total Chlorobenzenes	<326	<310	<734	<456	52.7
Hexachlorobutadiene	<2.94	<2.91	<2.96	<2.94	0.9
Hexachloroethane	<2.94	<2.91	<2.96	<2.94	0.9
Octachlorostyrene	<2.94	<2.91	<2.96	<2.94	0.9

* At 25°C and 1 atmosphere

TABLE 65
Clean Harbors Sarnia
Dry Adjusted Concentrations for Chlorobenzenes and Related Chlorinated Compounds

Specific Isomer	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
1,3-Dichlorobenzene	149	134	319	201	51.1
1,4-Dichlorobenzene	27.1	23.3	28.1	26.2	9.8
1,2-Dichlorobenzene	36.2	42.6	61.7	46.8	28.4
Total Dichlorobenzene	213	200	409	274	42.8
1,3,5-trichlorobenzene	12.4	11.0	47.3	23.5	87.2
1,2,4-trichlorobenzene	21.2	21.7	71.5	38.2	75.7
1,2,3-trichlorobenzene	6.45	6.11	13.1	8.55	46.0
Total Trichlorobenzene	40.1	38.8	132	70.3	76.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	9.03	8.20	25.0	14.1	67.2
1,2,3,4-tetrachlorobenzene	2.71	<2.40	6.07	<3.73	54.7
Total Tetrachlorobenzene	11.7	<10.6	31.0	<17.8	64.6
Pentachlorobenzene	<2.44	<2.40	<2.33	<2.39	2.2
Hexachlorobenzene	<2.44	<2.40	<2.33	<2.39	2.2
Total Chlorobenzenes	<269	<255	<577	<367	49.6
Hexachlorobutadiene	<2.44	<2.40	<2.33	<2.39	2.2
Hexachloroethane	<2.44	<2.40	<2.33	<2.39	2.2
Octachlorostyrene	<2.44	<2.40	<2.33	<2.39	2.2

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 66
Clean Harbors Sarnia
Wet Reference Concentrations for Chlorobenzenes and Related Chlorinated Compounds

Specific Isomer	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
1,3-Dichlorobenzene	91.6	83.6	208	128	54.5
1,4-Dichlorobenzene	16.6	14.5	18.3	16.5	11.7
1,2-Dichlorobenzene	22.2	26.5	40.2	29.6	31.7
Total Dichlorobenzene	130	125	266	174	46.2
1,3,5-trichlorobenzene	7.60	6.83	30.7	15.1	90.3
1,2,4-trichlorobenzene	13.0	13.5	46.5	24.4	78.9
1,2,3-trichlorobenzene	3.95	3.80	8.52	5.42	49.5
Total Trichlorobenzene	24.6	24.1	85.8	44.8	79.2
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	5.53	5.09	16.2	8.95	70.5
1,2,3,4-tetrachlorobenzene	1.66	<1.49	3.95	<2.37	58.0
Total Tetrachlorobenzene	7.20	<6.58	20.2	<11.3	67.9
Pentachlorobenzene	<1.49	<1.49	<1.52	<1.50	1.0
Hexachlorobenzene	<1.49	<1.49	<1.52	<1.50	1.0
Total Chlorobenzenes	<165	<158	<375	<233	53.0
Hexachlorobutadiene	<1.49	<1.49	<1.52	<1.50	1.0
Hexachloroethane	<1.49	<1.49	<1.52	<1.50	1.0
Octachlorostyrene	<1.49	<1.49	<1.52	<1.50	1.0

* At 25°C and 1 atmosphere

TABLE 67
Clean Harbors Sarnia
Emission Rates for Chlorobenzenes and Related Chlorinated Compounds

Specific Isomer	Emission Rate				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
1,3-Dichlorobenzene	3.29	3.03	7.32	4.54	52.9
1,4-Dichlorobenzene	0.60	0.52	0.64	0.59	10.3
1,2-Dichlorobenzene	0.80	0.96	1.41	1.06	30.3
Total Dichlorobenzene	4.68	4.51	9.37	6.19	44.6
1,3,5-trichlorobenzene	0.27	0.25	1.08	0.53	88.9
1,2,4-trichlorobenzene	0.47	0.49	1.64	0.86	77.5
1,2,3-trichlorobenzene	0.14	0.14	0.30	0.19	47.9
Total Trichlorobenzene	0.88	0.87	3.02	1.59	77.7
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	0.20	0.18	0.57	0.32	69.0
1,2,3,4-tetrachlorobenzene	0.060	<0.054	0.14	<0.084	56.5
Total Tetrachlorobenzene	0.26	<0.24	0.71	<0.40	66.4
Pentachlorobenzene	<0.054	<0.054	<0.053	<0.054	0.5
Hexachlorobenzene	<0.054	<0.054	<0.053	<0.054	0.5
Total Chlorobenzenes	<5.93	<5.73	<13.2	<8.29	51.4
Hexachlorobutadiene	<0.054	<0.054	<0.053	<0.054	0.5
Hexachloroethane	<0.054	<0.054	<0.053	<0.054	0.5
Octachlorostyrene	<0.054	<0.054	<0.053	<0.054	0.5

TABLE 68
Clean Harbors Sarnia
Summary of Emission Data for Chlorobenzenes and Related Chlorinated Compounds

Specific Isomer	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
1,3-Dichlorobenzene	81.0	250	201	128	4.54
1,4-Dichlorobenzene	10.5	32.3	26.2	16.5	0.59
1,2-Dichlorobenzene	18.8	58.0	46.8	29.6	1.06
Total Dichlorobenzene	110	341	274	174	6.19
1,3,5-trichlorobenzene	9.52	29.5	23.5	15.1	0.53
1,2,4-trichlorobenzene	15.4	47.7	38.2	24.4	0.86
1,2,3-trichlorobenzene	3.44	10.6	8.55	5.42	0.19
Total Trichlorobenzene	28.4	87.8	70.3	44.8	1.59
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	5.67	17.5	14.1	8.95	0.32
1,2,3,4-tetrachlorobenzene	<1.50	<4.64	<3.73	<2.37	<0.084
Total Tetrachlorobenzene	<7.18	<22.2	<17.8	<11.3	<0.40
Pentachlorobenzene	<0.96	<2.94	<2.39	<1.50	<0.054
Hexachlorobenzene	<0.96	<2.94	<2.39	<1.50	<0.054
Total Chlorobenzenes	<148	<456	<367	<233	<8.29
Hexachlorobutadiene	<0.96	<2.94	<2.39	<1.50	<0.054
Hexachloroethane	<0.96	<2.94	<2.39	<1.50	<0.054
Octachlorostyrene	<0.96	<2.94	<2.39	<1.50	<0.054

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 69
Clean Harbors Sarnia
Chlorobenzene and Other Related Chlorinated Compounds
Blank Analyses

Isomers and Congener Group Totals	Lab Blank Total ng	Blank Train Total ng
1,3-Dichlorobenzene	<14	<14
1,4-Dichlorobenzene	<14	<14
1,2-Dichlorobenzene	<14	<14
Total Dichlorobenzene	<42.0	<42.0
1,3,5-trichlorobenzene	<14	<14
1,2,4-trichlorobenzene	<14	<14
1,2,3-trichlorobenzene	<14	<14
Total Trichlorobenzene	<42.0	<42.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<14	<14
1,2,3,4-tetrachlorobenzene	<14	<14
Total Tetrachlorobenzene	<28.0	<28.0
Pentachlorobenzene	<14	<14
Hexachlorobenzene	<14	<14
Total Chlorobenzenes	<140	<140
Hexachlorobutadiene	<14	<14
Hexachloroethane	<14	<14
Octachlorostyrene	<14	<14

"<" indicates that the amount detected is less than the analytical detection limit (<MDL).
In these cases the value of the detection limit was used to calculate the total collected.

TABLE 70
Clean Harbors Sarnia
Isomer and Congener Group Analysis and Emission Data for Chlorophenols
Test No. 1

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m^3	ng/Rm^3*	ng/Rm^3**	ng/Rm^3*	µg/s
2,4/2,5-dichlorophenol	164	11.3	34.5	28.5	17.5	0.63
2,3-dichlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
2,6-dichlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
Total Dichlorophenols	<304	<20.9	<63.9	<52.9	<32.4	<1.16
2,4,6-trichlorophenol	158	10.9	33.2	27.5	16.8	0.60
2,4,5-trichlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
2,3,4-trichlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
3,4,5-trichlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
Total Trichlorophenols	<368	<25.3	<77.4	<64.0	<39.2	<1.41
2,3,5,6-tetrachlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
2,3,4,6-tetrachlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
Total Tetrachlorophenols	<140	<9.6	<29.4	<24.4	<14.9	<0.54
Pentachlorophenol	<70	<4.82	<14.7	<12.2	<7.46	<0.27
Total Chlorophenols	<882	<60.7	<185	<153	<94.0	<3.38

Dry Gas Volume Sampled (Rm^3*) :	4.756
Actual Flowrate (m^3/s) :	55.6
Dry Reference Flowrate (Rm^3/s*) :	18.2
Dry Adjusted Flowrate (Rm^3/s**) :	22.0
Wet Reference Flowrate (Rm^3/s*) :	35.9

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 71
Clean Harbors Sarnia
Isomer and Congener Group Analysis and Emission Data
for Chlorophenols
Test No. 2

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m^3	ng/Rm^3*	ng/Rm^3**	ng/Rm^3*	µg/s
2,4/2,5-dichlorophenol	NA	-	-	-	-	-
2,3-dichlorophenol	NA	-	-	-	-	-
2,6-dichlorophenol	NA	-	-	-	-	-
Total Dichlorophenols	NA	-	-	-	-	-
2,4,6-trichlorophenol	<70	<4.77	<14.6	<12.0	<7.45	<0.27
2,4,5-trichlorophenol	<70	<4.77	<14.6	<12.0	<7.45	<0.27
2,3,4-trichlorophenol	<70	<4.77	<14.6	<12.0	<7.45	<0.27
3,4,5-trichlorophenol	<70	<4.77	<14.6	<12.0	<7.45	<0.27
Total Trichlorophenols	<280	<19.1	<58.3	<47.9	<29.8	<1.08
2,3,5,6-tetrachlorophenol	<70	<4.77	<14.6	<12.0	<7.45	<0.27
2,3,4,6-tetrachlorophenol	<70	<4.77	<14.6	<12.0	<7.45	<0.27
Total Tetrachlorophenols	<140	<9.5	<29.1	<24.0	<14.9	<0.54
Pentachlorophenol	<70	<4.77	<14.6	<12.0	<7.45	<0.27
Total Chlorophenols	<490	<33.4	<102	<83.8	<52.1	<1.89

Dry Gas Volume Sampled (Rm^3*) :	4.805
Actual Flowrate (m^3/s) :	56.5
Dry Reference Flowrate (Rm^3/s*) :	18.5
Dry Adjusted Flowrate (Rm^3/s**) :	22.5
Wet Reference Flowrate (Rm^3/s*) :	36.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

"NA" indicates that the target could not be quantified by the analytical laboratory due to a lack of spike recovery.

TABLE 72
Clean Harbors Sarnia
Isomer and Congener Group Analysis and Emission Data for Chlorophenols
Test No. 3

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m^3	ng/Rm^3*	ng/Rm^3**	ng/Rm^3*	µg/s
2,4/2,5-dichlorophenol	468	31.8	99.1	77.9	50.7	1.78
2,3-dichlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
2,6-dichlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
Total Dichlorophenols	<608	<41.3	<129	<101	<65.8	<2.32
2,4,6-trichlorophenol	113	7.67	23.9	18.8	12.2	0.43
2,4,5-trichlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
2,3,4-trichlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
3,4,5-trichlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
Total Trichlorophenols	<323	<21.9	<68.4	<53.7	<35.0	<1.23
2,3,5,6-tetrachlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
2,3,4,6-tetrachlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
Total Tetrachlorophenols	<140	<9.51	<29.6	<23.3	<15.2	<0.53
Pentachlorophenol	<70	<4.75	<14.8	<11.6	<7.58	<0.27
Total Chlorophenols	<1141	<77.5	<242	<190	<124	<4.35

Dry Gas Volume Sampled (Rm^3*) :	4.724
Actual Flowrate (m^3/s) :	56.1
Dry Reference Flowrate (Rm^3/s*) :	18.0
Dry Adjusted Flowrate (Rm^3/s**) :	22.9
Wet Reference Flowrate (Rm^3/s*) :	35.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 73
Clean Harbors Sarnia
Chlorophenol Isomer and Congener Group
Actual Concentrations

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
2,4/2,5-dichlorophenol	11.3	-	31.8	21.5	67.3
2,3-dichlorophenol	<4.82	-	<4.75	<4.79	0.9
2,6-dichlorophenol	<4.82	-	<4.75	<4.79	0.9
Total Dichlorophenols	<20.9	-	<41.3	<31.1	46.3
2,4,6-trichlorophenol	10.9	<4.77	7.67	7.77	39.3
2,4,5-trichlorophenol	<4.82	<4.77	<4.75	<4.78	0.7
2,3,4-trichlorophenol	<4.82	<4.77	<4.75	<4.78	0.7
3,4,5-trichlorophenol	<4.82	<4.77	<4.75	<4.78	0.7
Total Trichlorophenols	<25.3	<19.1	<21.9	<22.1	14.1
2,3,5,6-tetrachlorophenol	<4.82	<4.77	<4.75	<4.78	0.7
2,3,4,6-tetrachlorophenol	<4.82	<4.77	<4.75	<4.78	0.7
Total Tetrachlorophenols	<9.6	<9.5	<9.51	<9.56	0.7
Pentachlorophenol	<4.82	<4.77	<4.75	<4.78	0.7
Total Chlorophenols	<60.7	<33.4	<77.5	<57.2	38.9

TABLE 74
Clean Harbors Sarnia
Chlorophenol Isomer and Congener Group
Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2,4/2,5-dichlorophenol	34.5	-	99.1	66.8	68.4
2,3-dichlorophenol	<14.7	-	<14.8	<14.8	0.5
2,6-dichlorophenol	<14.7	-	<14.8	<14.8	0.5
Total Dichlorophenols	<63.9	-	<129	<96.3	47.6
2,4,6-trichlorophenol	33.2	<14.6	23.9	23.9	39.0
2,4,5-trichlorophenol	<14.7	<14.6	<14.8	<14.7	0.9
2,3,4-trichlorophenol	<14.7	<14.6	<14.8	<14.7	0.9
3,4,5-trichlorophenol	<14.7	<14.6	<14.8	<14.7	0.9
Total Trichlorophenols	<77.4	<58.3	<68.4	<68.0	14.1
2,3,5,6-tetrachlorophenol	<14.7	<14.6	<14.8	<14.7	0.9
2,3,4,6-tetrachlorophenol	<14.7	<14.6	<14.8	<14.7	0.9
Total Tetrachlorophenols	<29.4	<29.1	<29.6	<29.4	0.9
Pentachlorophenol	<14.7	<14.6	<14.8	<14.7	0.9
Total Chlorophenols	<185	<102	<242	<176	39.8

* At 25°C and 1 atmosphere

TABLE 75
Clean Harbors Sarnia
Chlorophenol Isomer and Congener Group
Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2,4/2,5-dichlorophenol	28.5	-	77.9	53.2	65.6
2,3-dichlorophenol	<12.2	-	<11.6	<11.9	3.1
2,6-dichlorophenol	<12.2	-	<11.6	<11.9	3.1
Total Dichlorophenols	<52.9	-	<101	<77.0	44.3
2,4,6-trichlorophenol	27.5	<12.0	18.8	19.4	40.0
2,4,5-trichlorophenol	<12.2	<12.0	<11.6	<11.9	2.2
2,3,4-trichlorophenol	<12.2	<12.0	<11.6	<11.9	2.2
3,4,5-trichlorophenol	<12.2	<12.0	<11.6	<11.9	2.2
Total Trichlorophenols	<64.0	<47.9	<53.7	<55.2	14.8
2,3,5,6-tetrachlorophenol	<12.2	<12.0	<11.6	<11.9	2.2
2,3,4,6-tetrachlorophenol	<12.2	<12.0	<11.6	<11.9	2.2
Total Tetrachlorophenols	<24.4	<24.0	<23.3	<23.9	2.2
Pentachlorophenol	<12.2	<12.0	<11.6	<11.9	2.2
Total Chlorophenols	<153	<83.8	<190	<142	37.8

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 76
Clean Harbors Sarnia
Chlorophenol Isomer and Congener Group
Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2,4/2,5-dichlorophenol	17.5	-	50.7	34.1	68.9
2,3-dichlorophenol	<7.46	-	<7.58	<7.52	1.1
2,6-dichlorophenol	<7.46	-	<7.58	<7.52	1.1
Total Dichlorophenols	<32.4	-	<65.8	<49.1	48.1
2,4,6-trichlorophenol	16.8	<7.45	12.2	12.2	38.6
2,4,5-trichlorophenol	<7.46	<7.45	<7.58	<7.49	1.0
2,3,4-trichlorophenol	<7.46	<7.45	<7.58	<7.49	1.0
3,4,5-trichlorophenol	<7.46	<7.45	<7.58	<7.49	1.0
Total Trichlorophenols	<39.2	<29.8	<35.0	<34.7	13.7
2,3,5,6-tetrachlorophenol	<7.46	<7.45	<7.58	<7.49	1.0
2,3,4,6-tetrachlorophenol	<7.46	<7.45	<7.58	<7.49	1.0
Total Tetrachlorophenols	<14.9	<14.9	<15.2	<15.0	1.0
Pentachlorophenol	<7.46	<7.45	<7.58	<7.49	1.0
Total Chlorophenols	<94.0	<52.1	<124	<89.9	39.9

* At 25°C and 1 atmosphere

TABLE 77
Clean Harbors Sarnia
Chlorophenol Isomer and Congener Group
Emission Rates

Specific Isomer	Emission Rate				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
2,4/2,5-dichlorophenol	0.63	-	1.78	1.21	67.8
2,3-dichlorophenol	<0.27	-	<0.27	<0.27	0.3
2,6-dichlorophenol	<0.27	-	<0.27	<0.27	0.3
Total Dichlorophenols	<1.16	-	<2.32	<1.74	46.9
2,4,6-trichlorophenol	0.60	<0.27	0.43	0.43	38.5
2,4,5-trichlorophenol	<0.27	<0.27	<0.27	<0.27	0.5
2,3,4-trichlorophenol	<0.27	<0.27	<0.27	<0.27	0.5
3,4,5-trichlorophenol	<0.27	<0.27	<0.27	<0.27	0.5
Total Trichlorophenols	<1.41	<1.08	<1.23	<1.24	13.3
2,3,5,6-tetrachlorophenol	<0.27	<0.27	<0.27	<0.27	0.5
2,3,4,6-tetrachlorophenol	<0.27	<0.27	<0.27	<0.27	0.5
Total Tetrachlorophenols	<0.54	<0.54	<0.53	<0.54	0.5
Pentachlorophenol	<0.27	<0.27	<0.27	<0.27	0.5
Total Chlorophenols	<3.38	<1.89	<4.35	<3.20	38.7

TABLE 78
Clean Harbors Sarnia
Summary of Emission Data
for Chlorophenol Isomer and Congener Groups

Specific Isomer	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2,4/2,5-dichlorophenol	21.5	66.8	53.2	34.1	1.21
2,3-dichlorophenol	<4.79	<14.8	<11.9	<7.52	<0.27
2,6-dichlorophenol	<4.79	<14.8	<11.9	<7.52	<0.27
Total Dichlorophenols	<31.1	<96.3	<77.0	<49.1	<1.74
2,4,6-trichlorophenol	7.77	23.9	19.4	12.2	0.43
2,4,5-trichlorophenol	<4.78	<14.7	<11.9	<7.49	<0.27
2,3,4-trichlorophenol	<4.78	<14.7	<11.9	<7.49	<0.27
3,4,5-trichlorophenol	<4.78	<14.7	<11.9	<7.49	<0.27
Total Trichlorophenols	<22.1	<68.0	<55.2	<34.7	<1.24
2,3,5,6-tetrachlorophenol	<4.78	<14.7	<11.9	<7.49	<0.27
2,3,4,6-tetrachlorophenol	<4.78	<14.7	<11.9	<7.49	<0.27
Total Tetrachlorophenols	<9.56	<29.4	<23.9	<15.0	<0.54
Pentachlorophenol	<4.78	<14.7	<11.9	<7.49	<0.27
Total Chlorophenols	<57.2	<176	<142	<89.9	<3.20

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 79
Clean Harbors Sarnia
Chlorophenol Isomer and Congener Group
Blank Analyses

Congener Group	Lab Blank ng	Blank Train ng
2,4/2,5-dichlorophenol	<70	<70
2,3-dichlorophenol	<70	<70
2,6-dichlorophenol	<70	<70
Total Dichlorophenols	<210	<210
2,4,6-trichlorophenol	<70	<70
2,4,5-trichlorophenol	<70	<70
2,3,4-trichlorophenol	<70	<70
3,4,5-trichlorophenol	<70	<70
Total Trichlorophenols	<280	<280
2,3,5,6-tetrachlorophenol	<70	<70
2,3,4,6-tetrachlorophenol	<70	<70
Total Tetrachlorophenols	<140	<140
Pentachlorophenol	<70	<70
Total Chlorophenols	<700	<700

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 80
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 1

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	67.9	4.67	14.3	11.8	7.24	0.26
Acenaphthylene	609	41.9	128	106	64.9	2.33
Anthracene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(a)Anthracene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(b)Fluoranthene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(k)Fluoranthene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(a)fluorene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(b)fluorene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(g,h,i)Perylene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(a)Pyrene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Benzo(e)Pyrene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Biphenyl	147	10.1	30.9	25.6	15.7	0.56
2-Chloronaphthalene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Chrysene/Triphenylene	22.8	1.57	4.79	3.97	2.43	0.087
Coronene	<70	<4.82	<14.7	<12.2	<7.46	<0.27
Dibenzo(a,c/a,h)Anthracene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Dibenzo(a,e)pyrene	<70	<4.82	<14.7	<12.2	<7.46	<0.27
9,10-dimethylanthracene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
7,12-Dimethylbenzo(a)anthracene	27.7	1.91	5.82	4.82	2.95	0.11
Fluoranthene	49.0	3.37	10.3	8.52	5.22	0.19
Fluorene	27.3	1.88	5.74	4.75	2.91	0.10
Indeno(1,2,3-cd)Pyrene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
2-methylanthracene	14.0	0.96	2.94	2.44	1.49	0.054
3-Methylcholanthrene	<70	<4.82	<14.7	<12.2	<7.46	<0.27
1-Methylnaphthalene	143	9.8	30.1	24.9	15.2	0.55
2-Methylnaphthalene	133	9.2	28.0	23.1	14.2	0.51
1-Methylphenanthrene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
9-Methylphenanthrene	19.5	1.34	4.10	3.39	2.08	0.075
Naphthalene	917	63.1	193	160	97.7	3.51
Perylene	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Phenanthrene	207	14.2	43.5	36.0	22.1	0.79
Picene	<70	<4.82	<14.7	<12.2	<7.46	<0.27
Pyrene	31.5	2.17	6.62	5.48	3.36	0.12
Quinoline	<752	<51.8	<158	<131	<80.2	<2.88
Tetralin	131	9.02	27.5	22.8	14.0	0.50
m-terphenyl	<14	<0.96	<2.94	<2.44	<1.49	<0.054
o-Terphenyl	<14	<0.96	<2.94	<2.44	<1.49	<0.054
p-terphenyl	<14	<0.96	<2.94	<2.44	<1.49	<0.054
Total	<3831	<264	<805	<666	<408	<14.7

Dry Gas Volume Sampled (Rm³*) :	4.756
Actual Flowrate (m³/s) :	55.6
Dry Reference Flowrate (Rm³/s*) :	18.2
Dry Adjusted Flowrate (Rm³/s**) :	22.0
Wet Reference Flowrate (Rm³/s*) :	35.9

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 81
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 2

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	14.4	0.98	3.00	2.46	1.53	0.055
Acenaphthylene	39.0	2.66	8.12	6.67	4.15	0.15
Anthracene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Benzo(a)Anthracene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Benzo(b)Fluoranthene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Benzo(k)Fluoranthene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Benzo(a)fluorene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Benzo(b)fluorene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Benzo(g,h,i)Perylene	54.7	3.73	11.4	9.36	5.82	0.21
Benzo(a)Pyrene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Benzo(e)Pyrene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Biphenyl	82.7	5.64	17.2	14.2	8.80	0.32
2-Chloronaphthalene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Chrysene/Triphenylene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Coronene	102	6.95	21.2	17.5	10.8	0.39
Dibenzo(a,c/a,h)Anthracene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Dibenzo(a,e)pyrene	<70	<4.77	<14.6	<12.0	<7.45	<0.27
9,10-dimethylanthracene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
7,12-Dimethylbenzo(a)anthracene	36.8	2.51	7.66	6.30	3.91	0.14
Fluoranthene	29.0	1.98	6.04	4.96	3.08	0.11
Fluorene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Indeno(1,2,3-cd)Pyrene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
2-methylanthracene	35.1	2.39	7.30	6.01	3.73	0.14
3-Methylcholanthrene	<70	<4.77	<14.6	<12.0	<7.45	<0.27
1-Methylnaphthalene	104	7.09	21.6	17.8	11.1	0.40
2-Methylnaphthalene	115	7.84	23.9	19.7	12.2	0.44
1-Methylphenanthrene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
9-Methylphenanthrene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Naphthalene	943	64.3	196	161	100	3.63
Perylene	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Phenanthrene	121	8.25	25.2	20.7	12.9	0.47
Picene	<70	<4.77	<14.6	<12.0	<7.45	<0.27
Pyrene	22.7	1.55	4.72	3.88	2.41	0.087
Quinoline	<195	<13.3	<40.6	<33.4	<20.7	<0.75
Tetralin	173	11.8	36.0	29.6	18.4	0.67
m-terphenyl	<14	<0.95	<2.91	<2.40	<1.49	<0.054
o-Terphenyl	<14	<0.95	<2.91	<2.40	<1.49	<0.054
p-terphenyl	<14	<0.95	<2.91	<2.40	<1.49	<0.054
Total	<2557	<174	<532	<438	<272	<9.85

Dry Gas Volume Sampled (Rm³*) :	4.805
Actual Flowrate (m³/s) :	56.5
Dry Reference Flowrate (Rm³/s*) :	18.5
Dry Adjusted Flowrate (Rm³/s**) :	22.5
Wet Reference Flowrate (Rm³/s*) :	36.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 82
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 3

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	54.3	3.69	11.5	9.03	5.88	0.21
Acenaphthylene	252	17.1	53.3	41.9	27.3	0.96
Anthracene	20.8	1.41	4.40	3.46	2.25	0.079
Benzo(a)Anthracene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Benzo(b)Fluoranthene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Benzo(k)Fluoranthene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Benzo(a)fluorene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Benzo(b)fluorene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Benzo(g,h,i)Perylene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Benzo(a)Pyrene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Benzo(e)Pyrene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Biphenyl	304	20.6	64.4	50.6	32.9	1.16
2-Chloronaphthalene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Chrysene/Triphenylene	106	7.20	22.4	17.6	11.5	0.40
Coronene	<70	<4.75	<14.8	<11.6	<7.58	<0.27
Dibenzo(a,c/a,h)Anthracene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Dibenzo(a,e)pyrene	<70	<4.75	<14.8	<11.6	<7.58	<0.27
9,10-dimethylanthracene	20.9	1.42	4.42	3.48	2.26	0.080
7,12-Dimethylbenzo(a)anthracene	35.4	2.40	7.49	5.89	3.83	0.13
Fluoranthene	70.8	4.81	15.0	11.8	7.66	0.27
Fluorene	25.1	1.70	5.31	4.18	2.72	0.096
Indeno(1,2,3-cd)Pyrene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
2-methylanthracene	25.7	1.75	5.44	4.28	2.78	0.098
3-Methylcholanthrene	<70	<4.75	<14.8	<11.6	<7.58	<0.27
1-Methylnaphthalene	247	16.8	52.3	41.1	26.7	0.94
2-Methylnaphthalene	226	15.3	47.8	37.6	24.5	0.86
1-Methylphenanthrene	57.5	3.91	12.2	9.57	6.22	0.22
9-Methylphenanthrene	34.4	2.34	7.28	5.72	3.72	0.13
Naphthalene	2090	142	442	348	226	7.96
Perylene	<14	<0.95	<2.96	<2.33	<1.52	<0.053
Phenanthrene	260	17.7	55.0	43.3	28.1	0.99
Picene	<70	<4.75	<14.8	<11.6	<7.58	<0.27
Pyrene	52.1	3.54	11.0	8.67	5.64	0.20
Quinoline	<949	<64.5	<201	<158	<103	<3.62
Tetralin	239	16.2	50.6	39.8	25.9	0.91
m-terphenyl	18.8	1.28	3.98	3.13	2.04	0.072
o-Terphenyl	28.1	1.91	5.95	4.68	3.04	0.11
p-terphenyl	23.3	1.58	4.93	3.88	2.52	0.089
Total	<5588	<380	<1183	<930	<605	<21.3

Dry Gas Volume Sampled (Rm³*) :	4.724
Actual Flowrate (m³/s) :	56.1
Dry Reference Flowrate (Rm³/s*) :	18.0
Dry Adjusted Flowrate (Rm³/s**) :	22.9
Wet Reference Flowrate (Rm³/s*) :	35.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 83
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Actual Concentrations

Compound	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Acenaphthene	4.67	0.98	3.69	3.11	61.4
Acenaphthylene	41.9	2.66	17.1	20.6	96.6
Anthracene	<0.96	<0.95	1.41	<1.11	23.6
Benzo(a)Anthracene	<0.96	<0.95	<0.95	<0.96	0.7
Benzo(b)Fluoranthene	<0.96	<0.95	<0.95	<0.96	0.7
Benzo(k)Fluoranthene	<0.96	<0.95	<0.95	<0.96	0.7
Benzo(a)fluorene	<0.96	<0.95	<0.95	<0.96	0.7
Benzo(b)fluorene	<0.96	<0.95	<0.95	<0.96	0.7
Benzo(g,h,i)Perylene	<0.96	3.73	<0.95	<1.88	85.0
Benzo(a)Pyrene	<0.96	<0.95	<0.95	<0.96	0.7
Benzo(e)Pyrene	<0.96	<0.95	<0.95	<0.96	0.7
Biphenyl	10.1	5.64	20.6	12.1	63.5
2-Chloronaphthalene	<0.96	<0.95	<0.95	<0.96	0.7
Chrysene/Triphenylene	1.57	<0.95	7.20	<3.24	106
Coronene	<4.82	6.95	<4.75	<5.51	22.7
Dibenzo(a,c/a,h)Anthracene	<0.96	<0.95	<0.95	<0.96	0.7
Dibenzo(a,e)pyrene	<4.82	<4.77	<4.75	<4.78	0.7
9,10-dimethylanthracene	<0.96	<0.95	1.42	<1.11	23.9
7,12-Dimethylbenzo(a)anthracene	1.91	2.51	2.40	2.27	14.1
Fluoranthene	3.37	1.98	4.81	3.39	41.8
Fluorene	1.88	<0.95	1.70	<1.51	32.5
Indeno(1,2,3-cd)Pyrene	<0.96	<0.95	<0.95	<0.96	0.7
2-methylanthracene	0.96	2.39	1.75	1.70	42.1
3-Methylcholanthrene	<4.82	<4.77	<4.75	<4.78	0.7
1-Methylnaphthalene	9.8	7.09	16.8	11.2	44.4
2-Methylnaphthalene	9.2	7.84	15.3	10.8	37.2
1-Methylphenanthrene	<0.96	<0.95	3.91	<1.94	87.6
9-Methylphenanthrene	1.34	<0.95	2.34	<1.54	46.2
Naphthalene	63.1	64.3	142	89.8	50.3
Perylene	<0.96	<0.95	<0.95	<0.96	0.7
Phenanthrene	14.2	8.25	17.7	13.4	35.6
Picene	<4.82	<4.77	<4.75	<4.78	0.7
Pyrene	2.17	1.55	3.54	2.42	42.1
Quinoline	<51.8	<13.3	<64.5	<43.2	61.7
Tetralin	9.02	11.8	16.2	12.3	29.5
m-terphenyl	<0.96	<0.95	1.28	<1.06	17.3
o-Terphenyl	<0.96	<0.95	1.91	<1.28	43.0
p-terphenyl	<0.96	<0.95	1.58	<1.17	30.9
Total	<264	<174	<380	<272	37.8

TABLE 84
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Dry Reference Concentrations

Compound	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	14.3	3.00	11.5	9.59	61.3
Acenaphthylene	128	8.12	53.3	63.2	95.9
Anthracene	<2.94	<2.91	4.40	<3.42	24.9
Benzo(a)Anthracene	<2.94	<2.91	<2.96	<2.94	0.9
Benzo(b)Fluoranthene	<2.94	<2.91	<2.96	<2.94	0.9
Benzo(k)Fluoranthene	<2.94	<2.91	<2.96	<2.94	0.9
Benzo(a)fluorene	<2.94	<2.91	<2.96	<2.94	0.9
Benzo(b)fluorene	<2.94	<2.91	<2.96	<2.94	0.9
Benzo(g,h,i)Perylene	<2.94	11.4	<2.96	<5.76	84.4
Benzo(a)Pyrene	<2.94	<2.91	<2.96	<2.94	0.9
Benzo(e)Pyrene	<2.94	<2.91	<2.96	<2.94	0.9
Biphenyl	30.9	17.2	64.4	37.5	64.7
2-Chloronaphthalene	<2.94	<2.91	<2.96	<2.94	0.9
Chrysene/Triphenylene	4.79	<2.91	22.4	<10.0	107
Coronene	<14.7	21.2	<14.8	<16.9	22.0
Dibenzo(a,c/a,h)Anthracene	<2.94	<2.91	<2.96	<2.94	0.9
Dibenzo(a,e)pyrene	<14.7	<14.6	<14.8	<14.7	0.9
9,10-dimethylanthracene	<2.94	<2.91	4.42	<3.43	25.2
7,12-Dimethylbenzo(a)anthracene	5.82	7.66	7.49	6.99	14.5
Fluoranthene	10.3	6.04	15.0	10.4	42.9
Fluorene	5.74	<2.91	5.31	<4.66	32.7
Indeno(1,2,3-cd)Pyrene	<2.94	<2.91	<2.96	<2.94	0.9
2-methylanthracene	2.94	7.30	5.44	5.23	41.8
3-Methylcholanthrene	<14.7	<14.6	<14.8	<14.7	0.9
1-Methylnaphthalene	30.1	21.6	52.3	34.7	45.7
2-Methylnaphthalene	28.0	23.9	47.8	33.2	38.5
1-Methylphenanthrene	<2.94	<2.91	12.2	<6.01	88.8
9-Methylphenanthrene	4.10	<2.91	7.28	<4.77	47.4
Naphthalene	193	196	442	277	51.6
Perylene	<2.94	<2.91	<2.96	<2.94	0.9
Phenanthrene	43.5	25.2	55.0	41.2	36.5
Picene	<14.7	<14.6	<14.8	<14.7	0.9
Pyrene	6.62	4.72	11.0	7.46	43.4
Quinoline	<158	<40.6	<201	<133	62.3
Tetralin	27.5	36.0	50.6	38.0	30.6
m-terphenyl	<2.94	<2.91	3.98	<3.28	18.5
o-Terphenyl	<2.94	<2.91	5.95	<3.94	44.3
p-terphenyl	<2.94	<2.91	4.93	<3.60	32.2
Total	<805	<532	<1183	<840	38.9

* At 25°C and 1 atmosphere

TABLE 85
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	11.8	2.46	9.03	7.77	61.8
Acenaphthylene	106	6.67	41.9	51.5	97.7
Anthracene	<2.44	<2.40	3.46	<2.76	21.9
Benzo(a)Anthracene	<2.44	<2.40	<2.33	<2.39	2.2
Benzo(b)Fluoranthene	<2.44	<2.40	<2.33	<2.39	2.2
Benzo(k)Fluoranthene	<2.44	<2.40	<2.33	<2.39	2.2
Benzo(a)fluorene	<2.44	<2.40	<2.33	<2.39	2.2
Benzo(b)fluorene	<2.44	<2.40	<2.33	<2.39	2.2
Benzo(g,h,i)Perylene	<2.44	9.36	<2.33	<4.71	85.6
Benzo(a)Pyrene	<2.44	<2.40	<2.33	<2.39	2.2
Benzo(e)Pyrene	<2.44	<2.40	<2.33	<2.39	2.2
Biphenyl	25.6	14.2	50.6	30.1	61.9
2-Chloronaphthalene	<2.44	<2.40	<2.33	<2.39	2.2
Chrysene/Triphenylene	3.97	<2.40	17.6	<8.00	105
Coronene	<12.2	17.5	<11.6	<13.8	23.3
Dibenzo(a,c/a,h)Anthracene	<2.44	<2.40	<2.33	<2.39	2.2
Dibenzo(a,e)pyrene	<12.2	<12.0	<11.6	<11.9	2.2
9,10-dimethylanthracene	<2.44	<2.40	3.48	<2.77	22.2
7,12-Dimethylbenzo(a)anthracene	4.82	6.30	5.89	5.67	13.5
Fluoranthene	8.52	4.96	11.8	8.42	40.5
Fluorene	4.75	<2.40	4.18	<3.77	32.5
Indeno(1,2,3-cd)Pyrene	<2.44	<2.40	<2.33	<2.39	2.2
2-methylanthracene	2.44	6.01	4.28	4.24	42.1
3-Methylcholanthrene	<12.2	<12.0	<11.6	<11.9	2.2
1-Methylnaphthalene	24.9	17.8	41.1	27.9	42.8
2-Methylnaphthalene	23.1	19.7	37.6	26.8	35.5
1-Methylphenanthrene	<2.44	<2.40	9.57	<4.80	86.0
9-Methylphenanthrene	3.39	<2.40	5.72	<3.84	44.5
Naphthalene	160	161	348	223	48.5
Perylene	<2.44	<2.40	<2.33	<2.39	2.2
Phenanthrene	36.0	20.7	43.3	33.3	34.6
Picene	<12.2	<12.0	<11.6	<11.9	2.2
Pyrene	5.48	3.88	8.67	6.01	40.5
Quinoline	<131	<33.4	<158	<107	61.0
Tetralin	22.8	29.6	39.8	30.7	27.8
m-terphenyl	<2.44	<2.40	3.13	<2.65	15.5
o-Terphenyl	<2.44	<2.40	4.68	<3.17	41.2
p-terphenyl	<2.44	<2.40	3.88	<2.90	29.1
Total	<666	<438	<930	<678	36.3

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 86
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	7.24	1.53	5.88	4.88	61.0
Acenaphthylene	64.9	4.15	27.3	32.1	95.5
Anthracene	<1.49	<1.49	2.25	<1.74	25.2
Benzo(a)Anthracene	<1.49	<1.49	<1.52	<1.50	1.0
Benzo(b)Fluoranthene	<1.49	<1.49	<1.52	<1.50	1.0
Benzo(k)Fluoranthene	<1.49	<1.49	<1.52	<1.50	1.0
Benzo(a)fluorene	<1.49	<1.49	<1.52	<1.50	1.0
Benzo(b)fluorene	<1.49	<1.49	<1.52	<1.50	1.0
Benzo(g,h,i)Perylene	<1.49	5.82	<1.52	<2.94	84.7
Benzo(a)Pyrene	<1.49	<1.49	<1.52	<1.50	1.0
Benzo(e)Pyrene	<1.49	<1.49	<1.52	<1.50	1.0
Biphenyl	15.7	8.80	32.9	19.1	65.0
2-Chloronaphthalene	<1.49	<1.49	<1.52	<1.50	1.0
Chrysene/Triphenylene	2.43	<1.49	11.5	<5.13	107
Coronene	<7.46	10.8	<7.58	<8.63	22.3
Dibenzo(a,c/a,h)Anthracene	<1.49	<1.49	<1.52	<1.50	1.0
Dibenzo(a,e)pyrene	<7.46	<7.45	<7.58	<7.49	1.0
9,10-dimethylanthracene	<1.49	<1.49	2.26	<1.75	25.5
7,12-Dimethylbenzo(a)anthracene	2.95	3.91	3.83	3.57	14.9
Fluoranthene	5.22	3.08	7.66	5.32	43.0
Fluorene	2.91	<1.49	2.72	<2.37	32.5
Indeno(1,2,3-cd)Pyrene	<1.49	<1.49	<1.52	<1.50	1.0
2-methylanthracene	1.49	3.73	2.78	2.67	42.1
3-Methylcholanthrene	<7.46	<7.45	<7.58	<7.49	1.0
1-Methylnaphthalene	15.2	11.1	26.7	17.7	45.9
2-Methylnaphthalene	14.2	12.2	24.5	17.0	38.8
1-Methylphenanthrene	<1.49	<1.49	6.22	<3.07	89.1
9-Methylphenanthrene	2.08	<1.49	3.72	<2.43	47.7
Naphthalene	97.7	100	226	141	51.9
Perylene	<1.49	<1.49	<1.52	<1.50	1.0
Phenanthrene	22.1	12.9	28.1	21.0	36.6
Picene	<7.46	<7.45	<7.58	<7.49	1.0
Pyrene	3.36	2.41	5.64	3.80	43.6
Quinoline	<80.2	<20.7	<103	<67.9	62.4
Tetralin	14.0	18.4	25.9	19.4	31.0
m-terphenyl	<1.49	<1.49	2.04	<1.67	18.8
o-Terphenyl	<1.49	<1.49	3.04	<2.01	44.6
p-terphenyl	<1.49	<1.49	2.52	<1.83	32.5
Total	<408	<272	<605	<428	39.1

* At 25°C and 1 atmosphere

TABLE 87
Clean Harbors Sarnia
Polycyclic Aromatic Hydrocarbon Emission Rates

Compound	Emission Rate				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
Acenaphthene	0.26	0.055	0.21	0.17	60.9
Acenaphthylene	2.33	0.15	0.96	1.15	96.1
Anthracene	<0.054	<0.054	0.079	<0.062	23.7
Benzo(a)Anthracene	<0.054	<0.054	<0.053	<0.054	0.5
Benzo(b)Fluoranthene	<0.054	<0.054	<0.053	<0.054	0.5
Benzo(k)Fluoranthene	<0.054	<0.054	<0.053	<0.054	0.5
Benzo(a)fluorene	<0.054	<0.054	<0.053	<0.054	0.5
Benzo(b)fluorene	<0.054	<0.054	<0.053	<0.054	0.5
Benzo(g,h,i)Perylene	<0.054	0.21	<0.053	<0.11	85.7
Benzo(a)Pyrene	<0.054	<0.054	<0.053	<0.054	0.5
Benzo(e)Pyrene	<0.054	<0.054	<0.053	<0.054	0.5
Biphenyl	0.56	0.32	1.16	0.68	63.6
2-Chloronaphthalene	<0.054	<0.054	<0.053	<0.054	0.5
Chrysene/Triphenylene	0.087	<0.054	0.40	<0.18	106
Coronene	<0.27	0.39	<0.27	<0.31	23.4
Dibenzo(a,c/a,h)Anthracene	<0.054	<0.054	<0.053	<0.054	0.5
Dibenzo(a,e)pyrene	<0.27	<0.27	<0.27	<0.27	0.5
9,10-dimethylanthracene	<0.054	<0.054	0.080	<0.062	24.0
7,12-Dimethylbenzo(a)anthracene	0.11	0.14	0.13	0.13	14.9
Fluoranthene	0.19	0.11	0.27	0.19	41.7
Fluorene	0.10	<0.054	0.096	<0.085	31.9
Indeno(1,2,3-cd)Pyrene	<0.054	<0.054	<0.053	<0.054	0.5
2-methylanthracene	0.054	0.14	0.098	0.096	42.7
3-Methylcholanthrene	<0.27	<0.27	<0.27	<0.27	0.5
1-Methylnaphthalene	0.55	0.40	0.94	0.63	44.4
2-Methylnaphthalene	0.51	0.44	0.86	0.60	37.2
1-Methylphenanthrene	<0.054	<0.054	0.22	<0.11	87.7
9-Methylphenanthrene	0.075	<0.054	0.13	<0.087	46.2
Naphthalene	3.51	3.63	7.96	5.03	50.4
Perylene	<0.054	<0.054	<0.053	<0.054	0.5
Phenanthrene	0.79	0.47	0.99	0.75	35.4
Picene	<0.27	<0.27	<0.27	<0.27	0.5
Pyrene	0.12	0.087	0.20	0.14	42.1
Quinoline	<2.88	<0.75	<3.62	<2.41	61.6
Tetralin	0.50	0.67	0.91	0.69	29.7
m-terphenyl	<0.054	<0.054	0.072	<0.060	17.3
o-Terphenyl	<0.054	<0.054	0.11	<0.072	43.1
p-terphenyl	<0.054	<0.054	0.089	<0.065	30.9
Total	<14.7	<9.85	<21.3	<15.3	37.6

TABLE 88
Clean Harbors Sarnia
Summary of Polycyclic Aromatic Hydrocarbon Emission Data

Compound	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	3.11	9.59	7.77	4.88	0.17
Acenaphthylene	20.6	63.2	51.5	32.1	1.15
Anthracene	<1.11	<3.42	<2.76	<1.74	<0.062
Benzo(a)Anthracene	<0.96	<2.94	<2.39	<1.50	<0.054
Benzo(b)Fluoranthene	<0.96	<2.94	<2.39	<1.50	<0.054
Benzo(k)Fluoranthene	<0.96	<2.94	<2.39	<1.50	<0.054
Benzo(a)fluorene	<0.96	<2.94	<2.39	<1.50	<0.054
Benzo(b)fluorene	<0.96	<2.94	<2.39	<1.50	<0.054
Benzo(g,h,i)Perylene	<1.88	<5.76	<4.71	<2.94	<0.11
Benzo(a)Pyrene	<0.96	<2.94	<2.39	<1.50	<0.054
Benzo(e)Pyrene	<0.96	<2.94	<2.39	<1.50	<0.054
Biphenyl	12.1	37.5	30.1	19.1	0.68
2-Chloronaphthalene	<0.96	<2.94	<2.39	<1.50	<0.054
Chrysene/Triphenylene	<3.24	<10.0	<8.00	<5.13	<0.18
Coronene	<5.51	<16.9	<13.8	<8.63	<0.31
Dibenzo(a,c/a,h)Anthracene	<0.96	<2.94	<2.39	<1.50	<0.054
Dibenzo(a,e)pyrene	<4.78	<14.7	<11.9	<7.49	<0.27
9,10-dimethylanthracene	<1.11	<3.43	<2.77	<1.75	<0.062
7,12-Dimethylbenzo(a)anthracene	2.27	6.99	5.67	3.57	0.13
Fluoranthene	3.39	10.4	8.42	5.32	0.19
Fluorene	<1.51	<4.66	<3.77	<2.37	<0.085
Indeno(1,2,3-cd)Pyrene	<0.96	<2.94	<2.39	<1.50	<0.054
2-methylanthracene	1.70	5.23	4.24	2.67	0.096
3-Methylcholanthrene	<4.78	<14.7	<11.9	<7.49	<0.27
1-Methylnaphthalene	11.2	34.7	27.9	17.7	0.63
2-Methylnaphthalene	10.8	33.2	26.8	17.0	0.60
1-Methylphenanthrene	<1.94	<6.01	<4.80	<3.07	<0.11
9-Methylphenanthrene	<1.54	<4.77	<3.84	<2.43	<0.087
Naphthalene	89.8	277	223	141	5.03
Perylene	<0.96	<2.94	<2.39	<1.50	<0.054
Phenanthrene	13.4	41.2	33.3	21.0	0.75
Picene	<4.78	<14.7	<11.9	<7.49	<0.27
Pyrene	2.42	7.46	6.01	3.80	0.14
Quinoline	<43.2	<133	<107	<67.9	<2.41
Tetralin	12.3	38.0	30.7	19.4	0.69
m-terphenyl	<1.06	<3.28	<2.65	<1.67	<0.060
o-Terphenyl	<1.28	<3.94	<3.17	<2.01	<0.072
p-terphenyl	<1.17	<3.60	<2.90	<1.83	<0.065
Total	<272	<840	<678	<428	<15.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 89
Clean Harbors Sarnia
Blank Polycyclic Aromatic Hydrocarbon Analyses

Compound	Blank Train ng	Media Blank ng
Acenaphthene	<14	<14
Acenaphthylene	<14	<14
Anthracene	<14	<14
Benzo(a)Anthracene	<14	<14
Benzo(b)Fluoranthene	<14	<14
Benzo(k)Fluoranthene	<14	<14
Benzo(a)fluorene	<14	<14
Benzo(b)fluorene	<14	<14
Benzo(g,h,i)Perylene	<14	<14
Benzo(a)Pyrene	<14	<14
Benzo(e)Pyrene	<14	<14
Biphenyl	22.2	<14
2-Chloronaphthalene	<14	<14
Chrysene/Triphenylene	<14	<14
Coronene	<70	<70
Dibenzo(a,c/a,h)Anthracene	<14	<14
Dibenzo(a,e)pyrene	<70	<70
9,10-dimethylanthracene	<14	<14
7,12-Dimethylbenzo(a)anthracene	28.8	<14
Fluoranthene	<14	<14
Fluorene	<14	<14
Indeno(1,2,3-cd)Pyrene	<14	<14
2-methylanthracene	<14	<14
3-Methylcholanthrene	<70	<70
1-Methylnaphthalene	<14	<14
2-Methylnaphthalene	<14	<14
1-Methylphenanthrene	<14	<14
9-Methylphenanthrene	<14	<14
Naphthalene	67.3	<14
Perylene	<14	<14
Phenanthrene	<14	<14
Picene	<70	<70
Pyrene	<14	<14
Quinoline	<314	<14
Tetralin	151	31.6
m-terphenyl	<14	<14
o-Terphenyl	<14	<14
p-terphenyl	<14	<14
Total	<1269	<774

"<" indicates that the amount detected is less than the detection limit. In these cases the value of the detection limit was used to calculate the total collected.

TABLE 90
Clean Harbors Sarnia
Volatile Organic Emission Data
Test No. 1

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	0.23	3.41	10.4	8.65	5.29	0.19
Benzene	1.45	21.6	66.1	54.8	33.5	1.22
Bromodichloromethane	0.050	0.75	2.28	1.89	1.16	0.042
Bromoform	0.10	1.52	4.65	3.85	2.36	0.086
Bromomethane	0.20	2.95	9.03	7.48	4.58	0.17
2-Butanone	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Carbon Tetrachloride	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Chloroform	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Cumene (Isopropylbenzene)	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Dibromochloromethane	0.080	1.19	3.65	3.02	1.85	0.067
Dichlorodifluoromethane	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
1,2-Dichloroethane	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
trans,1,2-Dichloroethene	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
1,1-Dichloroethene	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
1,2-Dichloropropane	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Ethylbenzene	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Ethylene Dibromide	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Methylene Chloride	0.099	1.48	4.51	3.74	2.29	0.083
Styrene	0.060	0.89	2.74	2.27	1.39	0.050
Tetrachloroethene	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Toluene	0.46	6.78	20.7	17.2	10.5	0.38
1,1,1-Trichloroethane	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Trichloroethene/1,1,2-Trichloroethene	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Trichlorotrifluoroethane	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Trichlorofluoromethane	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
M&P-Xylene	<0.10	<1.49	<4.56	<3.78	<2.31	<0.084
O-Xylene	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Vinyl Chloride	<0.050	<0.75	<2.28	<1.89	<1.16	<0.042
Total	<3.77	<56.2	<172	<143	<87.2	<3.17

Dry Gas Volume Sampled (Rm^3*) :	0.0219
Actual Flowrate (m^3/s) :	56.3
Dry Reference Flowrate (Rm^3/s*) :	18.4
Dry Adjusted Flowrate (Rm^3/s**) :	22.2
Wet Reference Flowrate (Rm^3/s*) :	36.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 91
Clean Harbors Sarnia
Volatile Organic Emission Data
Test No. 3

Compound	Total Collected µg	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3**	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	0.19	2.54	7.73	6.36	3.96	0.14
Benzene	1.21	15.8	48.2	39.7	24.7	0.90
Bromodichloromethane	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Bromoform	0.11	1.40	4.27	3.51	2.19	0.079
Bromomethane	0.37	4.77	14.5	12.0	7.46	0.27
2-Butanone	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Carbon Tetrachloride	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Chloroform	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Cumene (Isopropylbenzene)	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Dibromochloromethane	0.08	1.06	3.23	2.66	1.65	0.060
Dichlorodifluoromethane	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
1,2-Dichloroethane	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
trans,1,2-Dichloroethene	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
1,1-Dichloroethene	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
1,2-Dichloropropane	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Ethylbenzene	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Ethylene Dibromide	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Methylene Chloride	0.10	1.32	4.03	3.31	2.06	0.075
Styrene	0.06	0.76	2.31	1.90	1.18	0.043
Tetrachloroethene	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Toluene	0.60	7.83	23.9	19.7	12.2	0.44
1,1,1-Trichloroethane	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Trichloroethene/1,1,2-Trichloroethene	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Trichlorotrifluoroethane	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Trichlorofluoromethane	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
M&P-Xylene	<0.10	<1.31	<3.99	<3.28	<2.04	<0.074
O-Xylene	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Vinyl Chloride	<0.050	<0.65	<1.99	<1.64	<1.02	<0.037
Total	<3.82	<49.9	<152	<125	<77.9	<2.83

Dry Gas Volume Sampled (Rm^3*) :	0.0251
Actual Flowrate (m^3/s) :	56.7
Dry Reference Flowrate (Rm^3/s*) :	18.6
Dry Adjusted Flowrate (Rm^3/s**) :	22.6
Wet Reference Flowrate (Rm^3/s*) :	36.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 92
Clean Harbors Sarnia
Volatile Organic Emission Data
Test No. 4

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	0.12	1.58	4.94	3.88	2.53	0.088
Benzene	1.11	14.4	45.0	35.3	23.0	0.81
Bromodichloromethane	0.07	0.84	2.63	2.07	1.35	0.047
Bromoform	0.11	1.36	4.25	3.34	2.18	0.076
Bromomethane	0.56	7.29	22.8	17.9	11.6	0.41
2-Butanone	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Carbon Tetrachloride	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Chloroform	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Cumene (Isopropylbenzene)	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Dibromochloromethane	0.10	1.23	3.85	3.02	1.97	0.069
Dichlorodifluoromethane	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
1,2-Dichloroethane	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
trans,1,2-Dichloroethene	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
1,1-Dichloroethene	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
1,2-Dichloropropane	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Ethylbenzene	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Ethylene Dibromide	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Methylene Chloride	0.13	1.63	5.11	4.01	2.61	0.091
Styrene	0.06	0.78	2.43	1.91	1.24	0.044
Tetrachloroethene	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Toluene	0.64	8.25	25.8	20.2	13.2	0.46
1,1,1-Trichloroethane	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Trichloroethene/1,1,2-Trichloroethene	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Trichlorotrifluoroethane	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Trichlorofluoromethane	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
M&P-Xylene	<0.10	<1.30	<4.05	<3.18	<2.07	<0.073
O-Xylene	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Vinyl Chloride	<0.050	<0.65	<2.03	<1.59	<1.04	<0.036
Total	<3.93	<51.0	<159	<125	<81.5	<2.85

Dry Gas Volume Sampled (Rm^3*) :	0.0247
Actual Flowrate (m^3/s) :	55.9
Dry Reference Flowrate (Rm^3/s*) :	17.9
Dry Adjusted Flowrate (Rm^3/s**) :	22.8
Wet Reference Flowrate (Rm^3/s*) :	35.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 93
Clean Harbors Sarnia
Volatile Organic Actual Concentrations

Compound	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 3	Test No. 4	Average	
	µg/m^3	µg/m^3	µg/m^3	µg/m^3	%
Acetone	3.41	2.54	1.58	2.51	36.4
Benzene	21.6	15.8	14.4	17.3	22.1
Bromodichloromethane	0.75	<0.65	0.84	<0.75	12.7
Bromoform	1.52	1.40	1.36	1.43	5.8
Bromomethane	2.95	4.77	7.29	5.00	43.6
2-Butanone	<0.75	<0.65	<0.65	<0.68	7.9
Carbon Tetrachloride	<0.75	<0.65	<0.65	<0.68	7.9
Chloroform	<0.75	<0.65	<0.65	<0.68	7.9
Cumene (Isopropylbenzene)	<0.75	<0.65	<0.65	<0.68	7.9
Dibromochloromethane	1.19	1.06	1.23	1.16	7.8
Dichlorodifluoromethane	<0.75	<0.65	<0.65	<0.68	7.9
1,2-Dichloroethane	<0.75	<0.65	<0.65	<0.68	7.9
trans,1,2-Dichloroethene	<0.75	<0.65	<0.65	<0.68	7.9
1,1-Dichloroethene	<0.75	<0.65	<0.65	<0.68	7.9
1,2-Dichloropropane	<0.75	<0.65	<0.65	<0.68	7.9
Ethylbenzene	<0.75	<0.65	<0.65	<0.68	7.9
Ethylene Dibromide	<0.75	<0.65	<0.65	<0.68	7.9
Mesitylene (1,3,5-Trimethylbenzene)	<0.75	<0.65	<0.65	<0.68	7.9
Methylene Chloride	1.48	1.32	1.63	1.48	10.6
Styrene	0.89	0.76	0.78	0.81	9.0
Tetrachloroethene	<0.75	<0.65	<0.65	<0.68	7.9
Toluene	6.78	7.83	8.25	7.62	10.0
1,1,1-Trichloroethane	<0.75	<0.65	<0.65	<0.68	7.9
Trichloroethene/1,1,2-Trichloroethene	<0.75	<0.65	<0.65	<0.68	7.9
Trichlorotrifluoroethane	<0.75	<0.65	<0.65	<0.68	7.9
Trichlorofluoromethane	<0.75	<0.65	<0.65	<0.68	7.9
M&P-Xylene	<1.49	<1.31	<1.30	<1.37	7.9
O-Xylene	<0.75	<0.65	<0.65	<0.68	7.9
Vinyl Chloride	<0.75	<0.65	<0.65	<0.68	7.9
Total	<56.2	<49.9	<51.0	<52.4	6.5

TABLE 94
Clean Harbors Sarnia
Volatile Organic Dry Reference Concentrations

Compound	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	10.4	7.73	4.94	7.71	35.7
Benzene	66.1	48.2	45.0	53.1	21.4
Bromodichloromethane	2.28	<1.99	2.63	<2.30	13.9
Bromoform	4.65	4.27	4.25	4.39	5.1
Bromomethane	9.03	14.5	22.8	15.4	44.8
2-Butanone	<2.28	<1.99	<2.03	<2.10	7.5
Carbon Tetrachloride	<2.28	<1.99	<2.03	<2.10	7.5
Chloroform	<2.28	<1.99	<2.03	<2.10	7.5
Cumene (Isopropylbenzene)	<2.28	<1.99	<2.03	<2.10	7.5
Dibromochloromethane	3.65	3.23	3.85	3.58	8.9
Dichlorodifluoromethane	<2.28	<1.99	<2.03	<2.10	7.5
1,2-Dichloroethane	<2.28	<1.99	<2.03	<2.10	7.5
trans,1,2-Dichloroethene	<2.28	<1.99	<2.03	<2.10	7.5
1,1-Dichloroethene	<2.28	<1.99	<2.03	<2.10	7.5
1,2-Dichloropropane	<2.28	<1.99	<2.03	<2.10	7.5
Ethylbenzene	<2.28	<1.99	<2.03	<2.10	7.5
Ethylene Dibromide	<2.28	<1.99	<2.03	<2.10	7.5
Mesitylene (1,3,5-Trimethylbenzene)	<2.28	<1.99	<2.03	<2.10	7.5
Methylene Chloride	4.51	4.03	5.11	4.55	11.9
Styrene	2.74	2.31	2.43	2.49	8.8
Tetrachloroethene	<2.28	<1.99	<2.03	<2.10	7.5
Toluene	20.7	23.9	25.8	23.5	10.8
1,1,1-Trichloroethane	<2.28	<1.99	<2.03	<2.10	7.5
Trichloroethene/1,1,2-Trichloroethene	<2.28	<1.99	<2.03	<2.10	7.5
Trichlorotrifluoroethane	<2.28	<1.99	<2.03	<2.10	7.5
Trichlorofluoromethane	<2.28	<1.99	<2.03	<2.10	7.5
M&P-Xylene	<4.56	<3.99	<4.05	<4.20	7.5
O-Xylene	<2.28	<1.99	<2.03	<2.10	7.5
Vinyl Chloride	<2.28	<1.99	<2.03	<2.10	7.5
Total	<172	<152	<159	<161	6.3

* At 25°C and 1 atmosphere

TABLE 95
Clean Harbors Sarnia
Volatile Organic Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	8.65	6.36	3.88	6.30	37.9
Benzene	54.8	39.7	35.3	43.3	23.6
Bromodichloromethane	1.89	<1.64	2.07	<1.87	11.5
Bromoform	3.85	3.51	3.34	3.57	7.3
Bromomethane	7.48	12.0	17.9	12.4	41.9
2-Butanone	<1.89	<1.64	<1.59	<1.71	9.4
Carbon Tetrachloride	<1.89	<1.64	<1.59	<1.71	9.4
Chloroform	<1.89	<1.64	<1.59	<1.71	9.4
Cumene (Isopropylbenzene)	<1.89	<1.64	<1.59	<1.71	9.4
Dibromochloromethane	3.02	2.66	3.02	2.90	7.3
Dichlorodifluoromethane	<1.89	<1.64	<1.59	<1.71	9.4
1,2-Dichloroethane	<1.89	<1.64	<1.59	<1.71	9.4
trans,1,2-Dichloroethene	<1.89	<1.64	<1.59	<1.71	9.4
1,1-Dichloroethene	<1.89	<1.64	<1.59	<1.71	9.4
1,2-Dichloropropane	<1.89	<1.64	<1.59	<1.71	9.4
Ethylbenzene	<1.89	<1.64	<1.59	<1.71	9.4
Ethylene Dibromide	<1.89	<1.64	<1.59	<1.71	9.4
Mesitylene (1,3,5-Trimethylbenzene)	<1.89	<1.64	<1.59	<1.71	9.4
Methylene Chloride	3.74	3.31	4.01	3.69	9.5
Styrene	2.27	1.90	1.91	2.03	10.3
Tetrachloroethene	<1.89	<1.64	<1.59	<1.71	9.4
Toluene	17.2	19.7	20.2	19.0	8.5
1,1,1-Trichloroethane	<1.89	<1.64	<1.59	<1.71	9.4
Trichloroethene/1,1,2-Trichloroethene	<1.89	<1.64	<1.59	<1.71	9.4
Trichlorotrifluoroethane	<1.89	<1.64	<1.59	<1.71	9.4
Trichlorofluoromethane	<1.89	<1.64	<1.59	<1.71	9.4
M&P-Xylene	<3.78	<3.28	<3.18	<3.41	9.4
O-Xylene	<1.89	<1.64	<1.59	<1.71	9.4
Vinyl Chloride	<1.89	<1.64	<1.59	<1.71	9.4
Total	<143	<125	<125	<131	7.7

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 96
Clean Harbors Sarnia
Volatile Organic Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	5.29	3.96	2.53	3.93	35.2
Benzene	33.5	24.7	23.0	27.1	20.8
Bromodichloromethane	1.16	<1.02	1.35	<1.17	13.9
Bromoform	2.36	2.19	2.18	2.24	4.6
Bromomethane	4.58	7.46	11.6	7.89	45.0
2-Butanone	<1.16	<1.02	<1.04	<1.07	6.9
Carbon Tetrachloride	<1.16	<1.02	<1.04	<1.07	6.9
Chloroform	<1.16	<1.02	<1.04	<1.07	6.9
Cumene (Isopropylbenzene)	<1.16	<1.02	<1.04	<1.07	6.9
Dibromochloromethane	1.85	1.65	1.97	1.82	8.7
Dichlorodifluoromethane	<1.16	<1.02	<1.04	<1.07	6.9
1,2-Dichloroethane	<1.16	<1.02	<1.04	<1.07	6.9
trans,1,2-Dichloroethene	<1.16	<1.02	<1.04	<1.07	6.9
1,1-Dichloroethene	<1.16	<1.02	<1.04	<1.07	6.9
1,2-Dichloropropane	<1.16	<1.02	<1.04	<1.07	6.9
Ethylbenzene	<1.16	<1.02	<1.04	<1.07	6.9
Ethylene Dibromide	<1.16	<1.02	<1.04	<1.07	6.9
Mesitylene (1,3,5-Trimethylbenzene)	<1.16	<1.02	<1.04	<1.07	6.9
Methylene Chloride	2.29	2.06	2.61	2.32	11.9
Styrene	1.39	1.18	1.24	1.27	8.2
Tetrachloroethene	<1.16	<1.02	<1.04	<1.07	6.9
Toluene	10.5	12.2	13.2	12.0	11.3
1,1,1-Trichloroethane	<1.16	<1.02	<1.04	<1.07	6.9
Trichloroethene/1,1,2-Trichloroethene	<1.16	<1.02	<1.04	<1.07	6.9
Trichlorotrifluoroethane	<1.16	<1.02	<1.04	<1.07	6.9
Trichlorofluoromethane	<1.16	<1.02	<1.04	<1.07	6.9
M&P-Xylene	<2.31	<2.04	<2.07	<2.14	6.9
O-Xylene	<1.16	<1.02	<1.04	<1.07	6.9
Vinyl Chloride	<1.16	<1.02	<1.04	<1.07	6.9
Total	<87.2	<77.9	<81.5	<82.2	5.7

* At 25°C and 1 atmosphere

TABLE 97
Clean Harbors Sarnia
Volatile Organic Emission Rates

Compound	Emission Rate				Coefficient of Variation
	Test No. 1 mg/s	Test No. 3 mg/s	Test No. 4 mg/s	Average mg/s	%
Acetone	0.19	0.14	0.088	0.14	36.7
Benzene	1.22	0.90	0.81	0.97	22.2
Bromodichloromethane	0.042	<0.037	0.047	<0.042	12.0
Bromoform	0.086	0.079	0.076	0.080	6.0
Bromomethane	0.17	0.27	0.41	0.28	43.0
2-Butanone	<0.042	<0.037	<0.036	<0.038	8.0
Carbon Tetrachloride	<0.042	<0.037	<0.036	<0.038	8.0
Chloroform	<0.042	<0.037	<0.036	<0.038	8.0
Cumene (Isopropylbenzene)	<0.042	<0.037	<0.036	<0.038	8.0
Dibromochloromethane	0.067	0.060	0.069	0.065	7.2
Dichlorodifluoromethane	<0.042	<0.037	<0.036	<0.038	8.0
1,2-Dichloroethane	<0.042	<0.037	<0.036	<0.038	8.0
trans,1,2-Dichloroethene	<0.042	<0.037	<0.036	<0.038	8.0
1,1-Dichloroethene	<0.042	<0.037	<0.036	<0.038	8.0
1,2-Dichloropropane	<0.042	<0.037	<0.036	<0.038	8.0
Ethylbenzene	<0.042	<0.037	<0.036	<0.038	8.0
Ethylene Dibromide	<0.042	<0.037	<0.036	<0.038	8.0
Mesitylene (1,3,5-Trimethylbenzene)	<0.042	<0.037	<0.036	<0.038	8.0
Methylene Chloride	0.083	0.075	0.091	0.083	9.9
Styrene	0.050	0.043	0.044	0.046	9.0
Tetrachloroethene	<0.042	<0.037	<0.036	<0.038	8.0
Toluene	0.38	0.44	0.46	0.43	9.8
1,1,1-Trichloroethane	<0.042	<0.037	<0.036	<0.038	8.0
Trichloroethene/1,1,2-Trichloroethene	<0.042	<0.037	<0.036	<0.038	8.0
Trichlorotrifluoroethane	<0.042	<0.037	<0.036	<0.038	8.0
Trichlorofluoromethane	<0.042	<0.037	<0.036	<0.038	8.0
M&P-Xylene	<0.084	<0.074	<0.073	<0.077	8.0
O-Xylene	<0.042	<0.037	<0.036	<0.038	8.0
Vinyl Chloride	<0.042	<0.037	<0.036	<0.038	8.0
Total	<3.17	<2.83	<2.85	<2.95	6.4

TABLE 98
Clean Harbors Sarnia
Summary of Volatile Organic Emission Data

Compound	Actual Concentration $\mu g/m^3$	Dry Reference Concentration $\mu g/Rm^3$*	Dry Adjusted Concentration $\mu g/Rm^3$*	Wet Reference Concentration $\mu g/Rm^3$*	Emission Rate mg/s
Acetone	2.51	7.71	6.30	3.93	0.14
Benzene	17.3	53.1	43.3	27.1	0.97
Bromodichloromethane	<0.75	<2.30	<1.87	<1.17	<0.042
Bromoform	1.43	4.39	3.57	2.24	0.080
Bromomethane	5.00	15.4	12.4	7.89	0.28
2-Butanone	<0.68	<2.10	<1.71	<1.07	<0.038
Carbon Tetrachloride	<0.68	<2.10	<1.71	<1.07	<0.038
Chloroform	<0.68	<2.10	<1.71	<1.07	<0.038
Cumene (Isopropylbenzene)	<0.68	<2.10	<1.71	<1.07	<0.038
Dibromochloromethane	1.16	3.58	2.90	1.82	0.065
Dichlorodifluoromethane	<0.68	<2.10	<1.71	<1.07	<0.038
1,2-Dichloroethane	<0.68	<2.10	<1.71	<1.07	<0.038
trans,1,2-Dichloroethene	<0.68	<2.10	<1.71	<1.07	<0.038
1,1-Dichloroethene	<0.68	<2.10	<1.71	<1.07	<0.038
1,2-Dichloropropane	<0.68	<2.10	<1.71	<1.07	<0.038
Ethylbenzene	<0.68	<2.10	<1.71	<1.07	<0.038
Ethylene Dibromide	<0.68	<2.10	<1.71	<1.07	<0.038
Mesitylene (1,3,5-Trimethylbenzene)	<0.68	<2.10	<1.71	<1.07	<0.038
Methylene Chloride	1.48	4.55	3.69	2.32	0.083
Styrene	0.81	2.49	2.03	1.27	0.046
Tetrachloroethene	<0.68	<2.10	<1.71	<1.07	<0.038
Toluene	7.62	23.5	19.0	12.0	0.43
1,1,1-Trichloroethane	<0.68	<2.10	<1.71	<1.07	<0.038
Trichloroethene/1,1,2-Trichloroethene	<0.68	<2.10	<1.71	<1.07	<0.038
Trichlorotrifluoroethane	<0.68	<2.10	<1.71	<1.07	<0.038
Trichlorofluoromethane	<0.68	<2.10	<1.71	<1.07	<0.038
M&P-Xylene	<1.37	<4.20	<3.41	<2.14	<0.077
O-Xylene	<0.68	<2.10	<1.71	<1.07	<0.038
Vinyl Chloride	<0.68	<2.10	<1.71	<1.07	<0.038
Total	<52.4	<161	<131	<82.2	<2.95

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 99
Clean Harbors Sarnia
Blank Volatile Organic Analyses

Compound	Field Blank Tube 6A/6B µg	Trip Blank Tube 10A/10B µg	Method Blank µg
Acetone	<0.050	<0.050	<0.050
Benzene	<0.050	<0.050	<0.050
Bromodichloromethane	<0.050	<0.050	<0.050
Bromoform	<0.050	<0.050	<0.050
Bromomethane	<0.050	<0.050	<0.050
2-Butanone	<0.050	<0.050	<0.050
Carbon Tetrachloride	<0.050	<0.050	<0.050
Chloroform	<0.050	<0.050	<0.050
Cumene (Isopropylbenzene)	<0.050	<0.050	<0.050
Dibromochloromethane	<0.050	<0.050	<0.050
Dichlorodifluoromethane	<0.050	<0.050	<0.050
1,2-Dichloroethane	<0.050	<0.050	<0.050
trans,1,2-Dichloroethene	<0.050	<0.050	<0.050
1,1-Dichloroethene	<0.050	<0.050	<0.050
1,2-Dichloropropane	<0.050	<0.050	<0.050
Ethylbenzene	<0.050	<0.050	<0.050
Ethylene Dibromide	<0.050	<0.050	<0.050
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<0.050	<0.050
Methylene Chloride	<0.050	<0.050	<0.050
Styrene	<0.050	<0.050	<0.050
Tetrachloroethene	<0.050	<0.050	<0.050
Toluene	0.93	<0.050	<0.050
1,1,1-Trichloroethane	<0.050	<0.050	<0.050
Trichloroethene/1,1,2-Trichloroethene	<0.050	<0.050	<0.050
Trichlorotrifluoroethane	<0.050	<0.050	<0.050
Trichlorofluoromethane	<0.050	<0.050	<0.050
M&P-Xylene	<0.10	<0.10	<0.10
O-Xylene	<0.050	<0.050	<0.050
Vinyl Chloride	<0.050	<0.050	<0.050
Total	<2.38	<1.50	<1.50

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

APPENDIX 2

Amended ECA No. 8295-CGGLZ3
(28 pages)

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 8295-CGGLZ3
Issue Date: September 1, 2023

Clean Harbors Canada, Inc.
4090 Telfer Rd
Corunna, Ontario
N0N 1G0

Site Location: Clean Harbors Canada Inc.
4090 Telfer Rd Corunna
St. Clair Township, County of Lambton
N0N 1G0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

- A thermal treatment system to be used for the thermal treatment of hauled industrial liquid waste venting into the atmosphere via an exhaust stack, having an exit diameter of 1.22 metres, extending 68.5 metres above grade. The Facility's maximum thermal treatment rate is 140,000 tonnes per year of Waste.

  The system consists of the following major processes and support units:

  - a refractory-lined, fixed chamber incinerator
  - a three-stage gas conditioning and cleaning system, consisting of:
    - an alkaline spray dryer
    - a powdered activated carbon injection system
    - a four compartment baghouse with an air to cloth ration of 4.1 to 1 and a total filtering area of 2790 square meters
  - incineration pre-treatment tank storage system categorized as:

- Category 1: organic waste storage and feed tanks, equipped with nitrogen blankets for emission control and vented to the incinerator;
- Category 2: alkaline system tanks containing process water and vented to atmosphere;
- Category 3: acid-alkali treatment tanks, vented to a sodium hydroxide scrubber for emission control; and
- Category 4: leachate tank, vented to the incinerator.

- two natural gas fired package boilers

- Leachate Pretreatment System used to treat leachate from the landfill prior to it being used as quench in the incinerator

all in accordance with the Application for Approval (Air) submitted by Clean Harbors Canada, Inc., dated February 16, 2022 and signed by Michael Parker, Vice President, Canadian Environmental Compliance; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by GHD, dated January 28, 2022 and signed by Gordon Reusing and includes any changes to the report made up to the date of issuance of this Approval.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Acoustic Assessment Report" means the report, prepared in accordance with Publication NPC-233 submitted in support of the application, that documents all sources of noise emissions and Noise Control Measures present at the Facility. "Acoustic Assessment Report" also means the Acoustic Assessment Report prepared by GHD Limited, dated March 9, 2022 and signed by Michael Masschaele;

2. "Acoustic Audit" means an investigative procedure consisting of measurements and/or acoustic modelling of all sources of noise emissions due to the operation of the Facility, assessed to determine compliance with the Performance Limits for the Facility regarding noise emissions, completed in accordance with the procedures set in Publication NPC-103 and reported in accordance with Publication NPC-233;

3. "Acoustic Audit Report" means a report presenting the results of an Acoustic Audit, prepared in accordance with Publication NPC-233;

4. "Acoustical Consultant" means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with Ministry noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility;

5. "Adverse Effect" means Adverse Effect as defined in subsection 1 (1) of the EPA;

6. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above;

7. "Automatic Waste Feed shut-Off (AWFSO)" is the stepwise removal of waste feed streams while maintaining flame in the primary zone using a normal amount of natural gas;

8. "Best Management Practices Plan" means a document or a set of documents which describe measures to minimize dust emissions from the Facility and/or Equipment, as updated in accordance with Condition 1 of this Approval;

9. "Company" means Clean Harbors Canada, Inc. that is responsible for the construction or operation of the Facility and includes any successors and assigns in accordance with section 19 of the EPA;

10. "Continuous Monitoring Plan" means a plan to continuously monitor and record the parameters as required by Condition 11.1;

11. "Continuous Monitoring System" means the continuous emission monitoring system described in the Continuous Monitoring Plan, consisting of continuous monitors and recording devices;

12. "Date of Commissioning" means the first day on which the Leachate Pretreatment System is used to treat leachate;

13. "Director" means a person appointed for the purpose of section 20.3 of the EPA by the Minister pursuant to section 5 of the EPA;

14. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located;

15. "Quench Verification Plan" means a comprehensive verification program, which the Company shall implement to ensure that the materials used as quench do not result in an Adverse Effect, and to ensure that the Equipment is operated in accordance with the requirements in this Approval;

16. "EPA" means the *Environmental Protection Act,* R.S.O. 1990, c.E.19;

17. "Equipment" means the equipment described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;

18. "ESDM Report" means the most current Emission Summary and Dispersion Modelling Report that describes the Facility. The ESDM Report is based on the Original ESDM Report and is updated after the issuance of this Approval in accordance with section 26 of O. Reg. 419/05 and the Procedure Document;

19. "Facility" means the entire operation located on the property where the Equipment is located;

20. "Incinerator" means the refractory-lined, fixed chamber incinerator that is part of the thermal treatment system;

21. "Independent Acoustical Consultant" means an Acoustical Consultant who is not representing the Company and was not involved in preparing the Acoustic Assessment Report or the design/implementation of Noise Control Measures for the Facility and/or Equipment. The Independent Acoustical Consultant shall not be retained by the Acoustical Consultant involved in the noise impact assessment or the design/implementation of Noise Control Measures for the Facility and/or Equipment;

22. "Leachate Pretreatment System" means the Dissolved Air Flotation system used to treat leachate from the landfill prior to it being used as quench in the incinerator;

23. "Main Stack" means the exhaust stack that discharges emissions generated during combustion of waste in the incinerator after those emissions have been treated by the gas conditioning and cleaning system;

24. "Manager" means the Manager, Technology Standards Section, Technical Assessment and Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Technology Standards Section, Technical Assessment and Standards Development Branch, as those duties relate to the conditions of this Approval;

25. "Manual" means a document or a set of documents that provide written instructions to staff of the Company;

26. "Ministry" means the ministry of the government of Ontario responsible for the EPA and includes all officials, employees or other persons acting on its behalf;

27. "Monitoring Contaminants" means the contaminants listed in Schedule E;

28. "Noise Control Measures" means measures to reduce the noise emission from the Facility and/or Equipment including, but not limited to silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers. It also means the noise control measures outlined in section 6 of the Acoustic Assessment Report;

29. "Noise Guidelines for Landfill Sites" means Ministry draft publication Noise Guidelines for Landfill Sites, October 1998, as amended;

30. "O. Reg. 347' means Ontario Regulation 347, R.R.O. 1990, as amended;

31. "Pre-Test Plan" means a plan for the Source Testing including the information required in Section 5 of the Source Testing Code;

32. "Procedure Document" means Ministry guidance document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated February 2017, as amended;

33. "Publication NPC-103" means the Ministry Publication NPC-103 of the Model Municipal Noise Control By-Law, Final Report, August 1978, published by the Ministry as amended;

34. "Publication NPC-233" means the Ministry Publication NPC-233, Information To Be Submitted For Approval of Stationary Sources Of Sound, October, 1995, as amended;

35. "Publication NPC-300" means the Ministry Publication NPC-300, " Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", August, 2013, as amended;

36. "Schedules" means the following schedules attached to this Approval and forming part of this Approval namely:

    - Schedule A - Targeted Sources for Source Testing
    - Schedule B - Test Contaminants for Source Testing
    - Schedule C - Source Testing Procedures
    - Schedule D - Dioxins, Furans and Dioxin-like PCBs (Polychlorinated Biphenyls)
    - Schedule E - Air Quality Monitoring Program Contaminants and Sampling Frequency

37. "Source Testing" means site-specific sampling and testing to measure emissions resulting from operating the Targeted Sources under operating conditions that will derive an emission rate that, for the relevant averaging period of the contaminant, is at least as high as the maximum emission rate that the source of contaminant is reasonably capable of, or a rate approved by the Manager, within the approved operating range of the Targeted Sources which satisfies paragraph 1 of subsection 11(1) of O. Reg. 419/05;

38. "Source Testing Code" means the Ontario Source Testing Code, dated June 2010, prepared by the Ministry, as amended;

39. "Targeted Sources" means the sources listed in Schedule A;

40. "Test Contaminants" means the contaminants listed in Schedule B;

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. **OPERATION AND MAINTENANCE**

1. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:

    a. prepare, before commencement of operation of the Equipment, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

        i. routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

        ii. emergency procedures, including spill clean-up procedures;

        iii. procedures for any record keeping activities relating to operation and maintenance of the Equipment;

        iv. all appropriate measures to minimize noise and odorous emissions from all potential sources.

    b. implement the recommendations of the Manual.

2. The Company shall implement and maintain Best Management Practices Plans for the control of fugitive dust, noise and odour emissions resulting from the operation of the Facility. The Company shall update the Best Management Practices Plan as necessary or at the direction of the District Manager.

3. The organic waste storage and feed tanks shall be equipped with nitrogen blankets for emission control and vented to the incinerator. Supplementary carbon bed scrubbers shall be used during periods when the incinerator is off-line.

4. The leachate storage tank shall be vented to the incinerator. Supplementary carbon bed scrubbers shall be used during periods when the incinerator is off-line.

5. The acid-alkali treatment tanks shall be vented to a sodium hydroxide scrubber at all times when the tanks are in use. The Company shall ensure that the sodium hydroxide scrubber is operated in a manner such that the control efficiency is at least 99 percent for all contaminants emitted during the operation of the tanks.

2. RECORD RETENTION

1. The Company shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this Approval, and make these records available for review by staff of the Ministry upon request. The Company shall retain:

a. all records on the maintenance, repair and inspection of the Equipment; and

b. all records of any environmental complaints, including:

i. a description, time and date of each incident to which the complaint relates;

ii. wind direction at the time of the incident to which the complaint relates; and

iii. a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

3. NOTIFICATION OF COMPLAINTS

1. The Company shall notify the Ministry's Spills Action Centre of each environmental complaint within two (2) business days of the complaint. The notification shall include:

   a. a description of the nature of the complaint; and

   b. the time and date of the incident to which the complaint relates.

4. OPERATIONAL LIMITS

1. The Company shall optimize the operation of the thermal treatment system by establishing appropriate waste feed mix scenarios to accommodate the variability of heating values encountered with the types of wastes that may be incinerated.

2. The Company shall establish, in consultation with the District Manager and acceptable to the Director, an Operational Window for operation of the thermal treatment system to ensure compliance with Condition 4 and 5 of this Approval, and the requirements of O.Reg. 419/05.

3. The Company shall, at all times, operate the thermal treatment system within the Operational Window.

4. The Company shall ensure that the combined feed of all waste streams does not exceed 245 litres per minute.

5. Combined wastes fed into the incinerator shall not contain more than 2 percent of organic chlorine by weight.

6. The Company shall ensure that the temperature of the gas in the primary combustion zone is not less than 1300 degrees Celsius during waste feed;

7. The Company shall ensure that the temperature of the gas at the exit of the incinerator is not less than 800 degrees Celsius during waste feed;

8. The Company shall ensure that the temperature of the gas at the spray dryer outlet does not exceed 220 degrees Celsius during waste feed;

9. The Company shall ensure that the pressure, as measured near the exit of the incinerator does not exceed 25 millimetres of water column for more than 5 seconds during waste feed.

10. The Company shall ensure that the fifteen (15) minute rolling average powdered activated carbon feed into the incinerator is not less than 9 kilograms per hour during waste feed.

5. PERFORMANCE LIMITS

1. The Company shall, at all times, operate the thermal treatment system in such a manner as to ensure that the following:

    a. The concentration of organic matter having a carbon content, expressed as equivalent methane, in the Main Stack expressed as a ten minute block average, shall be not more than 100 parts per million by volume on dry basis normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

    b. The one hour block average concentration of carbon monoxide in the Main Stack shall be not more than 100 parts per million by volume on dry basis normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals, or 110 milligrams per dry cubic meters normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

    c. The residual oxygen concentration in the stack, expressed as a 10-minute rolling average, shall be not less than 7 percent by volume on dry basis.

    d. The opacity at the exit of the Main Stack shall be not more than:

        i. 5 percent, calculated on a 2 hour rolling average; and

        ii. 20 percent, calculated on a 6 minute rolling average.

    e. The concentration of suspended particulate matter in the Main Stack shall be not more than 20 milligrams per dry cubic meters normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

    f. The toxicity equivalent concentration of dioxins and furans in the gases of the Main Stack shall be not more than 80 picograms per dry cubic meter normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

        i. The toxicity equivalent concentration of dioxins and furans shall be calculated in accordance with the International Scheme set out in Schedule D of the Approval.

g. The concentration of mercury in the gases of the Main Stack shall not be more than 50 micrograms per dry cubic meters normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

h. Concentration limits for Conditions 5.1.e, f and g are to be confirmed through Source Testing

6. QUENCH

1. The following liquids may be used as quench to cool the on-site incinerator:

   a. potable water from the municipal water system;

   b. stormwater generated on the Site;

   c. process water generated at the Site;

   d. effluent from the Leachate Pretreatment System; and

   e. non-hazardous industrial water received from off-site generators.

2. The maximum amount of effluent from the Leachate Pretreatment System that may be used as quench is 100 litres per minute.

3. Non-hazardous industrial water received from off-site generators. must:

   a. be liquid industrial waste which are not hazardous or odourous;

   b. have a pH between 5.5 to 10.5;

   c. have total suspended solids (TSS) less than 350 milligrams per litre;

   d. have total organic carbon (TOC) 500 milligrams per litre;

   e. have phenols less than 1.0 milligrams per litre;

   f. have metals less than O. Reg. 347, Schedule 4; and

   g. solvent extractable (oil and grease) less than 200 milligrams per litre.

4. The use of non-hazardous industrial water received from an off-site generator shall not be used unless the volume of on-site process water is less than 1 million litres.

5. Prior to being used as quench, effluent from the Leachate Pretreatment System and the non-hazardous industrial water must meet the requirements of the Quench Verification Plan.

6. Commencing the Date of Commissioning, the Company shall prepare and retain on site, and make available for review by staff of the Ministry upon request, a monthly report providing a summary of the operation of the Leachate Pretreatment System, which includes, as a minimum, the following:

    a. daily amounts of leachate treated and used as quench;

    b. the results of analytical testing for incoming leachate and treated effluent; and

    c. a list of times when the pretreatment system was not operational and the reason.

7. LEACHATE PRETREATMENT SYSTEM

1. Commissioning Period

a. Company shall develop a Commissioning Plan in consultation with and acceptable to the District Manager and the Director.

b. During the commissioning of the leachate treatment system the company shall analyze the influent and effluent for total suspended solids, volatile suspended solids, total organic carbon, oil and grease, phenols, volatile organic compounds, semi-volatile organic compounds, and metals.

c. The Company shall not use the effluent for quench unless Condition 7.1.b has been completed, and it can be demonstrated that the use of the effluent should not cause an Adverse Effect.

d. The Company shall complete Source Testing on the target source at the completion of the commission period or within six months of the date of the approval (which ever comes sooner).

e. Source testing for Condition 7.1.d shall be completed while treated effluent is used as quench at the maximum rate that the unit is capable of or a rate approved by the Manager.

f. The Company shall provide the Ministry a Report on the results of the commissioning period. The report shall include, but not be limited to:

    i. Summary of the findings during the commissioning of the treatment system;

    ii. Final proposed design of the treatment system;

    iii. Monitoring data from the Continuous Monitoring System and trend analysis for the periods when treated effluent was used as quench;

iv. Results of the Compliance Source testing including an updated ESDM Report;

v. The proposed Quench Verification Plan.

2. Quench Verification Plan

a. The Company shall develop, in consultation with and acceptable to the District Manager, a Quench Verification Plan for the operation of the Leachate Pretreatment System and for the use of non-hazardous industrial water as quench.

b. The Quench Verification Plan shall be developed during the commissioning of the Leachate Pretreatment System.

c. The Quench Verification Plan shall, at a minimum, require the Company to:

i. record the date, time, quantity, and amounts of the following:

A. leachate treated;

B. treated effluent used as quench; and

C. non-hazardous industrial water used as quench

ii. identify the criteria and maximum allowable composition for the quench liquid prior to being used as quench;

iii. identify the analytical methodology and sampling frequency for the parameters identified by Condition 7.2.c.ii;

iv. ensure that the quench meets the parameters identified by Condition 7.2.c.ii prior to being used as quench;

v. Keep records of all laboratory analysis for the leachate, treated effluent and non-hazardous industrial water. These results shall, at minimum, include:

A. a list of the individual contaminants and criteria tested and their measured concentrations;

d. The Company shall submit the Quench Verification Plan to the Director and the District Manager not later than ninety (90) days after the Date of Commissioning.

e. If the Quench Verification Plan is not accepted by the Director, the Company shall submit a Quench Verification Plan acceptable to the Director not later than three (3) months after the date of this Approval;

f. Upon acceptance of the Quench Verification Plan by the Director, the Company shall immediately implement the Quench Verification Plan.

g. The Company shall not make changes to the Quench Verification Plan, unless changes are requested in writing by the District Manager or proposed changes are accepted in writing by the District Manager. The Company shall submit the Quench Verification Plan, incorporating the changes, to the Director and the District Manager, not later than thirty (30) days from the date of the District Manager's request to make changes, or from the date of the District Manager's acceptance of the proposed changes, to the Quench Verification Plan.

3. Three (3) years from the date of this Approval the Company shall submit an application for review of the Approval.

8. AUTOMATIC WASTE SHUT-OFF

1. Automatic Waste Feed Shut-Off shall be employed if any of the following conditions occur during waste feeds:

a. primary combustion zone temperature is below 1300 degrees Celsius over a ten minute rolling average;

b. temperature of the gas at the exit of the incinerator is below 800 degrees Celsius over a ten minute rolling average;

c. spray dryer temperature exceeds 220 degrees Celsius over a 10 minute rolling average;

d. total waste feed exceeds 245 litres per minute;

e. the concentration of organic matter having a carbon content, expressed as equivalent methane, exceeds 100 parts per million over a ten minute block average;

f. the concentration of carbon monoxide in the Main Stack over a one hour block average exceeds 100 parts per million by volume on dry basis normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals, or 110 milligrams per dry cubic metres normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals;

g. the residual oxygen concentration in the stack is less than 7 percent by volume on dry basis over a ten minute block average;

h. the powdered activated carbon feed into the incinerator is less than 9 kilograms per hour over a fifteen minute rolling average;

i. pressure measured near the exit of the incinerator exceeds 25 millimetres of water column for more than 5 seconds;

j. The opacity at the exit of the Main Stack exceeds:

i. 5 percent, calculated on a 2 hour rolling average; and

ii. 20 percent, calculated on a 6 minute rolling average.

k. alkaline / lime slurry feed to the spray dryer is lost.

9. SOURCE TESTING

1. The Company shall perform Source Testing in accordance with the procedures in Schedule C to determine the rates of emissions of the Test Contaminants from the Targeted Sources listed in Schedule A, within six (6) months from the date of this Approval. Source testing shall be repeated as listed in Schedule A.

10. AIR QUALITY MONITORING PROGRAM

1. The Company shall implement and maintain an ambient air quality monitoring program for the non-continuous ambient air quality monitoring of the Monitoring Contaminants. Monitoring frequency shall be in accordance with the minimum frequency as listed in Schedule E.

2. The Company shall ensure that the ambient air quality monitoring program meets the requirements set out in the Operations Manual for Air Quality Monitoring in Ontario, dated January 2018, as amended.

3. The ambient air quality monitoring program shall include a minimum of two (2) monitoring locations that meet the siting criteria as specified in the Operations Manual for Air Quality Monitoring in Ontario, dated January 2018, as amended.

4. The Company shall submit an ambient air quality monitoring plan to the District Manager not later than ninety (90) days after the date of this Approval.

5. If the District Manager does not accept the ambient air quality monitoring plan, the District Manager may require the Company to revise and re-submit the ambient air quality monitoring program.

6. The Company shall implement the ambient air quality monitoring program as approved by the District Manager immediately.

7. All aspects of the ambient air quality program are subject to audit at any time by Ministry designated personnel.

8. No later than April 1 in each year, the Company shall submit to the District Manager a written report summarizing the results of the air quality monitoring program in accordance with the Operations Manual for Air Quality Monitoring in Ontario, as amended, prepared by a Professional Engineer.

11. CONTINUOUS MONITORING

1. The Company shall, prior to the commencement of operation of the Equipment, install and subsequently conduct and maintain a Continuous Monitoring System to continuously monitor:

    a. Opacity;

    b. Concentrations of: sulphur dioxide, hydrogen chloride, total hydrocarbons (THC), carbon monoxide and oxygen, emitted from the Main Stack;

    c. Feed rates to the incinerator, temperatures in the incinerator primary zone, temperatures in the secondary zone, temperatures in the quench zone, incinerator exit temperature, incinerator exit pressure, exit spray dryer temperature, stack gas temperature and stack gas flow;

2. Continuous emission monitoring equipment and process monitoring equipment for parameters listed in Condition 11.1 shall be equipped with continuous recording devices and with the appropriate alarms for indication of exceedances of set points where applicable;

3. Audible and/or visible alarms, as monitored in the control room, indicating exceedances of set points will be activated at the values specified in listed in Conditions 4 and 5 of this Approval;

4. The Company shall develop, not later than six (6) months from the date of this Approval, a Continuous Monitoring Plan, complete with specifications for the Continuous Monitoring System and continuous recording devices.

5. The Continuous Monitoring Plan shall include a description of, but not be limited to:

    a. source and air pollutants / parameters requiring continuous monitoring and associated targets / in-stack limits,

    b. sample probe and gas calibration port location(s) and associated flue gas conditions,

    c. sample extraction, transport and conditioning system,

    d. analyzer performance specifications,

    e. calibration strategies,

    f. relative accuracy and reference method for test audit,

g. performance indicators and monitoring frequency,

h. communication protocol(s) and corrective action(s) regarding malfunctions,

i. preventative maintenance and spare parts,

j. service contractor and staff responsibilities including training,

k. other operating and maintenance procedures as applicable,

l. data acquisition system, and

m. data verification procedures.

6. The Continuous Monitoring System shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter, when waste is being treated.

12. ANNUAL INSPECTION

1. The Company shall conduct, at least once every calendar year, an inspection of the thermal treatment system. The inspection shall include a physical inspection of the following:

    1. incinerator, including all associated:

        a. burners;

        b. nozzles;

        c. fans;

        d. pumps;

        e. waste feed systems

        f. combustion air supply systems.

    2. three stage gas conditioning and cleaning system

    3. incineration pre-treatment tank storage system and associated controls

    4. continuous monitoring system and data acquisition systems

2. The inspection shall be completed in accordance with good engineering practices and as recommended by the equipment manufacturer, by a person who has received training for the purposes of conducting such inspections.

3. The Company shall ensure that the following records are created and retained at the facility for a period of five (5) years from the date of its creation:

    a. a record of each inspection, including the date of the inspection, results of the inspection and any maintenance activities or modifications performed as a result of the inspection.

13. NOISE

1. The Company shall:

    a. implement by not later than thirty six (36) months from the date of this Approval, the Noise Control Measures outlined in section 6 of the Acoustic Assessment Report;

    b. ensure, subsequent to the implementation of the Noise Control Measures that the noise emissions from the Facility comply with the limits set in Ministry Publication NPC-300; and

    c. ensure that the Noise Control Measures are properly maintained and continue to provide the acoustical performance outlined in the Acoustic Assessment Report.

2. The Company shall ensure that the noise emissions from the landfill site operations at the Facility comply with the limits set in Noise Guidelines for Landfill Sites.

14. ACOUSTIC AUDIT

1. The Company shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Company:

    a. shall carry out Acoustic Audit measurements in accordance with the procedures in Publication NPC-103;

    b. shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of Publication NPC-233, to the District Manager and the Director, not later than twelve (12) months after the full implementation of the Noise Control Measures.

2. The Director:

    a. may not accept the results of the Acoustic Audit if the requirements of Publication NPC-233 were not followed.

b. may require the Company to repeat the Acoustic Audit if the results of the Acoustic Audit are found unacceptable to the Director.

SCHEDULE A

Targeted Sources for Source Testing:

Targeted Source	Test Contaminants	Retesting schedule
Thermal treatment system	Schedule B	Annually
Thermal treatment system	Mercury	Once every four months

SCHEDULE B

Test Contaminants for Source Testing:

Hydrogen chloride

Hydrogen fluoride

Oxygen

Carbon monoxide

Carbon dioxide

Oxides of nitrogen

Total suspended particulate matter

Metals

Metals		
Aluminum	Iron	Silicon
Antimony	Lead	Silver
Arsenic	Lithium	Sodium
Barium	Magnesium	Strontium
Beryllium	Manganese	Sulfur
Boron	Mercury	Tin
Cadmium	Molybdenum	Titanium
Calcium	Nickel	Vanadium
Chromium	Phosphorous	Zinc
Cobalt	Potassium	
Copper	Selenium	

POLYCYCLIC ORGANIC MATTER

POLYCYCLIC ORGANIC MATTER		
Acenaphthylene	Coronene	9-methylphenanthrene
Acenaphthene	Dibenzo(a,c)anthracene	napthalene
Anthracene	Dibenzo(a,h)anthracene	Perylene
Benzo(a)anthracene	9,10-dimehtylanthracene	Phenanthrene
Benzo(b)fluoranthene	7,12-dimethylbenzo(a)anthracene	Picene
Benzo(k)fluoranthene	Fluoranthrene	Pyrene
Benzo(a)fluorene	Fluorene	Tetralin
Benzo(b)fluorene	Indeno(1,2,3-cd)pyrene	Dibenzo(a,e)pyrene
Benzo(g,h,i)perylene	2-methylanthracene	Quinoline
Benzo(a)pyrene	3-methylcholanthrene	Biphenyl
Benzo(e)pyrene	1-methylnapthalene	o-terphenyl
2-chloronaphthalene	2-methylnaphthalene	m-terphenyl
Chrysene + triphenylene	1-methylphenanthrene	p-terphenyl

VOLATILE ORGANIC MATTER

VOLATILE ORGANIC MATTER		
Acetone	Dichlorodifluoromethane	Tetrachloroethene
Benzene	Dichloroethane, 1,2-	Toluene
Bromodichloromethane	Dichloroethene, trans- 1,2-	Trichloroethane, 1,1,1-
Bromoform	Dichloroethene, 1,1-	Trichloroethene
Bromomethane	Dichloropropane, 1,2-	Trichlorofluoromethane
Butanone, 2-	Ethylbenzene	Trichlorotrifluoroethane
Carbon tetrachloride	Ethylene dibromide	Vinyl chloride
Chloroform	1,3,5 trimethyl benzene (mesitylene)	Xylenes, m-, p- and o-
Cumene (isopropyl benzene)	Methylene chloride	
Dibromochloromethane	Styrene	

CHLORINATED ORGANICS

Total dichlorobenzenes

Total trichlorobenzenes (1,3,5-; 1,2,3-; 1,2,4-)

Total tetrachlorobenzenes (1,2,4,5-; 1,2,3,5-)

Pentachlorobenzene

Hexachlorobenzene

Total dichlorophenols (2,3-; 2,4-; and 2,6-)

Total trichlorophenols (2,3,4-; 2,4,5-; 2,4,6-; 3,4,5-)

Total tetrachlorophenols (2,3,4,6-; 2,3,5,6-)

Total pentachlorophenols

Total polychlorinated biphenyls c/w congeners (di, tri, tetra, penta, hexa, hepta, octa, nona and deca-chlorobiphenyls)

Polychlorinated dibenzo-p-dioxins, and polychlorinated dibenzofurans as listed in Schedule D.

Octachlorostyrene

Hexachlorobutadiene

Hexachloroethane

SCHEDULE C

Source Testing Procedures

1. The Company shall submit, not later than three (3) months prior to the Source Testing, to the Manager a Pre-Test Plan for the Source Testing required under this Approval. The Company shall finalize the Pre-Test Plan in consultation with the Manager.

2. The Company shall not commence the Source Testing required under this Approval until the Manager has approved the Pre-Test Plan.

3. The Company shall notify the Manager, the District Manager and the Director in writing of the location, date and time of any impending Source Testing required by this Approval, at least fifteen (15) days prior to the Source Testing.

4. The Company shall submit a report (electronic format) on the Source Testing to the Manager, the District Manager and the Director not later than three (3) months after completing the Source Testing. The report shall be in the format described in the Source Testing Code, and shall also include, but not be limited to:
    1. an executive summary;
    2. an identification of the applicable North American Industry Classification System code (NAICS) for the Facility;
    3. records of operating conditions at the time of Source Testing, including but not limited to the following:
        a. production data and equipment operating rate as a percentage of maximum capacity;
        b. Facility/process information related to the operation of the Targeted Sources;
        c. records of all operating conditions, including waste feed rates and types, as well as all operational problems that may have been encountered during the Source Testing;
        d. the quantity of leachate processed in the Leachate Pretreatment System, and amount of effluent used as quench during the testing;
        e. all analytical data for the leachate and treated effluent collected during the Source Testing;
    4. results of Source Testing, including the emission rate, emission concentration, and relevant emission factor of the Test Contaminants from the Targeted Sources;
    5. a tabular comparison of calculated emission rates and emission factors based on Source Testing results for the Test Contaminants to relevant estimates described in the ESDM Report, and,
5. The Director may not accept the results of the Source Testing if:

1. the Source Testing Code or the requirement of the Manager were not followed;
2. the Company did not notify the Manager, the District Manager and Director of the Source Testing; or
3. the Company failed to provide a complete report on the Source Testing.

6. If the Director does not accept the result of the Source Testing, the Director may require re-testing. If re-testing is required, the Pre-Test Plan strategies need to be revised and submitted to the Manager for approval. The actions taken to minimize the possibility of the Source Testing results not being accepted by the Director must be noted in the revision.

7. The Company shall update their ESDM Report in accordance with Section 26 of O. Reg. 419/05 and the Procedure Document with the results from the Source Testing, if any of the calculated emission factors or calculated emission rates are higher than the predicted rates in the ESDM report, not later than three (3) months after the submission of the Source Testing report and make these records available for review by staff of the Ministry upon request.

SCHEDULE D

Dioxins, Furans and Dioxin-like PCBs (Polychlorinated Biphenyls)

Toxicity equivalency factors (TEFs) are applied to 29 isomers of dioxins, furans and dioxin-like PCBs to convert them into 2,3,7,8-CDD (tetrachlorodibenzo-p-dioxin) toxicity equivalents. The conversion involves multiplying the concentration of each isomer by the appropriate TEF to yield the TEQ for this isomer. Summing the individual TEQ values for each of the isomers provides the total toxicity equivalent level for the sample mixture.

A table listing the 29 isomers and their TEFs can be found in the MECP publication titled: Summary of Standards and Guidelines to Support Ontario Regulation 416-05 – Air Pollution - Local Air Quality, PIBS 6569e01 dated April 2012 noted below.

No.	Dioxins, Furans, and Dioxin-like PCBs	CASRN	WHO_{2005} Toxic Equivalency Factors [TEFs]
1	2,3,7,8-Tetrachlorodibenzo-p-dioxin [2,3,7,8-TCDD]	1746-01-6	1
2	1,2,3,7,8-Pentachlorodibenzo-p-dioxin [1,2,3,7,8-PeCDD]	40321-76-4	1
3	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin [1,2,3,4,7,8-HxCDD]	39227-28-6	0.1
4	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin [1,2,3,6,7,8-HxCDD]	57653-85-7	0.1
5	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin [1,2,3,7,8,9-HxCDD]	19408-74-3	0.1
6	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin [1,2,3,4,6,7,8-HpCDD]	35822-46-9	0.01
7	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin [1,2,3,4,6,7,8,9-OCDD]	3268-87-9	0.0003
8	2,3,7,8-Tetrachlorodibenzofuran [2,3,7,8-TCDF]	51207-31-9	0.1
9	1,2,3,7,8-Pentachlorodibenzofuran [1,2,3,7,8-PeCDF]	57117-41-6	0.03
10	2,3,4,7,8-Pentachlorodibenzofuran [2,3,4,7,8-PeCDF]	57117-31-4	0.3
11	1,2,3,4,7,8-Hexachlorodibenzofuran [1,2,3,4,7,8-HxCDF]	70648-26-9	0.1
12	1,2,3,6,7,8-Hexachlorodibenzofuran [1,2,3,6,7,8-HxCDF]	57117-44-9	0.1
13	1,2,3,7,8,9-Hexachlorodibenzofuran [1,2,3,7,8,9-HxCDF]	72918-21-9	0.1

No.	Dioxins, Furans, and Dioxin-like PCBs	CASRN	WHO_{2005} Toxic Equivalency Factors [TEFs]
14	2,3,4,6,7,8-Hexachlorodibenzofuran [2,3,4,6,7,8-HxCDF]	60851-34-5	0.1
15	1,2,3,4,6,7,8-Heptachlorodibenzofuran [1,2,3,4,6,7,8-HpCDF]	67562-39-4	0.01
16	1,2,3,4,7,8,9-Heptachlorodibenzofuran [1,2,3,4,7,8,9-HpCDF]	55673-89-7	0.01
17	1,2,3,4,6,7,8,9-Octachlorodibenzofuran [1,2,3,4,6,7,8,9-OCDF]	39001-02-0	0.0003
18	3,3',4,4'-Tetrachlorobiphenyl [3,3',4,4'-tetraCB (PCB 77)]	32598-13-3	0.0001
19	3,4,4',5- Tetrachlorobiphenyl [3,4,4',5-tetraCB (PCB 81)]	70362-50-4	0.0003
20	3,3',4,4',5- Pentachlorobiphenyl (PCB 126) [3,3',4,4',5-pentaCB (PCB 126)]	57465-28-8	0.1
21	3,3',4,4',5,5'- Hexachlorobiphenyl [3,3',4,4',5,5'-hexaCB (PCB 169)]	32774-16-6	0.03
22	2,3,3',4,4'- Pentachlorobiphenyl [2,3,3',4,4'-pentaCB (PCB 105)]	32598-14-4	0.00003
23	2,3,4,4',5- Pentachlorobiphenyl [2,3,4,4',5-pentaCB (PCB 114)]	74472-37-0	0.00003
24	2,3',4,4',5- Pentachlorobiphenyl [2,3',4,4',5-pentaCB (PCB 118)]	31508-00-6	0.00003
25	2',3,4,4',5- Pentachlorobiphenyl [2',3,4,4',5-pentaCB (PCB 123)]	65510-44-3	0.00003
26	2,3,3',4,4',5- Hexachlorobiphenyl [2,3,3',4,4',5-hexaCB (PCB 156)]	38380-08-4	0.00003
25	2,3,3',4,4',5'- Hexachlorobiphenyl [2,3,3',4,4',5'-hexaCB (PCB 157)]	69782-90-7	0.00003
28	2,3',4,4',5,5'- Hexachlorobiphenyl [2,3',4,4',5,5'-hexaCB (PCB 167)]	52663-72-6	0.00003
29	2,3,3',4,4',5,5'- Heptachlorobiphenyl [2,3,3',4,4',5,5'-heptaCB (PCB 189)]	39635-31-9	0.00003

NOTE:

- Sum of toxicity equivalents of individual isomers

The TEF scheme is intended to be used with isomer specific analytical results. In cases where results are reported by congener group only, staff at *Ministry* 's Standards Development Branch shall be contacted for appropriate procedures to convert non-isomer specific data to TEQs.

SCHEDULE E

AIR QUALITY MONITORING PROGRAM CONTAMINANTS:

Total suspended particulate matter

Mercury (particulate and vapour)

VOLATILE ORGANIC MATTER

Parameter	Cas No.	Parameter	Cas No.	Parameter	Cas No.
Carbon Tetrachloride	56-23-5	1,1-Dichloroethane	75-34-3	MEK	78-93-3
Ethyl Benzene	100-41-4	m/p-Xylene	108-38-3/106-42-3	Tetrachloroethene	127-18-4
Isopropyl Alcohol	67-63-0	1,1-Dichloroethene	75-35-4	Trichloroethene	79-01-6
Styrene	100-42-5	1,3,5-Trimethylbenzene	108-67-8	Ethyl Acetate	141-78-6
Acetone	67-64-1	Chlorodifluoromethane	75-45-6	Naphthalene	91-20-3
1,4-Dichlorobenzene	106-46-7	Toluene	108-88-3	Heptane	142-82-5
Chloroform	67-66-3	Trichlorofluoromethane	75-69-4	o-Xylene	95-47-6
1,2-Dibromoethane	106-93-4	Chlorobenzene	108-90-7	1,2-Dichloroethene (Cis)	156-59-2
Benzene	71-43-2	Dichlorodifluoromethane	75-71-8	1,2-Dichlorobenzene	95-50-1
1,2-Dichloroethane	107-06-2	Hexane	110-54-3	1,2-Dichloroethene (Trans)	156-60-5
1,1,1-Trichloroethane	71-55-6	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1,2,4-Trimethylbenzene	95-63-6
2-Propenenitrile	107-13-1	Cyclohexane	110-82-7	1,2,3-Trimethylbenzene	526-73-8
Vinyl Chloride	75-01-4	2-Methyl Butane	78-78-4	3-Methyl Pentane	96-14-0
2-Methyl Pentane	107-83-5	Nonane	111-84-2	3-Methyl Hexane	589-34-4
Dichloromethane	75-09-2	1,2-Dichloropropane	78-87-5	p-Cymene	99-87-6
MIBK	108-10-1	1,2,4-Trichlorobenzene	120-82-1	o-Ethyl Toluene	611-14-3

METALS

Parameter	Cas No.
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-4
Cadmium	7440-43-9
Chromium	7440-47-3
Cobalt	7440-48-4
Copper	7440-50-8
Iron	15438-31-0
Lead	7439-92-1
Manganese	7439-96-5
Nickel	7440-02-0
Selenium	7782-49-2
Thallium	7440-28-0
Tin	7440-31-5
Vanadium	7440-62-2
Zinc	7440-66-6

CARBONYLS

Parameter	CAS No.
Formaldehyde	50-00-0
Acetone	67-64-1
Acetaldehyde	75-07-0
Benzaldehyde	100-52-7
Acrolein	107-02-08
Glutaraldehyde	111-30-8
Propionaldehyde (Propanal)	123-38-6
n-Butyraldehyde (n-Butanal)	123-72-3

AIR QUALITY MONITORING PROGRAM SAMPLING FREQUENCY:

Test Contaminants	Minimum Sampling Frequency
Volatile Organic Matter	Once every 12 days between January 1 and December 31
Total suspended particulate matter and Metals	Once every 12 days between January 1 and December 31
Carbonyls and Mercury	One sample day per month for May, June, July, August and September taken on a day when VOCs/TSP/Metal samples are collected

The reasons for the imposition of these terms and conditions are as follows:

1. Conditions No. 1 and 12 are included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the EPA, the regulations and this Approval.

2. Condition No. 2 is included to require the Company to keep records and to provide information to staff of the Ministry so that compliance with the EPA, the regulations and this Approval can be verified.

3. Condition No. 3 is included to require the Company to notify staff of the Ministry so as to assist the Ministry with the review of the site's compliance.

4. Conditions No. 4 thru 8 are included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.

5. Conditions No. 9, 10, and 11 are included to require the Company to gather accurate information so that the environmental impact and subsequent compliance with the EPA, the regulations and this Approval

6. Conditions No. 13 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Facility; and

7. Condition No. 14 is included to require the Company to gather accurate information and submit an Acoustic Audit Report in accordance with procedures set in the Ministry's noise guidelines, so that the environmental impact and subsequent compliance with this Approval can be verified.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 6547-5G5MSP, 8-1030-94-006 issued on March 20, 2003, April 19, 1994

In accordance with Section 139 of the *Environmental Protection Act,* you may by written notice served upon me, the Ontario Land Tribunal and in accordance with Section 47 of the *Environmental Bill of Rights,* 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act,* a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

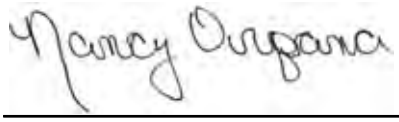
Registrar* Ontario Land Tribunal 655 Bay Street, Suite 1500 Toronto, Ontario M5G 1E5 OLT.Registrar@ontario.ca	and	The Minister of the Environment, Conservation and Parks 777 Bay Street, 5th Floor Toronto, Ontario M7A 2J3	and	The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act* Ministry of the Environment, Conservation and Parks 135 St. Clair Avenue West, 1st Floor Toronto, Ontario M4V 1P5

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca**

This instrument is subject to Section 38 of the *Environmental Bill of Rights,* 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at https://ero.ontario.ca/, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act.*

DATED AT TORONTO this 1st day of September, 2023



Nancy E Orpana, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

SM/
c: District Manager, MECP Sarnia
Gordon Reusing, GHD

APPENDIX 3

Particulate and Metals Field Data Sheets
(15 pages)

ORTECH Consulting Inc.

Plant	Clean Harbors
Plant Location	Corunna, Ontario
Test No.:	1 - Metals + Particulate
Test Date	November 14, 2023
Test Location	Incinerator Exhaust Stack
Operator Signature	T CURTIS

Project No.:	22237
Page	1 of 5
Probe No.:	S10
Meter Box No.:	COE 20090
Impinger Box No.:	

Pitot Factor	.846	
DGMCF	1.035	
Barometric Pressure	29.77	"Hg
Static Pressure	0.66	"H2O
Nozzle Size	~~.2506~~ .2641	inches
Stack Diameter	4.833 ~~5~~	
Length	0	feet
Width	0	feet
Port length:	24	inches

Reading Interval	3
Number of Ports	2
Number of Points/Port	10

Particulate Gain

Filter	1.2	mg
Probe	3.6	mg

Moisture Gain 4281.8

CWTR	~~4956.4~~	g
WCBDA	45.6	g

Combustion Gas Concentration

Oxygen	8.98	%
Carbon Dioxide	8.82	%
Carbon Monoxide	52.4	ppm

Measuring Device	MII Numbers
Probe / Pitot	B03771
Trendicator	
Control Box	TEAM 4
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env.Can
Calipers	

Nozzle Measurements	
1	~~.2505~~ .2640
2	~~.2505~~ .2640
3	~~.2505~~ .2643
4	~~.2510~~ .2640
Average:	~~.2506~~ .2641

Probe Liner (Glass) / Metal /Teflon / Other_____

Nozzle (Glass) / Metal / Other_____

Union (None) /Metal / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Site Diagram

S10
.846
.2506

Notes:

Field Data Sheet

Date: Nov. 14, 2023	Plant: Clean Harbors	Test No.: 1 - Metals & particulate	Page 2 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	540.01	1.7	.77	369	255	246.	41	41	63	62.	2.2	7.2.
	3	542.44	1.6	.75	368	266	255	40	157	66	66	2.2	7.2
	6	544.76.	1.7	.77	369	270	253	40	147	67	66	2.1	7.1
	9	547.12.	1.7	.77	370	271	253	40	141	67	67	2.2	7.2.
2	12	549.5.	1.8	.80	370	272	253	40	153	68	68	2.2	7.2.
	15	551.92.	1.8	.80	370	272	252	40	151	68	70	2.3	7.5.
	18	553.55.	1.6.	.75.	371	271	253	39	150	68	71	2.3	7.8.
	21	556.74	1.6	.76	371	271	255	40	149	69	73	2.15.	7.7.
3	24	559.1	1.8.	.80	371	269	255	39	147	69	74	2.2	7.7.
	27	561.57	2.1	.87	371	272	250	39	254	70	76.	2.35	7.9.
	30	564.19	2.1	.87	370	272	257	40	255	70	77	2.65	8.8.
	33	566.82.	2.1	.87	371	265	254	40	255	71	78.	2.7	8.5.
4	36	569.56	2.0.	.85	370	270	252	42	255	71	79	2.7	8.5.
	39	572.08	1.9	.83	369	268	254	42	254	72	79	2.6	8.7.
	42	574.65	2.0	.85.	370	265	253	42	254	72	80.	2.55	8.6.
	45	577.27	1.9	.83	369	269	255	42	255	73	81	2.6	8.7
5	48	579.86	1.9	.83	369	266	253	45.	254	73	81	2.55	8.8.
	51	582.45	2.1	.88	369	267	256	46	255	74	81	2.5.	8.8.
	54	585.1	2.0	.86.	368	269	251	48	254	74	81	2.7	8.9
	57	587.71	2.1	.88	369	271	256	51	256	74	82	2.6	8.9.
6	60	590.36.	2.2	.90	369	265	252	53	255	74	82.	2.7	8.9

Traverse: 1					
Start Time: 09:33.	Initial Leak Check:	.003	cfm@	16	"Hg
Finish Time:	Final Leak Check:		cfm@		"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Port 2.

Project No.: 22237

Operator: TC.

Field Data Sheet

Date: Nov. 14, 23	Plant: Clean Harbors	Test No.: 1 - Metals + Particulate	Page 3 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	593.07	2.2	.90	369	265	256	55	256	74	82	2.8	9.1
	66	595.78	2.4	.94	370	269	254	60	255	75	82	2.8	9.1
	69	598.57	2.3	.92	369	272	253	64	255	75	82	3.0	9.5
7	72	601.34	2.2	.90	369	264	254	66	249	75	82	2.95	9.9
	75	604.09	2.2	.90	370	267	256	59	254	75	81	2.55	9.8
	78	606.83	2.2	.90	368	267	255	56	254	75	81	2.45	9.8
	81	609.56	2.2	.90	369	270	252	54	254	75	81	2.45	9.8
8	84	612.29	2.2	.90	369	270	255	51	251	75	81	2.8	9.5
	87	614.99	2.2	.90	370	269	255	51	254	75	81	2.8	9.5
	90	617.74	2.2	.90	370	265	256	51	256	76	81	2.8	9.5
	93	620.45	2.2	.90	371	270	253	52	257	76	81	2.8	9.4
9	96	623.16	2.2	.90	371	269	254	55	256	76	81	2.8	9.4
	99	625.86	2.1	.88	372	264	257	59	251	76	81	2.8	9.4
	102	628.55	2.4	.94	372	268	252	54	250	76	81	2.7	9.7
	105	631.34	2.0	.86	371	267	256	52	256	76	81	3.0	9.9
10	108	633.99	2.1	.88	373	270	253	52	257	76	81	2.6	9.1
	111	636.65	2.1	.88	371	266	256	53	256	76	81	2.7	9.2
	114	639.3	2.0	.86	372	269	253	55	256	76	82	2.7	9.2
	117	641.92	2.1	.88	373	263	257	56	255	76	82	2.6	9.1
	120	644.58											

Traverse: 1				Traverse:			
Start Time: 11:33	Initial Leak Check:	cfm@	"Hg	Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time: 4	Final Leak Check: .005	cfm@	16. "Hg	Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator: TC

Field Data Sheet

Date: NOV. 14, 2023	Plant: Clean Harbors	Test No.:	Page 4 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	645.15	1.7	.78	373	262	254	49	69	73	73	2.2	8.1
	3	647.58	1.8	.80	374	263	257	42	216	73	72	2.2	8.1
	6	650.02	1.7	.78	373	265	256	41	241	74	73	2.3	8.2
	9	652.43	1.6	.76	373	269	252	42	248	74	74	2.2	8.2
2	12	654.75	1.6	.78	373	265	254	42	250	74	74	2.1	8.1
	15	657.06	1.7	.78	374	265	256	42	250	74	76	2.1	8.1
	18	659.42	1.6	.76	373	269	252	43	249	74	77	2.2	8.2
	21	661.75	1.6	.76	374	265	255	43	248	74	78	2.1	8.1
3	24	664.08	1.8	.81	373	264	253	44	245	74	79	2.1	8.1
	27	666.49	1.7	.79	373	268	253	44	246	75	80	2.35	8.8
	30	668.9	2.0	.85	374	268	257	45	251	75	80	2.2	8.5
	33	671.48	1.8	.81	373	269	251	45	250	75	81	2.6	9.1
4	36	673.99	2.0	.86	371	267	258	47	254	76	81	2.3	8.8
	39	676.56	1.9	.83	371	268	254	48	253	76	81	2.6	9.1
	42	679.12	1.9	.84	368	267	251	51	251	76	81	2.5	9.1
	45	681.67	1.8	.82	367	268	256	55	253	76	82	2.5	9.0
5	48	684.2	1.8	.81	370	264	253	60	253	77	80	2.4	8.9
	51	686.71	1.8	.81	369	270	255	58	249	77	82	2.4	8.9
	54	689.21	1.8	.82	369	265	254	55	254	77	83	2.4	8.9
	57	691.72	1.8	.82	370	269	257	55	255	77	83	2.4	8.9
6	60	694.22	2.0	.86	369	270	254	55	251	78	83	2.4	8.9

Traverse: 2				
Start Time: 12:06	Initial Leak Check: .005	cfm@ 17	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator: TC

Field Data Sheet

Date: Nov. 14, 23	Plant: Clean Harbors	Test No.: 1 - Metals + Particulate	Page 5 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	696.81	1.9	.84	370	270	255	57	253	78	83	2.6	9.3.
	66	699.39	2.0	.86	369	263	253	60	252	78	83	2.5	9.1
	69	702.00	1.9	.84	368	269	255	63	216	78	84	26	9.2.
7	72	704.59	2.2	.90	368	269	253	62	244	79	84	2.5	9.0
	75	707.31	2.2	.91	366	263	255	50	248	79	84	2.85	9.8.
	78	710.04	2.3	.93	368	≥70	255	50	251	79	84	2.85	9.8
	81	712.82.	2.2.	.91	367	266	255	51	251	79	84	2.99	9.9
8	84	715.58	2.3	.93	368	268	254	53	250	79	84	2.85	9.9
	87	718.35	2.2	.91	367	266	252	50	222	79	84	2.99	10.
	90	721.09	2.2	.91	367	264	254	47	250	79	84	2.85	9.8.
	93	723.81	2.2.	.91	366	264	251	46	252	79	84	2.85	9.8.
9	96	726.53	2.2	.91	368	265	260	45	258	80	84	2.45	9.8.
	99	729.29	2.2	.91	368	270	255	45	257	80	84	2.9	9.9.
	102	732.04	2.1	.89	367	267	253	45	256	80	84	2.85	9.9
	105	734.75	2.1	.88	369	271	255	48	258	80	84	2.75	9.8.
10	108	737.45	2.2.	.91	369	267	257	48	259	80	84	2.75	9.8
	111	740.16	2.1	.88	368	268	254	47	250	80	84	2.85	9.9
	114	742.88	2.2	.91	369	268	254	45	252	80	84	2.75	9.9
	117	745.60	2.1	.88.	368	268	256	46	256	80	84	2.9	9.9
	120	748.32											

Traverse: 2.			
Start Time: 14:06	Initial Leak Check: .005	cfm@ 17	"Hg
Finish Time: X	Final Leak Check: X	cfm@ X	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : TC

ORTECH Consulting Inc.

Plant	Clean Harbors
Plant Location	Corunna, Ontario
Test No.:	2 - Metals + Particulate
Test Date	November 15 2023
Test Location	Incinerator Exhaust Stack
Operator Signature	

Project No.:	22237
Page	1 of 5
Probe No.:	S10
Meter Box No.:	TEAM #4
Impinger Box No.:	

Pitot Factor	.846	
DGMCF	1.035	
Barometric Pressure	29.52	"Hg
Static Pressure	0.06	"H2O
Nozzle Size	.2506	inches
Stack Diameter	4.833	
Length	0	feet
Width	0	feet
Port length:	24	inches

Reading Interval	3
Number of Ports	2
Number of Points/Port	10

Particulate Gain

Filter	1.1	mg
Probe	1.8	mg

Moisture Gain

CWTR	3585.8	g
WCBDA	33.4	g

Combustion Gas Concentration

Oxygen	8.55	%
Carbon Dioxide	9.11	%
Carbon Monoxide	89.7	ppm

Measuring Device	MII Numbers
Probe / Pitot	B03771
Trendicator	
Control Box	COE 20090
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env.Can
Calipers	

Nozzle Measurements	
1	.2505
2	.2505
3	.2505
4	.2510
Average:	.2506

Probe Liner (Glass) / Metal /Teflon / Other_____

Nozzle (Glass) / Metal / Other_____

Union (None) /Metal / Teflon / Other_____

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: Nov. 15, 2023	Plant: Clean Harbors	Test No.: 2 - Metals & Particulate	Page 2 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	749.33	2.1	.75	372	261	254	48	58	70	70	1.75	5.3
	3	751.48	2.1	.75	372	260	265	45	207	71	69	1.75	5.3
	6	753.62	2.2	.77	371	268	271	46	225	71	67	1.8	5.3
	9	755.82	2.1	.75	370	265	272	45	233	71	66	1.95	5.5
2	12	758.01	2.3	.78	372	269	270	44	237	71	66	1.9	5.8
	15	760.26	2.1	.75	369	266	265	43	236	70	67	2.05	6.0
	18	762.48	2.0	.73	371	272	260	43	236	70	68	1.95	5.9
	21	764.67	2.1	.75	371	269	256	43	233	70	70	1.9	5.9
3	24	766.90	2.1	.75	372	268	252	43	230	70	71	2.0	6.0
	27	769.13	2.1	.75	373	265	255	43	215	70	72	1.95	6.1
	30	771.36	2.1	.75	372	272	255	43	215	70	73	1.95	6.1
	33	773.59	2.3	.79	371	266	252	42	215	71	74	1.95	6.1
4	36	775.95	2.2	.77	371	270	257	42	216	71	74	2.15	6.4
	39	778.31	2.2	.77	369	271	254	42	227	72	75	2.15	6.4
	42	780.65	2.2	.77	369	268	253	43	228	72	75	2.1	6.4
	45	782.98	2.2	.77	370	266	256	43	228	72	75	2.1	6.4
5	48	785.31	2.3	.79	369	272	255	43	229	72	75	2.1	6.4
	51	787.68	2.2	.77	368	269	253	43	229	72	74	2.2	6.8
	54	789.99	2.4	.81	369	266	254	43	229	72	74	2.1	6.5
	57	792.42	2.3	.79	368	272	255	43	229	72	75	2.25	6.6
6	60	794.89	2.6	.82	368	269	253	43	229	72	75	2.2	6.9

Traverse:				
Start Time: 08:49	Initial Leak Check: .002	cfm@ 17	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Traverse:				
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

East port / Far well.

Project No.: 22237

Operator: TC

Field Data Sheet

Date: Nov. 15. 23.	Plant: Clean Harbors	Test No.: 2 - Metals + Dechlorinate	Page 3 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	797.27	2.3	.79	368	271	254	41	223	72	75.	2.3	7.0.
	66	799.70.	2.3.	.79	368	272	255	41	226	72	75.	2.2	6.9
	69	802.09	2.3	.79	369	267	252	41	226	72	76.	2.2	6.9
7	72	804.46.	2.1	.76	370	266	256	42	197	72	77	2.15.	6.9.
	75	806.78.	2.0.	.74	369	269	255	42	216	73	78.	2.05.	6.8.
	78	809.06.	2.0	.74	370	268	252.	41	216	73	78.	2.0	6.5.
	81	811.31	2.1	.76.	369	269	254	41	215	73	78.	2.0	6.5.
8	84	813.57	1.9.	.72.	370	268	254	41	223	73	78.	2.0	6.5.
	87	815.79	1.8	.70	371	264	252	42	223	73	78	1.9	6.3.
	90	817.93.	1.9	.72	369	267	254	42	223	73	79	1.75	6.1
	93	820.10	1.8.	.70.	369	268	252	43	224	73	79.	1.85	6.1
9	96	822.23	2.0	.74	368	268	253	45	224	73	79	1.75	6.1
	99	824.40	1.6.	.66	368	269	254	43	224	73	79	1.9	6.2.
	102	826.46.	1.8.	.70	367	268	252	42	223	73	79	1.55.	6.0.
	105	828.54	1.6	.66	371	263	255	43	222	74	79	1.9	6.1
10	108	830.73	1.6	.66	366	268	255	45	225	74	79	1.7	6
	111	832.82	1.6	.66	366	266	251	45	224	74	79	1.6	6.
	114	834.83	1.7	.68	366	268	252	46	220	74	79.	1.55	6.
	117	836.87	1.6.	.66	365	262	257	47	223	74	79.	1.65	6.1
	120	838.87											

Traverse: 1			
Start Time: 8	Initial Leak Check:	cfm@	"Hg
Finish Time: 10:49	Final Leak Check: .004	cfm@ 16	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator: TC

Field Data Sheet

Date: Nov 15, 23	Plant: Clean Harbors	Test No.: 2 - Metals & Particulate	Page 4 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	839.44	1.5	.64	369	257	254	52	55	71	71	1.45	5.5
	3	841.40	1.7	.68	369	260	253	46	222	72	70	1.45	5.5
	6	843.39	1.6	.66	370	266	253	46	230	72	69	1.55	5.7
	9	845.34	1.5	.64	370	264	256	44	235	72	70	1.45	5.5
2	12	847.25	1.5	.64	370	268	246	43	234	72	72	1.4	5.4
	15	849.14	1.6	.66	372	268	254	43	236	72	73	1.4	5.4
	18	851.08	1.7	.68	372	269	254	44	241	72	74	1.5	5.5
	21	853.02	1.5	.64	372	264	254	44	238	72	75	1.5	5.8
3	24	854.98	1.7	.68	373	267	247	44	239	73	76	1.5	5.8
	27	856.98	1.8	.70	372	264	258	41	214	73	77	1.6	6.1
	30	858.9	1.7	.68	373	267	255	41	213	73	77	1.6	6.2
	33	860.05	1.8	.70	373	268	254	41	213	73	78	1.65	6.4
4	36	863.13	1.9	.70	373	267	253	41	214	74	78	1.7	6.4
	39	865.23	1.9	.72	373	266	253	42	234	74	78	1.75	6.5
	42	867.4	1.8	.70	374	263	258	42	236	74	79	1.8	6.5
	45	869.53	2.0	.74	374	269	249	43	237	74	79	1.75	6.3
5	48	871.73	1.9	.72	375	268	253	43	239	75	79	1.9	6.5
	51	873.91	1.9	.72	376	270	251	43	239	75	79	1.8	6.6
	54	876.07	2.0	.74	375	264	255	43	238	75	79	1.8	6.6
	57	878.27	1.9	.72	375	265	253	45	246	75	79	2.0	6.6
6	60	880.49	2.1	.76	373	268	249	44	239	75	80	1.9	6.8

Traverse: 2				
Start Time: 11:32	Initial Leak Check: .004	cfm@ 16	"Hg
Finish Time:	Final Leak Check: ~~.004~~	cfm@	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

~~Pb~~ Part #1

Project No.: 22237

Operator: TC.

Field Data Sheet

Date: Nov. 15. 23	Plant: Clean Harbors	Test No.: 2 - Metals + Particulate.	Page 5 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	882.75	2.1	.76	372	265	256	42	213	76	79	2.0	6.9
	66	885.03	2.1	.76	371	263	251	42	213	76	79	2.0	6.9
	69	887.31	2.1	.76	370	267	255	43	213	76	80	2.0	6.9
7	72	889.59	2.2	.78	371	266	258	44	215	76	80	2.0	6.9
	75	891.89	2.2	.78	370	263	256	44	238	76	80	2.05	7.0
	78	894.20	2.3	.80	369	267	251	45	238	76	80	2.05	7.0
	81	896.55	2.2	.78	369	267	254	45	238	76	80	2.15	7.1
8	84	898.89	2.1	.76	369	268	255	45	239	77	80	2.1	7.0
	87	901.18	2.2	.78	368	267	253	46	241	77	80	2.0	6.9
	90	903.46	2.1	.76	369	266	254	47	240	77	80	2.1	7.1
	93	905.79	2.3	.80	368	265	252	49	240	77	81	2.0	7.0
9	96	908.17	2.0	.75	367	266	256	51	241	77	81	2.2	7.2
	99	910.41	2.1	.76	365	267	254	49	238	77	80	1.9	6.9
	102	912.69	2.1	.77	365	263	255	49	241	77	81	2.0	7.0
	105	915.00	2.0	.75	365	266	254	49	241	77	81	2.05	7.0
10	108	917.22	2.1	.77	365	264	250	49	239	78	81	1.9	6.9
	111	919.48	2.0	.75	365	267	254	48	240	78	81	2.	6.9
	114	921.71	2.0	.75	367	267	253	49	239	78	81	1.9	7.0
	117	923.92	2.0	.75	367	267	255	49	238	78	81	1.9	6.9
	120	926.14											

Traverse: 2.			
Start Time: ~~13:39.~~	Initial Leak Check:	cfm@	"Hg
Finish Time: 13:32	Final Leak Check: .003	cfm@ 16	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : TC

ORTECH Consulting Inc.

Plant	Clean Harbors
Plant Location	Corunna, Ontario
Test No.:	3 - Metals + Particulate.
Test Date	November 16, 2023
Test Location	Incinerator Exhaust Stack
Operator Signature	

Project No.:	22237
Page	1 of 5
Probe No.:	S10
Meter Box No.:	TEAM #4
Impinger Box No.:	

Pitot Factor	.8460	
DGMCF	1.035	
Barometric Pressure	29.48	"Hg
Static Pressure	0.06	"H2O
Nozzle Size	0.2506	inches
Stack Diameter	4.833	
Length	0	feet
Width	0	feet
Port length:	24	inches

Reading Interval	3
Number of Ports	2
Number of Points/Port	10

Particulate Gain

Filter	8.0	mg
Probe	6.5	mg

Moisture Gain

CWTR	3396.9	g
WCBDA	34.0	g

Combustion Gas Concentration

Oxygen	8.70	%
Carbon Dioxide	9.11	%
Carbon Monoxide	89.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	B03771
Trendicator	
Control Box	C0E20090
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env.Can
Calipers	

Nozzle Measurements

1 _____
2 _____
3 _____
4 _____
Average: 0.2506

Probe Liner (Glass) / Metal /Teflon / Other_____

Nozzle (Glass) / Metal / Other_____

Union (None) /Metal / Teflon / Other_____

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: Nov. 16, 2023	Plant: Clean Harbors	Test No.: 3 - Metals & Particulate	Page 2 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	27.72	1.6	.64	374	260	251	53	55	61	61	1.45	5.2
	3	29.64	1.5	.62	374	263	257	45	213	62	60	1.45	5.2
	6	31.50	1.4	.60	376	267	262	43	214	62	59	1.4	5.2
	9	33.33	1.5	.62	376	266	262	41	214	62	60	1.3	5.1
2	12	35.18	1.4	.60	376	267	258	41	231	63	61	1.4	5.2
	15	36.98	1.5	.62	378	266	256	42	232	63	63	1.3	5.2
	18	38.83	1.5	.62	379	269	252	43	231	63	64	1.4	5.2
	21	40.70	1.7	.66	380	269	248	44	228	63	66	1.4	5.4
3	24	42.69	1.6	.65	380	270	254	42	232	64	67	1.55	5.9
	27	44.67	1.6	.65	381	270	259	43	236	64	68	1.5	5.9
	30	46.64	1.5	.63	382	268	259	43	238	64	69	1.5	5.9
	33	48.53	1.6	.65	384	269	255	42	235	65	69	1.4	5.8
4	36	50.46	1.6	.65	383	271	252	42	233	65	70	1.5	5.9
	39	52.41	1.5	.63	383	266	250	43	231	65	71	1.5	5.9
	42	54.32	1.7	.67	384	271	255	43	233	66	71	1.4	5.8
	45	56.33	1.6	.65	383	269	254	45	234	66	72	1.6	6.0
5	48	58.28	1.9	.71	385	266	254	46	234	67	73	1.5	5.9
	51	60.39	1.8	.69	385	271	252	44	214	67	73	1.75	6.3
	54	62.48	1.8	.69	386	266	253	42	229	67	74	1.7	6.2
	57	64.58	1.8	.69	385	267	255	42	233	68	74	1.7	6.2
6	60	66.66	1.9	.71	390	270	254	43	233	69	75	1.7	6.2

Traverse: 1				
Start Time: 09:11	Initial Leak Check: .003	cfm@	10	"Hg
Finish Time:	Final Leak Check:	cfm@		"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

West port / Far Wall.

Project No.: 22237

Operator: TC

Field Data Sheet

Date: Nov. 16, 2023	Plant: Clean Harbors	Test No.: 3 - Metals + Particulate	Page 3 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	68.79	1.9	.71	391	267	252	43	232	69	75.	1.8	6.4
	66	70.92	1.9	.71	393	271	254	44	233	70	75.	1.8	6.4
	69	73.05.	2.0	.73	395	271	254	46	233	70	76.	1.8	6.4
7	72	75.24	1.9	.71	394	272	252	49	233	71	76.	1.9	6.5.
	75	77.41	2.2	.76	394	270	252	51	231	71	76.	1.8	6.5.
	78	79.65.	2.2.	.76	392	269	256	53	233	71	76.	2.0	6.8.
	81	81.95.	2.1	.75.	392	268	255	54	235	72	76.	2.05	6.9.
8	84	84.21	2.1	.75	392	267	250	55	234	72	77	2.0	6.9
	87	86.48.	2.0.	.73	392	269	254	55	234	72	77	2.0	6.9.
	90	88.65	2.1	.75	393	269	256	56	236	73	77	1.8	6.8.
	93	90.87	2.1	.75.	393	269	250	58	233	73	78.	1.9	6.9.
9	96	93.11	2.0.	.73	393	269	258	61	238	74	78.	1.9	6.9.
	99	95.33	2.0.	.73	394	263	257	55	238	74	79.	1.85	6.8.
	102	97.52.	2.0	.73.	394	266	253	54	237	75	79.	1.85	6.8.
	105	99.72	2.0.	.73.	393	268	253	56	235	75	79.	1.85	6.8.
10	108	101.92	2.1	.75	394	264	256	57	237	75	79	1.85	6.8.
	111	104.16	2.0	.73	392	268	251	60	236	75	79	1.95	6.9
	114	106.35.	1.8	.69	392	264	254	61	236	75	79	1.9	6.8.
	117	108.52	1.8	.69	391	268	251	55	234	75	79	1.7	6.5.
	120	110.60										1.7	6.4

Traverse: 1			
Start Time: ~~11:31~~	Initial Leak Check:	cfm@	"Hg
Finish Time: 11:11	Final Leak Check: .001	cfm@ 15.	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator: TC

Field Data Sheet

Date: Nov. 16, 2023	Plant: Clean Harbors	Test No.: 3 - Metals & Particulate.	Page 4 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	111.36	1.9	.71	387	259	254	56	79	73	73	1.7	5.8
	3	113.46	1.9	.71	388	263	256	46	229	73	72	1.7	5.8
	6	115.56	2.0	.73	386	267	260	45	239	73	71	1.7	5.8
	9	117.68	1.9	.71	387	263	261	45	245	73	72	1.8	6.1
2	12	119.81	1.9	.71	387	265	259	45	242	73	73	1.8	6.1
	15	121.92	1.9	.71	387	270	257	45	243	73	74	1.75	6.1
	18	124.05	2.1	.75	387	270	254	46	241	73	75	1.8	6.2
	21	126.28	2.0	.73	387	268	251	46	212	73	76	1.95	6.5
3	24	128.5	2.1	.75	387	270	254	42	214	73	76	1.9	6.7
	27	130.74	2.1	.75	387	270	253	41	214	73	77	2.0	6.9
	30	133.02	2.0	.73	385	265	251	41	231	73	77	2.0	7.0
	33	135.26	2.0	.73	383	265	254	42	234	73	77	1.9	6.9
4	36	137.48	2.1	.75	384	270	256	44	237	74	78	1.9	6.9
	39	139.74	2.1	.75	383	271	255	43	240	74	78	2.0	7.0
	42	142.01	2.0	.73	383	278	253	44	238	74	78	2.0	7.1
	45	144.24	2.1	.75	384	269	252	45	237	74	78	1.9	7.0
5	48	146.52	2.1	.75	383	270	255	46	237	74	78	2.0	7.1
	51	148.80	2.1	.75	384	267	256	44	241	74	79	2.0	7.1
	54	151.09	2.1	.75	384	266	254	44	239	75	79	2.0	7.1
	57	153.38	2.2	.77	385	265	250	44	236	75	79	2.0	7.1
6	60	155.69	2.1	.75	385	268	256	45	240	75	79	2.1	7.3

Traverse: 2.				
Start Time: 11:38	Initial Leak Check: .002	cfm@ 15	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

North port / Far Wall

Project No.: 22237

Operator: TC

Field Data Sheet

Date: Nov. 16, 2023	Plant: Clean Harbors	Test No.: 3- Metals + Particulate.	Page 5 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	157.98	2.2	.77	386	269	257	45	242	75	79	2.0	7.1
	66	160.29	2.2	.77	386	268	256	46	242	75	79	2.1	7.3
	69	162.62	2.1	.75	386	267	254	47	242	75	79	2.1	7.3
7	72	164.91	2.1	.75	389	269	252	50	239	75	79	2.0	7.1
	75	167.19	1.8	.70	388	266	257	50	239	76	79	2.0	7.1
	78	169.31	1.9	.72	389	265	258	51	240	76	79	1.7	6.9
	81	171.46	1.8	.70	386	269	255	54	240	76	80	1.8	6.9
8	84	173.69	1.8	.70	389	263	251	55	214	76	80	1.7	6.8
	87	175.67	1.8	.70	388	265	256	53	232	76	80	1.65	6.8
	90	177.77	1.7	.68	389	267	255	53	236	77	81	1.7	6.8
	93	179.82	1.7	.68	389	266	252	53	235	77	81	1.6	6.8
9	96	181.86	1.7	.68	390	267	255	53	235	77	81	1.6	6.8
	99	183.90	1.7	.68	389	263	256	53	241	77	81	1.6	6.8
	102	185.93	1.6	.66	389	265	253	53	238	77	81	1.6	6.8
	105	187.90	1.6	.66	389	266	254	53	238	77	81	1.5	6.6
10	108	189.89	1.6	.66	388	262	255	55	238	77	81	1.5	6.6
	111	190.85	1.6	.66	388	267	253	56	240	77	81	1.5	6.6
	114	193.83	1.6	.66	386	265	255	57	243	77	81	1.5	6.6
	117	195.80	1.6	.66	386	267	255	59	238	77	81	1.5	6.6
	120	197.77											

Traverse: 2			
Start Time: ~~13:38~~	Initial Leak Check:	cfm@ 15	"Hg
Finish Time: 13:38	Final Leak Check: .003	cfm@ 15	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator: TC

APPENDIX 4

Semi-Volatile Organic Compound Field Data Sheets
(15 pages)

ORTECH Consulting Inc.

Plant	Clean Harbors
Plant Location	Corunna, Ontario
Test No.:	1 SVOC
Test Date	NOVEMBER 14, 2023
Test Location	Incinerator Exhaust Stack
Operator Signature	DH

Project No.:	22237
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 1
Impinger Box No.:	

Pitot Factor	.843	
DGMCF	0.963	
Barometric Pressure	29.77	"Hg
Static Pressure	0.66	"H2O
Nozzle Size	.2459	inches
Stack Diameter	4.833	
Length	0	feet
Width	0	feet
Port length:	24	inches

Reading Interval	3
Number of Ports	2
Number of Points/Port	10

Particulate Gain

Filter	0	mg
Probe	0	mg

Moisture Gain

CWTR	3365.2	g
WCBDA	17.5	g

Combustion Gas Concentration

Oxygen	8.99	%
Carbon Dioxide	9.32	%
Carbon Monoxide	52.4	ppm

Measuring Device	MII Numbers
Probe / Pitot	59
Trendicator	
Control Box	COEZ0074
Incline Manometer	
Comb.Gas.Analyzer	MSML
Micromanometer	
Barometer	Env.Can
Calipers	B03906

Nozzle Measurements	
1	.2460
2	.2460
3	.2460
4	.2455
Average:	

Probe Liner (Glass) / Metal /Teflon / Other_____

Nozzle (Glass) / Metal / Other_____

Union (None) / Metal / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Site Diagram

Notes:

Field Data Sheet

Date: NOV 14/23	Plant: Clean Harbors	Test No.: 1 SVOC	Page 2 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3 7.12	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	6.97	1.55	.63	367	257	261	43	47	61	59	1.3	3.5
	3	9.18	1.5	.63	368	260	260	43	39	63	61	1.2	3.5
	6	11.04	1.55	.63	369	260	260	43	39	63	61	1.2	3.5
	9	12.81	1.55	.63	370	260	261	40	40	64	61	1.2	3.5
2	12	14.57	1.5	.62	370	267	261	39	42	63	61	1.2	3.5
	15	16.48	1.55	.63	371	267	260	39	42	63	61	1.2	3.5
	18	18.39	1.55	.63	371	262	260	37	46	63	62	1.2	3.5
	21	20.29	1.5	.62	370	262	260	37	45	63	62	1.2	3.5
3	24	22.18	1.6	.64	371	261	260	40	48	64	63	1.3	4
	27	24.12	1.65	.65	370	268	261	39	46	64	63	1.3	4
	30	26.06	1.65	.65	370	260	261	39	46	64	63	1.3	4
	33	28.07	1.65	.65	370	262	260	38	46	65	63	1.3	4
4	36	29.96	1.7	.66	369	262	260	38	46	65	63	1.3	4
	39	31.92	1.75	.67	369	262	261	39	45	67	65	1.4	4
	42	33.94	1.75	.68	369	262	261	39	44	67	65	1.4	4
	45	35.96	1.8	.69	369	262	261	39	44	67	65	1.4	4
5	48	38.00	1.8	.69	370	262	261	39	44	67	65	1.4	4
	51	40.03	1.85	.69	369	262	260	39	41	68	66	1.5	4.5
	54	42.12	1.85	.70	369	262	259	39	42	68	66	1.5	4.5
	57	44.19	1.8	.69	369	262	259	39	42	68	66	1.5	4.5
6	60	46.29	2.1	.74	368	263	246	39	44	70	67	1.8	5

Traverse: ✓ 1				Traverse:			
Start Time: 933	Initial Leak Check: 003	cfm@ 14.5	"Hg	Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg	Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : DP WG

Field Data Sheet

Date: NOV 14/23	Plant: Clean Harbors	Test No.: 1 SVOC	Page 3 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	48.52	2.05	.74	368	264	262	39	47	70	68	1.7	5
	66	50.70	2.05	.74	368	264	262	39	47	70	68	1.7	5
	69	52.99	2.05	.74	368	264	262	39	47	70	68	1.7	5
7	72	55.22	2.1	.75	369	265	260	40	54	70	68	1.7	5
	75	57.47	2.2	.76	369	265	260	40	50	71	68	1.7	5
	78	59.74	2.15	.75	368	264	261	40	51	71	69	1.7	5
	81	61.96	2.2	.76	369	264	261	40	51	71	68	1.8	5
8	84	64.27	2.1	.75	370	264	261	40	44	71	69	1.8	5
	87	66.55	2.15	.75	369	264	261	40	44	71	69	1.8	5
	90	68.83	2.15	.75	370	266	261	41	44	71	70	1.8	5
	93	71.14	2.2	.76	370	265	261	41	43	71	70	1.8	5
9	96	73.42	2.1	.75	370	265	261	40	42	71	70	1.8	5
	99	75.70	2.15	.76	370	265	261	40	47	72	70	1.8	5
	102	77.99	2.15	.76	370	265	261	40	46	72	70	1.8	5
	105	80.27	2.15	.76	370	265	261	40	46	72	70	1.8	5
10	108	82.53	2.2	.76	371	268	263	43	55	72	71	1.8	5
	111	84.80	2.15	.76	371	267	262	43	57	72	71	1.8	5
	114	87.08	2.2	.76	371	268	262	43	60	72	71	1.8	5
	117	89.34	2.2	.76	371	268	262	46	63	72	71	1.8	5
	120	91.61											

Traverse:					Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg		Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time: 1133	Final Leak Check: .005	cfm@	16 "Hg		Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : RM

Field Data Sheet

Date: NOV 14/23	Plant: Clean Harbors	Test No.: 1 SVOC	Page 4 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	92.42	1.65	.66	374	259	256	44	46	74	72	1.4	3.5
	3	94.39	1.7	.67	373	263	263	39	37	73	73	1.4	4
	6	96.38	1.65	.66	373	265	262	38	37	73	73	1.4	4
	9	98.37	1.65	.66	373	266	262	37	38	73	73	1.4	4
2	12	100.41	1.7	.67	373	266	262	37	38	73	73	1.4	4
	15	102.41	1.8	.69	373	267	262	38	39	72	73	1.4	4
	18	104.42	1.7	.67	372	267	263	39	40	73	73	1.4	4
	21	106.43	1.65	.66	373	267	263	39	41	72	73	1.4	4
3	24	108.45	1.75	.68	373	267	263	39	41	72	73	1.4	4
	27	110.48	1.75	.68	373	267	263	39	41	73	73	1.4	4
	30	112.54	1.85	.70	372	266	264	39	41	73	73	1.4	4
	33	114.56	1.75	.68	371	266	264	36	41	73	73	1.4	4
4	36	116.60	1.9	.71	370	266	260	39	43	73	73	1.6	4.5
	39	118.77	1.8	.69	369	266	265	40	45	73	73	1.5	4.5
	42	120.86	2.0	.73	367	266	265	40	45	73	73	1.7	5
	45	123.04	1.8	.70	367	266	265	40	48	73	73	1.7	5
5	48	125.26	2.1	.75	368	266	265	40	48	73	73	1.8	5
	51	127.52	1.95	.72	368	266	266	39	47	74	73	1.8	5
	54	129.80	1.9	.71	369	266	266	39	47	74	73	1.8	5
	57	132.06	1.95	.72	368	266	266	39	46	74	74	1.7	6
6	60	134.28	2.1	.75	368	266	262	38	67	74	74	1.7	6

Traverse: 2			Traverse:		
Start Time: 1206	Initial Leak Check:	cfm@ "Hg	Start Time:	Initial Leak Check:	cfm @ "Hg
Finish Time:	Final Leak Check:	cfm@ "Hg	Finish Time:	Final Leak Check:	cfm @ "Hg

RAISED TRAP TEMP

Project No.: 22237

Operator: RM

Field Data Sheet

Date: NOV 14/23	Plant: Clean Harbors	Test No.: 1 SVOC	Page 5 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	136.28	.2.1	.75	368	263	261	42	78	74	74	1.9	5
	66	138.45	2.2	.77	367	263	262	39	45	75	74	1.9	5.5
	69	140.79	2.1	.75	368	266	264	39	50	75	75	1.9	5.5
7	72	143.13	2.1	.75	366	264	260	39	51	75	75	1.9	5.5
	75	145.45	2.15	.76	367	261	260	39	46	75	75	1.9	5.5
	78	147.81	2.15	.76	368	264	262	38	45	75	75	1.9	5.5
	81	150.15	2.15	.76	367	263	263	38	46	75	75	1.9	5.5
8	84	152.51	2.1	.75	367	263	264	39	45	75	75	1.9	5.5
	87	154.81	2.2	.77	367	264	261	39	44	75	75	1.9	5.5
	90	157.18	2.2	.77	367	264	261	39	44	75	75	1.9	5.5
	93	159.53	2.2	.77	367	265	263	40	46	75	75	1.9	5.5
9	96	161.86	2.2	.77	367	262	262	40	45	75	75	1.9	5.5
	99	164.21	2.15	.76	367	262	264	40	47	75	75	1.9	5.5
	102	166.53	2.0	.74	368	263	261	40	47	76	76	1.9	5.5
	105	168.89	2.1	.76	369	264	261	39	46	76	75	1.9	5.5
10	108	171.22	2.0	.74	368	261	261	42	47	76	76	1.9	5.5
	111	173.55	1.9	.72	369	262	260	41	46	76	76	1.9	5.5
	114	175.91	1.9	.72	368	262	260	41	47	76	76	1.6	5
	117	178.11	1.9	.72	369	264	262	42	43	76	76	1.6	5
	120	180.31											

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 1406	Final Leak Check: .005	cfm@ 15	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : RM

ORTECH Consulting Inc.

Plant	Clean Harbors
Plant Location	Corunna, Ontario
Test No.:	2 SVOC
Test Date	NOV 15/23
Test Location	Incinerator Exhaust Stack
Operator Signature	IRM

Project No.:	22237
Page	1 of 5
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.843	
DGMCF	0.963	
Barometric Pressure	29.52.2459	"Hg
Static Pressure	0.160	"H2O
Nozzle Size		inches
Stack Diameter	4.833 5	
Length	0	feet
Width	0	feet
Port length:	24	inches

Reading Interval	3
Number of Ports	2
Number of Points/Port	10

Probe Liner (Glass) / Metal /Teflon / Other_____

Nozzle (Glass) / Metal / Other_____

Union (None) / Metal / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Particulate Gain

Filter	0	mg
Probe	0	mg

Moisture Gain

CWTR	3355.9	g
WCBDA	13.2	g

Combustion Gas Concentration

Oxygen	8.35	%
Carbon Dioxide	7.11	%
Carbon Monoxide	~~22~~ 89.7	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST
Incline Manometer	
Comb.Gas.Analyzer	1
Micromanometer	
Barometer	Env.Can
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Site Diagram

Notes:

Field Data Sheet

Date: NOV 15/23	Plant: Clean Harbors	Test No.: 2 TVOC	Page 2 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	81.16	2.0	.72	370	255	250	42	43	68	67	1.7	5
	3	83.30	2.1	.74	369	261	256	42	50	69	68	1.8	6
	6	85.50	2.05	.74	369	262	262	41	55	69	68	1.8	6
	9	87.68	2.05	.74	369	263	255	40	60	68	68	1.8	6
2	12	89.88	2.1	.74	370	265	257	40	40	68	68	1.8	6
	15	92.06	2.05	.73	369	262	260	39	38	67	67	1.8	6
	18	94.31	2.1	.74	371	261	256	39	40	67	67	1.8	6
	21	96.56	2.1	.74	372	261	256	39	40	67	67	1.8	6
3	24	98.81	2.2	.76	371	261	240	38	39	66	67	1.8	6
	27	101.06	2.1	.74	372	260	252	38	39	67	67	1.8	6
	30	103.31	2.05	.73	372	262	249	38	38	67	67	1.8	6
	33	105.56	2.1	.74	370	262	255	38	39	67	68	1.8	6
4	36	107.81	2.05	.73	370	261	255	38	41	67	67	1.8	6
	39	110.06	2.1	.74	368	261	261	37	40	67	67	1.8	6
	42	112.33	2.1	.74	369	261	261	37	40	67	67	1.8	6
	45	114.56	2.15	.75	367	264	256	37	41	68	68	1.8	6
5	48	116.81	2.2	.76	366	261	257	37	41	68	68	1.8	6
	51	119.05	2.2	.76	366	260	259	39	41	68	68	1.8	6
	54	121.34	2.2	.76	367	260	260	40	41	68	68	1.8	6
	57	123.56	2.1	.74	366	261	260	40	40	68	68	1.8	6
6	60	125.85	2.2	.76	368	260	260	40	41	68	68	1.8	6

Traverse: 1			
Start Time: 849	Initial Leak Check: <.005 cfm@ 13 "Hg		
Finish Time:	Final Leak Check: cfm@ "Hg		

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : DM

Field Data Sheet

Date: NOV 15/23	Plant: Clean Harbors	Test No.: 2 SVOC	Page 3 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	128.07	2.2	.76	368	261	261	40	42	68	68	1.8	6.5
	66	130.37	2.3	.78	367	262	253	40	43	68	68	1.9	7
	69	132.69	2.3	.78	368	262	253	40	42	68	68	1.9	7
7	72	135.04	2.3	.78	368	261	255	40	45	68	68	1.9	7
	75	137.35	2.1	.73	368	261	256	41	41	68	68	1.8	7
	78	139.36	2.3	.74	368	260	257	41	50	68	68	1.9	7
	81	142.00	2.1	.74	368	260	256	41	46	68	68	1.7	6.5
8	84	144.23	1.85	.70	368	262	255	42	42	69	69	1.6	6
	87	146.43	1.9	.70	369	261	254	42	41	69	69	1.6	6
	90	148.64	1.8	.69	368	260	255	41	41	69	69	1.6	6
	93	150.82	2.1	.79	368	260	255	41	41	69	69	1.5 2.0	7
9	96	153.12	1.9	.71	367	263	255	43	41	69	69	1.6	6
	99	155.34	1.7	.67	366	263	256	44	40	69	69	1.6	6
	102	157.53	1.6	.69	367	263	255	44	41	69	69	1.5	6
	105	159.65	1.75	.68	366	263	255	41	41	69	69	1.5	6
10	108	161.75	1.8	.69	365	263	255	44	42	69	70	1.5	6
	111	163.95	1.75	.68	365	262	252	44	43	70	70	1.5	6
	114	165.95	1.8	.69	364	263	255	45	43	70	70	1.5	6
	117	168.06	1.8	.69	364	263	255	45	43	70	70	1.5	6
	120	170.16											

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 1049	Final Leak Check: .002	cfm@ 15	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : RM

Field Data Sheet

Date: NOV 15/23	Plant: Clean Harbors	Test No.: 2 SVOC	Page 4 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	171.42	1.6	.65	365	2~~8~~4	260	56	56	3~~6~~71	72	1.4	5
	3	173.43	1.6	.65	3~~6~~6	~~7~~2	260	48	40	72	72	1.4	5
	6	175.39	1.6	.65	368	260	263	47	41	72	72	1.4	6
	9	177.37	1.65	.66	367	260	263	46	41	72	72	1.4	6
2	12	179.33	1.6	.65	368	259	262	45	42	71	71	1.4	6
	15	181.29	1.55	.64	369	257	259	46	43	71	71	1.4	6
	18	183.26	1.6	.65	369	257	257	45	43	71	71	1.4	6
	21	185.22	1.6	.65	369	261	266	46	43	71	71	1.4	6
3	24	187.17	1.75	.68	371	260	264	45	43	71	71	1.5	6.5
	27	189.25	1.7	.67	371	259	260	45	42	71	71	1.5	6.5
	30	191.33	1.7	.67	371	259	260	44	43	71	71	1.5	6.5
	33	193.43	1.7	.67	372	258	260	44	43	71	71	1.5	6.5
4	36	195.51	1.7	.67	371	259	260	44	43	71	71	1.5	6.5
	39	197.58	1.7	.67	372	258	261	46	42	72	72	1.5	6.5
	42	199.68	1.75	.68	372	259	260	45	43	72	72	1.5	6.5
	45	201.76	1.65	.66	373	258	263	46	44	72	72	1.5	6.5
5	48	203.85	1.75	.68	373	258	261	47	46	72	72	1.5	6.5
	51	205.93	1.75	.68	373	258	261	47	46	72	72	1.6	6.5
	54	208.05	1.8	.69	373	257	255	46	46	72	73	1.6	6.5
	57	210.17	1.85	.70	373	257	260	46	56	72	73	1.6	6.5
6	60	212.28	1.9	.71	370	257	263	47	43	73	72	1.6	6.5

Traverse: 2			Traverse:		
Start Time: 1132	Initial Leak Check:	cfm@ "Hg	Start Time:	Initial Leak Check:	cfm @ "Hg
Finish Time:	Final Leak Check:	cfm@ "Hg	Finish Time:	Final Leak Check:	cfm @ "Hg

Project No.: 22237

Operator : RM

Field Data Sheet

Date: NOV 15/23	Plant: Clean Harbors	Test No.: 2 SVOC	Page 5 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	214.43	2.1	.75	370	257	260	47	39	73	73	1.8	7
	66	216.68	2.0	.73	369	258	261	48	41	73	73	1.8	7
	69	218.95	1.9	.71	369	259	261	48	42	73	73	1.6	7
7	72	221.18	1.95	.72	369	259	261	47	42	73	73	1.6	7
	75	223.42	2.15	.76	369	258	261	47	42	73	73	1.8	7
	78	225.68	2.15	.76	367	258	262	47	43	73	73	1.8	7
	81	227.95	2.15	.76	367	258	262	47	43	73	73	1.8	7
8	84	230.23	2.15	.76	366	259	260	47	43	73	73	1.8	7
	87	232.51	2.1	.75	366	257	257	47	43	73	73	1.8	7
	90	234.79	2.15	.76	367	260	264	48	44	74	74	1.8	7
	93	237.06	2.2	.77	365	258	258	48	45	74	74	1.9	7.5
9	96	239.39	2.1	.75	364	258	260	49	47	74	74	1.9	7.5
	99	241.73	2.1	.75	365	259	263	48	46	74	74	1.9	7.5
	102	244.05	2.1	.75	363	260	262	47	45	74	74	1.8	7.5
	105	246.35	2.15	.76	363	261	265	47	45	74	74	1.8	7.5
10	108	248.67	2.15	.76	363	260	260	46	45	74	74	1.8	7.5
	111	251.01	2.25	.78	363	260	260	46	45	74	74	1.8	7.5
	114	253.32	2.15	.76	363	260	260	46	45	74	74	1.8	7.5
	117	255.64	2.15	.76	364	261	259	47	46	74	74	1.8	7.5
	120	257.95											

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 1332	Final Leak Check: .003	cfm@ 16	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : DA

ORTECH Consulting Inc.

Plant	Clean Harbors
Plant Location	Corunna, Ontario
Test No.:	3 SVOC
Test Date	NOV 16/23
Test Location	Incinerator Exhaust Stack
Operator Signature	

Project No.:	22237
Page	1 of 5
Probe No.:	6
Meter Box No.:	T-1
Impinger Box No.:	

Pitot Factor	.843	
DGMCF	0.963	
Barometric Pressure	29.48	"Hg
Static Pressure	0.66	"H2O
Nozzle Size	.2459	inches
Stack Diameter	4.833	5
Length	0	feet
Width	0	feet
Port length:	24	inches

Reading Interval	3
Number of Ports	2
Number of Points/Port	10

Probe Liner (Glass) / Metal /Teflon / Other_____

Nozzle (Glass) / Metal / Other_____

Union (None) /Metal / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Particulate Gain

Filter	0	mg
Probe	0	mg

Moisture Gain

CWTR	331.1	g
WCBDA	21.6	g

Combustion Gas Concentration

Oxygen	8.30	%
Carbon Dioxide	9.11	%
Carbon Monoxide	99.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	TEST
Control Box	
Incline Manometer	1
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env.Can
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Site Diagram

Notes:

Field Data Sheet

Date: NOV 16/23	Plant: Clean Harbors	Test No.: 3 SVOC	Page 2 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
					374								
1	0	58.75	1.6	.64	~~250~~	255	255	50	51	61	59	1.3	3
	3	60.67	1.6	.64	373	261	262	44	41	61	60	1.3	3
	6	62.51	1.6	.64	375	260	262	44	41	62	60	1.3	3.5
	9	64.43	1.6	.64	375	259	258	44	42	61	60	1.3	3.5
2	12	66.39	1.6	.64	375	258	258	43	44	61	60	1.3	3.5
	15	68.31	1.55	.6	377	259	259	43	45	61	60	1.3	3.5
	18	70.26	1.55	.63	378	258	260	43	45	61	60	1.3	3.5
	21	72.19	1.6	.64	378	257	260	40	45	61	61	1.3	3.5
3	24	74.14	1.7	.66	380	258	258	41	45	61	61	1.4	3.5
	27	76.15	1.65	.65	379	258	258	40	46	62	61	1.4	3.5
	30	78.17	1.65	.65	380	257	258	40	46	62	62	1.4	3.5
	33	80.18	1.7	.66	381	258	258	40	46	62	61	1.4	3.5
4	36	82.21	1.7	.66	381	259	258	40	46	63	62	1.4	3.5
	39	84.23	1.75	.67	381	256	257	40	46	63	63	1.4	3.5
	42	86.24	1.7	.66	382	260	258	41	47	63	63	1.4	3.5
	45	88.26	1.7	.66	382	260	258	40	47	64	63	1.4	3.5
5	48	90.29	1.75	.67	383	260	258	40	47	64	63	1.4	3.5
	51	92.30	1.75	.67	383	260	258	40	47	64	63	1.4	3.5
	54	94.33	1.75	.67	384	256	258	39	47	65	63	1.4	3.5
	57	96.35	1.75	.67	387	256	259	40	46	65	63	1.4	3.5
6	60	98.35	2.0	.71	387	257	259	40	48	66	64	1.6	3.5

Traverse: N					Traverse:			
Start Time: 9:11	Initial Leak Check: .006	cfm@ 18	"Hg		Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check: ~~.006~~	cfm@ ~~18~~	"Hg		Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator : RM

Field Data Sheet

Date: NOV 16/23	Plant: Clean Harbors	Test No.: 3 SVOC	Page 3 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	100.50	1.85	.69	389	258	260	40	48	66	64	1.6	3.5
	66	102.63	2.0	.71	392	257	261	40	48	66	64	1.6	3.5
	69	104.76	2.0	.71	391	257	258	40	50	67	64	1.6	3.5
7	72	106.90	2.0	.71	390	256	257	40	50	67	65	1.6	3.5
	75	109.04	2.15	.74	390	255	258	41	54	67	65	1.8	4
	78	111.28	2.1	.73	390	254	256	42	49	67	65	1.8	4
	81	113.54	2.1	.73	390	255	257	42	47	67	65	1.8	4
8	84	115.80	2.15	.74	390	257	259	42	50	68	66	1.8	4
	87	118.05	2.2	.75	390	258	263	42	44	68	66	1.9	4
	90	120.35	2.2	.75	391	257	261	42	44	68	66	1.8	4
	93	122.65	2.2	.75	391	257	259	42	44	68	67	1.8	4
9	96	124.93	2.1	.73	391	257	259	41	43	68	67	1.8	4
	99	127.23	2.1	.73	392	259	259	42	48	69	67	1.8	4
	102	129.52	2.15	.74	390	260	263	43	51	69	68	1.8	4
	105	131.80	2.0	.73	390	260	262	43	55	70	68	1.8	4
10	108	134.09	2.3	.77	390	260	260	45	53	70	68	1.9	4
	111	136.42	2.1	.73	390	260	260	45	53	70	68	1.8	4
	114	138.71	2.1	.74	389	260	261	45	52	70	68	1.8	4
	117	140.99	2.1	.74	389	260	261	45	52	70	68	1.8	4
	120	143.33											

Traverse:					Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg		Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time: 11:41	Final Leak Check: .004	cfm@ 15	"Hg		Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22237

Operator: D. Mc

Field Data Sheet

Date: NOV 16/23	Plant: Clean Harbors	Test No.: 3 SVOC	Page 4 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	143.96	1.9	.70	384	247	257	55	35	72	70	1.6	4
	3	146.13	1.9	.70	384	247	256	54	39	72	70	1.6	4
	6	148.22	1.85	.70	384	247	256	54	40	72	71	1.6	4
	9	150.35	1.85	.70	384	247	250	47	41	71	71	1.6	4
2	12	152.38	1.85	.70	385	260	257	47	41	71	71	1.6	4
	15	154.62	2.0	.72	384	259	260	48	42	71	71	1.7	4
	18	156.80	1.85	.70	385	250	259	49	44	71	71	1.7	4
	21	159.00	1.85	.70	385	257	261	49	44	70	71	1.7	4
3	24	161.19	2.0	.70	384	257	260	49	44	70	71	1.7	4
	27	163.39	2.05	.70	384	257	261	50	45	71	71	1.7	4
	30	165.56	2.05	.73	382	255	262	50	46	71	71	1.7	4
	33	167.83	2.0	.72	381	253	264	51	47	72	71	1.7	4
4	36	170.07	2.2	.76	381	256	265	51	45	72	71	1.8	4
	39	172.38	2.1	.74	381	256	265	52	45	72	71	1.8	4
	42	174.66	2.1	.74	381	255	259	53	45	72	72	1.8	4
	45	176.93	2.05	.73	382	253	250	53	47	72	72	1.8	4
5	48	179.21	2.1	.74	382	253	257	52	46	72	72	1.8	4
	51	181.48	2.1	.74	382	253	260	54	39	73	72	1.8	4
	54	183.71	2.1	.74	383	254	264	54	38	73	72	1.8	4
	57	186.05	2.1	.74	383	255	257	54	40	73	72	1.8	4
6	60	188.33	2.15	.75	384	255	256	55	40	73	72	1.8	4

Traverse: W		
Start Time: 1138	Initial Leak Check: .003	cfm@ 16 "Hg
Finish Time:	Final Leak Check:	cfm@ "Hg

Traverse:		
Start Time:	Initial Leak Check:	cfm @ "Hg
Finish Time:	Final Leak Check:	cfm @ "Hg

Project No.: 22237

Operator : DM

Field Data Sheet

Date: NOV 16/23	Plant: Clean Harbors	Test No.: 3 SVOC	Page 5 of 5
	Plant Location: Corunna, Ontario	Test Location: Incinerator Exhaust Stack	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	63	190.62	2.25	.75	384	254	260	55	42	73	73	1.9	4
	66	192.93	2.15	.75	384	254	260	55	43	74	73	1.9	4
	69	195.26	2.15	.75	386	255	264	57	44	74	73	1.9	4
7	72	197.60	2.2	.76	385	255	261	58	42	74	73	1.9	4
	75	199.92	1.9	.71	385	256	260	59	43	74	73	1.7	4
	78	202.16	2.0	.73	386	257	258	59	44	74	73	1.7	4
	81	204.39	1.9	.71	387	257	264	60	48	75	74	1.7	4
8	84	206.60	1.9	.71	386	257	264	60	52	75	73	1.7	4
	87	208.82	1.8	.69	387	257	260	61	53	75	74	1.6	4
	90	210.98	2.0	.73	386	257	261	62	40	75	74	1.6	4
	93	213.14	1.8	.69	387	251	261	62	40	75	74	1.6	4
9	96	215.30	1.7	.67	387	258	263	64	48	75	74	1.6	4
	99	217.45	1.6	.65	386	260	268	65	57	75	74	1.4	4
	102	219.49	1.6	.65	387	260	257	63	48	75	74	1.4	4
	105	221.54	1.6	.65	386	260	257	61	39	75	74	1.4	4
10	108	223.58	1.6	.65	385	260	257	60	37	75	74	1.4	4
	111	225.60	1.6	.65	384	260	260	57	39	76	75	1.4	4
	114	227.67	1.6	.65	383	261	263	57	39	76	75	1.4	4
	117	229.69	1.6	.65	383	261	262	56	40	76	75	1.4	4
	120	231.65											

Traverse:				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 13:38	Final Leak Check:	.003	cfm@ 16	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22237

Operator : DM

APPENDIX 5

Acid Gas Field Data Sheets
(4 pages)

Clean Harbors Canada Inc. (Sarnia, ON)
Acid Gases Train Gas Volume Sampled

Test Location	Test No.	Dry Gas Meter Correction Factor	Initial Dry Gas Meter Reading litres	Final Dry Gas Meter Reading litres	Actual Volume Sampled litres	Barometric Pressure in. mercury	Average Dry Gas Meter Pressure in. water	Average Dry Gas Meter Temperature °C	Corrected Gas Volume Sampled Rm^3 *
Stack	1	0.989	881.2	1011.6	130.4	29.78	2.1	26.2	0.1285
	2	0.989	89.2	219.1	129.9	29.54	2.1	18.8	0.1302
	3	0.989	249.2	382.3	133.1	29.52	2.1	19.1	0.1332

* Dry at 25°C and 1 atmosphere

ORTECH Consulting Inc.
Method 26 Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, On
Test No.:	1
Test location:	Incinerator Exhaust Stack
Date:	NOV 14, 2023
Project No.:	22237

Measuring Device	MII Number
Control Module	A11542
Barometer	Environment Canada

P_{Bar}	29.78

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp. Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	881.2	141	185	10	14	2.1	~~2.5~~ 5.0 2.5
5	892.4	142	186	8	17	2.1	2.5
10	902.8	143	187	8	20	2.1	2.5
15	913.7	143	188	10	23	2.1	2.5
20	924.0	141	187	11	24	2.1	2.5
25	934.6	140	187	11	27	2.1	2.5
30	945.0	142	187	11	27	2.1	2.5
35	956.5	140	186	14	30	2.1	2.5
40	967.3	142	186	13	30	2.1	2.5
45	978.1	143	186	14	31	2.1	2.5
50	988.9	143	186	14	31	2.1	2.5
55	1000.2	140	185	13	33	2.1	2.5
60	1011.6	144	185	14	33	2.1	2.5

Start Time:	9:34				DGMCF: 0.989
Finish Time:	10:34				Sample Volume: 130.4
Initial Leak Check:	<0.01	Lpm @	15	" Hg	Average DGM Temp: 26.15
Final Leak Check:	<0.01	Lpm @	15	" Hg	Average DGM Δ H: 2.1

Comments:

Probe Purge On: @

Off: @

~2 LPM for 60 min,

Operator : BP

ORTECH Consulting Inc.
Method 26 Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, On
Test No.:	2
Test location:	Incinerator Exhaust Stack
Date:	JUN 15, 2023
Project No.:	22237

Measuring Device	MII Number
Control Module	A1542
Barometer	Environment Canada

P_{Bar}	29.54

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp. Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	89.2	143	184	8	12	2.1	2.5
5	100.2	146	186	7	15	2.1	2.5
10	110.6	143	186	7	17	2.1	2.5
15	121.4	145	185	7	17	2.1	2.5
20	132.1	147	185	8	18	2.1	2.5
25	142.8	147	184	8	19	2.1	2.5
30	153.7	150	183	7	20	2.1	2.5
35	164.5	149	182	6	20	2.1	2.5
40	175.6	151	182	6	21	2.1	2.5
45	186.6	151	182	6	21	2.1	2.5
50	197.8	151	181	6	21	2.1	2.5
55	208.2	151	181	7	21	2.1	2.5
60	219.1	151	181	8	22	2.1	2.5

Start Time:	10:04			DGMCF: 0.987
Finish Time:	11:04			Sample Volume: 129.9
Initial Leak Check:	<0.01	Lpm @	15 " Hg	Average DGM Temp: 18.76
Final Leak Check:	<0.01	Lpm @	15.5 " Hg	Average DGM Δ H: 2.1

Comments:

Probe Purge On: @

Off: @

~2 LPM for 60 min,

Operator : BP

ORTECH Consulting Inc.
Method 26 Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, On
Test No.:	3
Test location:	Incinerator Exhaust Stack
Date:	Nov 16 2023
Project No.:	22237

Measuring Device	MII Number
Control Module	A1542
Barometer	Environment Canada

P_{Bar}	29.52

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp. Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	249.2	144	198	9	14	2.1	2.5
5	260.1	151	198	9	17	2.1	2.5
10	270.6	153	198	10	17	2.1	2.5
15	281.4	152	198	10	18	2.1	2.5
20	291.9	152	198	10	19	2.1	2.5
25	303.5	152	198	10	19	2.1	2.5
30	314.7	150	198	10	20	2.1	2.5
35	326.0	152	198	10	20	2.1	2.5
40	336.9	151	198	11	20	2.1	2.5
45	348.2	151	197	10	21	2.1	2.5
50	359.5	152	197	10	21	2.1	3.0
55	361.1	151	195	10	21	2.1	3.0
60	382.3	152	195	11	21	2.1	3.0

Start Time:	10:17		DGMCF: 0.989
Finish Time:	11:17		Sample Volume: 133.1
Initial Leak Check:	<0.01	Lpm @ 17.5 " Hg	Average DGM Temp: 19.07
Final Leak Check:	<0.01	Lpm @ 15 " Hg	Average DGM Δ H: 2.1

Comments:

Probe Purge On: @

Off: @

~2 LPM for 60 min,

Operator : BP

APPENDIX 6

Volatile Organic Compounds Field Data Sheets
(3 pages)

Clean Harbors Canada Inc. (Sarnia, ON)
Volatile Organics Train Gas Volume Sampled

Test No.	Tube Pair No.	Dry Gas Meter Correction Factor	Initial Dry Gas Meter Reading litres	Final Dry Gas Meter Reading litres	Actual Volume Sampled litres	Barometric Pressure in. mercury	Average Dry Gas Meter Pressure in. water	Average Dry Gas Meter Temperature °C	Corrected Gas Volume Sampled Rm^3 *
1	5A/5B	0.988	12.30	35.00	22.70	29.77	0.5	30.6	0.0219
2	8A/8B	0.988	36.90	61.80	24.90	29.77	0.5	24.3	0.0246
3	7A/7B	0.988	63.30	87.80	24.50	29.55	0.5	11.3	0.0251
4	9A/9B	0.988	220.30	244.60	24.30	29.54	0.5	13.6	0.0247

* Dry at 25°C and 1 atmosphere

ORTECH Consulting Inc.

Vost Data Sheet

A11542

Plant: Clean Harbors			
Plant Location: Corunna, ON	Test Condition: Compliance		Control Box ID: VOST 4
Test location: APC Outlet No._____	DGMCF: 0.988		Operator: BP
Date: Nov 14, 2023	Barometric Pressure: 29.77 "Hg		Project No: 22237
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID: 6A / 6B	

XJF 913-01

1

ARCHIVE

Test 3 Start Time: 11:08	Initial Leak Check NDL @ 20.5 "Hg	Sample ID: 5A/5B	
Test 3 End Time: 11:48	Final Leak Check NDL @ 20.0 "Hg	Lab ID: XJF912-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	12.3	148	185	9	24	0.5	3.0
5	16.3	148	187	9	28	0.5	3.5
10	19.7	147	187	8	30	0.5	5.0
15	22.9	148	188	9	31	0.5	5.5
20	25.8	145	189	6	31	0.5	6.5
25	28.8	148	186	10	32	0.5	8.0
30	31.7	146	188	10	33	0.5	10.0
35	33.4	145	187	10	33	0.5	11.0
40	35.0	145	188	11	33	0.5	15.0

2

Test 4 Start Time: 12:31	Initial Leak Check NDL @ 20.5 "Hg	Sample ID: 8A / 8B	
Test 4 End Time: 13:11	Final Leak Check NDL @ 20.5 "Hg	Lab ID: XJF 915-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	36.9	150	186	9	23	0.5	4.0
5	40.6	150	185	8	23	0.5	4.0
10	43.9	150	186	9	24	0.5	4.0
15	47.1	148	186	9	24	0.5	4.0
20	50.3	151	187	9	25	0.5	4.0
25	53.4	148	185	9	25	0.5	4.0
30	56.0	149	184	9	25	0.5	5.0
35	58.7	148	184	9	25	0.5	7.0
40	61.8	149	185	9	25	0.5	8.5

ORTECH Consulting Inc.

Vost Data Sheet

A11542

Plant: Clean Harbors			
Plant Location: Corunna, ON	Test Condition: Compliance		Control Box ID: VOST4
Test location: APC Outlet No.____	DGMCF: 0.988		Operator: BP
Date: Nov 15, 2023	Barometric Pressure: "Hg		Project No: 22237
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID: 6A/6B	

X)F913-01

29.55

Test 3 Start Time: 9:01	Initial Leak Check NDL @ 20 "Hg	Sample ID: 7A / 7B	
Test 3 End Time: 9:41	Final Leak Check NDL @ 20 "Hg	Lab ID: X)F914-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	63.3	145	186	8	6	0.5	3.0
5	66.5	146	186	8	9	0.5	3.0
10	69.5	144	186	9	10	0.5	3.5
15	72.7	148	187	9	11	0.5	3.5
20	75.3	144	186	9	12	0.5	3.5
25	78.5	149	186	9	12	0.5	4.0
30	81.5	148	185	10	13	0.5	4.0
35	84.6	149	185	10	14	0.5	4.0
40	87.8	148	185	10	15	0.5	4.0

Nov 16, 2023

29.54

Test 4 Start Time: 9:12	Initial Leak Check NDL @ 30.5 "Hg	Sample ID: 9A / 9B	
Test 4 End Time: 9:52	Final Leak Check NDL @ 30.5 "Hg	Lab ID: X)F916-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	220.3	145	189	8	9	0.5	3.0
5	223.4	147	189	8	11	0.5	3.5
10	226.4	146	190	9	12	0.5	3.5
15	229.4	147	191	9	13	0.5	3.5
20	232.4	148	192	9	15	0.5	3.5
25	235.4	148	193	9	15	0.5	3.5
30	238.3	147	192	9	15	0.5	3.5
35	241.4	146	192	10	16	0.5	3.5
40	244.6	146	193	10	16	0.5	4.0

APPENDIX 7

Particulate and Metals Sample Recovery Data Sheets
(6 pages)

ORTECH Particulate and Metals Train Recovery Data Sheet
Clean Harbors Sarnia

Project No. 22237
Date: November 14, 2013

Test No. 1 - Metals & Particulate
Test Location: Incinerator Exhaust

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3, 4 & 5	Impinger 6 & 7
	Filter ID: QZ10616		

CONTAINER TS1	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5-A

Container TS1 Weights	
Empty Wt:	282
After Act. Rinse:	466.7
Total TS1:	184.7

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Impinger #1 (~~100~~ ml H_2O)	
Empty Wt:	676
Initial Wt:	747.5
Final Wt:	905.8
1 Gain:	158.3
Colour:	Clear

Impinger #6 $KMnO_4/H_2SO_4$	
Empty Wt:	449.5
Initial Wt:	536.3
Final Wt:	839.6
6 Gain:	303.3
Colour:	Clear

MARK FLUID LEVEL

SEAL AND LABEL TS3

SEAL AND LABEL TS1

INITIAL 351.5
366.9
105.4

Impinger #2 Empty (Knock-out)	
Empty Wt:	710.6
Final Wt:	2770.1
2 Gain:	~~2060.1~~ 2059.5
Colour:	Clear

Impinger #7 $KMnO_4/H_2SO_4$	
Empty Wt:	659.3
Initial Wt:	774.6
Final Wt:	784.4
7 Gain:	9.8
Colour:	Purple

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	282
with Nitric rinse	458.8
Total TS2:	176.8

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	556.5
Initial Wt:	665.7
Final Wt:	895.7
3 Gain:	230
Colour:	Clear

CONTAINER TS5-A	
Empty Wt:	406.2
With Imp. Soln:	716.1
After $KMnO_4$ Rinse:	948.7
After D.I. Water Rinse:	943.1
Total TS5-A:	536.9

MARK FLUID LEVEL

SEAL AND LABEL TS2

Impinger #4 HNO_3/H_2O_2	
Empty Wt:	676.3
Initial Wt:	784.4
Final Wt:	996.9
4 Gain:	212.5
Colour:	Clear

MARK FLUID LEVEL

SEAL & LABEL TS5-A

Sample Batch Number	23-22237-PM-
TS1 (Probe Rinse-Acetone)	1
TS2 (Probe Rinse-0.1N HNO_3)	2
TS3 (Filter)	3
TS4 (Impinger 1,2,3,4 & 5 Sol'n-HNO_3)	4A
TS5-A (Impinger 6 & 7 Sol'n-$KMnO_4$)	5
TS5-B (Impinger 6 & 7 Rinse HCl)	6
TS4B (Imp 5 Sol'n-HNO_3)	4B

Impinger #5 Empty	
Empty Wt:	609.7
Final Wt:	1122.7
5 Gain:	513
Colour:	Clear

CONTAINER TS5-B	
Empty Wt:	406.4
With 150 mL DI Water:	564.6
After HCl Rinse:	595.8
After D.I. Water Rinse:	709.6
Total TS5-B:	303.2

MARK FLUID LEVEL

SEAL & LABEL TS5-B

TS1,TS2, TS5-B - 500 ml Amber Glass Bottle

TS3- Petri Dish

TS4 4 L Amber Glass Bottle

TS5-A - 1000 ml Amber Glass Bottle

CONTAINER TS4 WEIGHTS (4A)	
Empty Wt:	1351.5
With Imp. 1 to 5 Soln:	5676
After HNO_3 Rinse:	
Total TS4:	4774.5

Bottle 2 - 220.4 (4B)
Imp 5 sol - 437.6
After HNO_3 Rinse - 564.2

Box # 16

total TS4B: 283.8

CWTR = add 1 thru 7:	~~4752.4~~ 4291.8
WCBDA= 8:	45.6

Impinger #8 Silica Gel	
Initial Wt:	948.8
Final Wt:	994.4
Gain:	45.6
8 % spent:	75%

Train Loaded By: DU
Train Recovered By: TC

ORTECH Particulate and Metals Train Recovery Data Sheet
Clean Harbors Sarnia

Project No. 22237
Date: Nov 15, 2023

Test No. 2
Test Location: Incinerator Exhaust

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3, 4 & 5	Impinger 6 & 7
	Filter ID: 0Z10618		

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	281
After Act. Rinse:	376.1
Total TS1:	95.1

MARK FLUID LEVEL

SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	251
with Nitric rinse	423.6
Total TS2:	142.6

MARK FLUID LEVEL

SEAL AND LABEL TS2

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

SEAL AND LABEL TS3

2909.5
1361.2
1548.3

Sample Batch Number	23-22237-PM-
TS1 (Probe Rinse-Acetone)	7
TS2 (Probe Rinse-0.1N HNO_3)	8
TS3 (Filter)	9
TS4 (Impinger 1,2,3,4 & 5 Sol'n-HNO_3)	10
TS5-A (Impinger 6 & 7 Sol'n-$KMnO_4$)	11
TS5-B (Impinger 6 & 7 Rinse HCl)	12

TS1,TS2, TS5-B - 500 ml Amber Glass Bottle
TS3- Petri Dish

TS4 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle

CWTR = add 1 thru 7: ~~1950~~	3585.8
WCBDA= 8:	33.4

Train Loaded By: DV.
Train Recovered By: TC

CONTAINER TS4

Impinger #1 (100 ml H_2O)	
Empty Wt:	649.0
Initial Wt:	743.0
Final Wt:	913.2
1 Gain:	170.2
Colour:	Clear

Impinger #2 Empty (Knock-out)	
Empty Wt:	711.9
Final Wt:	2079.1
2 Gain:	1367.2
Colour:	Clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	556.6
Initial Wt:	659.0
Final Wt:	928.5
3 Gain:	269.5
Colour:	Clear

Impinger #4 HNO_3/H_2O_2	
Empty Wt:	676.8
Initial Wt:	789.0
Final Wt:	1007.5
4 Gain:	218.5
Colour:	Clear

Impinger #5 Empty	
Empty Wt:	609.7
Final Wt:	613.6
5 Gain:	3.9
Colour:	Clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	1364.2
With Imp. 1 to 5 Soln:	5248.2
After HNO_3 Rinse:	5359.4
Total TS4:	3995.2

Box #

CONTAINER TS5-A

Impinger #6 $KMnO_4/H_2SO_4$	
Empty Wt:	649.6
Initial Wt:	760.5
Final Wt:	760.5
6 Gain:	0
Colour:	Purple

Impinger #7 $KMnO_4/H_2SO_4$	
Empty Wt:	659.5
Initial Wt:	778.4
Final Wt:	789.6
7 Gain:	11.2
Colour:	Purple

CONTAINER TS5-A	
Empty Wt:	405.5
With Imp. Soln:	6413.2
After $KMnO_4$ Rinse:	773.2
After D.I. Water Rinse:	885.4
Total TS5-A:	479.9

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	404.9
With 150 mL DI Water:	559.1
After HCl Rinse:	594.3
After D.I. Water Rinse:	728.5
Total TS5-B:	323.6

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger #8 Silica Gel	
Initial Wt:	984.0
Final Wt:	997.4
Gain:	33.4
8 % spent :	70%

ORTECH Particulate and Metals Train Recovery Data Sheet
Clean Harbors Sarnia

Project No. 22237
Date: Nov. 16, 2023

Test No. 3
Test Location: Incinerator Exhaust

Nozzle, Probe Liner / Cyclone Bypass & F.H. / Filter Housing

CONTAINER TS1

Container T51 Weights	
Empty Wt:	282.5
After Act. Rinse:	380.8
Total TS1:	98.3

MARK FLUID LEVEL

SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	282.0
with Nitric rinse	400.2
Total TS2:	118.2

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: Q2 ~~10617~~ 10620

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

SEAL AND LABEL TS3

1352.6
2966.0
~~3~~ 16134
+
~~1485~~ 4
~~3226.4~~

Impingers 1, 2, 3, 4 & 5

CONTAINER TS4

Impinger #1 (100 ml H_2O)	
Empty Wt:	~~564.4~~ 648.2
Initial Wt:	749.3
Final Wt:	894.1
1 Gain:	144.8
Colour:	Clear

Impinger #2 Empty (Knock-out)	
Empty Wt:	772.3
Final Wt:	1485.0
2 Gain:	~~2526.4~~ 1212.7
Colour:	Clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	~~627.2~~ 556.5
Initial Wt:	666.4
Final Wt:	891.3
3 Gain:	224.9
Colour:	Clear

Impinger #4 HNO_3/H_2O_2	
Empty Wt:	~~565~~ 676.0
Initial Wt:	774.0
Final Wt:	957.1
4 Gain:	183.1
Colour:	Clear

Impinger #5 Empty	
Empty Wt:	597.3
Final Wt:	614.9
5 Gain:	17.6
Colour:	Clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	1352.6
With Imp. 1 to 5 Soln:	5136.6
After HNO_3 Rinse:	5224.4
Total TS4:	3871.8

Impinger 6 & 7

CONTAINER TS5-A

Impinger #6 $KMnO_4/H_2SO_4$	
Empty Wt:	672.9
Initial Wt:	762.0
Final Wt:	759.7
6 Gain:	-2.3
Colour:	Purple

Impinger #7 $KMnO_4/H_2SO_4$	
Empty Wt:	618.4
Initial Wt:	773.3
Final Wt:	776.0
7 Gain:	2.7
Colour:	Purple

CONTAINER TS5-A	
Empty Wt:	405.5
With Imp. Soln:	626.8
After $KMnO_4$ Rinse:	752.9
After D.I. Water Rinse:	820.8
Total TS5-A:	415.3

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	405.1
With 150 mL DI Water:	553.3
After HCl Rinse:	589.5
After D.I. Water Rinse:	769.9
Total TS5-B:	364.8

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger #8 Silica Gel	
Initial Wt:	~~463.4~~ 933.1
Final Wt:	967.1
Gain:	34
8 % spent :	75%

Sample Batch Number	23-22237-PM-
TS1 (Probe Rinse-Acetone)	~~1~~ 13
TS2 (Probe Rinse-0.1N HNO_3)	~~2~~ 14
TS3 (Filter)	~~3~~ 15
TS4 (Impinger 1,2,3,4 & 5 Sol'n-HNO_3)	~~4~~ 16
TS5-A (Impinger 6 & 7 Sol'n-$KMnO_4$)	~~5~~ 17
TS5-B (Impinger 6 & 7 Rinse HCl)	~~6~~ 18

TS1,TS2, TS5-B - 500 ml Amber Glass Bottle
TS3- Petri Dish

TS4 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle

CWTR = add 1 thru 7:	3396.9
WCBDA= 8:	34.0

Train Loaded By: TC
Train Recovered By: TC

Box # ~~13~~

ORTECH Particulate and Metals Train Recovery Data Sheet
Clean Harbors Sarnia

Project No. 22237
Date: NOV 15/23

Test No. BLANK
Test Location: Incinerator Exhaust

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3, 4 & 5	Impinger 6 & 7
	Filter ID: 221069		

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	291.7
After Act. Rinse:	430.7
Total TS1:	402.0

MARK FLUID LEVEL

SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	280.0
with Nitric rinse	391.2
Total TS2:	191.2

MARK FLUID LEVEL

SEAL AND LABEL TS2

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

SEAL AND LABEL TS3

CONTAINER TS4

Impinger #1 (100 ml H_2O)	
Empty Wt:	650.0
Initial Wt:	750.0
Final Wt:	
1 Gain:	
Colour:	

Impinger #2 Empty (Knock-out)	
Empty Wt:	712.1
Final Wt:	
2 Gain:	
Colour:	

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	560.1
Initial Wt:	660.3
Final Wt:	
3 Gain:	
Colour:	

Impinger #4 HNO_3/H_2O_2	
Empty Wt:	677.2
Initial Wt:	780.1
Final Wt:	
4 Gain:	
Colour:	

Impinger #5 Empty	
Empty Wt:	611.7
Final Wt:	
5 Gain:	
Colour:	

CONTAINER TS4 WEIGHTS	
Empty Wt:	406.9
With Imp. 1 to 5 Soln:	809.9
After HNO_3 Rinse:	958.9
Total TS4:	452.0

Impinger 6 & 7

Impinger #6 $KMnO_4/H_2SO_4$	
Empty Wt:	650.6
Initial Wt:	761.3
Final Wt:	
6 Gain:	
Colour:	PURPLE

Impinger #7 $KMnO_4/H_2SO_4$	
Empty Wt:	659.5
Initial Wt:	769.0
Final Wt:	
7 Gain:	
Colour:	PURPLE

CONTAINER TS5-A

CONTAINER TS5-A	
Empty Wt:	406.0
With Imp. Soln:	630.6
After $KMnO_4$ Rinse:	767.7
After D.I. Water Rinse:	889.6
Total TS5-A:	483.6

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B

CONTAINER TS5-B	
Empty Wt:	406.7
With 150 mL DI Water:	563.0
After HCl Rinse:	610.3
After D.I. Water Rinse:	712.9
Total TS5-B:	306.2

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Sample Batch Number	23-22237-PM-
TS1 (Probe Rinse-Acetone)	19
TS2 (Probe Rinse-0.1N HNO_3)	20
TS3 (Filter)	21
TS4 (Impinger 1,2,3,4 & 5 Sol'n-HNO_3)	22
TS5-A (Impinger 6 & 7 Sol'n-$KMnO_4$)	23
TS5-B (Impinger 6 & 7 Rinse HCl)	24

TS1,TS2, TS5-B - 500 ml Amber Glass Bottle

TS3- Petri Dish

TS4 4 L Amber Glass Bottle

TS5-A - 1000 ml Amber Glass Bottle

CWTR = add 1 thru 7:	
WCBDA= 8:	

Train Loaded By: DM
Train Recovered By: DM

Box #

Impinger #8 Silica Gel	
Initial Wt:	772.3
Final Wt:	
Gain:	
8 % spent :	

ALS Environmental
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753664		Mississauga, ON L5J 2Y4
Date of Report	7-Dec-23		Canada
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS:
Sample Particulate Analysis via Gravimetric USEPA Method 5 (MOSM 1-Dec-2023)

REPORT FLAGS:
J - The value is uncertain and below what can be reliably identified as positive with a ≥99% confidence limit (i.e. below the laboratory determined MDL).

LCB = Laboratory Control Blank
CVS = Continuing Verification Standard Sample (limits: ±2 in the last decimal)
LOR = Limit of Reporting

Certified by: L. Wrona
Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (7 THRU 12) TEST#2	23-22237-PM (13 THRU 18) TEST#3	23-22237-PM (19 THRU 24) BLANK		MB
ALS Sample ID		L2753664-1	L2753664-2	L2753664-3	L2753664-4		L2753664-MB
Matrix		Stack	Stack	Stack	Stack		n/a
Analysis type		Sample	Sample	Sample	Sample		QC
Sampling Date/Time		n/a	n/a	n/a	n/a		n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23		n/a
PM via Gravimetric Analysis	**LOR**						
Method 5	**mg**	**mg**	**mg**	**mg**	**mg**		**mg**
Filter Particulate Matter	0.8	1.2	1.1	8.0	4.9		<
Acetone Particulate Matter	0.4	3.6	1.80	6.50	0.200	J	10.1
	g	**g**	**g**	**g**	**g**		**g**
Acetone Mass	0.02	183	93.5	97.0	148		32.5

APPENDIX 8

Particulate and Metals Analytical Report
(14 pages)

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753664		Mississauga, ON L5J 2Y4
Date of Report	15-Dec-23		Canada
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS:

Sample Preparation via USEPA Method 29 (KC11 08-Dec-2023)
Mercury Analysis via CVAA using Method USEPA 7470A (KC11 11-Dec-2023)

ANALYST COMMENTS:

Recoveries for the Fraction 1B (HF) LCS and LCSD are outside ALS DQOs (found: 85,84%, limits: 90-110%). MS and MSD recoveries are within control limits, however they are close to the bottom of the range. This may indicate a standard spiking issue, or potentially an interference caused by the reagents used in this fraction. A matrix interference is not expected. Sample data for this fraction is likely to be biased low. KC11 11-Dec-23

LOR = Limit of Reporting
LCB = Laboratory Control Blank (limits: <LOR)
LCS = Laboratory Control Sample (limits: hivol, solids: 85-115%, stack: 90-110%)
MS = Matrix Spike Sample (limits: 75-125%)
RPD = Relative Percent Difference (limits: <20%)
CCV/CVS = Calibration Verification Standard (limits: 85-115%)

Certified by: L. Wrona
Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (7 THRU 12) TEST#2	23-22237-PM (13 THRU 18)TEST#3	23-22237-PM (19 THRU 24) BLANK
ALS Sample ID		L2753664-1	L2753664-2	L2753664-3	L2753664-4
Matrix		Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample
Sampling Date/Time		n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Mercury via CVAA	LOR				
Method 29	**ug**	**ug**	**ug**	**ug**	**ug**
Analytical Fraction 1B (Nitric)	0.015	<0.015	0.0339	0.0567	<0.015
Analytical Fraction 1B	0.015	<0.015	<0.015	<0.015	<0.015
Analytical Fraction 2B	0.050	<2.245	<1.975	2.38	<0.2175
Analytical Fraction 3B	0.025	0.605	<0.0275	<0.0275	<0.0275
Analytical Fraction 3C	0.25	2.87	3.94	1.78	<0.225

ALS Environmental

Sample QC Summary Report

Sample Name		LCB	LCS	LCS	LCSD	LCSD
ALS Sample ID		LCB	LCS	LCS	LCSD	LCSD
Analysis type		Method Blank	Blank Spike	Blank Spike	Blank Spike Dup	Blank Spike Dup
Sampling Date/Time		n/a	n/a	n/a	n/a	n/a
Date of Receipt		n/a	n/a	n/a	n/a	n/a
Mercury via CVAA	**LOR**					
Method 29	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Analytical Fraction 1B (Nitric)	0.015	<0.015	0.279	93%	0.280	93%
Analytical Fraction 1B	0.015	<0.015	0.256	85%	0.253	84%
Analytical Fraction 2B	0.050	<0.05	0.947	95%	0.937	94%
Analytical Fraction 3B	0.025	<0.025	0.457	91%	0.456	91%
Analytical Fraction 3C	0.25	<0.25	4.60	92%	4.71	94%

ALS Environmental

Sample QC Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1
ALS Sample ID		L2753664-1	L2753664-1DUP	L2753664-1MS	L2753664-1MS	L2753664-1MSD	L2753664-1MSD
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Duplicate	Matrix Spike	Matrix Spike	Matrix Spike Dup	Matrix Spike Dup
Sampling Date/Time		n/a	n/a	n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Mercury via CVAA	**LOR**						
Method 29	**ug**	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Analytical Fraction 1B (Nitric)	0.015	<0.015	<0.015	0.281	93%	0.281	93%
Analytical Fraction 1B	0.015	<0.015	<0.015	0.240	80%	0.240	80%
Analytical Fraction 2B	0.050	<2.245	<2.245	43.7	96%	43.1	94%
Analytical Fraction 3B	0.025	0.605	0.605	1.11	91%	1.09	88%
Analytical Fraction 3C	0.250	2.87	2.92	7.20	96%	7.20	96%

ALS Environmental
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753664		Mississauga, ON L5J 2Y4
Date of Report	14-Dec-23		Canada
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS:

Metals analysed via ICP-MS Method USEPA 6020B (SA 8 and 11-Dec-23)
Sample Preparation via USEPA Method 29 (KC11 4 and 8-Dec-23)

ANALYST COMMENTS:

1A HF:

Silicon cannot be quantified in this fraction due to the contribution of the complete digestion of the filter matrix. Al, Cr, Cu, Mg, Mn, Mo, Ni, Sr and Sn were observed in the method blank (MB) at varying levels above their LORs. Sample data within a factor of 5x this potential background contribution may be biased high. S Recoveries for the LCS and LCSD are outside ALS DQOs (found: 80,80%, limits: 85-115%). MS and MSD recoveries are within control limits. Impact to data quality is expected to be negligible. SA 14-Dec-23

2A:

B has high recovery in LCSD but within range on the LCS. Recoveries for Al and B in the MS and MSD cannot be quantified, due to high level of the target analyte in the sample, relative to the spiked amount. This is not expected to indicate any impact to data quality. Sn observed in the reagent blank (RB) above its LOR. This represents the contribution of the peroxide reagent, which includes a tin-containing stabilizer. Sample data may be similarly biased. SA 14-Dec-23

LCB = Laboratory Control Blank
LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
LOR = Limit of Reporting
nq = Indicates that this value was not quantifiable.

Certified by: L. Wrona

Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (7 THRU 12) TEST#2	23-22237-PM (13 THRU 18) TEST#3	23-22237-PM (19 THRU 24) BLANK	MB
ALS Sample ID		L2753664-1	L2753664-2	L2753664-3	L2753664-4	L2753664-MB
Matrix		Stack	Stack	Stack	Stack	n/a
Analysis Type		Sample	Sample	Sample	Sample	QC
Sampling Date		n/a	n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	n/a
Multi-Metals via ICP-MS	**LOR**					
	ug	**ug**	**ug**	**ug**	**ug**	**ug**
Front Half HNO3 Fraction 1A						
Aluminum	20	37.0	32.3	62.9	<	<
Antimony	0.2	<	<	<	<	<
Arsenic	1	<	<	<	<	<
Barium	5	10.4	9.66	13.8	9.28	<
Beryllium	0.2	<	<	<	<	<
Boron	30	32.8	<	158	<	<
Cadmium	0.1	0.366	0.126	<	<	<
Calcium	500	<	<	<	<	<
Chromium	1	3.50	4.04	3.46	<	<
Cobalt	0.2	<	<	<	<	<
Copper	1	2.28	2.93	2.45	<	<
Iron	200	<	<	<	<	<
Lead	0.5	<	<	<	<	<
Lithium	0.5	<	<	<	<	<
Magnesium	10	14.5	12.4	17.3	<	<
Manganese	0.5	10.3	3.29	6.07	<	<
Molybdenum	0.2	0.432	0.381	0.405	0.231	0.270
Nickel	0.2	6.01	4.59	2.01	<	<
Phosphorus	100	<	<	<	<	<
Potassium	100	<	<	<	<	<
Selenium	2	2.16	<	6.60	<	<
Silver	0.2	<	<	<	<	<
Sodium	30	653	433	596	365	<
Strontium	0.2	0.426	0.348	0.375	<	<
Tin	0.3	7.07	7.77	20.7	0.402	<
Titanium	10	<	<	<	<	<
Vanadium	1	<	<	<	<	<
Zinc	6	14.8	11.2	13.4	<	<
Sulphur	10000	<	<	<	<	<
Silicon	150	783	855	1120	1550	<

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Sample QC Summary Report

Sample Name		RB	LCS	LCS	LCSD	LCSD
ALS Sample ID		RB	LCS	LCS	LCSD	LCSD
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis Type		Blank	LCS	LCS	LCS	LCS
Sampling Date		n/a	n/a	n/a	n/a	n/a
Date of Receipt		n/a	n/a	n/a	n/a	n/a
Multi-Metals via ICP-MS	**LOR**					
	ug	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Front Half HNO3 Fraction 1A						
Aluminum	20	<	122	100	122	101
Antimony	0.2	<	11.6	97	11.9	99
Arsenic	1	<	59.1	98	58.6	98
Barium	5	<	57.0	95	56.7	95
Beryllium	0.2	<	58.1	97	60.0	100
Boron	30	<	50.3	84	51.2	85
Cadmium	0.1	<	29.9	100	29.8	99
Calcium	500	<	1520	101	1520	101
Chromium	1	<	59.5	99	58.2	97
Cobalt	0.2	<	59.2	99	59.0	98
Copper	1	<	59.9	99	59.6	99
Iron	200	<	301	99	300	99
Lead	0.5	<	60.5	101	61.7	103
Lithium	0.5	<	10.7	90	10.9	92
Magnesium	10	<	300	99	298	99
Manganese	0.5	<	59.1	98	58.7	98
Molybdenum	0.2	<	28.3	94	28.6	95
Nickel	0.2	<	59.1	99	59.1	99
Phosphorus	100	<	1460	98	1350	90
Potassium	100	<	1390	93	1420	95
Selenium	2	<	57.0	95	57.5	96
Silver	0.2	<	29.2	97	29.4	98
Sodium	30	<	1420	94	1410	93
Strontium	0.2	<	56.4	94	56.9	95
Tin	0.3	<	29.5	98	29.8	99
Titanium	10	<	58.1	96	57.6	96
Vanadium	1	<	59.1	98	58.2	97
Zinc	6	<	119	99	120	100
Sulphur	10000	<	12500	87	12200	85
Silicon	150	<	2820	94	2820	93

ALS Environmental

Sample QC Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1
ALS Sample ID		L2753664-1	L2753664-1	MS	MS	MSD	MSD
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis Type		Sample	Duplicate	Matrix Spike	Matrix Spike	Matrix Spike Dup	Matrix Spike Dup
Sampling Date		n/a	n/a	n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Multi-Metals via ICP-MS	**LOR**						
	ug	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Front Half HNO3 Fraction 1A							
Aluminum	20	37.0	37.2	287	104	274	99
Antimony	0.2	<	<	24.0	100	23.2	97
Arsenic	1	<	<	121	101	119	99
Barium	5	10.4	10.4	129	99	124	94
Beryllium	0.2	<	<	122	102	120	100
Boron	30	32.8	33.0	140	90	138	88
Cadmium	0.1	0.366	0.393	61.5	102	59.7	99
Calcium	500	<	<	3240	104	3150	101
Chromium	1	3.50	3.41	124	100	121	98
Cobalt	0.2	<	<	120	100	120	100
Copper	1	2.28	2.25	124	101	123	100
Iron	200	<	<	685	101	692	102
Lead	0.5	<	<	127	105	123	102
Lithium	0.5	<	<	22.6	94	22.2	92
Magnesium	10	14.5	15.4	619	101	622	101
Manganese	0.5	10.3	10.3	132	101	130	100
Molybdenum	0.2	0.432	0.426	59.3	98	57.5	95
Nickel	0.2	6.01	6.12	126	100	126	100
Phosphorus	100	<	<	2830	95	2720	91
Potassium	100	<	<	2980	97	2940	96
Selenium	2	2.16	2.09	119	97	117	96
Silver	0.2	<	<	60.6	101	58.9	98
Sodium	30	653	640	3970	110	3870	107
Strontium	0.2	0.426	0.399	118	98	116	96
Tin	0.3	7.07	7.25	68.1	102	66.7	99
Titanium	10	<	<	120	98	118	97
Vanadium	1	<	<	119	99	118	99
Zinc	6	14.8	14.8	252	99	253	99
Sulphur	###	<	<	33900	117	34700	120
Silicon	150	783	783	9840	101	9980	102

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Sample Analysis Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (7 THRU 12) TEST#2	23-22237-PM (13 THRU 18)TEST#3	23-22237-PM (19 THRU 24) BLANK	MB
ALS Sample ID		L2753664-1	L2753664-2	L2753664-3	L2753664-4	L2753664-MB
Matrix		Stack	Stack	Stack	Stack	n/a
Analysis Type		Sample	Sample	Sample	Sample	QC
Sampling Date		n/a	n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	n/a
Multi-Metals via ICP-MS	**LOR ug**	**ug**	**ug**	**ug**	**ug**	**ug**
Front Half HF Fraction 1A						
Aluminum	20	140	144	145	135	123
Antimony	0.2	<	<	<	<	<
Arsenic	1	<	<	<	<	<
Barium	5	33.2	36.1	33.9	32.3	<
Beryllium	0.2	<	<	<	<	<
Boron	30	37.5	39.0	57.9	<	<
Cadmium	0.1	<	<	<	<	<
Calcium	500	<	<	<	<	<
Chromium	1	3.39	2.89	2.81	2.14	2.21
Cobalt	0.2	<	<	<	<	<
Copper	1	1.38	1.91	1.38	<	6.65
Iron	200	<	<	<	<	<
Lead	0.5	<	<	<	<	<
Lithium	0.5	<	<	<	<	<
Magnesium	10	30.3	30.7	31.8	29.1	40.7
Manganese	0.5	3.28	2.14	2.23	1.10	2.09
Molybdenum	0.2	17.5	17.4	17.2	17.4	34.0
Nickel	0.2	1.75	1.46	1.01	0.615	1.02
Phosphorus	100	<	<	<	<	<
Potassium	100	<	<	<	<	<
Selenium	2	<	<	2.49	<	<
Silver	0.2	<	<	<	<	<
Sodium	30	173	134	159	96.2	39.6
Strontium	0.2	0.603	0.618	0.570	0.588	0.585
Tin	0.3	1.94	3.01	4.38	0.384	0.834
Titanium	10	<	<	<	<	<
Vanadium	1	<	<	<	<	<
Zinc	6	31.9	33.1	29.5	29.6	<
Sulphur	10000	<	<	<	<	<
Silicon	150	nq	nq	nq	nq	nq

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Sample QC Summary Report

Sample Name		RB	LCS	LCS	LCSD	LCSD
ALS Sample ID		RB	LCS	LCS	LCSD	LCSD
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis Type		Blank	LCS	LCS	LCS	LCS
Sampling Date		n/a	n/a	n/a	n/a	n/a
Date of Receipt		n/a	n/a	n/a	n/a	n/a
Multi-Metals via ICP-MS	**LOR**					
	ug	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Front Half HF Fraction 1A						
Aluminum	20	<	120	99	122	101
Antimony	0.2	<	12.2	101	12.1	101
Arsenic	1	<	59.8	100	60.9	101
Barium	5	<	57.1	95	58.6	98
Beryllium	0.2	<	60.6	101	61.4	102
Boron	30	<	52.0	88	51.7	87
Cadmium	0.1	<	30.2	101	30.1	100
Calcium	500	<	1590	106	1590	106
Chromium	1	<	59.9	100	60.1	100
Cobalt	0.2	<	60.2	100	60.5	101
Copper	1	1.20	60.7	99	61.5	100
Iron	200	<	303	101	310	103
Lead	0.5	<	63.7	106	62.0	103
Lithium	0.5	<	11.1	95	11.1	95
Magnesium	10	<	301	100	305	102
Manganese	0.5	<	60.0	100	60.7	101
Molybdenum	0.2	<	29.6	99	29.7	99
Nickel	0.2	<	60.4	101	60.5	101
Phosphorus	100	<	1380	94	1330	92
Potassium	100	<	1420	92	1460	95
Selenium	2	<	58.9	98	58.4	97
Silver	0.2	<	30.3	101	30.1	100
Sodium	30	<	1440	95	1470	96
Strontium	0.2	<	57.9	97	58.4	97
Tin	0.3	<	30.0	100	30.3	101
Titanium	10	<	59.8	100	60.6	101
Vanadium	1	<	59.5	99	60.1	100
Zinc	6	<	121	101	122	102
Sulphur	###	<	12000	80	12000	80
Silicon	150	nq	nq	nq	nq	nq

ALS Environmental

Sample QC Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1
ALS Sample ID		L2753664-1	L2753664-1	MS	MS	MSD	MSD
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis Type		Sample	Duplicate	Matrix Spike	Matrix Spike	Matrix Spike Dup	Matrix Spike Dup
Sampling Date		n/a	n/a	n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Multi-Metals via ICP-MS	**LOR**						
	ug	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Front Half HF Fraction 1A							
Aluminum	20	140	137	369	95	380	100
Antimony	0.2	<	<	24.1	100	24.1	100
Arsenic	1	<	<	118	98	122	101
Barium	5	33.2	32.8	146	94	147	95
Beryllium	0.2	<	<	119	99	121	101
Boron	30	37.5	37.1	141	86	142	87
Cadmium	0.1	<	<	59.5	99	60.7	101
Calcium	500	<	<	3140	102	3140	102
Chromium	1	3.39	3.02	119	97	124	100
Cobalt	0.2	<	<	117	97	121	101
Copper	1	1.38	1.41	119	98	125	103
Iron	200	<	<	634	100	650	102
Lead	0.5	<	<	128	106	129	107
Lithium	0.5	<	<	21.5	90	21.9	92
Magnesium	10	30.3	32.3	617	98	630	100
Manganese	0.5	3.28	3.30	119	97	124	101
Molybdenum	0.2	17.5	17.2	75.8	97	74.8	95
Nickel	0.2	1.75	1.72	119	98	123	101
Phosphorus	100	<	<	2770	94	2910	98
Potassium	100	<	<	2800	93	2900	97
Selenium	2	<	<	113	94	118	97
Silver	0.2	<	<	59.8	100	59.5	99
Sodium	30	173	172	2930	92	3050	96
Strontium	0.2	0.603	0.603	115	96	116	96
Tin	0.3	1.94	1.99	61.0	98	63.8	103
Titanium	10	<	<	118	96	126	102
Vanadium	1	<	<	116	96	121	101
Zinc	6	31.9	31.3	264	97	273	100
Sulphur	10000	<	<	21600	83	23000	88
Silicon	150	nq	nq	nq	nq	nq	nq

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Sample Analysis Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (7 THRU 12) TEST#2	23-22237-PM (13 THRU 18)TEST#3	23-22237-PM (19 THRU 24) BLANK
ALS Sample ID		L2753664-1	L2753664-2	L2753664-3	L2753664-4
Matrix		Stack	Stack	Stack	Stack
Analysis Type		Sample	Sample	Sample	Sample
Sampling Date		n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Multi-Metals via ICP-MS	**LOR**				
	ug	**ug**	**ug**	**ug**	**ug**
Back Half (HNO3 / H2O2) Fraction 2A					
Aluminum	5	2110	1450	2220	10.5
Antimony	0.1	0.426	0.203	0.311	<
Arsenic	0.2	<	<	0.284	<
Barium	0.5	9.42	3.48	2.97	1.12
Beryllium	0.1	<	<	<	<
Boron	10	21100	19900	28200	149
Cadmium	0.05	0.134	0.374	0.0990	<
Calcium	100	1170	672	892	226
Chromium	0.15	10.2	3.19	1.79	0.525
Cobalt	0.1	0.314	0.135	<	<
Copper	0.3	34.1	13.7	2.34	4.77
Iron	15	251	75.8	117	<
Lead	0.05	3.08	1.16	0.675	0.875
Lithium	0.25	1.64	1.08	1.73	<
Magnesium	5	62.1	26.5	36.2	13.9
Manganese	0.15	26.3	4.92	4.94	0.527
Molybdenum	0.1	0.888	0.453	0.417	<
Nickel	0.1	7.22	3.03	2.12	0.312
Phosphorus	25	<	<	32.4	<
Potassium	100	301	185	242	<
Selenium	1	15.8	12.4	125	<
Silver	0.1	0.267	0.264	0.153	<
Sodium	20	5810	3540	5150	403
Strontium	0.1	2.41	0.911	1.44	0.239
Tin	0.1	63.5	22.5	23.1	25.6
Titanium	1	12.4	7.01	12.4	<
Vanadium	0.1	0.204	0.174	0.171	<
Zinc	3	24.6	16.1	18.5	<
Sulphur	3000	5290	19300	179000	<
Silicon	75	7050	27300	41700	121

ALS Environmental

Sample QC Summary Report

Sample Name		RB	LCS	LCS	LCSD	LCSD
ALS Sample ID		RB	LCS	LCS	LCSD	LCSD
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis Type		Blank	LCS	LCS	LCS	LCS
Sampling Date		n/a	n/a	n/a	n/a	n/a
Date of Receipt		n/a	n/a	n/a	n/a	n/a
Multi-Metals via ICP-MS	**LOR**					
	ug	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Back Half (HNO3 / H2O2) Fraction 2A						
Aluminum	5	<	59.9	99	68.3	113
Antimony	0.1	<	5.76	96	5.82	97
Arsenic	0.2	<	30.1	100	30.0	100
Barium	0.5	<	31.0	103	29.9	100
Beryllium	0.1	<	28.9	96	29.4	98
Boron	10	<	25.5	84	44.3	146
Cadmium	0.05	<	14.7	98	14.7	98
Calcium	100	<	732	101	729	100
Chromium	0.15	<	29.4	98	29.9	99
Cobalt	0.1	<	29.7	99	30.0	100
Copper	0.3	<	30.0	100	30.4	101
Iron	15	<	153	102	154	103
Lead	0.05	<	30.4	101	30.5	102
Lithium	0.25	<	5.26	89	5.33	90
Magnesium	5	<	145	96	149	99
Manganese	0.15	<	29.6	99	29.2	97
Molybdenum	0.1	<	14.2	94	14.3	95
Nickel	0.1	<	29.7	99	29.8	99
Phosphorus	25	<	718	95	700	92
Potassium	100	<	750	99	748	99
Selenium	1	<	28.1	94	28.3	94
Silver	0.1	<	14.4	96	14.6	97
Sodium	20	<	689	92	709	94
Strontium	0.1	<	29.9	100	30.0	100
Tin	0.1	5.07	14.9	99	15.1	101
Titanium	1	<	29.3	97	29.8	99
Vanadium	0.1	<	29.4	98	29.5	98
Zinc	3	<	58.9	99	60.1	101
Sulphur	3000	<	7930	106	8110	108
Silicon	75	<	1420	94	1590	106

ALS Environmental

Sample QC Summary Report

Sample Name		23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1	23-22237-PM (1 THRU 6) TEST#1
ALS Sample ID		L2753664-1	L2753664-1	MS	MS	MSD	MSD
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis Type		Sample	Duplicate	Matrix Spike	Matrix Spike	Matrix Spike Dup	Matrix Spike Dup
Sampling Date		n/a	n/a	n/a	n/a	n/a	n/a
Date of Receipt		17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Multi-Metals via ICP-MS	**LOR ug**	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Back Half (HNO3 / H2O2) Fraction 2A							
Aluminum	5	2110	2140	nq	nq	nq	nq
Antimony	0.1	0.426	0.420	11.9	96	11.8	95
Arsenic	0.2	<	0.212	59.9	99	60.8	101
Barium	0.5	9.42	10.0	71.2	103	72.0	104
Beryllium	0.1	<	<	57.4	96	56.4	94
Boron	10	21100	20800	nq	nq	nq	nq
Cadmium	0.05	0.134	0.140	29.5	98	29.3	97
Calcium	100	1170	1190	2710	103	2610	96
Chromium	0.15	10.2	10.4	69.5	99	69.2	98
Cobalt	0.1	0.314	0.326	59.4	99	59.7	99
Copper	0.3	34.1	34.3	94.2	100	95.3	102
Iron	15	251	255	555	101	553	101
Lead	0.05	3.08	3.04	62.2	99	60.8	96
Lithium	0.25	1.64	1.65	12.0	86	12.1	87
Magnesium	5	62.1	62.5	355	98	355	98
Manganese	0.15	26.3	26.3	85.1	98	86.3	100
Molybdenum	0.1	0.888	0.879	29.1	94	29.3	95
Nickel	0.1	7.22	7.19	66.2	98	66.9	99
Phosphorus	25	<	28.7	1440	95	1510	99
Potassium	100	301	297	1790	99	1810	101
Selenium	1	15.8	16.0	72.5	95	72.8	95
Silver	0.1	0.267	0.263	29.2	96	28.9	95
Sodium	20	5810	5820	7270	97	7180	92
Strontium	0.1	2.41	2.35	62.9	101	62.3	100
Tin	0.1	63.5	63.5	93.8	101	94.4	103
Titanium	1	12.4	13.2	72.0	99	72.4	100
Vanadium	0.1	0.204	0.228	59.2	98	59.3	98
Zinc	3	24.6	24.1	141	97	142	98
Sulphur	3000	5290	5140	22200	113	23100	119
Silicon	75	7050	7040	11600	101	11800	106

APPENDIX 9

Semi-Volatile Organic Compounds Sample Recovery Data Sheets
(4 pages)

ORTECH Semi-Volatile Organics Train Recovery Data Sheet

Client : Clean Habors
Project No.: 22237
Sample Batch No.: 23-22237-SVOC-

Test No.: 1
Test Date: NOV 14/23
Test Location: Incinerator Stack

Sample ID 1	Sample ID 2	Sample ID 3	Sample ID 4	Sample ID 5	
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	Filter	XAD-II Trap	Impingers 1, 2 & 3	Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	Impinger 4 Silica Gel
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 407.0	Colour: WHITE	Initial Wt: 652.5	Impinger #1 Jumbo K.O.	Empty Wt: 407.0	Initial Wt: 955.2
After Acetone/ Hexane Rinse: 724.8	FOLD IN FOIL	1 Final Wt: 700.10 / Gain: 48.1	Empty Wt: 700.5	After Acetone/ Hexane Rinse: 634.9	Final Wt: 972.7
Total TS1: 317.8	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Final Wt: 2400.7 / Gain: 1700.2	Total TS5: 227.9	5 Gain: 17.5
MARK FLUID LEVEL		SEAL TRAP	Colour:		% Spent: 20
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Impinger #2 Ethylene Glycol	TRAV I MOIST	1778.6 / 33489 / 1570.3
		LABEL AS CONTAINER TS3	Empty Wt: 623.8 / Initial Wt: 723.9 / Final Wt: 596.5 / 3 Gain: -127.4 / Colour:		
			Impinger #3 Empty		
			Empty Wt: 581.5 / Final Wt: 755.5 / 4 Gain: 174.0 / Colour:	Impinger Box ID: 12	
			Container TS4 Weights		
			Empty Wt: 1778.6 / With Imp Soln: 5178.1 / After ~100g H_2O Rinse: 5431.2 / Total TS4: 3652.6		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	TRAP 8
HPLC Batch No.:	ALS
Ethylene Gylcol Batch No.:	ALS
Hexane Batch No.:	171640
Acetone Batch No.:	204759

Train Loaded By: TC/DT
Train Recovered By: [illegible]

CWTR = 1 + 2 + 3 + 4: 3365.2

WCBDA=5: 17.5

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Semi-Volatile Organics Train Recovery Data Sheet

Client : Clean Habors
Project No.: 22237
Sample Batch No.: 23-22237-SVOC-

Test No.: 2
Test Date: NOV 15/23
Test Location: Incinerator Stack

Sample ID 6	Sample ID 7	Sample ID 8	Sample ID 9	Sample ID 10	
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	Filter	XAD-II Trap	Impingers 1, 2 & 3	Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	Impinger 4 Silica Gel
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 407.0	Colour: WHITE	Initial Wt: 655.8	Impinger #1 Jumbo K.O.	Empty Wt: 406.5	Initial Wt: 952.0
After Acetone/ Hexane Rinse: 702.1	FOLD IN FOIL	1 Final Wt: 685.0	Empty Wt: 707.8	After Acetone/ Hexane Rinse: 660.7	Final Wt: 965.2
Total TS1: 295.1	SEAL AND LABEL CONTAINER TS2	Gain: 29.2	Final Wt: 2361.0	5 Gain: 13.2	
		Colour: WHITE	2 Gain: 1653.2	Total TS5: 254.2	% Spent: 20
MARK FLUID LEVEL		SEAL TRAP	Colour:		
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Impinger #2 Ethylene Glycol	TRAIN 2992.0	
		LABEL AS CONTAINER TS3	Empty Wt: 1064.5	1352.0	
			Initial Wt: 768.4	1640	
			Final Wt: 801.2		
			3 Gain: 32.8		
			Colour:		
			Impinger #3 Empty		
			Empty Wt: 657.1		
			Final Wt: 661.6529	Impinger Box ID: 15	
			4 Gain: 0.7		
			Colour:		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	L27531122 - 5
HPLC Batch No.:	ALS
Ethylene Gylcol Batch No.:	10160
Hexane Batch No.:	107154
Acetone Batch No.:	

Container TS4 Weights	
Empty Wt:	1352.0
With Imp Soln:	4714.9
After ~100g H_2O Rinse:	4956.0
Total TS4:	3604

Train Loaded By: TC
Train Recovered By: DW

CWTR = 1 + 2 + 3 + 4: 3355.9

WCBDA=5: 13.2

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Semi-Volatile Organics Train Recovery Data Sheet

Client : Clean Habors
Project No.: 22237
Sample Batch No.: 23-22237-SVOC-

Test No.: 3
Test Date: NOV 16/23
Test Location: Incinerator Stack

Sample ID 11	Sample ID 12	Sample ID 13	Sample ID 14	Sample ID 15	
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	Filter	XAD-II Trap	Impingers 1, 2 & 3	Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	Impinger 4 Silica Gel
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 607.0	Colour WHITE	Initial Wt: 1646.6	Impinger #1 Jumbo K.O.	Empty Wt: 406.1	Initial Wt: 952.6
After Acetone/ Hexane Rinse: 715.0	FOLD IN FOIL	Final Wt: ~~1656.6~~ 1660.0	Empty Wt: 722.6	After Acetone/ Hexane Rinse: 708.2	Final Wt: 973.6
Total TS1: 308.0	SEAL AND LABEL CONTAINER TS2	1 Gain: 13.4	Final Wt: 2400.6	5 Gain: 302.1	Gain: 21.0
MARK FLUID LEVEL		Colour: WHITE	2 Gain: 1678.0	% Spent: 20	
SEAL AND LABEL CONTAINER TS1		SEAL TRAP	Colour: —		
		WRAP IN FOIL	Impinger #2 Ethylene Glycol	TRAIN ~~289~~ 2938.2	
		LABEL AS CONTAINER TS3	Empty Wt: 658.0	1348.3	
			Initial Wt: 759.3	1589.9	
			Final Wt: 795.2		
			3 Gain: 35.9		
			Colour: —		
			Impinger #3 Empty		
			Empty Wt: 655.7		
			Final Wt: 656.6		
			4 Gain: 0.9		
			Colour: —		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	TRAP 4
HPLC Batch No.:	ALS
Ethylene Gylcol Batch No.:	ALS
Hexane Batch No.:	101640
Acetone Batch No.:	101750

Train Loaded By: TC
Train Recovered By: RM

Container TS4 Weights	
Empty Wt:	1348.3
With Imp Soln:	4745.4
After ~100g H_2O Rinse:	4796.9
Total TS4:	3636.6

CWTR = 1 + 2 + 3 + 4:	3318.1
WCBDA=5:	21.6

Impinger Box ID: 8

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Semi-Volatile Organics Train Recovery Data Sheet

Client : Clean Habors
Project No.: 22237
Sample Batch No.: 23-22237-SVOC-

Test No.: BLANK
Test Date: NOV 15/23
Test Location: Incinerator Stack

Sample ID 16	Sample ID 17	Sample ID 18	Sample ID 19	Sample ID 20	
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	Filter	XAD-II Trap	Impingers 1, 2 & 3	Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	Impinger 4 Silica Gel
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 406.5 After Acetone/ Hexane Rinse: 663.6 Total TS1: 257.1	Colour: WHITE FOLD IN FOIL SEAL AND LABEL CONTAINER TS2	Initial Wt: 642.9 Final Wt: 644.9 1 Gain: Colour: WHITE SEAL TRAP WRAP IN FOIL LABEL AS CONTAINER TS3	Impinger #1 Jumbo K.O. Empty Wt: 700.5 Final Wt: 2 Gain: Colour: Impinger #2 Ethylene Glycol Empty Wt: 625.8 Initial Wt: 721.6 Final Wt: 3 Gain: Colour: Impinger #3 Empty Empty Wt: 591.5 Final Wt: 4 Gain: Colour:	Empty Wt: 407.4 After Acetone/ Hexane Rinse: 720.5 Total TS5: 313.1	Initial Wt: 972.7 Final Wt: 5 Gain: % Spent:
MARK FLUID LEVEL SEAL AND LABEL CONTAINER TS1					

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	6
HPLC Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	107640
Acetone Batch No.:	107758

Container TS4 Weights	
Empty Wt:	406.9
With Imp Soln:	611.3
After ~100g H_2O Rinse:	729.0
Total TS4:	318

Impinger Box ID: 12

Train Loaded By: RM
Train Recovered By: RM

CWTR = 1 + 2 + 3 + 4:

WCBDA=5:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

APPENDIX 10

Semi-Volatile Organic Compounds Analytical Report
(48 pages)

1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753668		Mississauga, ON
Date of Report	8-Dec-23		L5J 2Y4
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS: **PCDD/F by EPA M23**

For the sample 23-22237-SVOC- (6 THRU 10), the recovery of the 13C12-1,2,3,6,7,8-HxCDF standard was marginally above the method control limit. No impact to data quality is expected as a result.

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis summary Report

Sample Name	23-22237-SVOC-(1 THRU 5) TEST#1	23-22237-SVOC-(6 THRU 10) TEST#2	23-22237-SVOC-(11 THRU 15) TEST#3	23-22237-SVOC-(16 THRU 20) BLANK
ALS Sample ID	L2753668-1	L2753668-2	L2753668-3	L2753668-4
Sample Size	1	1	1	1
Sample size units	sample	sample	sample	sample
Percent Moisture	n/a	n/a	n/a	n/a
Sample Matrix	Stack	Stack	Stack	Stack
Sampling Date	n/a	n/a	n/a	n/a
Extraction Date	24-Nov-23	24-Nov-23	24-Nov-23	24-Nov-23
Target Analytes	**pg**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	<2.4	<1.4	<2.7	<3.9
1,2,3,7,8-PeCDD	<3.0	<2.0	<3.5	<2.1
1,2,3,4,7,8-HxCDD	<3.2	<1.7	5.78	<4.8
1,2,3,6,7,8-HxCDD	<5.0	<1.8	14.9	<4.7
1,2,3,7,8,9-HxCDD	<3.0	<1.6	<8.3	<4.5
1,2,3,4,6,7,8-HpCDD	61.7	11.5	133	<5.3
OCDD	79.9	<18	205	<6.2
2,3,7,8-TCDF	<3.7	<1.4	<8.7	<3.9
1,2,3,7,8-PeCDF	3.29	<3.2	<7.5	<2.7
2,3,4,7,8-PeCDF	<1.7	2.26	15.9	<2.5
1,2,3,4,7,8-HxCDF	<1.6	<1.1	<5.0	<1.7
1,2,3,6,7,8-HxCDF	<3.1	<1.5	<8.9	<1.7
2,3,4,6,7,8-HxCDF	4.49	<1.1	<11	<1.7
1,2,3,7,8,9-HxCDF	<1.8	<1.3	<4.5	<2.0
1,2,3,4,6,7,8-HpCDF	18.2	7.07	37.8	<2.6
1,2,3,4,7,8,9-HpCDF	3.48	<2.0	9.66	<2.8
OCDF	16.5	<5.8	42.5	<4.0
Field Spike Standards	**% Rec**	**% Rec**	**% Rec**	**% Rec**
37Cl4-2,3,7,8-TCDD	96	89	99	101
13C12-1,2,3,4,7,8-HxCDD	89	83	86	75
13C12-2,3,4,7,8-PeCDF	93	84	96	104
13C12-1,2,3,4,7,8-HxCDF	84	80	85	76
13C12-1,2,3,4,7,8,9-HpCDF	90	83	92	93
Extraction Standards				
13C12-2,3,7,8-TCDD	67	106	73	73
13C12-1,2,3,7,8-PeCDD	67	104	74	74
13C12-1,2,3,6,7,8-HxCDD	86	134	92	99
13C12-1,2,3,4,6,7,8-HpCDD	72	110	79	74
13C12-OCDD	62	90	71	65
13C12-2,3,7,8-TCDF	66	103	71	73
13C12-1,2,3,7,8-PeCDF	66	102	73	70
13C12-1,2,3,6,7,8-HxCDF	93	138	97	107
13C12-1,2,3,4,6,7,8-HpCDF	73	111	78	71
Cleanup Standard				
13C12-1,2,3,7,8,9-HxCDF	85	108	87	73
Homologue Group Totals	**pg**	**pg**	**pg**	**pg**
Total-TCDD	<2.4	<1.4	66.8	<3.9
Total-PeCDD	<3.0	6.23	47.9	<2.1
Total-HxCDD	29.9	<1.7	147	<4.8
Total-HpCDD	113	11.5	233	<5.3
Total-TCDF	19.0	1.39	116	<3.9
Total-PeCDF	3.29	2.26	97.9	<2.7
Total-HxCDF	7.57	3.25	25.6	<2.0
Total-HpCDF	21.7	7.07	58.3	<2.8
Toxic Equivalency - (WHO 2005)				
Lower Bound PCDD/F TEQ (WHO 2005)	1.41	0.864	8.72	0.00
Mid Point PCDD/F TEQ (WHO 2005)	6.03	4.49	18.4	4.73
Upper Bound PCDD/F TEQ (WHO 2005)	9.46	5.54	19.8	9.44

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG3787652-1	WG3787652-2
Sample Size	1	1
Sample size units	sample	n/a
Percent Moisture	n/a	n/a
Sample Matrix	MEDIA	QC
Sampling Date	n/a	n/a
Extraction Date	24-Nov-23	24-Nov-23
Target Analytes	**pg**	**% Rec**
2,3,7,8-TCDD	<2.6	94
1,2,3,7,8-PeCDD	<2.1	103
1,2,3,4,7,8-HxCDD	<2.7	96
1,2,3,6,7,8-HxCDD	<2.7	99
1,2,3,7,8,9-HxCDD	<2.6	98
1,2,3,4,6,7,8-HpCDD	<3.1	98
OCDD	<11	90
2,3,7,8-TCDF	<1.7	97
1,2,3,7,8-PeCDF	2.82	106
2,3,4,7,8-PeCDF	<1.1	96
1,2,3,4,7,8-HxCDF	<1.6	88
1,2,3,6,7,8-HxCDF	<1.6	101
2,3,4,6,7,8-HxCDF	<1.6	90
1,2,3,7,8,9-HxCDF	<1.8	94
1,2,3,4,6,7,8-HpCDF	<3.8	106
1,2,3,4,7,8,9-HpCDF	<3.0	97
OCDF	<4.4	97
Field Spike Standards	**% Rec**	**% Rec**
37Cl4-2,3,7,8-TCDD	NS	NS
13C12-1,2,3,4,7,8-HxCDD	NS	NS
13C12-2,3,4,7,8-PeCDF	NS	NS
13C12-1,2,3,4,7,8-HxCDF	NS	NS
13C12-1,2,3,4,7,8,9-HpCDF	NS	NS
Extraction Standards		
13C12-2,3,7,8-TCDD	59	81
13C12-1,2,3,7,8-PeCDD	60	94
13C12-1,2,3,6,7,8-HxCDD	73	106
13C12-1,2,3,4,6,7,8-HpCDD	67	98
13C12-OCDD	59	87
13C12-2,3,7,8-TCDF	58	79
13C12-1,2,3,7,8-PeCDF	59	90
13C12-1,2,3,6,7,8-HxCDF	79	107
13C12-1,2,3,4,6,7,8-HpCDF	67	96
Cleanup Standard		
13C12-1,2,3,7,8,9-HxCDF	70	103
Homologue Group Totals	**pg**	
Total-TCDD	<2.6	
Total-PeCDD	<2.1	
Total-HxCDD	<2.7	
Total-HpCDD	<3.1	
Total-TCDF	<1.7	
Total-PeCDF	2.82	
Total-HxCDF	<1.8	
Total-HpCDF	<3.0	
Toxic Equivalency - (WHO 2005)		
Lower Bound PCDD/F TEQ (WHO 2005)	0.0846	
Mid Point PCDD/F TEQ (WHO 2005)	3.49	
Upper Bound PCDD/F TEQ (WHO 2005)	6.85	

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (1 THRU 5) TEST#1**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-1	Extraction Date	24-Nov-23		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		06-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	7-231203A22
Run Date	03-Dec-23 19:36
Final Volume	20 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1098141

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<2.4	2.4	U		70
1,2,3,7,8-PeCDD	1	NotFnd	<3.0	3.0	U		350
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<3.2	3.2	U		350
1,2,3,6,7,8-HxCDD	0.1	33.82	<5.0	3.2	J,R	5.0	350
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<3.0	3.0	U		350
1,2,3,4,6,7,8-HpCDD	0.01	36.28	61.7	3.5	J		350
OCDD	0.0003	39.12	79.9	8.3	J		700
2,3,7,8-TCDF	0.1	27.84	<3.7	2.5	J,R	3.7	70
1,2,3,7,8-PeCDF	0.03	30.78	3.29	1.9	M,J,B		350
2,3,4,7,8-PeCDF	0.3	NotFnd	<1.7	1.7	U		350
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<1.6	1.6	U		350
1,2,3,6,7,8-HxCDF	0.1	33.26	<3.1	1.6	1.	3.1	350
2,3,4,6,7,8-HxCDF	0.1	33.68	4.49	1.6	J		350
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<1.8	1.8	U		350
1,2,3,4,6,7,8-HpCDF	0.01	35.34	18.2	2.5	J		350
1,2,3,4,7,8,9-HpCDF	0.01	36.90	3.48	2.9	J		350
OCDF	0.0003	39.46	16.5	4.2	M,J		700
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1400	28.42	96	70-130			
13C12-1,2,3,4,7,8-HxCDD	14000	33.73	89	70-130			
13C12-2,3,4,7,8-PeCDF	14000	31.39	93	70-130			
13C12-1,2,3,4,7,8-HxCDF	14000	33.16	84	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	14000	36.90	90	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	14000	28.39	67	40-130			
13C12-1,2,3,7,8-PeCDD	14000	31.51	67	40-130			
13C12-1,2,3,6,7,8-HxCDD	14000	33.81	86	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	14000	36.27	72	25-130			
13C12-OCDD	28000	39.11	62	25-130			
13C12-2,3,7,8-TCDF	14000	27.84	66	40-130			
13C12-1,2,3,7,8-PeCDF	14000	30.77	66	40-130			
13C12-1,2,3,6,7,8-HxCDF	14000	33.25	93	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	14000	35.34	73	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	7000	34.37	85	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	0	<2.4	2.4	U	70
Total-PeCDD	0	<3.0	3.0	U	350
Total-HxCDD	1	29.9	3.2		350
Total-HpCDD	2	113	3.5		350
Total-TCDF	4	19.0	2.5		70
Total-PeCDF	1	3.29	1.9		350
Total-HxCDF	2	7.57	1.8		350
Total-HpCDF	2	21.7	2.9		350

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	1.41
Mid Point PCDD/F TEQ (WHO 2005)	6.03
Upper Bound PCDD/F TEQ (WHO 2005)	9.46

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure
1	This result is an EMPC

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (6 THRU 10) TEST#2**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-2	Extraction Date	24-Nov-23		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		06-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	7-231203A23
Run Date	03-Dec-23 20:21
Final Volume	20 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 Z8-DX-1098141

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<1.4	1.4	U		70
1,2,3,7,8-PeCDD	1	31.52	<2.0	1.6	M,J,R	2.0	350
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<1.7	1.7	U		350
1,2,3,6,7,8-HxCDD	0.1	33.82	<1.8	1.7	J,R	1.8	350
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<1.6	1.6	U		350
1,2,3,4,6,7,8-HpCDD	0.01	36.27	11.5	3.5	M,J		350
OCDD	0.0003	39.13	<18	3.3	M,J,R	18	700
2,3,7,8-TCDF	0.1	27.85	<1.4	1.3	M,J,R	1.4	70
1,2,3,7,8-PeCDF	0.03	30.78	<3.2	1.2	J,R	3.2	350
2,3,4,7,8-PeCDF	0.3	31.41	2.26	1.1	M,J		350
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<1.1	1.1	U		350
1,2,3,6,7,8-HxCDF	0.1	33.27	<1.5	1.1	1.	1.5	350
2,3,4,6,7,8-HxCDF	0.1	NotFnd	<1.1	1.1	U		350
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<1.3	1.3	U		350
1,2,3,4,6,7,8-HpCDF	0.01	35.36	7.07	1.7	J		350
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<2.0	2.0	U		350
OCDF	0.0003	39.48	<5.8	2.4	M,J,R	5.8	700
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1400	28.42	89	70-130			
13C12-1,2,3,4,7,8-HxCDD	14000	33.73	83	70-130			
13C12-2,3,4,7,8-PeCDF	14000	31.40	84	70-130			
13C12-1,2,3,4,7,8-HxCDF	14000	33.17	80	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	14000	36.90	83	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	14000	28.40	106	40-130			
13C12-1,2,3,7,8-PeCDD	14000	31.51	104	40-130			
13C12-1,2,3,6,7,8-HxCDD	14000	33.82	134	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	14000	36.27	110	25-130			
13C12-OCDD	28000	39.12	90	25-130			
13C12-2,3,7,8-TCDF	14000	27.84	103	40-130			
13C12-1,2,3,7,8-PeCDF	14000	30.78	102	40-130			
13C12-1,2,3,6,7,8-HxCDF	14000	33.26	138	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	14000	35.35	111	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	7000	34.38	108	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	0	<1.4	1.4	U	70
Total-PeCDD	1	6.23	1.6		350
Total-HxCDD	0	<1.7	1.7	U	350
Total-HpCDD	1	11.5	3.5		350
Total-TCDF	1	1.39	1.3		70
Total-PeCDF	1	2.26	1.2		350
Total-HxCDF	1	3.25	1.3		350
Total-HpCDF	1	7.07	2.0		350

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.864
Mid Point PCDD/F TEQ (WHO 2005)	4.49
Upper Bound PCDD/F TEQ (WHO 2005)	5.54

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure
1.	This result is an EMPC

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (11 THRU 15) TEST#3**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-3	Extraction Date	24-Nov-23		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		06-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	7-231203A24
Run Date	03-Dec-23 21:06
Final Volume	20 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1098141

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<2.7	2.7	U		70
1,2,3,7,8-PeCDD	1	31.53	<3.5	2.6	J,R	3.5	350
1,2,3,4,7,8-HxCDD	0.1	33.75	5.78	2.8	J		350
1,2,3,6,7,8-HxCDD	0.1	33.83	14.9	2.8	J		350
1,2,3,7,8,9-HxCDD	0.1	34.02	<8.3	2.7	J,R	8.3	350
1,2,3,4,6,7,8-HpCDD	0.01	36.28	133	3.4	J		350
OCDD	0.0003	39.14	205	4.7	J		700
2,3,7,8-TCDF	0.1	27.85	<8.7	4.2	J,R	8.7	70
1,2,3,7,8-PeCDF	0.03	30.79	<7.5	2.4	J,R	7.5	350
2,3,4,7,8-PeCDF	0.3	31.41	15.9	2.3	M,J		350
1,2,3,4,7,8-HxCDF	0.1	33.18	<5.0	2.5	J,R	5.0	350
1,2,3,6,7,8-HxCDF	0.1	33.27	<8.9	2.5	1.	8.9	350
2,3,4,6,7,8-HxCDF	0.1	33.70	<11	2.5	J,R	11	350
1,2,3,7,8,9-HxCDF	0.1	34.40	<4.5	2.9	M,J,R	4.5	350
1,2,3,4,6,7,8-HpCDF	0.01	35.36	37.8	2.6	J		350
1,2,3,4,7,8,9-HpCDF	0.01	36.91	9.66	3.0	J		350
OCDF	0.0003	39.47	42.5	4.2	M,J		700
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1400	28.42	99	70-130			
13C12-1,2,3,4,7,8-HxCDD	14000	33.74	86	70-130			
13C12-2,3,4,7,8-PeCDF	14000	31.41	96	70-130			
13C12-1,2,3,4,7,8-HxCDF	14000	33.17	85	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	14000	36.91	92	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	14000	28.40	73	40-130			
13C12-1,2,3,7,8-PeCDD	14000	31.52	74	40-130			
13C12-1,2,3,6,7,8-HxCDD	14000	33.82	92	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	14000	36.28	79	25-130			
13C12-OCDD	28000	39.12	71	25-130			
13C12-2,3,7,8-TCDF	14000	27.84	71	40-130			
13C12-1,2,3,7,8-PeCDF	14000	30.78	73	40-130			
13C12-1,2,3,6,7,8-HxCDF	14000	33.26	97	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	14000	35.35	78	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	7000	34.38	87	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**	
Total-TCDD	4	66.8	2.7	70
Total-PeCDD	3	47.9	2.6	350
Total-HxCDD	6	147	2.8	350
Total-HpCDD	2	233	3.4	350
Total-TCDF	7	116	4.2	70
Total-PeCDF	6	97.9	2.4	350
Total-HxCDF	2	25.6	2.9	350
Total-HpCDF	3	58.3	3.0	350

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	8.72
Mid Point PCDD/F TEQ (WHO 2005)	18.4
Upper Bound PCDD/F TEQ (WHO 2005)	19.8

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure
1.	This result is an EMPC

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Sample Analysis Report

Sample Name	**23-22237-SVOC- (16 THRU 20) BLANK**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-4	Extraction Date	24-Nov-23		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		06-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	7-231205A07
Run Date	05-Dec-23 17:27
Final Volume	20 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1098141

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<3.9	3.9	U		70
1,2,3,7,8-PeCDD	1	NotFnd	<2.1	2.1	U		350
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<4.8	4.8	U		350
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<4.7	4.7	U		350
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<4.5	4.5	U		350
1,2,3,4,6,7,8-HpCDD	0.01	NotFnd	<5.3	5.3	U		350
OCDD	0.0003	NotFnd	<6.2	6.2	U		700
2,3,7,8-TCDF	0.1	NotFnd	<3.9	3.9	U		70
1,2,3,7,8-PeCDF	0.03	NotFnd	<2.7	2.7	U		350
2,3,4,7,8-PeCDF	0.3	NotFnd	<2.5	2.5	U		350
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<1.7	1.7	U		350
1,2,3,6,7,8-HxCDF	0.1	NotFnd	<1.7	1.7	U		350
2,3,4,6,7,8-HxCDF	0.1	NotFnd	<1.7	1.7	U		350
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<2.0	2.0	U		350
1,2,3,4,6,7,8-HpCDF	0.01	35.36	<2.6	2.5	M,J,R	2.6	350
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<2.8	2.8	U		350
OCDF	0.0003	NotFnd	<4.0	4.0	U		700
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1400	28.42	101	70-130			
13C12-1,2,3,4,7,8-HxCDD	14000	33.73	75	70-130			
13C12-2,3,4,7,8-PeCDF	14000	31.40	104	70-130			
13C12-1,2,3,4,7,8-HxCDF	14000	33.16	76	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	14000	36.89	93	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	14000	28.39	73	40-130			
13C12-1,2,3,7,8-PeCDD	14000	31.51	74	40-130			
13C12-1,2,3,6,7,8-HxCDD	14000	33.81	99	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	14000	36.26	74	25-130			
13C12-OCDD	28000	39.09	65	25-130			
13C12-2,3,7,8-TCDF	14000	27.82	73	40-130			
13C12-1,2,3,7,8-PeCDF	14000	30.77	70	40-130			
13C12-1,2,3,6,7,8-HxCDF	14000	33.25	107	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	14000	35.33	71	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	7000	34.37	73	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		
Total-TCDD	0	<3.9	3.9	U	70
Total-PeCDD	0	<2.1	2.1	U	350
Total-HxCDD	0	<4.8	4.8	U	350
Total-HpCDD	0	<5.3	5.3	U	350
Total-TCDF	0	<3.9	3.9	U	70
Total-PeCDF	0	<2.7	2.7	U	350
Total-HxCDF	0	<2.0	2.0	U	350
Total-HpCDF	0	<2.8	2.8	U	350

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.00
Mid Point PCDD/F TEQ (WHO 2005)	4.73
Upper Bound PCDD/F TEQ (WHO 2005)	9.44

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

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Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a		
ALS Sample ID	WG3787652-1	Extraction Date	24-Nov-23		Approved:
Analysis Method	EPA M23	Sample Size	1	sample	*K.NGUYEN*
Analysis Type	Blank	Percent Moisture	n/a		--e-signature--
Sample Matrix	MEDIA	Split Ratio	7		06-Dec-2023

Run Information	**Run 1**
Filename	7-231203A20
Run Date	03-Dec-23 18:07
Final Volume	20 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 Z8-DX-1098141

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<2.6	2.6	U		70
1,2,3,7,8-PeCDD	1	NotFnd	<2.1	2.1	U		350
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<2.7	2.7	U		350
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<2.7	2.7	U		350
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<2.6	2.6	U		350
1,2,3,4,6,7,8-HpCDD	0.01	NotFnd	<3.1	3.1	U		350
OCDD	0.0003	39.16	<11	7.1	M,J,R	11	700
2,3,7,8-TCDF	0.1	NotFnd	<1.7	1.7	U		70
1,2,3,7,8-PeCDF	0.03	30.79	2.82	1.2	M,J		350
2,3,4,7,8-PeCDF	0.3	NotFnd	<1.1	1.1	U		350
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<1.6	1.6	U		350
1,2,3,6,7,8-HxCDF	0.1	NotFnd	<1.6	1.6	U		350
2,3,4,6,7,8-HxCDF	0.1	NotFnd	<1.6	1.6	U		350
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<1.8	1.8	U		350
1,2,3,4,6,7,8-HpCDF	0.01	35.36	<3.8	2.6	J,R	3.8	350
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<3.0	3.0	U		350
OCDF	0.0003	39.49	<4.4	4.4	M,U	2.7	700
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	0		NS				
13C12-1,2,3,4,7,8-HxCDD	0		NS				
13C12-2,3,4,7,8-PeCDF	0		NS				
13C12-1,2,3,4,7,8-HxCDF	0		NS				
13C12-1,2,3,4,7,8,9-HpCDF	0		NS				
Extraction Standards							
13C12-2,3,7,8-TCDD	14000	28.42	59	40-130			
13C12-1,2,3,7,8-PeCDD	14000	31.52	60	40-130			
13C12-1,2,3,6,7,8-HxCDD	14000	33.82	73	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	14000	36.28	67	25-130			
13C12-OCDD	28000	39.12	59	25-130			
13C12-2,3,7,8-TCDF	14000	27.85	58	40-130			
13C12-1,2,3,7,8-PeCDF	14000	30.78	59	40-130			
13C12-1,2,3,6,7,8-HxCDF	14000	33.27	79	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	14000	35.35	67	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	7000	34.38	70	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**			
Total-TCDD	0	<2.6	2.6	U		70
Total-PeCDD	0	<2.1	2.1	U		350
Total-HxCDD	0	<2.7	2.7	U		350
Total-HpCDD	0	<3.1	3.1	U		350
Total-TCDF	0	<1.7	1.7	U		70
Total-PeCDF	1	2.82	1.2			350
Total-HxCDF	0	<1.8	1.8	U		350
Total-HpCDF	0	<3.0	3.0	U		350

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.0846
Mid Point PCDD/F TEQ (WHO 2005)	3.49
Upper Bound PCDD/F TEQ (WHO 2005)	6.85

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
NS	Indicates that this compound was not spiked.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a		Approved:
ALS Sample ID	WG3787652-2	Extraction Date	24-Nov-23		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	n/a	--e-signature--
Analysis Type	LCS	Percent Moisture	n/a		06-Dec-2023
Sample Matrix	QC	Split Ratio	7		

Run Information	**Run 1**
Filename	7-231203A16
Run Date	03-Dec-23 15:11
Final Volume	20 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS 7 ZB-DX-1098141

Target Analytes	**pg**	**Ret. Time**	**% Rec**	**Limits**	**Flags**
2,3,7,8-TCDD	1400	28.42	94	70-130	
1,2,3,7,8-PeCDD	7000	31.52	103	70-130	
1,2,3,4,7,8-HxCDD	7000	33.74	96	70-130	
1,2,3,6,7,8-HxCDD	7000	33.82	99	70-130	
1,2,3,7,8,9-HxCDD	7000	34.02	98	70-130	
1,2,3,4,6,7,8-HpCDD	7000	36.28	98	70-130	
OCDD	14000	39.13	90	70-130	
2,3,7,8-TCDF	1400	27.87	97	70-130	
1,2,3,7,8-PeCDF	7000	30.78	106	70-130	
2,3,4,7,8-PeCDF	7000	31.41	96	70-130	
1,2,3,4,7,8-HxCDF	7000	33.18	88	70-130	
1,2,3,6,7,8-HxCDF	7000	33.27	101	70-130	
2,3,4,6,7,8-HxCDF	7000	33.69	90	70-130	
1,2,3,7,8,9-HxCDF	7000	34.38	94	70-130	
1,2,3,4,6,7,8-HpCDF	7000	35.35	106	70-130	
1,2,3,4,7,8,9-HpCDF	7000	36.91	97	70-130	
OCDF	14000	39.47	97	70-130	
Field Spike Standards	**pg**		**% Rec**	**Limits**	
37Cl4-2,3,7,8-TCDD	0		NS		
13C12-1,2,3,4,7,8-HxCDD	0		NS		
13C12-2,3,4,7,8-PeCDF	0		NS		
13C12-1,2,3,4,7,8-HxCDF	0		NS		
13C12-1,2,3,4,7,8,9-HpCDF	0		NS		
Extraction Standards					
13C12-2,3,7,8-TCDD	14000	28.40	81	40-130	
13C12-1,2,3,7,8-PeCDD	14000	31.51	94	40-130	
13C12-1,2,3,6,7,8-HxCDD	14000	33.82	106	40-130	
13C12-1,2,3,4,6,7,8-HpCDD	14000	36.27	98	25-130	
13C12-OCDD	28000	39.11	87	25-130	
13C12-2,3,7,8-TCDF	14000	27.84	79	40-130	
13C12-1,2,3,7,8-PeCDF	14000	30.78	90	40-130	
13C12-1,2,3,6,7,8-HxCDF	14000	33.26	107	40-130	
13C12-1,2,3,4,6,7,8-HpCDF	14000	35.34	96	25-130	
Cleanup Standard	**pg**				
13C12-1,2,3,7,8,9-HxCDF	7000	34.37	103	40-130	

NS Indicates that this compound was not spiked.

1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753668		Mississauga, ON
Date of Report	8-Dec-23		L5J 2Y4
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS: **PCB Congeners by EPA 1668C**

PCB Congener Group Totals and Total PCB are a sum of detected values, including EMPC values, consistent with USEPA CLP SOW CBC1.2

For the method blank, the recovery of the 13C12-PCB-126 standard was marginally above the method control limit. No impact to overall data quality is expected as a result.

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	23-22237-SVOC-(1 THRU 5) TEST#1	23-22237-SVOC-(6 THRU 10) TEST#2	23-22237-SVOC-(11 THRU 15) TEST#3	23-22237-SVOC-(16 THRU 20) BLANK
ALS Sample ID	L2753668-1	L2753668-2	L2753668-3	L2753668-4
Sample Size	1	1	1	1
Sample size units	Sample	Sample	Sample	Sample
Percent Moisture	n/a	n/a	n/a	n/a
Sample Matrix	Stack	Stack	Stack	Stack
Sampling Date	n/a	n/a	n/a	n/a
Extraction Date	24-Nov-23	24-Nov-23	24-Nov-23	24-Nov-23
Target Analytes	**pg**	**pg**	**pg**	**pg**
PCB-081	<14	8.41	<19	<3.6
PCB-077	686	308	454	<7.2
PCB-123	126	<61	239	<5.3
PCB-118	6750	4180	13700	67.3
PCB-114	186	119	386	<5.5
PCB-105	2430	1300	5080	24.2
PCB-126	15.8	18.2	34.0	<6.5
PCB-167	66.4	38.9	123	<2.5
PCB-156/157	195	114	442	<4.4
PCB-169	<3.1	<4.0	<7.7	<2.3
PCB-189	<2.8	<3.8	<12	<2.3
Extraction Standards	**% Rec**	**% Rec**	**% Rec**	**% Rec**
13C12-PCB-081	68	65	70	83
13C12-PCB-077	74	71	78	93
13C12-PCB-123	68	65	70	89
13C12-PCB-118	69	66	72	89
13C12-PCB-114	66	65	70	86
13C12-PCB-105	78	80	86	107
13C12-PCB-126	84	89	89	117
13C12-PCB-167	72	57	76	87
13C12-PCB-156/157	70	55	72	86
13C12-PCB-169	78	66	85	106
13C12-PCB-189	61	50	64	80
Field Spike Standards				
13C12-PCB-031	110	85	94	85
13C12-PCB-095	63	49	62	52
13C12-PCB-153	86	83	89	86
Cleanup Standards				
13C12-PCB-028	57	38	62	47
13C12-PCB-111	79	57	74	78
13C12-PCB-178	84	54	82	80
Homologue Group Totals				
Total DiCB	10600	2450	21200	316
Total TriCB	5410	3220	6040	160
Total TetraCB	36500	13400	63700	307
Total PentaCB	74500	30200	195000	546
Total HexaCB	20700	7730	47600	155
Total HeptaCB	1800	820	3960	36.9
Total OctaCB	427	155	826	10.5
Total NonaCB	25.0	<7.0	121	<4.5
DecaCB	5.00	<2.7	11.0	3.70
Total PCB	151000	58300	340000	1570
Toxic Equivalency - (WHO 2005)				
Lower Bound PCB TEQ	1.94	2.03	4.04	0.00275
Mid Point PCB TEQ	1.99	2.09	4.28	0.689
Upper Bound PCB TEQ	2.04	2.15	4.28	0.724

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank
ALS Sample ID	WG3787652-1
Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	MEDIA
Sampling Date	n/a
Extraction Date	24-Nov-23

Target Analytes	pg
PCB-081	<2.6
PCB-077	<2.3
PCB-123	<2.2
PCB-118	<2.1
PCB-114	<2.3
PCB-105	<1.8
PCB-126	<1.6
PCB-167	<1.6
PCB-156/157	3.53
PCB-169	<1.6
PCB-189	<1.2
Extraction Standards	**% Rec**
13C12-PCB-081	93
13C12-PCB-077	111
13C12-PCB-123	101
13C12-PCB-118	101
13C12-PCB-114	94
13C12-PCB-105	122
13C12-PCB-126	150
13C12-PCB-167	101
13C12-PCB-156/157	95
13C12-PCB-169	109
13C12-PCB-189	94
Field Spike Standards	
13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS
Cleanup Standards	
13C12-PCB-028	53
13C12-PCB-111	96
13C12-PCB-178	95

Homologue Group Totals	
Total DiCB	133
Total TriCB	47.2
Total TetraCB	36.6
Total PentaCB	24.6
Total HexaCB	16.2
Total HeptaCB	1.50
Total OctaCB	4.35
Total NonaCB	<3.1
DecaCB	1.60
Total PCB	287
Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	0.000106
Mid Point PCB TEQ	0.105
Upper Bound PCB TEQ	0.209

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Laboratory Control Sample
ALS Sample ID	WG3787652-2
Sample Size	1
Sample size units	n/a
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	24-Nov-23

Target Analytes	% Rec
PCB-081	93
PCB-077	91
PCB-123	94
PCB-118	92
PCB-114	100
PCB-105	90
PCB-126	92
PCB-167	90
PCB-156/157	88
PCB-169	92
PCB-189	93
Extraction Standards	**% Rec**
13C12-PCB-081	37
13C12-PCB-077	45
13C12-PCB-123	38
13C12-PCB-118	38
13C12-PCB-114	37
13C12-PCB-105	49
13C12-PCB-126	53
13C12-PCB-167	42
13C12-PCB-156/157	41
13C12-PCB-169	54
13C12-PCB-189	43
Field Spike Standards	
13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS
Cleanup Standards	
13C12-PCB-028	30
13C12-PCB-111	39
13C12-PCB-178	39

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (1 THRU S) TEST#1**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-1	Extraction Date	24-Nov-23		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		05-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	6-231201A28
Run Date	02-Dec-23 06:58
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-6 SPBOCTYL283005-02

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	22.36	<14	7.3	M,J,R	14	180
PCB-077	0.0001	22.69	686	7.1			180
PCB-123	0.00003	23.66	126	6.3	M,J		180
PCB-118	0.00003	23.86	6750	6.0			180
PCB-114	0.00003	24.16	186	6.4			180
PCB-105	0.00003	24.51	2430	5.4			180
PCB-126	0.1	26.12	15.8	5.4	M,J		180
PCB-167	0.00003	27.00	66.4	3.0	J		180
PCB-156/157	0.00003	27.61	195	4.1	J		350
PCB-169	0.03	29.27	<3.1	3.1	M,U	2.5	180
PCB-189	0.00003	NotFnd	<2.8	2.8	U		180

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	14000	22.38	68	10-145
13C12-PCB-077	14000	22.69	74	10-145
13C12-PCB-123	14000	23.67	68	10-145
13C12-PCB-118	14000	23.84	69	10-145
13C12-PCB-114	14000	24.15	66	10-145
13C12-PCB-105	14000	24.50	78	10-145
13C12-PCB-126	14000	26.09	84	10-145
13C12-PCB-167	14000	26.99	72	10-145
13C12-PCB-156/157	28000	27.63	70	10-145
13C12-PCB-169	14000	29.27	78	10-145
13C12-PCB-189	14000	30.55	61	10-145
Field Spike Standards				
13C12-PCB-031	14000	16.36	110	70-130
13C12-PCB-095	14000	19.69	63	70-130
13C12-PCB-153	14000	24.77	86	70-130
Cleanup Standards				
13C12-PCB-028	7000	16.53	57	5-145
13C12-PCB-111	7000	22.60	79	10-145
13C12-PCB-178	7000	25.66	84	10-145

Homologue Group Totals				
Total DiCB	10600	3.7	J	1400
Total TriCB	5410	2.8	J	1400
Total TetraCB	36500	3.2	J	2800
Total PentaCB	74500	1.9	J	2800
Total HexaCB	20700	1.3	J	2800
Total HeptaCB	1800	2.5	J	1400
Total OctaCB	427	1.6	J	1400
Total NonaCB	25.0	5.4	J	700
DecaCB	5.00	2.0	J	700
Total PCB	151000		J	5600

Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	1.94
Mid Point PCB TEQ	1.99
Upper Bound PCB TEQ	2.04

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (6 THRU 10) TEST#2**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-2	Extraction Date	24-Nov-23		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		05-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	6-231201A29
Run Date	02-Dec-23 07:42
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-6 SPBOCTYL283005-02

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	22.40	8.41	7.0	M,J		180
PCB-077	0.0001	22.70	308	6.6			180
PCB-123	0.00003	23.67	<61	9.8	M,J,R	61	180
PCB-118	0.00003	23.87	4180	9.3			180
PCB-114	0.00003	24.17	119	9.6	J		180
PCB-105	0.00003	24.52	1300	7.7			180
PCB-126	0.1	26.10	18.2	7.8	M,J		180
PCB-167	0.00003	27.00	38.9	4.2	J		180
PCB-156/157	0.00003	27.63	114	5.5	J		350
PCB-169	0.03	29.32	<4.0	4.0	M,U	3.8	180
PCB-189	0.00003	NotFnd	<3.8	3.8	U		180

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	14000	22.39	65	10-145
13C12-PCB-077	14000	22.69	71	10-145
13C12-PCB-123	14000	23.67	65	10-145
13C12-PCB-118	14000	23.86	66	10-145
13C12-PCB-114	14000	24.16	65	10-145
13C12-PCB-105	14000	24.51	80	10-145
13C12-PCB-126	14000	26.09	89	10-145
13C12-PCB-167	14000	26.99	57	10-145
13C12-PCB-156/157	28000	27.63	55	10-145
13C12-PCB-169	14000	29.28	66	10-145
13C12-PCB-189	14000	30.55	50	10-145
Field Spike Standards				
13C12-PCB-031	14000	16.37	85	70-130
13C12-PCB-095	14000	19.70	49	70-130
13C12-PCB-153	14000	24.77	83	70-130
Cleanup Standards				
13C12-PCB-028	7000	16.53	38	5-145
13C12-PCB-111	7000	22.61	57	10-145
13C12-PCB-178	7000	25.66	54	10-145

Homologue Group Totals				
Total DiCB	2450	6.2	J	1400
Total TriCB	3220	5.9	J	1400
Total TetraCB	13400	3.3	J	2800
Total PentaCB	30200	3.6	J	2800
Total HexaCB	7730	2.1	J	2800
Total HeptaCB	820	3.1	J	1400
Total OctaCB	155	1.6	J	1400
Total NonaCB	<7.0	7.0	U	700
DecaCB	<2.7	2.7	U	700
Total PCB	58300		J	5600

Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	2.03
Mid Point PCB TEQ	2.09
Upper Bound PCB TEQ	2.15

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (11 THRU 15) TEST#3**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-3	Extraction Date	24-Nov-23		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		05-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	6-231201A30
Run Date	02-Dec-23 08:26
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-6 SPBOCTYL283005-02

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	22.38	<19	8.5	M,J,R	19	180
PCB-077	0.0001	22.70	454	8.1			180
PCB-123	0.00003	23.67	239	10	M		180
PCB-118	0.00003	23.86	13700	9.3			180
PCB-114	0.00003	24.17	386	9.7			180
PCB-105	0.00003	24.52	5080	8.0			180
PCB-126	0.1	26.12	34.0	8.2	M,J		180
PCB-167	0.00003	27.00	123	4.5	J		180
PCB-156/157	0.00003	27.63	442	6.1			350
PCB-169	0.03	29.28	<7.7	4.5	M,J,R	7.7	180
PCB-189	0.00003	30.57	<12	3.3	J,R	12	180

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	14000	22.39	70	10-145
13C12-PCB-077	14000	22.69	78	10-145
13C12-PCB-123	14000	23.67	70	10-145
13C12-PCB-118	14000	23.84	72	10-145
13C12-PCB-114	14000	24.16	70	10-145
13C12-PCB-105	14000	24.51	86	10-145
13C12-PCB-126	14000	26.09	89	10-145
13C12-PCB-167	14000	26.99	76	10-145
13C12-PCB-156/157	28000	27.63	72	10-145
13C12-PCB-169	14000	29.28	85	10-145
13C12-PCB-189	14000	30.55	64	10-145
Field Spike Standards				
13C12-PCB-031	14000	16.37	94	70-130
13C12-PCB-095	14000	19.69	62	70-130
13C12-PCB-153	14000	24.77	89	70-130
Cleanup Standards				
13C12-PCB-028	7000	16.53	62	5-145
13C12-PCB-111	7000	22.61	74	10-145
13C12-PCB-178	7000	25.66	82	10-145

Homologue Group Totals				
Total DiCB	21200	5.8	J	1400
Total TriCB	6040	2.7	J	1400
Total TetraCB	63700	3.8	J	2800
Total PentaCB	195000	2.5	J	2800
Total HexaCB	47600	2.5	J	2800
Total HeptaCB	3960	2.6	J	1400
Total OctaCB	826	1.5	J	1400
Total NonaCB	121	6.6	J	700
DecaCB	11.0	2.3	J	700
Total PCB	340000		J	5600

Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	4.04
Mid Point PCB TEQ	4.28
Upper Bound PCB TEQ	4.28

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive Id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (16 THRU 20) BLANK**	Sampling Date	n/a		Approved:
ALS Sample ID	L2753668-4	Extraction Date	24-Nov-23		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		05-Dec-2023
Sample Matrix	Stack	Split Ratio	7		

Run Information	**Run 1**
Filename	6-231201A31
Run Date	02-Dec-23 09:09
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-6 SPBOCTYL283005-02

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<3.6	3.6	U		180
PCB-077	0.0001	22.66	<7.2	3.3	J,R	7.2	180
PCB-123	0.00003	NotFnd	<5.3	5.3	U		180
PCB-118	0.00003	23.84	67.3	5.2	J		180
PCB-114	0.00003	NotFnd	<5.5	5.5	U		180
PCB-105	0.00003	24.50	24.2	4.5	J		180
PCB-126	0.1	26.09	<6.5	4.4	M,J,R	6.5	180
PCB-167	0.00003	27.00	<2.5	2.5	J,R	2.5	180
PCB-156/157	0.00003	27.61	<4.4	3.3	J,R	4.4	350
PCB-169	0.03	29.27	<2.3	2.3	M,U	2.2	180
PCB-189	0.00003	NotFnd	<2.3	2.3	U		180

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	14000	22.37	83	10-145
13C12-PCB-077	14000	22.68	93	10-145
13C12-PCB-123	14000	23.66	89	10-145
13C12-PCB-118	14000	23.83	89	10-145
13C12-PCB-114	14000	24.13	86	10-145
13C12-PCB-105	14000	24.48	107	10-145
13C12-PCB-126	14000	26.08	117	10-145
13C12-PCB-167	14000	26.97	87	10-145
13C12-PCB-156/157	28000	27.61	86	10-145
13C12-PCB-169	14000	29.27	106	10-145
13C12-PCB-189	14000	30.54	80	10-145
Field Spike Standards				
13C12-PCB-031	14000	16.35	85	70-130
13C12-PCB-095	14000	19.68	52	70-130
13C12-PCB-153	14000	24.76	86	70-130
Cleanup Standards				
13C12-PCB-028	7000	16.52	47	5-145
13C12-PCB-111	7000	22.59	78	10-145
13C12-PCB-178	7000	25.64	80	10-145

Homologue Group Totals				
Total DiCB	316	4.6	J	1400
Total TriCB	160	3.3	J	1400
Total TetraCB	307	3.2	J	2800
Total PentaCB	546	3.2	J	2800
Total HexaCB	155	2.0	J	2800
Total HeptaCB	36.9	2.0	J	1400
Total OctaCB	10.5	1.1	J	1400
Total NonaCB	<4.5	4.5	U	700
DecaCB	3.70	1.6	J	700
Total PCB	1570		J	5600

Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	0.00275
Mid Point PCB TEQ	0.689
Upper Bound PCB TEQ	0.724

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a		
ALS Sample ID	WG3787652-1	Extraction Date	24-Nov-23		Approved:
Analysis Method	EPA 1668C	Sample Size	1	Sample	*E. Sabljic*
Analysis Type	Blank	Percent Moisture	n/a		--e-signature--
Sample Matrix	QC	Split Ratio	7		05-Dec-2023

Run Information	**Run 1**
Filename	6-231201A23
Run Date	02-Dec-23 03:19
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-6 SPBOCTYL283005-02

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<2.6	2.6	U		180
PCB-077	0.0001	NotFnd	<2.3	2.3	U		180
PCB-123	0.00003	NotFnd	<2.2	2.2	U		180
PCB-118	0.00003	NotFnd	<2.1	2.1	U		180
PCB-114	0.00003	NotFnd	<2.3	2.3	U		180
PCB-105	0.00003	NotFnd	<1.8	1.8	U		180
PCB-126	0.1	NotFnd	<1.6	1.6	U		180
PCB-167	0.00003	NotFnd	<1.6	1.6	U		180
PCB-156/157	0.00003	27.61	3.53	2.2	J		350
PCB-169	0.03	NotFnd	<1.6	1.6	U		180
PCB-189	0.00003	NotFnd	<1.2	1.2	U		180

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	14000	22.39	93	10-145
13C12-PCB-077	14000	22.69	111	10-145
13C12-PCB-123	14000	23.69	101	10-145
13C12-PCB-118	14000	23.86	101	10-145
13C12-PCB-114	14000	24.16	94	10-145
13C12-PCB-105	14000	24.51	122	10-145
13C12-PCB-126	14000	26.09	150	10-145
13C12-PCB-167	14000	26.99	101	10-145
13C12-PCB-156/157	28000	27.63	95	10-145
13C12-PCB-169	14000	29.28	109	10-145
13C12-PCB-189	14000	30.57	94	10-145

Field Spike Standards	
13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS

Cleanup Standards				
13C12-PCB-028	7000	16.53	53	5-145
13C12-PCB-111	7000	22.61	96	10-145
13C12-PCB-178	7000	25.67	95	10-145

Homologue Group Totals				
Total DiCB	133	3.5	J	1400
Total TriCB	47.2	2.6	J	1400
Total TetraCB	36.6	2.2	J	2800
Total PentaCB	24.6	1.6	J	2800
Total HexaCB	16.2	0.92	J	2800
Total HeptaCB	1.50	0.84	J	1400
Total OctaCB	4.35	0.84	J	1400
Total NonaCB	<3.1	3.1	U	700
DecaCB	1.60	0.87	J	700
Total PCB	287		J	5600

Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	0.000106
Mid Point PCB TEQ	0.105
Upper Bound PCB TEQ	0.209

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
NS	Indicates that this compound was not spiked.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a		
ALS Sample ID	WG3787652-2	Extraction Date	24-Nov-23		Approved:
Analysis Method	EPA 1668C	Sample Size	1	n/a	*E. Sabljic*
Analysis Type	LCS	Percent Moisture	n/a		--e-signature--
Sample Matrix	QC	Split Ratio	1		05-Dec-2023

Run Information	**Run 1**
Filename	6-231201A20
Run Date	02-Dec-23 01:07
Final Volume	25 ul
Dilution Factor	1
Analysis Units	% Rec
Instrument - Column	HRMS-6 SPBOCTYL283005-02

Target Analytes	**pg**	**Ret. Time**	**% Rec**	**Limits**	**Flags**
PCB-081	7000	22.40	93	60-135	
PCB-077	7000	22.70	91	60-135	
PCB-123	7000	23.70	94	60-135	
PCB-118	7000	23.87	92	60-135	
PCB-114	7000	24.17	100	60-135	
PCB-105	7000	24.52	90	60-135	
PCB-126	7000	26.12	92	60-135	
PCB-167	7000	27.01	90	60-135	
PCB-156/157	14000	27.64	88	60-135	
PCB-169	7000	29.29	92	60-135	
PCB-189	7000	30.58	93	60-135	
Extraction Standards		**Time**	**% Rec**	**Limits**	
13C12-PCB-081	14000	22.39	37	40-145	
13C12-PCB-077	14000	22.69	45	40-145	
13C12-PCB-123	14000	23.69	38	40-145	
13C12-PCB-118	14000	23.86	38	40-145	
13C12-PCB-114	14000	24.16	37	40-145	
13C12-PCB-105	14000	24.51	49	40-145	
13C12-PCB-126	14000	26.10	53	40-145	
13C12-PCB-167	14000	27.00	42	40-145	
13C12-PCB-156/157	28000	27.64	41	40-145	
13C12-PCB-169	14000	29.28	54	40-145	
13C12-PCB-189	14000	30.57	43	40-145	
Field Spike Standards					
13C12-PCB-031			NS		
13C12-PCB-095			NS		
13C12-PCB-153			NS		
Cleanup Standards					
13C12-PCB-028	7000	16.53	30	15-145	
13C12-PCB-111	7000	22.61	39	40-145	
13C12-PCB-178	7000	25.67	39	40-145	

NS Indicates that this compound was not spiked.

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753668		Mississauga, ON L5J 2Y4
Date of Report	20-Dec-23		Canada
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS: **CB by HRGC/SRM QQQ - Isotope dilution**

Certified by:

Ron McLeod, Ph.D.
Technical Director

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		23-22237-SVOC- (1 THRU 5) TEST#1		23-22237-SVOC- (6 THRU 10) TEST#2		23-22237-SVOC- (11 THRU 15) TEST#3		23-22237-SVOC- (16 THRU 20) BLANK	
ALS Sample ID	WG3787652-1		L2753668-1		L2753668-2		L2753668-3		L2753668-4	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		sample	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	QC		Stack		Stack		Stack		Stack	
Sampling Date	n/a		n/a		n/a		n/a		n/a	
Extraction Date	24-Nov-23		24-Nov-23		24-Nov-23		24-Nov-23		24-Nov-23	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
Chlorobenzene	<14	U	3330		5140		4410		<14	U
1,3-Dichlorobenzene	<14	U	859		786		1920		<14	U
1,4-Dichlorobenzene	<14	U	156		136		169		<14	U
1,2-Dichlorobenzene	<14	U	208		249		371		<14	U
1,3,5-Trichlorobenzene	<14	U	71.3		64.2		284		<14	U
1,2,4-Trichlorobenzene	<14	U	122		127		430		<14	U
1,2,3-Trichlorobenzene	<14	U	37.1		35.7		78.7		<14	U
1,2,3,5/1,2,4,5-Tetrachlorobenzene	<14	U	51.9		47.9		150		<14	U
1,2,3,4-Tetrachlorobenzene	<14	U	15.6		<14	U	36.5		<14	U
Pentachlorobenzene	<14	U	<14	U	<14	U	<14	U	<14	U
Hexachlorobenzene	<14	U	<14	U	<14	U	<14	U	<14	U
Hexachlorobutadiene	<14	U	<14	U	<14	U	<14	U	<14	U
Hexachloroethane	<14	U	<14	U	<14	U	<14	U	<14	U
Octachlorostyrene	<14	U	<14	U	<14	U	<14	U	<14	U
Field Sampling Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	NS		122		120		143		92	
Extraction Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	
13C6-Chlorobenzene (ES)	111		60		65		60		34	
13C6-1,4-Dichlorobenzene (ES)	109		105		120		113		73	
13C6-1,2,3-Trichlorobenzene (ES)	91		95		108		125		83	
13C6-1,2,3,4-Tetrachlorobenzene (ES)	80		76		93		95		120	
13C6-Pentachlorobenzene (ES)	93		96		119		113		120	
13C6-Hexachlorobenzene (ES)	108		128		126		136		95	

U Indicates that this compound was not detected above the LOD.
NS Indicates that this compound was not spiked in.

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Laboratory Control Sample	Laboratory Control Sample (Low Level)
ALS Sample ID	WG3787652-2	WG3787652-5
Sample Size	1	1
Sample units	n/a	n/a
Moisture Content	n/a	n/a
Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	24-Nov-23	24-Nov-23
Target Analytes	**% Recovery**	**% Recovery**
Chlorobenzene	NS	NS
1,3-Dichlorobenzene	96	74
1,4-Dichlorobenzene	95	82
1,2-Dichlorobenzene	126	99
1,3,5-Trichlorobenzene	102	106
1,2,4-Trichlorobenzene	85	92
1,2,3-Trichlorobenzene	102	102
1,2,3,5/1,2,4,5-Tetrachlorobenzene	104	112
1,2,3,4-Tetrachlorobenzene	103	129
Pentachlorobenzene	94	114
Hexachlorobenzene	101	124
Field Sampling Standards	**%Rec**	**%Rec**
1-Bromo-2,3-Dichlorobenzene	NS	NS
Extraction Standards	**%Rec**	**%Rec**
13C6-Chlorobenzene (ES)	88	85
13C6-1,4-Dichlorobenzene (ES)	94	87
13C6-1,2,3-Trichlorobenzene (ES)	102	88
13C6-1,2,3,4-Tetrachlorobenzene (ES)	69	68
13C6-Pentachlorobenzene (ES)	72	91
13C6-Hexachlorobenzene (ES)	80	95

NS	Indicates that this compound was not spiked in.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3787652-1	Extraction Date	24-Nov-23
Analysis Method	SRM GC/QQQ		
Analysis Type	blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7		

Approved:
Andrew Reid
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	WG3787652-1
Run Date	12/5/2023 19:01
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	TSQ-1
Column	TG-5SILMS 1517249

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.19	<14	U
1,3-Dichlorobenzene	6.64	<14	U
1,4-Dichlorobenzene	6.74	<14	U
1,2-Dichlorobenzene	6.99	<14	U
1,3,5-Trichlorobenzene	8.28	<14	U
1,2,4-Trichlorobenzene	8.77	<14	U
1,2,3-Trichlorobenzene	9.17	<14	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.41	<14	U
1,2,3,4-Tetrachlorobenzene	10.89	<14	U
Pentachlorobenzene	12.22	<14	U
Hexachlorobenzene	13.84	<14	U
Hexachlorobutadiene	Not Fnd	<14	U
Hexachloroethane	Not Fnd	<14	U
Octachlorostyrene	Not Fnd	<14	U

Field Sampling Standards	**ng spiked**	**%Rec**
1-Bromo-2,3-Dichlorobenzene		NS

Extraction Standards			**%Rec**
13C6-Chlorobenzene (ES)	350	4.13	111
13C6-1,4-Dichlorobenzene (ES)	350	6.74	109
13C6-1,2,3-Trichlorobenzene (ES)	350	9.16	91
13C6-1,2,3,4-Tetrachlorobenzene	350	10.89	80
13C6-Pentachlorobenzene (ES)	700	12.21	93
13C6-Hexachlorobenzene (ES)	700	13.83	108

U Indicates that this compound was not detected above the MDL.
NS Indicates that this compound was not spiked in.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (1 THRU 5) TEST #1**	Sampling Date	n/a
ALS Sample ID	L2753668-1	Extraction Date	24-Nov-23
Analysis Method	SRM GC/QQQ		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7		

Approved:
Andrew Reid
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	L2753668-1
Run Date	12/5/2023 19:46
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	TSQ-1
Column	TG-5SILMS 1517249

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.14	3330	
1,3-Dichlorobenzene	6.61	859	
1,4-Dichlorobenzene	6.73	156	
1,2-Dichlorobenzene	6.99	208	
1,3,5-Trichlorobenzene	8.24	71.3	
1,2,4-Trichlorobenzene	8.78	122	
1,2,3-Trichlorobenzene	9.16	37.1	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.38	51.9	
1,2,3,4-Tetrachlorobenzene	10.89	15.6	
Pentachlorobenzene	12.21	<14	U
Hexachlorobenzene	13.84	<14	U
Hexachlorobutadiene	Not Fnd	<14	U
Hexachloroethane	Not Fnd	<14	U
Octachlorostyrene	Not Fnd	<14	U

Field Sampling Standards	**ng spiked**		**%Rec**
1-Bromo-2,3-Dichlorobenzene	700	10.19	122

Extraction Standards			**%Rec**
13C6-Chlorobenzene (ES)	350	4.13	60
13C6-1,4-Dichlorobenzene (ES)	350	6.73	105
13C6-1,2,3-Trichlorobenzene (ES)	350	9.15	95
13C6-1,2,3,4-Tetrachlorobenzene	350	10.89	76
13C6-Pentachlorobenzene (ES)	700	12.21	96
13C6-Hexachlorobenzene (ES)	700	13.84	128

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (6 THRU 10) TEST #2**	Sampling Date	n/a
ALS Sample ID	L2753668-2	Extraction Date	24-Nov-23
Analysis Method	SRM GC/QQQ		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7		

Approved:
Andrew Reid
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	L2753668-2
Run Date	12/5/2023 20:09
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	TSQ-1
Column	TG-5SILMS 1517249

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.14	5140	
1,3-Dichlorobenzene	6.61	786	
1,4-Dichlorobenzene	6.73	136	
1,2-Dichlorobenzene	6.99	249	
1,3,5-Trichlorobenzene	8.24	64.2	
1,2,4-Trichlorobenzene	8.77	127	
1,2,3-Trichlorobenzene	9.16	35.7	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.38	47.9	
1,2,3,4-Tetrachlorobenzene	10.89	<14	U
Pentachlorobenzene	12.21	<14	U
Hexachlorobenzene	13.84	<14	U
Hexachlorobutadiene	Not Fnd	<14	U
Hexachloroethane	Not Fnd	<14	U
Octachlorostyrene	Not Fnd	<14	U

Field Sampling Standards	**ng spiked**		**%Rec**
1-Bromo-2,3-Dichlorobenzene	700	10.19	120

Extraction Standards			**%Rec**
13C6-Chlorobenzene (ES)	350	4.14	65
13C6-1,4-Dichlorobenzene (ES)	350	6.73	120
13C6-1,2,3-Trichlorobenzene (ES)	350	9.15	108
13C6-1,2,3,4-Tetrachlorobenzene	350	10.89	93
13C6-Pentachlorobenzene (ES)	700	12.21	119
13C6-Hexachlorobenzene (ES)	700	13.83	126

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (11 THRU 15) TEST #3**	Sampling Date	n/a
ALS Sample ID	L2753668-3	Extraction Date	24-Nov-23
Analysis Method	SRM GC/QQQ		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7		

Approved:
Andrew Reid
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	L2753668-3
Run Date	12/5/2023 20:31
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	TSQ-1
Column	TG-5SILMS 1517249

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.14	4410	
1,3-Dichlorobenzene	6.61	1920	
1,4-Dichlorobenzene	6.73	169	
1,2-Dichlorobenzene	6.98	371	
1,3,5-Trichlorobenzene	8.24	284	
1,2,4-Trichlorobenzene	8.77	430	
1,2,3-Trichlorobenzene	9.15	78.7	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.37	150	
1,2,3,4-Tetrachlorobenzene	10.89	36.5	
Pentachlorobenzene	12.21	<14	U
Hexachlorobenzene	13.84	<14	U
Hexachlorobutadiene	Not Fnd	<14	U
Hexachloroethane	Not Fnd	<14	U
Octachlorostyrene	Not Fnd	<14	U

Field Sampling Standards	**ng spiked**		**%Rec**
1-Bromo-2,3-Dichlorobenzene	700	10.19	143

Extraction Standards			**%Rec**
13C6-Chlorobenzene (ES)	350	4.14	60
13C6-1,4-Dichlorobenzene (ES)	350	6.73	113
13C6-1,2,3-Trichlorobenzene (ES)	350	9.15	125
13C6-1,2,3,4-Tetrachlorobenzene	350	10.89	95
13C6-Pentachlorobenzene (ES)	700	12.21	113
13C6-Hexachlorobenzene (ES)	700	13.83	136

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (16 THRU 20) BLANK**	Sampling Date	n/a
ALS Sample ID	L2753668-4	Extraction Date	24-Nov-23
Analysis Method	SRM GC/QQQ		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7		

Approved:
Andrew Reid
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	L2753668-4
Run Date	12/5/2023 20:54
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	TSQ-1
Column	TG-5SILMS 1517249

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.26	<14	U
1,3-Dichlorobenzene	6.60	<14	U
1,4-Dichlorobenzene	6.73	<14	U
1,2-Dichlorobenzene	6.98	<14	U
1,3,5-Trichlorobenzene	8.30	<14	U
1,2,4-Trichlorobenzene	8.77	<14	U
1,2,3-Trichlorobenzene	9.16	<14	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.41	<14	U
1,2,3,4-Tetrachlorobenzene	10.88	<14	U
Pentachlorobenzene	12.20	<14	U
Hexachlorobenzene	13.84	<14	U
Hexachlorobutadiene	Not Fnd	<14	U
Hexachloroethane	Not Fnd	<14	U
Octachlorostyrene	Not Fnd	<14	U

Field Sampling Standards	**ng spiked**		**%Rec**
1-Bromo-2,3-Dichlorobenzene	700	10.19	92

Extraction Standards			**%Rec**
13C6-Chlorobenzene (ES)	350	4.13	34
13C6-1,4-Dichlorobenzene (ES)	350	6.73	73
13C6-1,2,3-Trichlorobenzene (ES)	350	9.16	83
13C6-1,2,3,4-Tetrachlorobenzene	350	10.89	120
13C6-Pentachlorobenzene (ES)	700	12.21	120
13C6-Hexachlorobenzene (ES)	700	13.83	95

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3787652-2	Extraction Date	24-Nov-23
Analysis Method	SRM GC/QQQ		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	7		

Approved:
Andrew Reid
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	WG3787652-2
Run Date	12/5/2023 18:16
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	TSQ-1
Column	TG-5SILMS 1517249

Target Analytes	**ng spiked**	**Ret. Time**	**% Recovery**	**Flags**
Chlorobenzene			NS	
1,3-Dichlorobenzene	350	6.61	96	
1,4-Dichlorobenzene	350	6.74	95	
1,2-Dichlorobenzene	350	6.99	126	
1,3,5-Trichlorobenzene	350	8.24	102	
1,2,4-Trichlorobenzene	350	8.78	85	
1,2,3-Trichlorobenzene	350	9.16	102	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	950	10.40	104	
1,2,3,4-Tetrachlorobenzene	525	10.89	103	
Pentachlorobenzene	525	12.21	94	
Hexachlorobenzene	525	13.84	101	
Hexachlorobutadiene			NS	
Hexachloroethane			NS	
Octachlorostyrene			NS	
Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene			NS	
Extraction Standards			**%Rec**	
13C6-Chlorobenzene (ES)	350	4.14	88	
13C6-1,4-Dichlorobenzene (ES)	350	6.74	94	
13C6-1,2,3-Trichlorobenzene (ES)	350	9.15	102	
13C6-1,2,3,4-Tetrachlorobenzene	350	10.89	69	
13C6-Pentachlorobenzene (ES)	700	12.21	72	
13C6-Hexachlorobenzene (ES)	700	13.83	80	

NS Indicates that this compound was not spiked in.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample (Low Level)**	Sampling Date	n/a
ALS Sample ID	WG3787652-5	Extraction Date	24-Nov-23
Analysis Method	SRM GC/QQQ		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	7		

Approved:
Andrew Reid
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	WG3787652-5
Run Date	12/5/2023 17:53
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	TSQ-1
Column	TG-5SILMS 1517249

Target Analytes	**ng spiked**	**Ret. Time**	**% Recovery**	**Flags**
Chlorobenzene			NS	
1,3-Dichlorobenzene	70	6.61	74	
1,4-Dichlorobenzene	70	6.74	82	
1,2-Dichlorobenzene	70	6.99	99	
1,3,5-Trichlorobenzene	70	8.25	106	
1,2,4-Trichlorobenzene	70	8.79	92	
1,2,3-Trichlorobenzene	70	9.16	102	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	140	10.41	112	
1,2,3,4-Tetrachlorobenzene	70	10.89	129	
Pentachlorobenzene	70	12.21	114	
Hexachlorobenzene	70	13.84	124	
Hexachlorobutadiene			NS	
Hexachloroethane			NS	
Octachlorostyrene			NS	
Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene			NS	
Extraction Standards			**%Rec**	
13C6-Chlorobenzene (ES)	350	4.14	85	
13C6-1,4-Dichlorobenzene (ES)	350	6.74	87	
13C6-1,2,3-Trichlorobenzene (ES)	350	9.16	88	
13C6-1,2,3,4-Tetrachlorobenzene	350	10.89	68	
13C6-Pentachlorobenzene (ES)	700	12.21	91	
13C6-Hexachlorobenzene (ES)	700	13.84	95	

NS Indicates that this compound was not spiked in.

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753668		Mississauga, ON L5J 2Y4
Date of Report Revision	30-Jan-24		Canada
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS: **Chlorophenols by modifed EPA 8270E**
Revised Report: To include PCP data and to eliminate tetrachlorophenol background.

Since the 13C6-2,4-Dichlorophenol was not recovered in the L2753668-2 sample, dichlorophenol target data is not available in this sample. Analysis of a second portion of the train extract showed the same absence of recovery.

Low level LCS recoveries were biased high indicating a potential high bias for analyses near the reporting limit.

When PCP (pentachlorophenol) data was inserted into the report, unacceptable PCP instrument background was observed in addition to the low level instrument background reported prior for the tetrachlorophenols. There the offending extracts were re-run after injector maintenance to eliminate the high molecular weight chlorophenol background such that the tetrachloro and pentachloro targets proved to be below the targeted reporting limits in all samples.

Certified by:

Ron McLeod, Ph.D.
Technical Director

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		23-22237-SVOC (1 THRU 5) TEST#1		23-22237-SVOC- (6 THRU 10) TEST#2		23-22237-SVOC- (11 THRU 15) TEST#3		23-22237-SVOC- (16 THRU 20) BLANK	
ALS Sample ID	WG3787652-1		L2753668-1		L2753668-2		L2753668-3		L2753668-4	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		sample	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	QC		Stack		Stack		Stack		Stack	
Sampling Date	n/a		n/a		n/a		n/a		n/a	
Extraction Date	24-Nov-23		24-Nov-23		24-Nov-23		24-Nov-23		24-Nov-23	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
2,4/2,5-Dichlorophenol	<70	U	164		N/A		468		<70	U
2,3-Dichlorophenol	<70	U	<70	U	N/A		<70	U	<70	U
2,6-Dichlorophenol	<70	U	<70	U	N/A		<70	U	<70	U
2,4,6-Trichlorophenol	<70	U	158		<70	U	113	M	<70	U
2,4,5-Trichlorophenol	<70	U	<70	U	<70	U	<70	U	<70	U
2,3,4-Trichlorophenol	<70	U	<70	U	<70	U	<70	U	<70	U
3,4,5-Trichlorophenol	<70	U	<70	U	<70	U	<70	U	<70	U
2,3,5,6-Tetrachlorophenol	<70	U	<70	U	<70	U	<70	U	<70	U
2,3,4,6-Tetrachlorophenol	<70	U	<70	U	<70	U	<70	U	<70	U
Pentachlorophenol	<70	U	<70	U	<70	U	<70	U	<70	U
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
13C6-2,4-Dichlorophenol (ES)	50.2		50.1		NR		50.9		64.9	M
13C6-2,4,5-Trichlorophenol (ES)	52.3		52.0	M	5.5	M	66.3	M	61.2	
13C6-2,3,4,5-Tetrachlorophenol (ES)	86.4		103.8		40.3		65.6	M	49.6	
13C6-Pentachlorophenol (ES)	50.4		108.3		5.8		100.8		58.9	

M Indicates that a peak has been manually integrated.

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Laboratory Control Sample	Laboratory Control Sample	
ALS Sample ID	WG3787652-2	WG3787652-5	
Sample Size	1	1	
Sample units	n/a	n/a	
Moisture Content	n/a	n/a	
Matrix	QC	QC	
Sampling Date	n/a	n/a	
Extraction Date	24-Nov-23	24-Nov-23	
Target Analytes	**% Recovery**	**% Recovery**	
2,4/2,5-Dichlorophenol	91	122	
2,3-Dichlorophenol	NS	NS	
2,6-Dichlorophenol	61	100	
2,4,6-Trichlorophenol	23	141	
2,4,5-Trichlorophenol	70	137	
2,3,4-Trichlorophenol	NS	NS	
3,4,5-Trichlorophenol	NS	NS	
2,3,5,6-Tetrachlorophenol	91	160	M
2,3,4,5/2,3,4,6-Tetrachlorophenol	81	267	M
Pentachlorophenol	109	246	
Extraction Standards	**% Rec**	**% Rec**	
13C6-2,4-Dichlorophenol (ES)	48.0	62.9	
13C6-2,4,5-Trichlorophenol (ES)	64.4	49.8	
13C6-2,3,4,5-Tetrachlorophenol (ES)	60.4	49.6	
13C6-Pentachlorophenol (ES)	62.7	61.6	

M	Indicates that a peak has been manually integrated.
NS	Indicates that this compound was not spiked.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3787652-1	Extraction Date	24-Nov-23
Analysis Method	Chlorophenols by 8270E		
Analysis Type	Blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
30-Jan-2024

Run Information	**Run 1**	**Run 2**
Filename	23120170.D	Data File
Run Date	12/3/2023 3:50	24012925.D
Final Volume	1 mL	1 mL
Dilution Factor	1	1
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP5-MS US2879733H	HP5-MS US2879733H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**	**Ret. Time.**	**Concentration ng/sample**	**Flags**
2,4/2,5-Dichlorophenol	7.75	<70	U			
2,3-Dichlorophenol	7.83	<70	U			
2,6-Dichlorophenol	8.10	<70	U			
2,4,6-Trichlorophenol	9.64	<70	U			
2,4,5-Trichlorophenol	9.70	<70	U			
2,3,4-Trichlorophenol	9.81	<70	U			
3,4,5-Trichlorophenol	12.06	<70	U			
2,3,5,6-Tetrachlorophenol				11.58	<70	U
2,3,4,6-Tetrachlorophenol				11.62	<70	U
Pentachlorophenol				13.33	<70	U

Extraction Standards			**% Rec**	**Limits**		
13C6-2,4-Dichlorophenol (ES)	1400	7.73	50.2	20-150		
13C6-2,4,5-Trichlorophenol (ES)	1400	9.70	52.3	20-150		
13C6-2,3,4,5-Tetrachlorophenol (ES)				20-150	11.62	86.4
13C6-Pentachlorophenol (ES)				20-150	13.33	50.4

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (1 THRU 5)**	Sampling Date	n/a
ALS Sample ID	L2753668-1	Extraction Date	24-Nov-23
Analysis Method	Chlorophenols by 8270E		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
30-Jan-2024

Run Information	**Run 1**	**Run 2**
Filename	23120172.D	Data File 24012927.D
Run Date	12/3/2023 4:37	
Final Volume	1 mL	1 mL
Dilution Factor	1	1
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP5-MS US2879733H	HP5-MS US2879733H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**	**Ret. Time.**	**Concentration ng/sample**	**Flags**
2,4/2,5-Dichlorophenol	7.71	164				
2,3-Dichlorophenol	7.71	<70	U			
2,6-Dichlorophenol	8.09	<70	U			
2,4,6-Trichlorophenol	9.63	158				
2,4,5-Trichlorophenol	9.70	<70	U			
2,3,4-Trichlorophenol	9.90	<70	U			
3,4,5-Trichlorophenol	12.01	<70	U			
2,3,5,6-Tetrachlorophenol				11.61	<70	U
2,3,4,6-Tetrachlorophenol				11.69	<70	U
Pentachlorophenol				13.37	<70	U

Extraction Standards			**% Rec**		**Limits**		
13C6-2,4-Dichlorophenol (ES)	1400	7.71	50.1		20-150		
13C6-2,4,5-Trichlorophenol (ES)	1400	9.69	52	M	20-150		
13C6-2,3,4,5-Tetrachlorophenol (ES)					20-150	11.67	103.8
13C6-Pentachlorophenol (ES)					20-150	13.36	108.3

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (6 THRU 10)**	Sampling Date	n/a
ALS Sample ID	L2753668-2	Extraction Date	24-Nov-23
Analysis Method	Chlorophenols by 8270E		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
30-Jan-2024

Run Information	**Run 1**	**Run 2**
Filename	23120173.D	Data File
Run Date	12/3/2023 5:01	24012928.D
Final Volume	1 mL	1 mL
Dilution Factor	1	1
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP5-MS US2879733H	HP5-MS US2879733H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**	**Ret. Time.**	**Concentration ng/sample**	**Flags**
2,4/2,5-Dichlorophenol		N/A				
2,3-Dichlorophenol		N/A				
2,6-Dichlorophenol		N/A				
2,4,6-Trichlorophenol	9.64	<70	U			
2,4,5-Trichlorophenol	9.70	<70	U			
2,3,4-Trichlorophenol	9.81	<70	U			
3,4,5-Trichlorophenol	12.06	<70	U			
2,3,5,6-Tetrachlorophenol				11.58	<70	U
2,3,4,6-Tetrachlorophenol				11.68	<70	U
Pentachlorophenol				13.34	<70	U

Extraction Standards			**% Rec**	**Limits**		
13C6-2,4-Dichlorophenol (ES)			NR	20-150		
13C6-2,4,5-Trichlorophenol (ES)	1400	9.70	5.5 M	20-150		
13C6-2,3,4,5-Tetrachlorophenol (ES)				20-150	11.64	40.3
13C6-Pentachlorophenol (ES)				20-150	13.33	5.8

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (11 THRU 15)**	Sampling Date	n/a
ALS Sample ID	L2753668-3	Extraction Date	24-Nov-23
Analysis Method	Chlorophenols by 8270E		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
30-Jan-2024

Run Information	**Run 1**
Filename	23120174.D
Run Date	12/3/2023 5:24
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP5-MS US2879733H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2,4/2,5-Dichlorophenol	7.72	468	
2,3-Dichlorophenol	7.83	<70	U
2,6-Dichlorophenol	8.09	<70	U
2,4,6-Trichlorophenol	9.64	113	M
2,4,5-Trichlorophenol	9.64	<70	U
2,3,4-Trichlorophenol	9.89	<70	U
3,4,5-Trichlorophenol	12.00	<70	U
2,3,5,6-Tetrachlorophenol	11.44	<70	U
2,3,4,6-Tetrachlorophenol	11.51	<70	U
Pentachlorophenol	13.18	<70	U

Extraction Standards			**% Rec**		**Limits**
13C6-2,4-Dichlorophenol (ES)	1400	7.72	50.9		20-150
13C6-2,4,5-Trichlorophenol (ES)	1400	9.71	66.3	M	20-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1400	11.49	65.6	M	20-150
13C6-Pentachlorophenol (ES)	1400	13.18	100.8		20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (16 THRU 20)**	Sampling Date	n/a
ALS Sample ID	L2753668-4	Extraction Date	24-Nov-23
Analysis Method	Chlorophenols by 8270E		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
30-Jan-2024

Run Information	**Run 1**
Filename	23120175.D
Run Date	12/3/2023 5:48
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP5-MS US2879733H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2,4/2,5-Dichlorophenol	7.73	<70	U
2,3-Dichlorophenol	7.89	<70	U
2,6-Dichlorophenol	8.13	<70	U
2,4,6-Trichlorophenol	9.64	<70	U
2,4,5-Trichlorophenol	9.70	<70	U
2,3,4-Trichlorophenol	9.70	<70	U
3,4,5-Trichlorophenol	12.00	<70	U
2,3,5,6-Tetrachlorophenol	11.43	<70	U
2,3,4,6-Tetrachlorophenol	11.50	<70	U
Pentachlorophenol	13.18	<70	U

Extraction Standards			**% Rec**		**Limits**
13C6-2,4-Dichlorophenol (ES)	1400	7.73	64.9	M	20-150
13C6-2,4,5-Trichlorophenol (ES)	1400	9.70	61.2		20-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1400	11.48	49.6		20-150
13C6-Pentachlorophenol (ES)	1400	13.18	58.9		20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3787652-2	Extraction Date	24-Nov-23
Analysis Method	Chlorophenols by 8270E		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
30-Jan-2024

Run Information	**Run 1**
Filename	23120167.D
Run Date	12/3/2023 2:40
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**	**Limits**
2,4/2,5-Dichlorophenol	1400	7.74	91		50-150
2,3-Dichlorophenol	1400	7.74	87		50-150
2,6-Dichlorophenol	1400	8.10	61		50-150
2,4,6-Trichlorophenol	1400	9.63	23		50-150
2,4,5-Trichlorophenol	1400	9.69	70		50-150
2,3,4-Trichlorophenol	1400	9.80	15		50-150
3,4,5-Trichlorophenol	1400	12.11	13		50-150
2,3,5,6-Tetrachlorophenol	1400	11.43	91		50-150
2,3,4,6-Tetrachlorophenol	1400	11.50	81		50-150
Pentachlorophenol	1400	13.17	109		50-150
Extraction Standards			**% Rec**		**Limits**
13C6-2,4-Dichlorophenol (ES)	1400	7.74	48		30-150
13C6-2,4,5-Trichlorophenol (ES)	1400	9.69	64.4		30-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1400	11.47	60.4		30-150
13C6-Pentachlorophenol (ES)	1400	13.17	62.7		30-150

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3787652-5	Extraction Date	24-Nov-23
Analysis Method	Chlorophenols by 8270E		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
30-Jan-2024

Run Information	**Run 1**
Filename	23120166.D
Run Date	12/3/2023 2:16
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**	**Limits**
2,4/2,5-Dichlorophenol	140	7.71	122		50-150
2,3-Dichlorophenol	140	7.82	23		50-150
2,6-Dichlorophenol	140	8.09	100		50-150
2,4,6-Trichlorophenol	140	9.64	141		50-150
2,4,5-Trichlorophenol	140	9.69	137		50-150
2,3,4-Trichlorophenol	140	9.81	72		50-150
3,4,5-Trichlorophenol	140	12.11	123		50-150
2,3,5,6-Tetrachlorophenol	140	11.43	160	M	50-150
2,3,4,6-Tetrachlorophenol	140	11.50	267	M	50-150
Pentachlorophenol	140	13.18	246		50-150
Extraction Standards			**% Rec**		**Limits**
13C6-2,4-Dichlorophenol (ES)	1400	7.71	62.9		30-150
13C6-2,4,5-Trichlorophenol (ES)	1400	9.69	49.8		30-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1400	11.48	49.6		30-150
13C6-Pentachlorophenol (ES)	1400	13.17	61.6		30-150

M Indicates that a peak has been manually integrated.

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2753668		Mississauga, ON L5J 2Y4
Date of Report	8-Dec-23		Canada
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS: **PAH by CARB method 429 (LR option)- Isotope dilution**

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		23-22237-SVOC-(1 THRU 5) TEST#1		23-22237-SVOC-(6 THRU 10) TEST#2		23-22237-SVOC-(11 THRU 15) TEST#3		23-22237-SVOC-(16 THRU 20) BLANK	
ALS Sample ID	WG3787652-1		L2753668-1		L2753668-2		L2753668-3		L2753668-4	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		sample	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	QC		Stack		Stack		Stack		Stack	
Sampling Date	n/a		n/a		n/a		n/a		n/a	
Extraction Date	24-Nov-23		24-Nov-23		24-Nov-23		24-Nov-23		24-Nov-23	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
Naphthalene	<14	U	917	M	943	M	2090		67.3	M
2-Methylnaphthalene	<14	U	133		115		226		<14	U
1-Methylnaphthalene	<14	U	143		104		247		<14	U
Acenaphthylene	<14	U	609		39.0		252		<14	U
Acenaphthene	<14	U	67.9		14.4		54.3		<14	U
Fluorene	<14	U	27.3	M	<14	U	25.1	M	<14	U
Phenanthrene	<14	U	207		121		260		<14	U
Anthracene	<14	U	<14	U	<14	U	20.8		<14	U
Fluoranthene	<14	U	49.0		29.0		70.8		<14	U
Pyrene	<14	U	31.5		22.7		52.1		<14	U
Benzo(a)Anthracene	<14	U	<14	U	<14	U	<14	U	<14	U
Chrysene/Triphenylene	<14	U	22.8		<14	U	106		<14	U
Benzo(b)Fluoranthene	<14	U	<14	U	<14	U	<14	U	<14	U
Benzo(j/k)Fluoranthene	<14	U	<14	U	<14	U	<14	U	<14	U
Benzo(e)Pyrene	<14	U	<14	U	<14	U	<14	U	<14	U
Benzo(a)Pyrene	<14	U	<14	U	<14	U	<14	U	<14	U
Perylene	<14	U	<14	U	<14	U	<14	U	<14	U
Indeno(1,2,3-cd)Pyrene	<14	U	<14	U	<14	U	<14	U	<14	U
Dibenzo(a,h/a,c)anthracene	<14	U	<14	U	<14	U	<14	U	<14	U
Benzo(g,h,i)Perylene	<14	U	<14	U	54.7	M	<14	U	<14	U
Additional Analytes										
Tetralin	31.6	M,	131	M,B	173	M,B	239	M,B	151	M,B
Quinoline	<14	U	<752	EMPC	<195	EMPC	<949	EMPC	<314	EMPC
2-Chloronaphthalene	<14	U	<14	U	<14	U	<14	U	<14	U
Biphenyl	<14	U	147	M	82.7	M	304	M	22.2	
o-Terphenyl	<14	U	<14	U	<14	U	28.1		<14	U
1-Methylphenanthrene	<14	U	<14	U	<14	U	57.5		<14	U
9-Methylphenanthrene	<14	U	19.5		<14	U	34.4		<14	U
2-methylanthracene	<14	U	14.0		35.1	M	25.7		<14	U
9,10-dimethylanthracene	<14	U	<14	U	<14	U	20.9		<14	U
m-terphenyl	<14	U	<14	U	<14	U	18.8		<14	U
p-terphenyl	<14	U	<14	U	<14	U	23.3		<14	U
Benzo(a)fluorene	<14	U	<14	U	<14	U	<14	U	<14	U
Benzo(b)fluorene	<14	U	<14	U	<14	U	<14	U	<14	U
7,12-Dimethylbenzo(a)anthracene	<14	U	27.7		36.8		35.4		28.8	
3-Methylcholanthrene	<70	U	<70	U	<70	U	<70	U	<70	U
Picene	<70	U	<70	U	<70	U	<70	U	<70	U
Dibenzo(a,e)pyrene	<70	U	<70	U	<70	U	<70	U	<70	U
Coronene	<70	U	<70	U	102	M	<70	U	<70	U
Field Sampling Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
1-Methylnaphthalene-D10	NS		95.5		95.9		94.9		101.8	
Fluorene D10	NS		103.0	M	94.6	M	104.3	M	114.4	
Terphenyl D14(Surr.)	NS		128.3		132.3		130.6		139.6	
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Naphthalene D8	113.5		89.9		86.3		116.3		86.5	
2-Methylnaphthalene-D10	94.1		77.2		89.6		101.0		89.7	
Acenaphthylene D8	78.3		66.4		86.7		86.5		79.4	
Phenanthrene D10	87.5		83.2		90.4		92.9		84.3	
Anthracene-D10	84.5		86.0		76.8		96.3		90.0	
Fluoranthene D10	84.3		88.1		95.4		97.4		86.9	
Benz(a)Anthracene-D12	77.8		108.0		116.2		124.4		106.0	
Chrysene D12	82.9		90.3		99.5		100.3		90.8	
Benzo(b)Fluoranthene-D12	87.1		95.6		108.9		119.3		99.8	
Benzo(k)Fluoranthene-D12	81.6		70.5		89.2		84.6		72.0	
Benzo(a)Pyrene D12	84.0		81.9		70.3		95.6		93.7	
Perylene D12	83.7		85.7		81.5		100.0		95.2	
Indeno(1,2,3,cd)Pyrene-D12	74.5		110.6		126.5		134.8		115.9	
Dibenz(a,h)Anthracene-D14	72.6	M	110.3		125.5		132.6		115.9	
Benzo(g,h,i)Perylene D12	82.0		90.2		103.0		107.3		94.7	

U	Indicates that this compound was not detected above the LOD.
M	Indicates that a peak has been manually integrated.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
NS	Indicates that this compound was not spiked.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Summary Report

Sample Name	Laboratory Control Sample	
ALS Sample ID	WG3787652-2	
Sample Size	1	
Sample units	n/a	
Moisture Content	n/a	
Matrix	QC	
Sampling Date	n/a	
Extraction Date	24-Nov-23	
Target Analytes	**%**	
Naphthalene	82.2	M
2-Methylnaphthalene	88.3	
1-Methylnaphthalene	84.8	
Acenaphthylene	86.2	
Acenaphthene	99.3	
Fluorene	96.4	
Phenanthrene	86.7	
Anthracene	84.3	
Fluoranthene	78.5	
Pyrene	75.1	
Benzo(a)Anthracene	96.2	
Chrysene	82.1	
Benzo(b)Fluoranthene	78.3	
Benzo(k)Fluoranthene	93.2	
Benzo(e)Pyrene	87.7	
Benzo(a)Pyrene	80.1	
Perylene	84.9	
Indeno(1,2,3-cd)Pyrene	86.6	
Dibenzo(a,h/a,c)anthracene	91.2	
Benzo(g,h,i)Perylene	84.0	
Additional Analytes		
Tetralin	NS	
Quinoline	NS	
2-Chloronaphthalene	NS	
Biphenyl	NS	
o-Terphenyl	NS	
1-Methylphenanthrene	NS	
9-Methylphenanthrene	NS	
2-methylanthracene	NS	
9,10-dimethylanthracene	NS	
m-terphenyl	NS	
p-terphenyl	NS	
Benzo(a)fluorene	NS	
Benzo(b)fluorene	NS	
Benzo(j)fluoranthene	NS	
7,12-Dimethylbenzo(a)anthracene	NS	
3-Methylcholanthrene	NS	
Picene	NS	
Dibenzo(a,e)pyrene	NS	
Coronene	NS	
Field Sampling Standards	**% Rec**	
1-Methylnaphthalene-D10	NS	
Fluorene D10	NS	
Terphenyl D14(Surr.)	NS	
Extraction Standards	**% Rec**	
Naphthalene D8	95.7	
2-Methylnaphthalene-D10	108.3	
Acenaphthylene D8	92.3	
Phenanthrene D10	110.1	
Anthracene-D10	102.8	
Fluoranthene D10	94.0	
Benz(a)Anthracene-D12	71.5	
Chrysene D12	95.0	
Benzo(b)Fluoranthene-D12	96.2	
Benzo(k)Fluoranthene-D12	100.5	
Benzo(a)Pyrene D12	97.9	
Perylene D12	95.0	
Indeno(1,2,3,cd)Pyrene-D12	55.4	
Dibenz(a,h)Anthracene-D14	63.6	M
Benzo(g,h,i)Perylene D12	71.2	

M Indicates that a peak has been manually integrated.

NS Indicates that this compound was not spiked.

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Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3787652-1	Extraction Date	24-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	Blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	23120114.D
Run Date	12/1/2023 17:48
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	NotFnd	<14	U
2-Methylnaphthalene	3.45	<14	U
1-Methylnaphthalene	3.56	<14	U
Acenaphthylene	4.53	<14	U
Acenaphthene	4.81	<14	U
Fluorene	5.66	<14	U
Phenanthrene	7.79	<14	U
Anthracene	7.91	<14	U
Fluoranthene	11.12	<14	U
Pyrene	11.76	<14	U
Benzo(a)Anthracene	15.66	<14	U
Chrysene/Triphenylene	15.76	<14	U
Benzo(b)Fluoranthene	18.98	<14	U
Benzo(j/k)Fluoranthene	19.06	<14	U
Benzo(e)Pyrene	19.78	<14	U
Benzo(a)Pyrene	NotFnd	<14	U
Perylene	20.08	<14	U
Indeno(1,2,3-cd)Pyrene	23.22	<14	U
Dibenzo(a,h/a,c)Anthracene	23.41	<14	U
Benzo(g,h,i)Perylene	24.09	<14	U
Additional Analytes			
Tetralin	2.79	31.6	M
Quinoline	NotFnd	<14	U
2-Chloronaphthalene	3.95	<14	U
Biphenyl	3.93	<14	U
o-Terphenyl	9.05	<14	U
1-Methylphenanthrene	NotFnd	<14	U
9-Methylphenanthrene	9.42	<14	U
2-methylanthracene	9.48	<14	U
9,10-dimethylanthracene	NotFnd	<14	U
m-terphenyl	12.17	<14	U
p-terphenyl	12.65	<14	U
Benzo(a)fluorene	12.92	<14	U
Benzo(b)fluorene	13.10	<14	U
7,12-Dimethylbenzo(a)anthracene	19.10	<14	U
3-Methylcholanthrene	20.98	<70	U
Picene	23.84	<70	U
Dibenzo(a,e)pyrene	28.06	<70	U
Coronene	28.94	<70	U

Field Sampling Standards	**ng spiked**	**% Rec**
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	700	2.90	113.5	50-150
2-Methylnaphthalene-D10	700	3.42	94.1	50-150
Acenaphthylene D8	700	4.50	78.3	50-150
Phenanthrene D10	700	7.74	87.5	50-150
Anthracene-D10	700	7.86	84.5	50-150
Fluoranthene D10	700	11.08	84.3	50-150
Benz(a)Anthracene-D12	700	15.59	77.8	50-150
Chrysene D12	700	15.70	82.9	50-150
Benzo(b)Fluoranthene-D12	700	18.91	87.1	50-150
Benzo(k)Fluoranthene-D12	700	19.00	81.6	50-150
Benzo(a)Pyrene D12	700	19.79	84.0	50-150
Perylene D12	700	20.03	83.7	50-150
Indeno(1,2,3,cd)Pyrene-D12	700	23.16	74.5	50-150
Dibenz(a,h)Anthracene-D14	700	23.37	72.6 M	50-150
Benzo(g,h,i)Perylene D12	700	24.01	82.0	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
NS	Indicates that this compound was not spiked.

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (1 THRU 5) TEST#1**	Sampling Date	n/a
ALS Sample ID	L2753668-1	Extraction Date	24-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	23120118.D
Run Date	12/1/2023 20:35
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.91	917	M
2-Methylnaphthalene	3.45	133	
1-Methylnaphthalene	3.56	143	
Acenaphthylene	4.50	609	
Acenaphthene	4.80	67.9	
Fluorene	5.67	27.3	M
Phenanthrene	7.79	207	
Anthracene	7.90	<14	U
Fluoranthene	11.13	49.0	
Pyrene	11.76	31.5	
Benzo(a)Anthracene	15.65	<14	U
Chrysene/Triphenylene	15.75	22.8	
Benzo(b)Fluoranthene	18.96	<14	U
Benzo(j/k)Fluoranthene	NotFnd	<14	U
Benzo(e)Pyrene	19.70	<14	U
Benzo(a)Pyrene	NotFnd	<14	U
Perylene	NotFnd	<14	U
Indeno(1,2,3-cd)Pyrene	23.21	<14	U
Dibenzo(a,h/a,c)Anthracene	23.40	<14	U
Benzo(g,h,i)Perylene	24.08	<14	U
Additional Analytes			
Tetralin	2.84	131	M B
Quinoline	3.14	<752	EMPC
2-Chloronaphthalene	3.96	<14	U
Biphenyl	3.95	147	M
o-Terphenyl	9.05	<14	U
1-Methylphenanthrene	9.31	<14	U
9-Methylphenanthrene	9.42	19.5	
2-methylanthracene	9.49	14.0	
9,10-dimethylanthracene	NotFnd	<14	U
m-terphenyl	12.17	<14	U
p-terphenyl	12.64	<14	U
Benzo(a)fluorene	12.89	<14	U
Benzo(b)fluorene	13.10	<14	U
7,12-Dimethylbenzo(a)anthracene	19.09	27.7	
3-Methylcholanthrene	NotFnd	<70	U
Picene	NotFnd	<70	U
Dibenzo(a,e)pyrene	NotFnd	<70	U
Coronene	28.98	<70	U

Field Sampling Standards	**ng spiked**		**% Rec**	
1-Methylnaphthalene-D10	700	3.52	95.5	
Fluorene D10	700	5.62	103.0	M
Terphenyl D14(Surr.)	700	12.58	128.3	

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	700	2.91	89.9	50-150
2-Methylnaphthalene-D10	700	3.42	77.2	50-150
Acenaphthylene D8	700	4.50	66.4	50-150
Phenanthrene D10	700	7.74	83.2	50-150
Anthracene-D10	700	7.86	86.0	50-150
Fluoranthene D10	700	11.07	88.1	50-150
Benz(a)Anthracene-D12	700	15.58	108.0	50-150
Chrysene D12	700	15.69	90.3	50-150
Benzo(b)Fluoranthene-D12	700	18.90	95.6	50-150
Benzo(k)Fluoranthene-D12	700	18.98	70.5	50-150
Benzo(a)Pyrene D12	700	19.78	81.9	50-150
Perylene D12	700	20.02	85.7	50-150
Indeno(1,2,3,cd)Pyrene-D12	700	23.13	110.6	50-150
Dibenz(a,h)Anthracene-D14	700	23.30	110.3	50-150
Benzo(g,h,i)Perylene D12	700	24.00	90.2	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (6 THRU 10) TEST#2**	Sampling Date	n/a
ALS Sample ID	L2753668-2	Extraction Date	24-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	23120119.D
Run Date	12/1/2023 21:16
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.91	943	M
2-Methylnaphthalene	3.45	115	
1-Methylnaphthalene	3.56	104	
Acenaphthylene	4.51	39.0	
Acenaphthene	4.80	14.4	
Fluorene	5.67	<14	U
Phenanthrene	7.79	121	
Anthracene	7.90	<14	U
Fluoranthene	11.12	29.0	
Pyrene	11.76	22.7	
Benzo(a)Anthracene	15.64	<14	U
Chrysene/Triphenylene	15.75	<14	U
Benzo(b)Fluoranthene	NotFnd	<14	U
Benzo(j/k)Fluoranthene	NotFnd	<14	U
Benzo(e)Pyrene	19.70	<14	U
Benzo(a)Pyrene	19.86	<14	U
Perylene	20.03	<14	U
Indeno(1,2,3-cd)Pyrene	23.22	<14	U
Dibenzo(a,h/a,c)Anthracene	23.38	<14	U
Benzo(g,h,i)Perylene	24.08	54.7	M
Additional Analytes			
Tetralin	2.77	173	M B
Quinoline	3.14	<195	EMPC
2-Chloronaphthalene	3.96	<14	U
Biphenyl	3.94	82.7	M
o-Terphenyl	9.05	<14	U
1-Methylphenanthrene	NotFnd	<14	U
9-Methylphenanthrene	9.42	<14	U
2-methylanthracene	9.51	35.1	M
9,10-dimethylanthracene	NotFnd	<14	U
m-terphenyl	12.17	<14	U
p-terphenyl	12.64	<14	U
Benzo(a)fluorene	12.89	<14	U
Benzo(b)fluorene	13.10	<14	U
7,12-Dimethylbenzo(a)anthracene	19.08	36.8	
3-Methylcholanthrene	21.00	<70	U
Picene	NotFnd	<70	U
Dibenzo(a,e)pyrene	28.06	<70	U
Coronene	28.90	102	M

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	700	3.52	95.9
Fluorene D10	700	5.61	94.6 M
Terphenyl D14(Surr.)	700	12.58	132.3

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	700	2.90	86.3	50-150
2-Methylnaphthalene-D10	700	3.43	89.6	50-150
Acenaphthylene D8	700	4.50	86.7	50-150
Phenanthrene D10	700	7.74	90.4	50-150
Anthracene-D10	700	7.86	76.8	50-150
Fluoranthene D10	700	11.07	95.4	50-150
Benz(a)Anthracene-D12	700	15.58	116.2	50-150
Chrysene D12	700	15.68	99.5	50-150
Benzo(b)Fluoranthene-D12	700	18.90	108.9	50-150
Benzo(k)Fluoranthene-D12	700	18.98	89.2	50-150
Benzo(a)Pyrene D12	700	19.78	70.3	50-150
Perylene D12	700	20.01	81.5	50-150
Indeno(1,2,3,cd)Pyrene-D12	700	23.13	126.5	50-150
Dibenz(a,h)Anthracene-D14	700	23.30	125.5	50-150
Benzo(g,h,i)Perylene D12	700	24.00	103.0	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (11 THRU 15) TEST#3**	Sampling Date	n/a
ALS Sample ID	L2753668-3	Extraction Date	24-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	23120120.D
Run Date	12/1/2023 21:58
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.91	2090	
2-Methylnaphthalene	3.45	226	
1-Methylnaphthalene	3.56	247	
Acenaphthylene	4.50	252	
Acenaphthene	4.80	54.3	
Fluorene	5.68	25.1	M
Phenanthrene	7.80	260	
Anthracene	7.90	20.8	
Fluoranthene	11.12	70.8	
Pyrene	11.76	52.1	
Benzo(a)Anthracene	15.64	<14	U
Chrysene/Triphenylene	15.75	106	
Benzo(b)Fluoranthene	NotFnd	<14	U
Benzo(j/k)Fluoranthene	NotFnd	<14	U
Benzo(e)Pyrene	19.70	<14	U
Benzo(a)Pyrene	19.87	<14	U
Perylene	20.02	<14	U
Indeno(1,2,3-cd)Pyrene	23.20	<14	U
Dibenzo(a,h/a,c)Anthracene	23.39	<14	U
Benzo(g,h,i)Perylene	24.08	<14	U
Additional Analytes			
Tetralin	2.77	239	M B
Quinoline	3.13	<949	EMPC
2-Chloronaphthalene	3.96	<14	U
Biphenyl	3.95	304	M
o-Terphenyl	9.05	28.1	
1-Methylphenanthrene	9.35	57.5	
9-Methylphenanthrene	9.43	34.4	
2-methylanthracene	9.49	25.7	
9,10-dimethylanthracene	11.97	20.9	
m-terphenyl	12.17	18.8	
p-terphenyl	12.64	23.3	
Benzo(a)fluorene	12.89	<14	U
Benzo(b)fluorene	NotFnd	<14	U
7,12-Dimethylbenzo(a)anthracene	19.09	35.4	
3-Methylcholanthrene	21.01	<70	U
Picene	NotFnd	<70	U
Dibenzo(a,e)pyrene	NotFnd	<70	U
Coronene	28.91	<70	U

Field Sampling Standards	**ng spiked**		**% Rec**	
1-Methylnaphthalene-D10	700	3.53	94.9	
Fluorene D10	700	5.62	104.3	M
Terphenyl D14(Surr.)	700	12.58	130.6	

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	700	2.91	116.3	50-150
2-Methylnaphthalene-D10	700	3.43	101.0	50-150
Acenaphthylene D8	700	4.51	86.5	50-150
Phenanthrene D10	700	7.74	92.9	50-150
Anthracene-D10	700	7.86	96.3	50-150
Fluoranthene D10	700	11.08	97.4	50-150
Benz(a)Anthracene-D12	700	15.58	124.4	50-150
Chrysene D12	700	15.69	100.3	50-150
Benzo(b)Fluoranthene-D12	700	18.90	119.3	50-150
Benzo(k)Fluoranthene-D12	700	18.98	84.6	50-150
Benzo(a)Pyrene D12	700	19.78	95.6	50-150
Perylene D12	700	20.02	100.0	50-150
Indeno(1,2,3,cd)Pyrene-D12	700	23.14	134.8	50-150
Dibenz(a,h)Anthracene-D14	700	23.30	132.6	50-150
Benzo(g,h,i)Perylene D12	700	24.00	107.3	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**23-22237-SVOC- (16 THRU 20) BLANK**		Sampling Date	n/a	
ALS Sample ID	L2753668-4		Extraction Date	24-Nov-23	
Analysis Method	PAH by CARB 429				
Analysis Type	Sample				
Sample Matrix	Stack				Approved:
Sample Size	1	sample			*Nick Schrobilgen*
Percent Moisture	n/a				--e-signature--
Split Ratio	7		Workgroup	WG3787652	08-Dec-2023

Run Information	**Run 1**
Filename	23120121.D
Run Date	12/1/2023 22:40
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.91	67.3	M
2-Methylnaphthalene	3.45	<14	U
1-Methylnaphthalene	3.56	<14	U
Acenaphthylene	4.53	<14	U
Acenaphthene	4.81	<14	U
Fluorene	5.67	<14	U
Phenanthrene	7.80	<14	U
Anthracene	7.91	<14	U
Fluoranthene	11.12	<14	U
Pyrene	11.76	<14	U
Benzo(a)Anthracene	15.65	<14	U
Chrysene/Triphenylene	15.76	<14	U
Benzo(b)Fluoranthene	NotFnd	<14	U
Benzo(j/k)Fluoranthene	NotFnd	<14	U
Benzo(e)Pyrene	NotFnd	<14	U
Benzo(a)Pyrene	NotFnd	<14	U
Perylene	20.02	<14	U
Indeno(1,2,3-cd)Pyrene	23.22	<14	U
Dibenzo(a,h/a,c)Anthracene	23.39	<14	U
Benzo(g,h,i)Perylene	24.09	<14	U
Additional Analytes			
Tetralin	2.87	151	M B
Quinoline	3.15	<314	EMPC
2-Chloronaphthalene	3.93	<14	U
Biphenyl	3.93	22.2	
o-Terphenyl	9.05	<14	U
1-Methylphenanthrene	NotFnd	<14	U
9-Methylphenanthrene	9.42	<14	U
2-methylanthracene	9.49	<14	U
9,10-dimethylanthracene	11.97	<14	U
m-terphenyl	12.17	<14	U
p-terphenyl	12.63	<14	U
Benzo(a)fluorene	12.92	<14	U
Benzo(b)fluorene	13.10	<14	U
7,12-Dimethylbenzo(a)anthracene	19.09	28.8	
3-Methylcholanthrene	21.00	<70	U
Picene	23.65	<70	U
Dibenzo(a,e)pyrene	28.11	<70	U
Coronene	28.93	<70	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	700	3.52	101.8
Fluorene D10	700	5.62	114.4
Terphenyl D14(Surr.)	700	12.58	139.6

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	700	2.90	86.5	50-150
2-Methylnaphthalene-D10	700	3.43	89.7	50-150
Acenaphthylene D8	700	4.50	79.4	50-150
Phenanthrene D10	700	7.74	84.3	50-150
Anthracene-D10	700	7.87	90.0	50-150
Fluoranthene D10	700	11.07	86.9	50-150
Benz(a)Anthracene-D12	700	15.58	106.0	50-150
Chrysene D12	700	15.69	90.8	50-150
Benzo(b)Fluoranthene-D12	700	18.90	99.8	50-150
Benzo(k)Fluoranthene-D12	700	18.98	72.0	50-150
Benzo(a)Pyrene D12	700	19.78	93.7	50-150
Perylene D12	700	20.02	95.2	50-150
Indeno(1,2,3,cd)Pyrene-D12	700	23.14	115.9	50-150
Dibenz(a,h)Anthracene-D14	700	23.31	115.9	50-150
Benzo(g,h,i)Perylene D12	700	24.00	94.7	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3787652-2	Extraction Date	24-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	7	Workgroup	WG3787652

Approved:
Nick Schrobilgen
--e-signature--
08-Dec-2023

Run Information	**Run 1**
Filename	23120111.D
Run Date	12/1/2023 15:43
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	**ug spiked**	**Ret. Time**	**%**	**Flags**	**Limits**
Naphthalene	700	2.91	82.2	M	50-150
2-Methylnaphthalene	700	3.45	88.3		50-150
1-Methylnaphthalene	700	3.55	84.8		50-150
Acenaphthylene	700	4.51	86.2		50-150
Acenaphthene	700	4.79	99.3		50-150
Fluorene	700	5.67	96.4		50-150
Phenanthrene	700	7.79	86.7		50-150
Anthracene	700	7.90	84.3		50-150
Fluoranthene	700	11.13	78.5		50-150
Pyrene	700	11.76	75.1		50-150
Benzo(a)Anthracene	700	15.66	96.2		50-150
Chrysene	700	15.77	82.1		50-150
Benzo(b)Fluoranthene	700	18.97	78.3		50-150
Benzo(k)Fluoranthene	700	19.06	93.2		50-150
Benzo(e)Pyrene	700	19.71	87.7		50-150
Benzo(a)Pyrene	700	19.86	80.1		50-150
Perylene	700	20.09	84.9		50-150
Indeno(1,2,3-cd)Pyrene	700	23.24	86.6		50-150
Dibenzo(a,h/a,c)Anthracene	700	23.48	91.2		50-150
Benzo(g,h,i)Perylene	700	24.11	84		50-150
Additional Analytes					
Tetralin	0		NS		
Quinoline	0		NS		
2-Chloronaphthalene	0		NS		
Biphenyl	0		NS		
o-Terphenyl	0		NS		
1-Methylphenanthrene	0		NS		
9-Methylphenanthrene	0		NS		
2-methylanthracene	0		NS		
9,10-dimethylanthracene	0		NS		
m-terphenyl	0		NS		
p-terphenyl	0		NS		
Benzo(a)fluorene	0		NS		
Benzo(b)fluorene	0		NS		
7,12-Dimethylbenzo(a)anthracene	0		NS		
3-Methylcholanthrene	0		NS		
Picene	0		NS		
Dibenzo(a,e)pyrene	0		NS		
Coronene	0		NS		

Field Sampling Standards	**ng spiked**	**% Rec**
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	700	2.90	95.7	30-150
2-Methylnaphthalene-D10	700	3.42	108.3	30-150
Acenaphthylene D8	700	4.50	92.3	30-150
Phenanthrene D10	700	7.74	110.1	50-150
Anthracene-D10	700	7.86	102.8	50-150
Fluoranthene D10	700	11.08	94.0	50-150
Benz(a)Anthracene-D12	700	15.59	71.5	50-150
Chrysene D12	700	15.71	95.0	50-150
Benzo(b)Fluoranthene-D12	700	18.91	96.2	50-150
Benzo(k)Fluoranthene-D12	700	19.01	100.5	50-150
Benzo(a)Pyrene D12	700	19.80	97.9	30-150
Perylene D12	700	20.03	95.0	50-150
Indeno(1,2,3,cd)Pyrene-D12	700	23.16	55.4	50-150
Dibenz(a,h)Anthracene-D14	700	23.39	63.6 M	50-150
Benzo(g,h,i)Perylene D12	700	24.02	71.2	50-150

M Indicates that a peak has been manually integrated.

NS Indicates that this compound was not spiked.

APPENDIX 11

Acid Gas Sample Recovery Data Sheet
(1 page)

ORTECH Recovery & Sample Log
Method 26
Incinerator Stack

Client: Clean Harbors Sarnia
Job/Report Number: 22237
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
PO #: 22237 - J2941

Test Number	ORTECH Sample ID 23-22237-M26-	Date Sampled	Contents of Impingers	Initial Volume (ml)	Final Volume (ml)	Gain (ml)	H_2O Rinse (ml)	Total Sample Volume (ml)	Analysis
1	1	NOV 14/23	0.1N H2SO4	30.0	116	86	20	136	HCl,HF
2	3	NOV 15/23	0.1N H2SO4	30.0	117	87	27	144	HCl,HF
3	5	NOV 16/23	0.1N H2SO4	30.0	121	91	29	150	HCl,HF
Blank	7	NOV 5/23	0.1N H2SO4	30.0	30	—	70	100	HCl,HF

Impinger 1 empty, Imp 2+3 30ml split 0.1n H2SO4, Imp 4 & 5 empty, Imp 6 Si Gel

Relinquished by: _____ **Date:** _____

Relinquished to: _____ **Date:** _____

APPENDIX 12

Acid Gas Analytical Report
(4 pages)

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2753663		Mississauga, ON L5J 2Y4
Date of Report	1-Dec-23		Canada
Date of Sample Receipt	17-Nov-23	**Client Contact:**	Chris Belore
		Client Project ID:	22237 Clean Harbors

COMMENTS:

Cl as HCl Anion Analyzed via Ion Chromatography USEPA Method 26/26A (GN 30-Nov-23)
F as HF Anion Analyzed via Ion Chromatography USEPA Method 26/26A (GN 30-Nov-23)

LOR = Limit of Reporting
MB = Laboratory Control Blank (limits: <LOR)
LCS = Laboratory Control Sample (limits: 90-110%)
MS = Matrix Spike Sample (limits: 90-110%, NH_3: 85-115%)
RPD = Relative Percent Difference (limits: <20% for sample duplicate, <10% for duplicate injection)

Certified by: L. Wrona

Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name	23-22237-M26-1	23-22237-M26-3	23-22237-M26-5	23-22237-M26-7
ALS Sample ID	L2753663-1	L2753663-2	L2753663-3	L2753663-4
Matrix	Stack	Stack	Stack	Stack
Analysis type	Sample	Sample	Sample	Sample
Sampling Date/Time	14-Nov-23	15-Nov-23	16-Nov-23	15-Nov-23
Date of Receipt	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Ion Chromatography Analysis				
USEPA Method 26/26A	**mg**	**mg**	**mg**	**mg**
Total F^- as HF (ave)	6.87	5.05	8.58	<0.0362
Analysis 1	6.87	5.04	8.58	<0.0362
Analysis 2	6.87	5.05	8.57	<0.0362
Total Cl^- as HCl (ave)	0.403	0.377	1.87	0.0942
Analysis 1	0.404	0.378	1.87	0.0944
Analysis 2	0.401	0.376	1.87	0.0941

ALS Environmental

Sample QC Summary Report

Sample Name	MB	LCS	LCS
ALS Sample ID	MB	LCS	LCS
Matrix	Stack	Stack	Stack
Analysis type	Method Blank	Blank Spike	Blank Spike
Sampling Date/Time	n/a	n/a	n/a
Date of Receipt	n/a	n/a	n/a
Ion Chromatography Analysis			
USEPA Method 26/26A	**mg**	**mg**	**% Rec**
Total F^- as HF (ave)	<0.00165	0.0566	105%
Analysis 1	<0.00165	0.0566	
Analysis 2	<0.00165	0.0567	
Total Cl^- as HCl (ave)	<0.00241	0.0801	102%
Analysis 1	<0.00241	0.0801	
Analysis 2	<0.00241	0.0801	

ALS Environmental

Sample QC Summary Report

Sample Name	23-22237-M26-1	23-22237-M26-1	23-22237-M26-1	23-22237-M26-1
ALS Sample ID	L2753663-1	L2753663-1DUP	L2753663-1MS	L2753663-1MS
Matrix	Stack	Stack	Stack	Stack
Analysis type	Sample	Duplicate	Matrix Spike	Matrix Spike
Sampling Date/Time	14-Nov-23	14-Nov-23	14-Nov-23	14-Nov-23
Date of Receipt	17-Nov-23	17-Nov-23	17-Nov-23	17-Nov-23
Ion Chromatography Analysis				
USEPA Method 26/26A	**mg**	**mg**	**mg**	**% Rec**
Total F^- as HF (ave)	6.87	6.88	10.1	103%
Analysis 1	6.87	6.88	10.1	
Analysis 2	6.87	6.88	10.1	
Total Cl^- as HCl (ave)	0.403	0.394	2.81	106%
Analysis 1	0.404	0.395	2.81	
Analysis 2	0.401	0.393	2.81	

APPENDIX 13

Volatile Organic Compounds Analytical Report
(17 pages)

Your P.O. #: 22237-J2941
Your Project #: 22237
Site Location: CLEAN HARBOR

Attention: CHRIS BELORE

ORTECH Environmental
804 Southdown Road
Mississauga, ON
CANADA L5J 2Y4

Report Date: 2023/11/30
Report #: R7935131
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AB930
Received: 2023/11/17, 14:23

Sample Matrix: Stack Sampling Train
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
VOST EPA5041A, 8260D for 0030, 0031	6	N/A	2023/11/24	BRL SOP-00302	EPA5041A, 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 22237-J2941
Your Project #: 22237
Site Location: CLEAN HARBOR

Attention: CHRIS BELORE

ORTECH Environmental
804 Southdown Road
Mississauga, ON
CANADA L5J 2Y4

Report Date: 2023/11/30
Report #: R7935131
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AB930
Received: 2023/11/17, 14:23

Encryption Key

Julian Tong
Project Manager Assistant
30 Nov 2023 22:38:24

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C3AB930
Report Date: 2023/11/30

ORTECH Environmental
Client Project #: 22237
Site Location: CLEAN HARBOR
Your P.O. #: 22237-J2941

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		XQD715	XQD716	XQD717			
Sampling Date		2023/11/17	2023/11/16	2023/11/14			
	UNITS	23-22237-VOST-FIELD BLANK 6A/B	23-22237-VOST-TRIP BLANK 10A/B	23-22237-VOST- T1 - 5A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.050	<0.050	<0.050	0.050	0.020	9070271
Vinyl Chloride	ug	<0.050	<0.050	<0.050	0.050	0.013	9070271
Bromomethane	ug	<0.050	<0.050	0.198	0.050	0.015	9070271
Trichlorofluoromethane (FREON 11)	ug	<0.050	<0.050	<0.050	0.050	0.010	9070271
Acetone (2-Propanone)	ug	<0.050	<0.050	0.229	0.050	0.025	9070271
1,1-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9070271
Methylene Chloride(Dichloromethane)	ug	<0.050	<0.050	0.099	0.050	0.020	9070271
trans-1,2-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.010	9070271
Chloroform	ug	<0.050	<0.050	<0.050	0.050	0.011	9070271
1,2-Dichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.0070	9070271
Methyl Ethyl Ketone (2-Butanone)	ug	<0.050	<0.050	<0.050	0.050	0.036	9070271
1,1,1-Trichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.014	9070271
Carbon Tetrachloride	ug	<0.050	<0.050	<0.050	0.050	0.016	9070271
Benzene	ug	<0.050	<0.050	1.45	0.050	0.0010	9070271
1,2-Dichloropropane	ug	<0.050	<0.050	<0.050	0.050	0.011	9070271
Trichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9070271
Bromodichloromethane	ug	<0.050	<0.050	0.050	0.050	0.011	9070271
Dibromochloromethane	ug	<0.050	<0.050	0.080	0.050	0.0090	9070271
Toluene	ug	0.926	<0.050	0.455	0.050	0.014	9070271
Ethylene Dibromide	ug	<0.050	<0.050	<0.050	0.050	0.010	9070271
Tetrachloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.018	9070271
Ethylbenzene	ug	<0.050	<0.050	<0.050	0.050	0.014	9070271
m / p-Xylene	ug	<0.10	<0.10	<0.10	0.10	0.015	9070271
Styrene	ug	<0.050	<0.050	0.060	0.050	0.012	9070271
o-Xylene	ug	<0.050	<0.050	<0.050	0.050	0.015	9070271
Bromoform	ug	<0.050	<0.050	0.102	0.050	0.014	9070271
Surrogate Recovery (%)							
Bromofluorobenzene	%	89	90	90	N/A	N/A	9070271
D10-Ethylbenzene (F5)	%	101	100	103	N/A	N/A	9070271
D4-1,2-Dichloroethane	%	102	103	97	N/A	N/A	9070271
D8-Toluene	%	100	100	101	N/A	N/A	9070271

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		XQD718	XQD719			
Sampling Date		2023/11/14	2023/11/15			
	UNITS	23-22237-VOST- T2 - 8A/B	23-22237-VOST- T3 - 7A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.050	<0.050	0.050	0.020	9070271
Vinyl Chloride	ug	<0.050	<0.050	0.050	0.013	9070271
Bromomethane	ug	0.290	0.365	0.050	0.015	9070271
Trichlorofluoromethane (FREON 11)	ug	<0.050	<0.050	0.050	0.010	9070271
Acetone (2-Propanone)	ug	0.085	0.194	0.050	0.025	9070271
1,1-Dichloroethylene	ug	<0.050	<0.050	0.050	0.011	9070271
Methylene Chloride(Dichloromethane)	ug	0.119	0.101	0.050	0.020	9070271
trans-1,2-Dichloroethylene	ug	<0.050	<0.050	0.050	0.010	9070271
Chloroform	ug	<0.050	<0.050	0.050	0.011	9070271
1,2-Dichloroethane	ug	<0.050	<0.050	0.050	0.0070	9070271
Methyl Ethyl Ketone (2-Butanone)	ug	<0.050	<0.050	0.050	0.036	9070271
1,1,1-Trichloroethane	ug	<0.050	<0.050	0.050	0.014	9070271
Carbon Tetrachloride	ug	<0.050	<0.050	0.050	0.016	9070271
Benzene	ug	1.10	1.21	0.050	0.0010	9070271
1,2-Dichloropropane	ug	<0.050	<0.050	0.050	0.011	9070271
Trichloroethylene	ug	<0.050	<0.050	0.050	0.011	9070271
Bromodichloromethane	ug	0.054	<0.050	0.050	0.011	9070271
Dibromochloromethane	ug	0.081	0.081	0.050	0.0090	9070271
Toluene	ug	0.238	0.599	0.050	0.014	9070271
Ethylene Dibromide	ug	<0.050	<0.050	0.050	0.010	9070271
Tetrachloroethylene	ug	<0.050	<0.050	0.050	0.018	9070271
Ethylbenzene	ug	<0.050	<0.050	0.050	0.014	9070271
m / p-Xylene	ug	<0.10	<0.10	0.10	0.015	9070271
Styrene	ug	<0.050	0.058	0.050	0.012	9070271
o-Xylene	ug	<0.050	<0.050	0.050	0.015	9070271
Bromoform	ug	0.086	0.107	0.050	0.014	9070271
Surrogate Recovery (%)						
Bromofluorobenzene	%	93	95	N/A	N/A	9070271
D10-Ethylbenzene (FS)	%	109	108	N/A	N/A	9070271
D4-1,2-Dichloroethane	%	99	99	N/A	N/A	9070271
D8-Toluene	%	101	100	N/A	N/A	9070271

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		XQD891			
Sampling Date		2023/11/16			
	UNITS	23-22237-VOST- T4 - 9A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.050	0.050	0.020	9070271
Vinyl Chloride	ug	<0.050	0.050	0.013	9070271
Bromomethane	ug	0.562	0.050	0.015	9070271
Trichlorofluoromethane (FREON 11)	ug	<0.050	0.050	0.010	9070271
Acetone (2-Propanone)	ug	0.122	0.050	0.025	9070271
1,1-Dichloroethylene	ug	<0.050	0.050	0.011	9070271
Methylene Chloride(Dichloromethane)	ug	0.126	0.050	0.020	9070271
trans-1,2-Dichloroethylene	ug	<0.050	0.050	0.010	9070271
Chloroform	ug	<0.050	0.050	0.011	9070271
1,2-Dichloroethane	ug	<0.050	0.050	0.0070	9070271
Methyl Ethyl Ketone (2-Butanone)	ug	<0.050	0.050	0.036	9070271
1,1,1-Trichloroethane	ug	<0.050	0.050	0.014	9070271
Carbon Tetrachloride	ug	<0.050	0.050	0.016	9070271
Benzene	ug	1.11	0.050	0.0010	9070271
1,2-Dichloropropane	ug	<0.050	0.050	0.011	9070271
Trichloroethylene	ug	<0.050	0.050	0.011	9070271
Bromodichloromethane	ug	0.065	0.050	0.011	9070271
Dibromochloromethane	ug	0.095	0.050	0.0090	9070271
Toluene	ug	0.636	0.050	0.014	9070271
Ethylene Dibromide	ug	<0.050	0.050	0.010	9070271
Tetrachloroethylene	ug	<0.050	0.050	0.018	9070271
Ethylbenzene	ug	<0.050	0.050	0.014	9070271
m / p-Xylene	ug	<0.10	0.10	0.015	9070271
Styrene	ug	0.060	0.050	0.012	9070271
o-Xylene	ug	<0.050	0.050	0.015	9070271
Bromoform	ug	0.105	0.050	0.014	9070271
Surrogate Recovery (%)					
Bromofluorobenzene	%	97	N/A	N/A	9070271
D10-Ethylbenzene (FS)	%	105	N/A	N/A	9070271
D4-1,2-Dichloroethane	%	102	N/A	N/A	9070271
D8-Toluene	%	100	N/A	N/A	9070271

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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TEST SUMMARY

Bureau Veritas ID: XQD715 **Collected:** 2023/11/17
Sample ID: 23-22237-VOST-FIELD BLANK 6A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2023/11/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9070271	N/A	2023/11/24	Yujie Yan

Bureau Veritas ID: XQD716 **Collected:** 2023/11/16
Sample ID: 23-22237-VOST-TRIP BLANK 10A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2023/11/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9070271	N/A	2023/11/24	Yujie Yan

Bureau Veritas ID: XQD717 **Collected:** 2023/11/14
Sample ID: 23-22237-VOST- T1 - 5A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2023/11/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9070271	N/A	2023/11/24	Yujie Yan

Bureau Veritas ID: XQD718 **Collected:** 2023/11/14
Sample ID: 23-22237-VOST- T2 - 8A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2023/11/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9070271	N/A	2023/11/24	Yujie Yan

Bureau Veritas ID: XQD719 **Collected:** 2023/11/15
Sample ID: 23-22237-VOST- T3 - 7A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2023/11/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9070271	N/A	2023/11/24	Yujie Yan

Bureau Veritas ID: XQD891 **Collected:** 2023/11/16
Sample ID: 23-22237-VOST- T4 - 9A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2023/11/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9070271	N/A	2023/11/24	Yujie Yan

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Bureau Veritas Job #: C3AB930
Report Date: 2023/11/30

ORTECH Environmental
Client Project #: 22237
Site Location: CLEAN HARBOR
Your P.O. #: 22237-J2941

GENERAL COMMENTS

In the continuing calibration standard acetone exceeded the acceptance limit of 40%.

Sample XQD717 [23-22237-VOST- T1 - 5A/B] : Benzene is over the calibration range. Data should be considered an estimate only.

Sample XQD718 [23-22237-VOST- T2 - 8A/B] : Benzene is over the calibration range. Data should be considered an estimate only.

Sample XQD719 [23-22237-VOST- T3 - 7A/B] : Benzene is over the calibration range. Data should be considered an estimate only.

Sample XQD891 [23-22237-VOST- T4 - 9A/B] : Benzene is over the calibration range. Data should be considered an estimate only.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
9070271	YYA	Spiked Blank	Bromofluorobenzene	2023/11/24		98	%	43 - 131
			D10-Ethylbenzene (FS)	2023/11/24		103	%	47 - 157
			D4-1,2-Dichloroethane	2023/11/24		101	%	64 - 133
			D8-Toluene	2023/11/24		100	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2023/11/24		120	%	50 - 150
			Vinyl Chloride	2023/11/24		113	%	50 - 150
			Bromomethane	2023/11/24		120	%	50 - 150
			Trichlorofluoromethane (FREON 11)	2023/11/24		109	%	50 - 150
			Acetone (2-Propanone)	2023/11/24		98	%	50 - 150
			1,1-Dichloroethylene	2023/11/24		108	%	50 - 150
			Methylene Chloride(Dichloromethane)	2023/11/24		105	%	50 - 150
			trans-1,2-Dichloroethylene	2023/11/24		109	%	50 - 150
			Chloroform	2023/11/24		108	%	50 - 150
			1,2-Dichloroethane	2023/11/24		111	%	50 - 150
			Methyl Ethyl Ketone (2-Butanone)	2023/11/24		91	%	50 - 150
			1,1,1-Trichloroethane	2023/11/24		106	%	50 - 150
			Carbon Tetrachloride	2023/11/24		107	%	50 - 150
			Benzene	2023/11/24		107	%	50 - 150
			1,2-Dichloropropane	2023/11/24		108	%	50 - 150
			Trichloroethylene	2023/11/24		104	%	50 - 150
			Bromodichloromethane	2023/11/24		107	%	50 - 150
			Dibromochloromethane	2023/11/24		105	%	50 - 150
			Toluene	2023/11/24		107	%	50 - 150
			Ethylene Dibromide	2023/11/24		104	%	50 - 150
			Tetrachloroethylene	2023/11/24		105	%	50 - 150
			Ethylbenzene	2023/11/24		109	%	50 - 150
			m / p-Xylene	2023/11/24		110	%	50 - 150
			Styrene	2023/11/24		112	%	50 - 150
			o-Xylene	2023/11/24		110	%	50 - 150
			Bromoform	2023/11/24		96	%	50 - 150
9070271	YYA	Method Blank	Bromofluorobenzene	2023/11/24		91	%	43 - 131
			D10-Ethylbenzene (FS)	2023/11/24		98	%	47 - 157
			D4-1,2-Dichloroethane	2023/11/24		103	%	64 - 133
			D8-Toluene	2023/11/24		101	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2023/11/24	<0.050		ug	
			Vinyl Chloride	2023/11/24	<0.050		ug	
			Bromomethane	2023/11/24	<0.050		ug	
			Trichlorofluoromethane (FREON 11)	2023/11/24	<0.050		ug	
			Acetone (2-Propanone)	2023/11/24	<0.050		ug	
			1,1-Dichloroethylene	2023/11/24	<0.050		ug	
			Methylene Chloride(Dichloromethane)	2023/11/24	<0.050		ug	
			trans-1,2-Dichloroethylene	2023/11/24	<0.050		ug	
			Chloroform	2023/11/24	<0.050		ug	
			1,2-Dichloroethane	2023/11/24	<0.050		ug	
			Methyl Ethyl Ketone (2-Butanone)	2023/11/24	<0.050		ug	
			1,1,1-Trichloroethane	2023/11/24	<0.050		ug	
			Carbon Tetrachloride	2023/11/24	<0.050		ug	
			Benzene	2023/11/24	<0.050		ug	
			1,2-Dichloropropane	2023/11/24	<0.050		ug	
			Trichloroethylene	2023/11/24	<0.050		ug	
			Bromodichloromethane	2023/11/24	<0.050		ug	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Dibromochloromethane	2023/11/24	<0.050		ug	
			Toluene	2023/11/24	<0.050		ug	
			Ethylene Dibromide	2023/11/24	<0.050		ug	
			Tetrachloroethylene	2023/11/24	<0.050		ug	
			Ethylbenzene	2023/11/24	<0.050		ug	
			m / p-Xylene	2023/11/24	<0.10		ug	
			Styrene	2023/11/24	<0.050		ug	
			o-Xylene	2023/11/24	<0.050		ug	
			Bromoform	2023/11/24	<0.050		ug	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Bureau Veritas Job #: C3AB930
Report Date: 2023/11/30

ORTECH Environmental
Client Project #: 22237
Site Location: CLEAN HARBOR
Your P.O. #: 22237-J2941

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anke Macfarlane, Laboratory Manager, VOC

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: Method Blank

Field ID#: Method Blank

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		Cumene < 0.05ug			
2.		1,3,5-Trimethylbenzene < 0.05 ug			
3.		Trichlorotrifluoroethane < 0.05ug			
4.					

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: XQD715

Field ID#: 23-22237-VOST-FIELD BLANK 6A/B

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		Cumene < 0.05ug			
2.		1,3,5-Trimethylbenzene < 0.05 ug			
3.		Trichlorotrifluoroethane < 0.05ug			
4.					

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: XQD716

Field ID#: 23-22237-VOST-TRIP BLANK 10A/B

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		Cumene < 0.05ug			
2.		1,3,5-Trimethylbenzene < 0.05 ug			
3.		Trichlorotrifluoroethane < 0.05ug			
4.					

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: XQD717

Field ID#: 23-22237-VOST-T1 5A/B

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		Cumene < 0.05ug			
2.		1,3,5-Trimethylbenzene < 0.05 ug			
3.		Trichlorotrifluoroethane < 0.05ug			
4.					

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#:	XQD718
Field ID#:	23-22237-VOST-T2 8A/B

Number of TICs found:_____NA_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		Cumene < 0.05ug			
2.		1,3,5-Trimethylbenzene < 0.05 ug			
3.		Trichlorotrifluoroethane < 0.05ug			
4.					

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: XQD719

Field ID#: 23-22237-VOST-T3 7A/B

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		Cumene < 0.05ug			
2.		1,3,5-Trimethylbenzene < 0.05 ug			
3.		Trichlorotrifluoroethane < 0.05ug			
4.					

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: XQD891

Field ID#: 23-22237-VOST-T4 9A/B

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		Cumene < 0.05ug			
2.		1,3,5-Trimethylbenzene < 0.05 ug			
3.		Trichlorotrifluoroethane < 0.05ug			
4.					

APPENDIX 14

Pre-Test Plan Acceptance Letter
(3 pages)

Ministry of the Environment, Conservation and Parks
Technical Assessment and Standards Development Branch
40 St. Clair Avenue West
7th Floor
Toronto ON M4V 1M2
Phone: 416.327.5519
Fax: 416.327.2936

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Direction des évaluations techniques et de l'élaboration des normes
40, avenue St. Clair Ouest
7e étage
Toronto, ON M4V 1M2
Tél: 416 .327.5519
Téléc: 416. 327.2936

Ontario

Via email: cbelore@oretch.ca

TSS File No.: SWR:SA: 110213:23

2023/10/11

Chris Belore
ORTECH

Dear Mr. Belore:

Subject: Pre-test plan review for source testing to be conducted at Clean Harbors

We received your pre-test plan (Project #22196), dated September 25, 2023, prepared on behalf of Clean Harbors, and referring to source testing to be conducted at their facility in Corunna, Ontario.

Testing is a requirement under amended Environmental Compliance Approval No. 8295-CGGLZ3 issued September 1, 2023.

Source to be tested:

- Thermal Treatment System

Target contaminants:

- Total Suspended Particulate Matter (TSP)
- Metals*
- Semi-Volatile Organic Compounds (SVOC)*
- Volatile Organic Compounds (VOCs)*
- Acid Gases
    - Hydrogen Chloride and Hydrogen Fluoride
- Carbon Monoxide (CO)
- Sulphur Dioxide (SO_2)
- Nitrogen Oxides (NOx)

*Full list of selected contaminants in Schedule "B" and Schedule "E" of the facility's ECA

***Reference methods to be used*:**

Stack gas parameters	Ontario Source Testing Code (OSTC) Methods ON-1-ON-4
TSP	OSTC Method ON-5
Metals	US EPA Method 29
SVOC	Environment Canada EPS 1/RM/2
VOCs	US EPA Method 0030
Acid Gases	US EPA Method 26
CO	US EPA Method 10
SO_2	US EPA Method 6C
NOx	US EPA Method 7E
THC	US EPA Method 25A

Testing strategy

Triplicate tests will be completed for each contaminant group at the exhaust of the Thermal Treatment System at the highest possible waste feed rate attainable as specified by the ECA (not to exceed 245 L/min), to demonstrate compliance with MECP emission criteria.

Sampling ports are located ideally. The combustion gases sampling probe will be inserted into the breaching connecting the induced draft fan to the stack, adjacent to the Clean Harbors CEM probe.

***Operating conditions*:**

During the testing program the incinerator will be operated normally, as specified in Section 4, “Operational Limits”, of the ECA, while maintaining high feed rates in order to demonstrate compliance with emission guidelines.

Incinerator process data will be supplied by Clean Harbors personnel for the emission test periods. The process data will be provided as average values for each test and as overall average values for the following process parameters:

- daily incineration report of analysis (feed analysis)
- incinerator feed rates (rich, lean, emulsion, alkaline and leachate streams)
- volumetric flowrates (TDU, secondary air and stack gases)
- PAC feed rate
- temperatures (primary zone, secondary zone, spray dryer inlet and outlet)
- pressures (spray dryer outlet, baghouse differential)
- combustion gas stack concentrations (O_2, CO, CO_2, NOx, SO_2, THC, HCl, HF, and H_2O)
- stack gas opacity

Additional information to be included in the report as per the facility’s ECA:

- Production data and equipment operating rates as a percentage of maximum capacity,
- Process information related to the operation of the thermal treatment system,

- Records of all operating conditions, including waste feed rates and types, as well as any operational problems that may have been encountered during testing,
- The quantity of leachate processed in the Leachate Pretreatment System, and amount of effluent used as quench during testing,
- All analytical data for the leachate and treated effluent collected during testing.

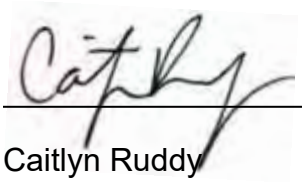
The pre-test plan is approved as the proposed reference methodologies/sampling strategies are acceptable.

We have noted the testing to commence the week of November 13, 2023. If any changes occur, please notify both the Sarnia Area Office and the Source Testing Group.

Just a reminder that the source testing report is required to be submitted in electronic format to the source testing group at sourcetesting@ontario.ca.

If you have any questions with regards to this assessment, I can be reached by phone at 437-995-2835 or by email at sourcetesting@ontario.ca

Sincerely,



Caitlyn Ruddy
Source Assessment Specialist
Technology Standards Section

cc: M. Costello- Clean Harbors (costello.mackenzie@cleanharbors.com)
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File AQ-02 (Clean Harbors- Incinerator)

Doc.Mgmt # 5AG100090

APPENDIX 15

Equipment Calibration Data
(10 pages)

ORTECH Consulting Inc.
Pitot Tube Calibration

Date	February 21, 2023
Probe/Pitot ID	S9
Mil Number	B03770
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	03-SOP-007

Calibration Facility	ORTECH Consulting Inc.
Calibrated By	Dan Turton
Signature	
Reviewed/Accepted By	

$$Cp = Cpstd * \sqrt{\frac{Pstd}{Ps}}$$

Configuration	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H_2O Pstd	Velocity Head S-Type Pitot in. H_2O Ps	S-Type Pitot Coefficient Cp_s	Deviation From The Mean
With Nozzle	7.88	0.150	0.210	0.845	0.0015
(0.25")	9.54	0.220	0.310	0.842	0.0012
	11.50	0.320	0.440	0.852	0.0091
	13.79	0.460	0.650	0.841	0.0024
	16.14	0.630	0.900	0.836	0.0070
			Mean	0.843	0.0043
Without Nozzle	7.88	0.150	0.210	0.845	0.0033
	9.86	0.235	0.330	0.843	0.0020
	11.14	0.300	0.420	0.845	0.0033
	14.09	0.480	0.690	0.834	0.0078
	17.01	0.700	0.990	0.840	0.0009
			Mean	0.841	0.0035

Note: Pitots must always be used in the orientation that they are calibrated in (marked F for front and B for back).

Acceptance Criteria:
The Cp of Standard Pitots must be in the range of 0.99 ±0.01.
For Stausscheibe (S-Type) Pitots refer to the measurement criteria as specified in Method 2 of the Ontario Source Testing Code. If the pitot meets these measurement requirements it is assigned a Cp of 0.84. Otherwise, calculate the absolute differences between the average pitot tube coefficient and the coefficient obtained for each of the wind tunnel settings. The average of these differences must not exceed 0.01. Otherwise, the calibration must be repeated.
(Environment Canada Reference Method EPS 1/RM/8, Section 6).

ORTECH Consulting Inc.
Pitot Tube Calibration

Date	February 21, 2023
Probe/Pitot ID	S10
MII Number	B03771
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	03-SOP-007

Calibration Facility	ORTECH Consulting Inc.
Calibrated By	Dan Turton
Signature	
Reviewed/Accepted By	

$$Cp = Cpstd * \sqrt{\frac{Pstd}{Ps}}$$

Configuration	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H_2O Pstd	Velocity Head S-Type Pitot in. H_2O Ps	S-Type Pitot Coefficient Cp_s	Deviation From The Mean
With Nozzle	7.74	0.145	0.200	0.851	0.0053
(0.25")	9.75	0.230	0.320	0.847	0.0016
	11.32	0.310	0.440	0.839	0.0068
	13.49	0.440	0.620	0.842	0.0038
	16.39	0.650	0.900	0.849	0.0037
			Mean	0.846	0.0042
Without Nozzle	7.88	0.150	0.210	0.845	0.0024
	9.54	0.220	0.310	0.842	0.0003
	11.32	0.310	0.440	0.839	0.0034
	13.33	0.430	0.610	0.839	0.0031
	15.88	0.610	0.850	0.847	0.0044
			Mean	0.842	0.0027

Note: Pitots must always be used in the orientation that they are calibrated in (marked F for front and B for back).

Acceptance Criteria:
The Cp of Standard Pitots must be in the range of 0.99 ±0.01.
For Stausscheibe (S-Type) Pitots refer to the measurement criteria as specified in Method 2 of the Ontario Source Testing Code. If the pitot meets these measurement requirements it is assigned a Cp of 0.84. Otherwise, calculate the absolute differences between the average pitot tube coefficient and the coefficient obtained for each of the wind tunnel settings. The average of these differences must not exceed 0.01. Otherwise, the calibration must be repeated.
(Environment Canada Reference Method EPS 1/RM/8, Section 6).

ORTECH

Dry Gas Meter Calibration Using Calibrated Critical Orifice

Meter Console Information	
Meter Number	Team 1
Meter MII Number	COE 20094
Orifice Set ID	COE20999
Barometer ID	COE 20028

Calibration Conditions		
Barometric Pressure	29.65	in Hg
Theoretical Critical Vacuum	14.0	in Hg
System Leak Check	<0.001 in 15"Hg	
Calibration Date	September 11, 2023	
Calibration Technician	Brayden Pacheco	
Reviewed and Accepted By		

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

Calibration Data										
Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Avg. DGM Temp Initial	Avg. DGM Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Q)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F			°F	°F	in Hg
10.0	0.28	0.040	3.225	73.0	73.0	UR-40	0.2352	74.3	74.3	22.5
13.0	0.58	3.225	9.060	73.0	73.5	UR-48	0.3308	74.3	74.3	21.0
11.0	1.10	9.060	15.810	73.5	74.0	UR-55	0.4520	74.3	74.3	19.5
10.0	1.90	15.810	23.780	74.0	74.0	UR-63	0.5874	74.3	74.3	17.5
10.0	3.70	23.780	34.670	74.5	75.0	UR-73	0.8107	74.3	74.3	14.5

Results								
Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	DH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(DY)	($Q_{m(std)(corr)}$)	(DH@)	(DDH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
3.129	0.313	3.017	0.302	0.964	0.001	0.302	1.730	-0.086
5.734	0.441	5.516	0.424	0.962	-0.001	0.424	1.812	-0.004
6.635	0.603	6.378	0.580	0.961	-0.002	0.580	1.841	0.024
7.846	0.785	7.535	0.753	0.960	-0.003	0.753	1.883	0.066
10.753	1.075	10.399	1.040	0.967	0.004	1.040	1.925	0.108
			DGMCF	0.963			1.816	DH@ Average

Individual values of DGM calibration factor (Y) must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value (Y) must be 1.00 ± 0.05,
otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

ORTECH

Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	Omega DP118
MII	COE 20094
Date	September 11, 2023
Calibrated By	Brayden Pacheco
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32		0.0
70	69		1.4
100	99		1.0
200	201		-0.5
250	252		-0.8
300	301		-0.3
400	400		0.0
500	499		0.2
600	600		0.0
700	700		0.0
800	799		0.1
900	900		0.0
1000	1001		-0.1
1100	1101		-0.1
1200	1200		0.0
1250	1251		-0.1

$$\% \text{ Difference} = \frac{(\text{calibrator} - \text{after adjustment reading})}{\text{calibrator}} \times 100$$

Acceptance Criteria:

'Trendicator display must read within ± 1.5%, and ± 3 degrees F of the standard value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use.

(Ontario Source Testing Code, June 2010, Part C: Method ON-2, 7.5 Appendix 2E)

ORTECH

Manometer Calibration Data

Date	September 11, 2023	Calibrated By	Brayden Pacheco
Manometer Number	Team 1	Signature	Brayden Pacheco
Manometer MII Number	COE 20094	Reviewed/Accepted By	
Calibrated Against	Dual 3		
MII Number	COE 20008		
Calibration Procedure	03 - J010		

Front Leg

Manometer Scale "H_2O	Manometer Reading "H_2O		Reference Manometer Reading "H_2O	Percent Difference %
	Before Adjustment	After Adjustment		
	0.160		0.161	0.6
0-1.0	0.510		0.508	-0.4
	0.970		0.965	-0.5
	1.50		1.54	2.6
1.0-10.0	5.00		4.97	-0.6
	9.10		8.94	-1.8

$$\text{Percent Difference} = \frac{(\text{Ref. Manometer} - \text{Instrument Reading})}{\text{Ref. Manometer}} \times 100$$

Acceptance Criteria:
The manometer being calibrated must be within ± 5.0% of the Standard value at each reading. Otherwise, the manometer must be repaired and/or adjusted as necessary and recalibrated prior to use. Manometers must be capable of measuring velocity pressure to within 0.005 "H_2O on the 0 to 1 inch scale, and 0.05 "H_2O on the 1 to 10 inch scales.
(Environment Canada Reference Method 1/RM/8, Section 2)

ORTECH

Dry Gas Meter Calibration Using Calibrated Critical Orifice

Meter Console Information	
Meter Number	Team 4
Meter MII Number	COE 20090
Orifice Set ID	COE20999
Barometer ID	COE 20028

Calibration Conditions		
Barometric Pressure	29.47	in Hg
Theoretical Critical Vacuum	13.9	in Hg
System Leak Check	<0.01 in 15"Hg	
Calibration Date	October 12/2023	
Calibration Technician	Brayden Pacheco	
Reviewed and Accepted By		

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

Calibration Data

Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Avg. DGM Temp Initial	Avg. DGM Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Q)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F			°F	°F	in Hg
10.0	0.27	13.820	16.780	71.0	71.0	UR-40	0.2352	70.7	70.7	25.0
10.0	0.54	16.780	20.950	71.0	71.0	UR-48	0.3308	70.7	70.7	23.0
10.0	1.00	90.580	96.265	70.0	70.0	UR-55	0.4520	69.8	70.7	23.0
10.0	1.70	96.265	103.650	70.0	71.0	UR-63	0.5874	70.7	70.7	21.0
10.0	3.20	3.650	13.820	71.0	71.0	UR-73	0.8107	70.7	70.7	18.0

Results

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	DH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(DY)	($Q_{m(std)(corr)}$)	(DH@)	(DDH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
2.901	0.290	3.009	0.301	1.037	0.003	0.301	1.678	-0.009
4.090	0.409	4.232	0.423	1.035	0.000	0.423	1.696	0.009
5.592	0.559	5.785	0.578	1.034	0.000	0.578	1.681	-0.006
7.270	0.727	7.514	0.751	1.034	-0.001	0.751	1.694	0.006
10.040	1.004	10.371	1.037	1.033	-0.002	1.037	1.674	-0.014
			DGMCF	1.035			1.687	DH@ Average

Individual values of DGM calibration factor (Y) must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value (Y) must be 1.00 ± 0.05,
otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

ORTECH
Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	Omega DP118
MII	COE 20094
Date	October 12, 2023
Calibrated By	Brayden Pacheco
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32		0.0
70	69		1.4
100	99		1.0
200	201		-0.5
250	251		-0.4
300	301		-0.3
400	399		0.3
500	498		0.4
600	599		0.2
700	700		0.0
800	800		0.0
900	900		0.0
1000	1000		0.0
1100	1100		0.0
1200	1200		0.0
1250	1249		0.1

$$\% \text{ Difference} = \frac{(\text{calibrator} - \text{after adjustment reading})}{\text{calibrator}} \times 100$$

Acceptance Criteria:
'Trendicator display must read within ± 1.5%, and ± 3 degrees F of the standard value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use.
(Ontario Source Testing Code, June 2010, Part C: Method ON-2, 7.5 Appendix 2E)

ORTECH

Manometer Calibration Data

Date	October 12, 2023	Calibrated By	Brayden Pacheco
Manometer Number	Team 4	Signature	
Manometer MII Number	COE 20094	Reviewed/Accepted By	
Calibrated Against	Dual 3		
MII Number	COE 20008		
Calibration Procedure	03 - J010		

Front Leg

Manometer Scale "H_2O	Manometer Reading "H_2O		Reference Manometer Reading "H_2O	Percent Difference %
	Before Adjustment	After Adjustment		
	0.350		0.352	0.6
0-1.0	0.650		0.651	0.2
	0.950		0.948	-0.2
	3.50		3.56	1.7
1.0-10.0	6.50		6.52	0.3
	9.50		9.51	0.1

$$\text{Percent Difference} = \frac{(\text{Ref. Manometer} - \text{Instrument Reading})}{\text{Ref. Manometer}} \times 100$$

Acceptance Criteria:
The manometer being calibrated must be within ± 5.0% of the Standard value at each reading. Otherwise, the manometer must be repaired and/or adjusted as necessary and recalibrated prior to use. Manometers must be capable of measuring velocity pressure to within 0.005 "H_2O on the 0 to 1 inch scale, and 0.05 "H_2O on the 1 to 10 inch scales.
(Environment Canada Reference Method 1/RM/8, Section 2)

ORTECH

Dry Gas Meter Calibration Data

Calibration Procedure	**03-J004**
Meter Number	**Vost 4**
Date	**September 27, 2023**
Barometric Pressure	**29.83**
System Leak Check	**NDL @ 21 "Hg**

MII NUMBERS	
DGM	**A11542**
Gasometer	**A01463**
Barometer	**COE 20028**

Calibrated By	**T Curtis**
Reviewed and Accepted By	

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

DGMCF= $\frac{\text{Vstd } ft^3}{\text{Vdgm } ft^3}$ $\frac{\text{Tdgm } °F+460}{\text{Tstd } °F+460}$ $\frac{\text{Pbar (in. Hg)}}{\text{(Pbar in. Hg+DGMPressure/13.6)}}$

Gasometer Reading cm			Gasometer Volume	Gasometer Temperature	DGM Reading L		DGM Volume	DGM Average Temperature	DGM Pressure	DGM Outlet	DGM Calibration	Time	Flow Rate
Initial	**Final**	**cm**	**ft^3**	**°C**	**Initial**	**Final**	**ft^3**	**°C**	**in. H_2O**	**°C**	**Factor**	**min.**	**lpm**
70.00	47.30	22.70	1.068	22.0	564.50	595.14	1.082	26.0	2.2	26.0	0.995	15	2.0
70.00	47.50	22.50	1.058	22.0	595.14	626.37	1.103	30.0	2.1	30.0	0.981	15.5	2.0
70.00	47.70	22.30	1.049	22.0	626.37	657.15	1.087	32.0	2.1	32.0	0.993	15	2.1

DGMCF AVERAGE

2Lpm 0.989

Acceptance Criteria:
Individual values of DGM calibration factor must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05,
otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

Revision June 5, 2007

ORTECH
Trendicator Calibration

Calibration Procedure	**03-J005**
Trendicator Type	**Nutech**
MII	**A11542**
Date	**September 27, 2023**
Calibrated By	**T Curtis**
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°C)	**Tredicator Display Value**		**Percent Difference**
	Before Adjustment (°C)	**After Adjustment (°C)**	**(%)**
0	0		0.0
20	20		0.0
50	50		0.0
100	100		0.0
150	150		0.0
200	200		0.0
300	300		0.0
400	400		0.0
500	500		0.0
600	600		0.0

$$\% \text{ Difference} = \frac{(\text{micromite} - \text{after adjustment reading})}{\text{micromite}} \times 100$$

Acceptance Criteria:
Trendicator display must read within ± 1.5% of the micromite value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use. (MOE Source Testing Code, Version #2, Method 5)

APPENDIX 16

ORTECH CEM Calibration Data
(19 pages)

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22237	Date:	November 14, 2023
Company:	Clean Harbors	Operator:	T, Timar
Location:	Sarnia	Analyzer ID	VIG 20
Test Location:	Incinerator	Test	1

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0.34	B1	0.995	C				
High	91.5	A2	91.38	B2						
Mid	51.9	A4	52.2	B4			51.6	D4	1.1	E4
Low	30	A3	30.1	B3			29.8	D3	0.8	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0.34	0.34	0
Mid	30.1	29.5	0.6

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	43		43
Run 2	44		45
Run 3	43		41
Average	**43**		**43**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22237	Date:	November 15, 2023
Company:	Clean Harbors	Operator:	T, Timar
Location:	Sarnia	Analyzer ID	VIG 20
Test Location:	Incinerator	Test	2

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.

Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)	Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	0.999 C				
High	91.5	A2	91.45	B2					
Mid	51.9	A4	51.79	B4		51.9	D4	-0.2	E4
Low	30	A3	29.91	B3		30.0	D3	-0.2	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.

Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	51.79	50.8	0.9

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.

Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	43		43
Run 2	44		45
Run 3	43		41
Average	**43**		**43**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22237	Date:	November 16, 2023
Company:	Clean Harbors	Operator:	T, Timar
Location:	Sarnia	Analyzer ID	VIG 20
Test Location:	Incinerator	Test	3

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.

Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0.24	B1	0.997	C				
High	91.5	A2	91.42	B2						
Mid	51.9	A4	51.85	B4			51.7	D4	0.3	E4
Low	30	A3	29.76	B3			29.9	D3	-0.5	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.

Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0.24	0.43	-0.19
Mid	29.76	28.9	0.9

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.

Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	43		43
Run 2	44		45
Run 3	43		41
Average	**43**		**43**

Clean Harbors
Mobile Source Monitoring Laboratory # 1
Daily Analyzer Calibration Evaluation
22237
November 14, 2023
Test 1 Final Calculations (Stack)

Analyzer		O2	CO2	SO2	CO	NO	NOx
MII Number/Serial Number		COE 20060	COE 20060	COE 20099	COE 20101	COE 20061	
Model		Siemens Ultramat 23	Siemens Ultramat 23	Teledyne API T100H	Siemens Ultramat 23	Teledyne 200EH	
Range		25	25	250	500	250	250
Actual Cylinder Value	High	23.13	22.85	225.7	470.8	225.5	225.5
	Mid.	12.57	12.43	92.74	245.3	88.75	88.75
	Zero	0.00	0.00	0	0	0	0

Analyzer Initial Calibration	Zero	0.07	0.01	0	0.0	0.0	0.0
	Mid	12.63	12.14	91.7	245.6	88.3	89.1
	High	23.14	22.84	225.6	470.8	224.3	225.3
System Initial Calibration	Zero	0.32	0.10	0.7	0.8	0.0	0.4
	Upscale	12.44	12.09	88.27	240.7	86.8	87.3
System Final Calibration	Zero	0.26	0.16	0.3	0.0	0.3	0.6
	Upscale	12.41	12.46	86.4	235.6	87.0	87.6

Calibration Error Results

Analyzer Calibration Error = (Measured Concentration of Cal Gas in Direct Mode - Manufacturer Certified Cal Gas Concentration)/Analyzer Range)*100

	Analyzer		O2	CO2	SO2	CO	NO	NOx
	Analyzer Span Range		25.00	25.00	250	500	250	250
Calibration Error	Zero	%	0.28	0.04	0.00	0.00	0.00	0.00
	Mid	%	0.24	1.16	0.42	0.06	0.18	0.14
	High	%	0.04	0.04	0.04	0.00	0.48	0.08
Acceptable Limits	of Span		+-2%	+-2%	+-2%	+-2%	+-2%	+-2%
Error Results			PASS	PASS	PASS	PASS	PASS	PASS

System Drift

Drift Calculation = | System Bias $_{final}$ - System Bias $_{initial}$ |

	Analyzer	O2	CO2	SO2	CO	NO	NOx
	Span	25.00	25.00	250	500	250	250
Initial System Bias	Zero	1.00	0.36	0.28	0.16	0.00	0.16
	Upscale	-0.76	-0.20	-1.37	-1.0	-0.6	-0.7
Final System Bias	Zero	0.76	0.60	0.30	0.0	0.1	0.2
	Upscale	-0.88	1.28	-2.12	-2.0	-0.5	-0.6

System Zero Drift	%	0.24	0.24	0.02	0.16	0.12	0.08
System Cal Drift	%	0.12	1.48	0.75	1.02	0.08	0.12
Acceptable Limits	of Span	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %
Drift Result		PASS	PASS	PASS	PASS	PASS	PASS

System Calibration Bias

System Bias Calculation = ((Measured Concentration of Cal Gas in System Calibration Mode - Measured Concentration of Cal Gas in Direct Mode)/Analyzer Range))* 100

Analyzer		O2	CO2	SO2	CO	NO	Nox
Analyzer Full Scale Span		25	25	250	500	250	250
Analyzer Initial	Zero	0.07	0.01	0.00	0.0	0.0	0.0
	Upscale	12.63	12.14	91.70	245.6	88.3	89.1
System Initial	Zero	0.32	0.10	0.70	0.8	0.0	0.4
	Upscale	12.44	12.09	88.27	240.7	86.8	87.3
Analyzer Final	Zero	0.00	0.00	0.00	0.0	0.0	0.0
	Upscale	0.00	0.00	0.00	0.0	0.0	0.0
System Final	Zero	0.26	0.16	0.30	0.0	0.3	0.6
	Upscale	12.41	12.46	86.40	235.6	87.0	87.6

Initial System Bias	Zero %	1.00	0.36	0.28	0.16	0.00	0.16
	Upscale %	-0.76	-0.20	-1.37	-0.98	-0.60	-0.72
Final System Bias	Zero %	0.76	0.60	0.30	0.00	0.12	0.24
	Upscale %	-0.88	1.28	-2.12	-2.00	-0.52	-0.60
Acceptable Limits	of Span	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %
Bias Results		PASS	PASS	PASS	PASS	PASS	PASS

Clean Harbors
Mobile Source Monitoring Laboratory # 1
Daily Analyzer Calibration Evaluation
22237
November 1S, 2023
Test 1 Final Calculations (Stack)

Analyzer		O2	CO2	SO2	CO	NO	NOx
MII Number/Serial Number		COE 20060	COE 20060	COE 20099	COE 20101	COE 20061	
Model		Siemens Ultramat 23	Siemens Ultramat 23	Teledyne API T100H	Siemens Ultramat 23	Teledyne 200EH	
Range		25	25	250	500	250	250
Actual Cylinder Value	High	23.13	22.85	225.7	470.8	225.5	225.5
	Mid.	12.57	12.43	92.74	245.3	88.75	88.75
	Zero	0.00	0.00	0	0	0	0

Analyzer Initial Calibration	Zero	0.00	0.00	0	0.0	0.0	0.0
	Mid	12.63	12.11	89.87	245.6	86.3	86.5
	High	23.13	22.83	225.4	470.8	226.1	225.9
System Initial Calibration	Zero	0.37	0.12	0.8	0.0	0.0	0.3
	Upscale	12.44	12.39	88.67	240.6	84.9	86.5
System Final Calibration	Zero	0.27	0.17	0	0.0	0.6	0.9
	Upscale	12.42	12.63	84.2	232.7	86.2	86.4

Calibration Error Results

Analyzer Calibration Error = (Measured Concentration of Cal Gas in Direct Mode - Manufacturer Certified Cal Gas Concentration)/Analyzer Range)*100

Analyzer			O2	CO2	SO2	CO	NO	NOx
Analyzer Span Range			25.00	25.00	250	500	250	250
Calibration Error	Zero	%	0.00	0.00	0.00	0.00	0.00	0.00
	Mid	%	0.24	1.28	1.15	0.06	0.97	0.89
	High	%	0.00	0.08	0.12	0.00	0.24	0.15
Acceptable Limits	of Span		+-2%	+-2%	+-2%	+-2%	+-2%	+-2%
Error Results			PASS	PASS	PASS	PASS	PASS	PASS

System Drift

Drift Calculation = | System Bias $_{final}$ - System Bias $_{initial}$ |

	Analyzer	O2	CO2	SO2	CO	NO	NOx
	Span	25.00	25.00	250	500	250	250
Initial System Bias	Zero	1.48	0.48	0.32	0.00	0.00	0.12
	Upscale	-0.76	1.12	-0.48	-1.0	-0.6	0.0
Final System Bias	Zero	1.08	0.68	0.00	0.0	0.2	0.4
	Upscale	-0.84	2.08	-2.27	-2.6	0.0	0.0

System Zero Drift	%	0.40	0.20	0.32	0.00	0.24	0.24
System Cal Drift	%	0.08	0.96	1.79	1.58	0.51	0.02
Acceptable Limits	of Span	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %
Drift Result		PASS	PASS	PASS	PASS	PASS	PASS

System Calibration Bias

System Bias Calculation = ((Measured Concentration of Cal Gas in System Calibration Mode - Measured Concentration of Cal Gas in Direct Mode)/Analyzer Range))* 100

Analyzer		O2	CO2	SO2	CO	NO	Nox
Analyzer Full Scale Span		25	25	250	500	250	250
Analyzer Initial	Zero	0.00	0.00	0.00	0.0	0.0	0.0
	Upscale	12.63	12.11	89.87	245.6	86.3	86.5
System Initial	Zero	0.37	0.12	0.80	0.0	0.0	0.3
	Upscale	12.44	12.39	88.67	240.6	84.9	86.5
Analyzer Final	Zero	0.00	0.00	0.00	0.0	0.0	0.0
	Upscale	0.00	0.00	0.00	0.0	0.0	0.0
System Final	Zero	0.27	0.17	0.00	0.0	0.6	0.9
	Upscale	12.42	12.63	84.20	232.7	86.2	86.4

Initial System Bias	Zero %	1.48	0.48	0.32	0.00	0.00	0.12
	Upscale %	-0.76	1.12	-0.48	-1.00	-0.56	-0.02
Final System Bias	Zero %	1.08	0.68	0.00	0.00	0.24	0.36
	Upscale %	-0.84	2.08	-2.27	-2.58	-0.05	-0.04
Acceptable Limits	of Span	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %
Bias Results		PASS	PASS	PASS	PASS	PASS	PASS

Clean Harbors
Mobile Source Monitoring Laboratory # 1
Daily Analyzer Calibration Evaluation
22237
November 16, 2023
Test 3 Final Calculations (Stack)

Analyzer		O2	CO2	SO2	CO	NO	NOx
MII Number/Serial Number		COE 20060	COE 20060	COE 20099	COE 20101	COE 20061	
Model		Siemens Ultramat 23	Siemens Ultramat 23	Teledyne API T100H	Siemens Ultramat 23	Teledyne 200EH	
Range		25	25	250	500	250	250
Actual Cylinder Value	High	23.13	22.85	225.7	470.8	225.5	225.5
	Mid.	12.57	12.43	92.74	245.3	88.75	88.75
	Zero	0.00	0.00	0	0	0	0

Analyzer Initial Calibration	Zero	0.00	0.00	0	0.0	0.0	0.0
	Mid	12.58	12.38	90.6	245.6	87.0	87.2
	High	23.15	22.85	225.8	470.8	226.0	226.5
System Initial Calibration	Zero	0.36	0.02	0.8	0.0	0.0	0.2
	Upscale	12.41	12.04	88.3	240.8	84.5	86.0
System Final Calibration	Zero	0.16	0.12	0.4	0.0	0.7	0.8
	Upscale	12.32	12.12	92.5	229.9	87.5	87.3

Calibration Error Results

Analyzer Calibration Error = (Measured Concentration of Cal Gas in Direct Mode - Manufacturer Certified Cal Gas Concentration)/Analyzer Range)*100

Analyzer			O2	CO2	SO2	CO	NO	NOx
Analyzer Span Range			25.00	25.00	250	500	250	250
Calibration Error	Zero	%	0.00	0.00	0.00	0.00	0.00	0.00
	Mid	%	0.04	0.20	0.86	0.06	0.70	0.62
	High	%	0.08	0.00	0.04	0.00	0.21	0.41
Acceptable Limits	of Span		+-2%	+-2%	+-2%	+-2%	+-2%	+-2%
Error Results			PASS	PASS	PASS	PASS	PASS	PASS

System Drift

Drift Calculation = | System Bias $_{final}$ - System Bias $_{initial}$ |

	Analyzer	O2	CO2	SO2	CO	NO	NOx
	Span	25.00	25.00	250	500	250	250
Initial System Bias	Zero	1.44	0.08	0.32	0.00	0.00	0.08
	Upscale	-0.68	-1.36	-0.92	-1.0	-1.0	-0.5
Final System Bias	Zero	0.64	0.48	0.40	0.0	0.3	0.3
	Upscale	-1.04	-1.04	0.76	-3.1	0.2	0.0

System Zero Drift	%	0.80	0.40	0.08	0.00	0.28	0.26
System Cal Drift	%	0.36	0.32	1.68	2.18	1.22	0.53
Acceptable Limits	of Span	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %	+ - 3 %
Drift Result		PASS	PASS	PASS	PASS	PASS	PASS

System Calibration Bias

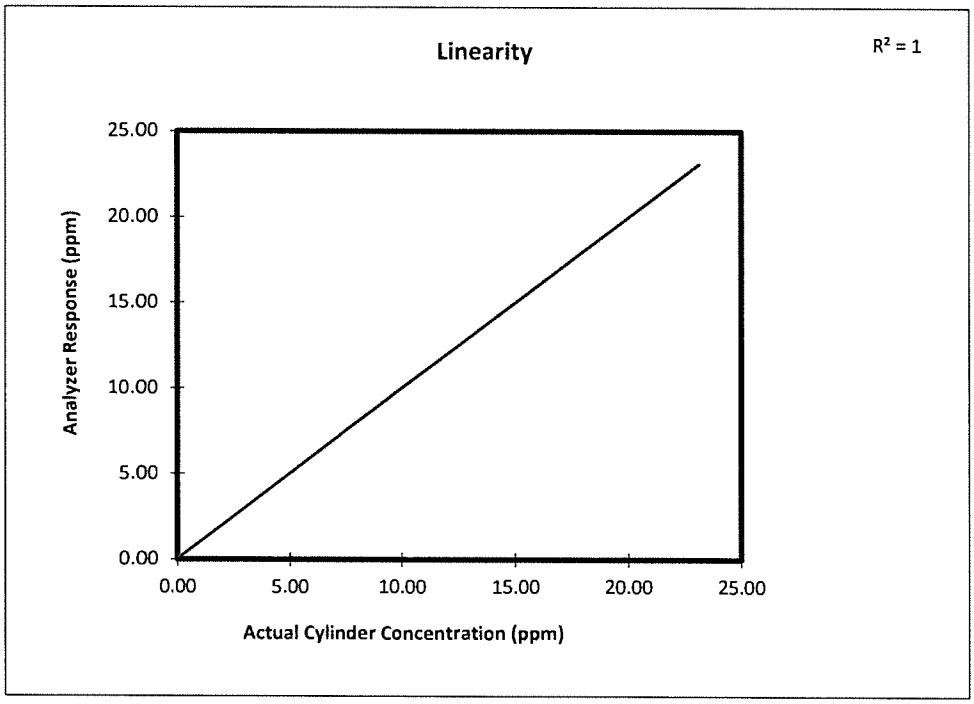
System Bias Calculation = ((Measured Concentration of Cal Gas in System Calibration Mode - Measured Concentration of Cal Gas in Direct Mode)/Analyzer Range))* 100

Analyzer		O2	CO2	SO2	CO	NO	Nox
Analyzer Full Scale Span		25	25	250	500	250	250
Analyzer Initial	Zero	0.00	0.00	0.00	0.0	0.0	0.0
	Upscale	12.58	12.38	90.60	245.6	87.0	87.2
System Initial	Zero	0.36	0.02	0.80	0.0	0.0	0.2
	Upscale	12.41	12.04	88.30	240.8	84.5	86.0
Analyzer Final	Zero	0.00	0.00	0.00	0.0	0.0	0.0
	Upscale	0.00	0.00	0.00	0.0	0.0	0.0
System Final	Zero	0.16	0.12	0.40	0.0	0.7	0.8
	Upscale	12.32	12.12	92.50	229.9	87.5	87.3

Initial System Bias	Zero %	1.44	0.08	0.32	0.00	0.00	0.08
	Upscale %	-0.68	-1.36	-0.92	-0.96	-1.02	-0.49
Final System Bias	Zero %	0.64	0.48	0.40	0.00	0.28	0.34
	Upscale %	-1.04	-1.04	0.76	-3.14	0.20	0.04
Acceptable Limits	of Span	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %	+ - 5 %
Bias Results		PASS	PASS	PASS	PASS	PASS	PASS

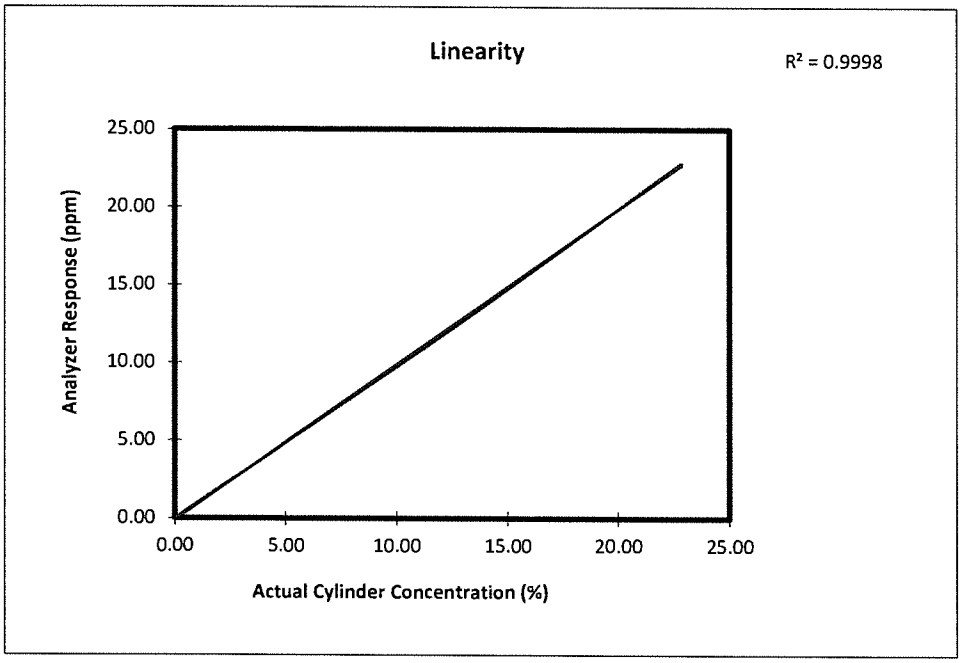
Clean Harbors
November 14, 2023
Analyzer Linearity Determination
Oxygen Analyzer
Siemens Ultramat 23

Range	Analyzer I.D.	Actual Concentration	Instrument Response	Calibration Error (as % of span)
25	COE 20060	0.00	0.07	0.3
		12.57	12.63	0.2
		23.13	23.14	0.0



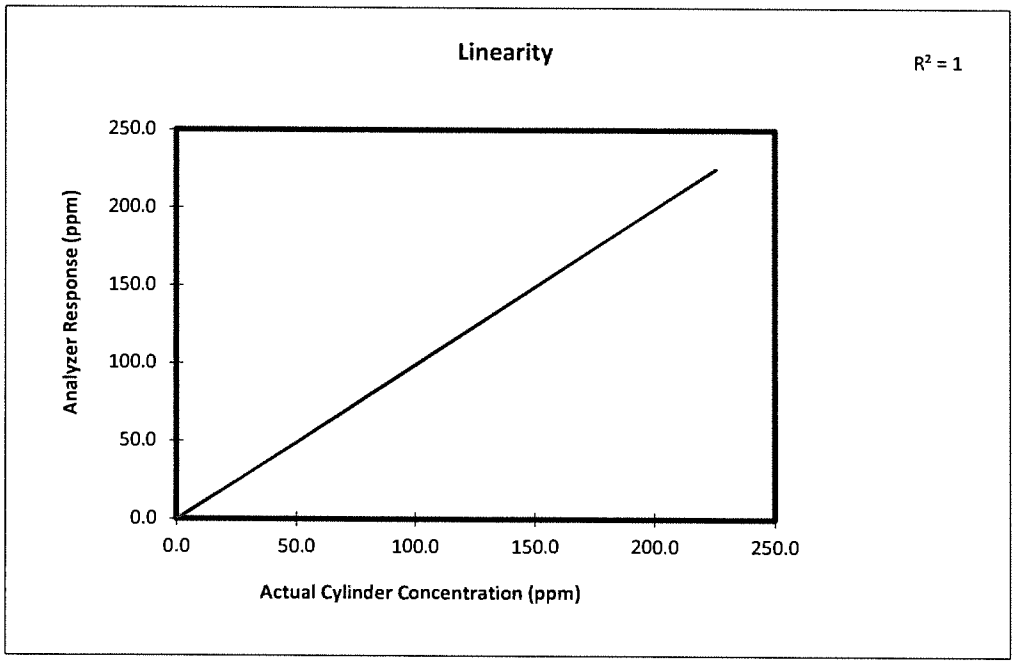
Clean Harbors
November 14, 2023
Analyzer Linearity Determination
Carbon Dioxide Analyzer
Siemens Ultramat 23

Range	Analyzer I.D.	Actual Concentration	Instrument Response	Calibration Error (as % of span)
25	COE 20060	0.00	0.01	0.0
		12.43	12.14	-1.2
		22.85	22.84	0.0



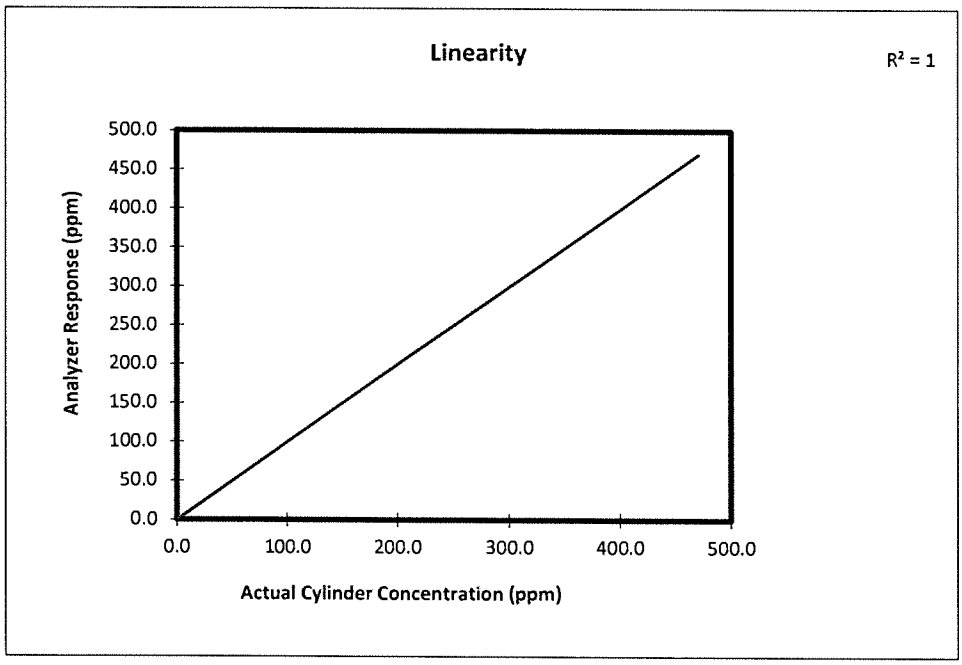
Clean Harbors
November 14, 2023
Analyzer Linearity Determination
Sulphur Dioxide Analyzer
Teledyne API T100H

Range	Analyzer I.D.	Actual Concentration	Instrument Response	Calibration Error (as % of span)
250	COE 20099	0.0	0.0	0.0
		92.7	91.7	-0.4
		225.7	225.6	0.0



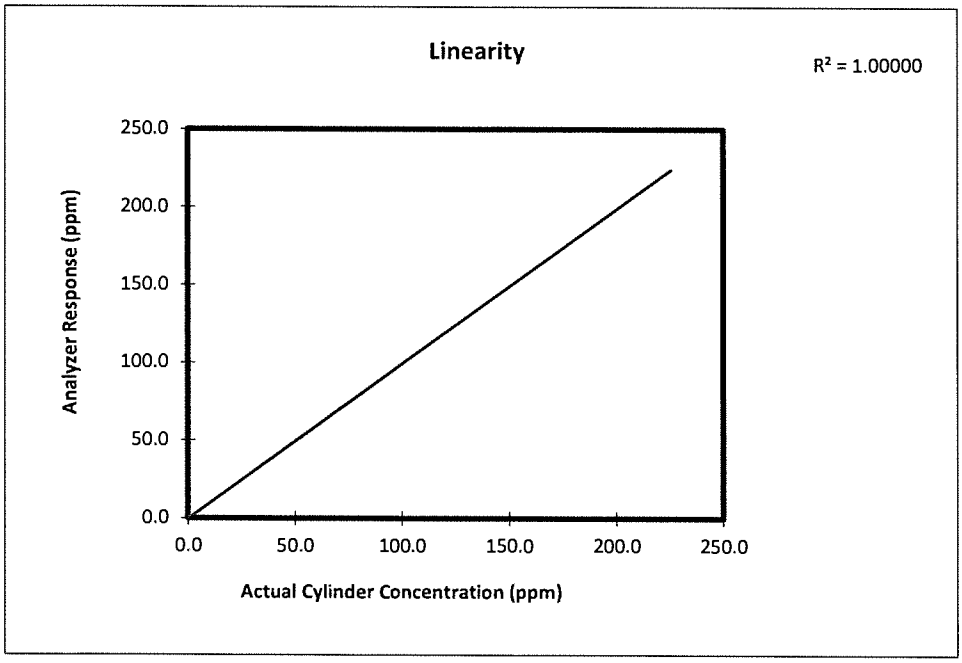
Clean Harbors
November 14, 2023
Analyzer Linearity Determination
Carbon Monoxide Analyzer
Siemens Ultramat 23

Range	Analyzer I.D.	Actual Concentration	Instrument Response	Calibration Error (as % of span)
500	COE 20101	0.0	0.0	0.0
		245.3	245.6	0.1
		470.8	470.8	0.0



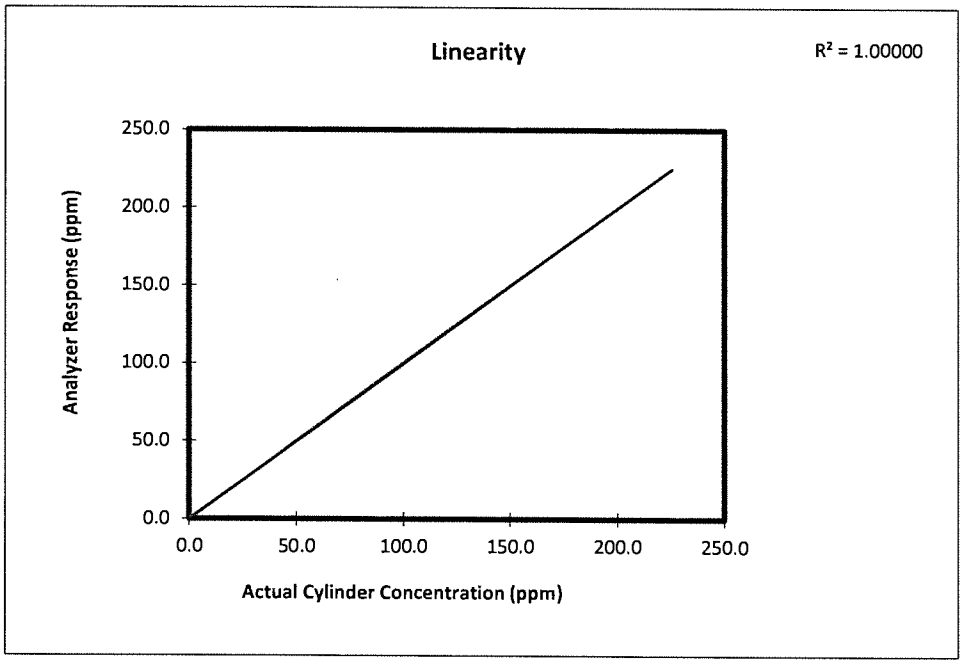
Clean Harbors
November 14, 2023
Analyzer Linearity Determination
Nitric Oxide Analyzer
Teledyne 200EH

Range	Analyzer I.D.	Actual Concentration	Instrument Response	Calibration Error (as % of span)
250	COE 20061	0.0	0.0	0.0
		88.8	88.3	-0.2
		225.5	224.3	-0.5



Clean Harbors
November 14, 2023
Analyzer Linearity Determination
Nitrogen Oxides Analyzer
Teledyne 200EH

Range	Analyzer I.D.	Actual Concentration	Instrument Response	Calibration Error (as % of span)
250	COE 20061	0.0	0.0	0.0
		88.8	89.1	0.1
		225.5	225.3	-0.1



RESPONSE TIME CHECK

Client	Clean Harbors	**Analyzer Type**	Oxygen
Location	Sarnia, ON	**Analyzer ID.**	Siemens Ultramat 23
Project No.	22237	**Analyzer Span Setting**	25

Span Gas Concentration	23.13

Response Time Test No.	Upscale Response Time (seconds)	Downscale Response Time (seconds)
1	51	58
2	52	60
3	52	60

System Response Time* 60 Seconds

Average Time 51 Seconds

* Reported as Greatest Value of all Response Time Checks

Criteria: < 200 seconds for a 95% response to a step change in concentration of gas at the probe exit

REPRODUCIBILITY CHECKS

Run	Analyzer Value
1	23.13
2	23.14
3	23.13
4	23.13
5	23.14
Mean	23.13
Standard Deviation (SD)	0.01
% RSD Criteria <3%	**0.02**

% RSD = SD/Mean X 100

RESPONSE TIME CHECK

Client	Clean Harbors	**Analyzer Type**	Carbon Dioxide
Location	Sarnia, ON	**Analyzer ID.**	Siemens Ultramat 23
Project No.	22237	**Analyzer Span Setting**	25

Span Gas Concentration	22.85

Response Time Test No.	Upscale Response Time (seconds)	Downscale Response Time (seconds)
1	66	67
2	66	71
3	66	71

System Response Time*	71	Seconds
Average Time	61	Seconds

* Reported as Greatest Value of all Response Time Checks

Criteria: < 200 seconds for a 95% response to a step change in concentration of gas at the probe exit

REPRODUCIBILITY CHECKS

Run	Analyzer Value
1	22.84
2	22.83
3	22.85
4	22.84
5	22.84
Mean	22.84
Standard Deviation (SD)	0.01
% RSD Criteria <3%	**0.03**

% RSD = SD/Mean X 100

RESPONSE TIME CHECK

Client	Clean Harbors	**Analyzer Type**	Sulphur Dioxide
Location	Sarnia, ON	**Analyzer ID.**	Teledyne API T100H
Project No.	22237	**Analyzer Span Setting**	250

Span Gas Concentration	225.7

Response Time Test No.	Upscale Response Time (seconds)	Downscale Response Time (seconds)
1	80	80
2	81	79
3	81	78

System Response Time*	81	Seconds
Average Time	70	Seconds

* Reported as Greatest Value of all Response Time Checks

Criteria: < 200 seconds for a 95% response to a step change in concentration of gas at the probe exit

REPRODUCIBILITY CHECKS

Run	Analyzer Value
1	225.6
2	225.7
3	225.5
4	225.6
5	225.7
Mean	226
Standard Deviation (SD)	0.08
% RSD Criteria <3%	**0.04**

% RSD = SD/Mean X 100

RESPONSE TIME CHECK

Client	Clean Harbors	**Analyzer Type**	Carbon Monoxide
Location	Sarnia, ON	**Analyzer ID.**	Siemens Ultramat 23
Project No.	22237	**Analyzer Span Setting**	500

Span Gas Concentration	470.8

Response Time Test No.	Upscale Response Time (seconds)	Downscale Response Time (seconds)
1	41	53
2	44	44
3	40	49

System Response Time*	53	Seconds
Average Time	42	Seconds

* Reported as Greatest Value of all Response Time Checks

Criteria: < 200 seconds for a 95% response to a step change in concentration of gas at the probe exit

REPRODUCIBILITY CHECKS

Run	Analyzer Value
1	470.7
2	470.7
3	470.8
4	470.4
5	470.6
Mean	471
Standard Deviation (SD)	0.15
% RSD Criteria <3%	**0.03**

% RSD = SD/Mean X 100

RESPONSE TIME CHECK

Client	Clean Harbors	**Analyzer Type**	Nitric Oxide
Location	Sarnia, ON	**Analyzer ID.**	Teledyne 200EH
Project No.	22237	**Analyzer Span Setting**	226

Span Gas Concentration	225.5

Response Time Test No.	Upscale Response Time (seconds)	Downscale Response Time (seconds)
1	66	71
2	66	73
3	66	72

System Response Time*	73	Seconds
Average Time	62	Seconds

* Reported as Greatest Value of all Response Time Checks

Criteria: < 200 seconds for a 95% response to a step change in concentration of gas at the probe exit

REPRODUCIBILITY CHECKS

Run	Analyzer Value
1	225.2
2	225.5
3	225.6
4	225.8
5	225.3
Mean	225
Standard Deviation (SD)	0.24
% RSD Criteria <3%	**0.11**

% RSD = SD/Mean X 100

RESPONSE TIME CHECK

Client	Clean Harbors	**Analyzer Type**	Nitrogen Oxides
Location	Sarnia, ON	**Analyzer ID.**	Teledyne 200EH
Project No.	22237	**Analyzer Span Setting**	250

Span Gas Concentration	225.5

Response Time Test No.	Upscale Response Time (seconds)	Downscale Response Time (seconds)
1	73	82
2	74	83
3	74	82

System Response Time*	83	Seconds
Average Time	70	Seconds

* Reported as Greatest Value of all Response Time Checks

Criteria: < 200 seconds for a 95% response to a step change in concentration of gas at the probe exit

REPRODUCIBILITY CHECKS

Run	Analyzer Value
1	225.3
2	225.4
3	225.3
4	225.4
5	225.2
Mean	225
Standard Deviation (SD)	0.08
% RSD Criteria <3%	**0.04**

% RSD = SD/Mean X 100

METHOD 7E - Determination of Nitrogen Oxides Emissions From Stationary Sources

(Instrumental Analyzer Procedure)

NO_2 to NO Conversion Efficiency Test Procedure

Client:	Clean Harbors	22237	
Date:	November 14, 2023	Location:	Sarnia

Certified Concentration of NO_2 Calibration Gas	**48.48**

Analyzer Reading in Direct Mode	**44.3**

Equation 7E-7 (EPA Method 7E Section 12.7)

$$Eff_{NO2} = \frac{\text{Measured Concentration in Direct Mode}}{\text{Manufacturer Certified Concentration of Cal. Gas}} \times 100$$

$$Eff_{NO2} = \frac{44.3}{48.48} \times 100 = \mathbf{91.4\ \%}$$

Method 7E criteria is >/= 90%

Efficiency Test Result	**Pass**

APPENDIX 17

Metals and Particulate
Emission Calculation Outputs
(12 pages)

ORTECH Consulting Inc.

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test Location:	Incinerator Exhaust Stack
Test No.:	1 - Particulate & Metals
Date:	November 14, 2023

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.846	
DGM CORRECTION FACTOR	1.035	
NOZZLE DIAMETER	6.71	mm
DRY REF GAS VOLUME SAMPLED	6.098	m^3
AVGERGE ISOKINETICITY	109.4	%
STACK DIAMETER	1.47	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.70	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	187.7	°C
AVERAGE GAS MOISTURE BY VOLUME	49.1	%
AVERAGE GAS VELOCITY	33.36	m/s
BAROMETRIC PRESSURE (Station)	100.813	Kpa
STATIC PRESSURE	0.164	Kpa
ABSOLUTE GAS PRESSURE	100.977	Kpa
OXYGEN CONCENTRATION	8.98	%
CARBON DIOXIDE CONCENTRATION	8.82	%
CARBON MONOXIDE CONCENTRATION	52.4	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	56.86	m^3/s
DRY REF GAS FLOWRATE	18.65	Rm^3/s
DRY ADJ GAS FLOWRATE	22.46	Rm^3/s
WET REF GAS FLOWRATE	36.67	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	3.6	mg
	-FILTER	1.2	mg
	-TOTAL	4.8	mg
DRY REF GAS VOLUME SAMPLED		6.098	m^3
PARTICULATE CONC. - ACTUAL		0.258	mg/m^3
PARTICULATE CONC. - DRY REF		0.787	mg/m^3
PARTICULATE CONC. - DRY ADJ		0.654	mg/m^3
PARTICULATE CONC. - WET REF		0.401	mg/m^3
PARTICULATE EMISSION RATE		0.014681	g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	1 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 14, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	1.2		
DGMCF	1.035	**Probe (mg)**	3.6		
Barometric Pressure	29.77 "Hg	**CWTR (g)**	4281.8		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	45.6		
Nozzle	0.2641 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.57 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.98
CO2%	8.82
COppm	52.4

Measured H2O
49.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	540.01	1.7	369	41	63	62	2.2	7.2		30.85	
	3	542.44	1.6	368	40	66	66	2.2	7.2		29.91	113.6
	6	544.76	1.7	369	40	67	66	2.1	7.1		30.85	111.0
	9	547.12	1.7	370	40	67	67	2.2	7.1		30.87	109.5
2	12	549.50	1.8	370	40	68	68	2.2	7.2		31.76	110.4
	15	551.92	1.8	370	40	68	70	2.3	7.5		31.76	108.9
	18	554.55	1.6	371	39	68	71	2.3	7.8		29.96	118.1
	21	556.74	1.6	371	40	69	73	2.15	7.7		29.96	104.3
3	24	559.10	1.8	371	39	69	74	2.2	7.7		31.78	112.0
	27	561.57	2.1	371	39	70	76	2.35	7.9		34.33	110.5
	30	564.19	2.1	370	40	70	77	2.65	8.8		34.31	108.2
	33	566.82	2.1	371	40	71	78	2.7	8.8		34.33	108.5
4	36	569.56	2	370	42	71	79	2.7	8.8		33.48	113.0
	39	572.08	1.9	369	42	72	79	2.6	8.7		32.61	106.3
	42	574.65	2	370	42	72	80	2.55	8.6		33.48	111.0
	45	577.27	1.9	369	42	73	81	2.6	8.7		32.61	110.3
5	48	579.86	1.9	369	45	73	81	2.55	8.8		32.61	111.6
	51	582.45	2.1	369	46	74	81	2.5	8.8		34.29	111.6
	54	585.10	2	368	48	74	81	2.7	8.9		33.44	108.5
	57	587.71	2.1	369	51	74	82	2.6	8.9		34.29	109.4
6	60	590.36	2.2	369	53	74	82	2.7	8.9		35.09	108.4
	63	593.07	2.2	369	55	74	82	2.8	9.1		35.09	108.3
	66	595.78	2.4	370	60	75	82	2.8	9.1		36.67	108.3
	69	598.57	2.3	369	64	75	82	3	9.5		35.88	106.8
7	72	601.34	2.2	369	66	75	82	2.95	9.9		35.09	108.3
	75	604.09	2.2	370	59	75	81	2.85	9.2		35.11	109.9
	78	606.83	2.2	368	56	75	81	2.85	9.2		35.07	109.6
	81	609.56	2.2	369	54	75	81	2.85	9.8		35.09	109.1
8	84	612.29	2.2	369	51	75	81	2.8	9.5		35.09	109.2
	87	614.99	2.2	369	51	75	81	2.8	9.5		35.09	107.9
	90	617.74	2.2	369	51	76	81	2.8	9.5		35.09	109.9
	93	620.45	2.2	371	52	76	81	2.8	9.4		35.13	108.2
9	96	623.16	2.2	371	55	76	81	2.8	9.4		35.13	108.4
	99	625.86	2.1	372	59	76	81	2.8	9.4		34.35	108.0

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	1 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 14, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	1.2		
DGMCF	1.035	**Probe (mg)**	3.6		
Barometric Pressure	29.77 "Hg	**CWTR (g)**	4281.8		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	45.6		
Nozzle	0.2641 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.57 ft³	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.98
CO2%	8.82
COppm	52.4

Measured H2O
49.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	102	628.55	2.4	372	54	76	81	2.7	9.2		36.72	**110.2**
	105	631.34	2	371	52	76	81	3	9.9		33.50	**106.9**
10	108	633.99	2.1	373	52	76	81	2.6	9.1		34.37	**111.2**
	111	636.65	2.1	371	53	76	81	2.7	9.2		34.33	**108.9**
	114	639.30	2	372	55	76	82	2.7	9.2		33.52	**108.4**
	117	641.92	2.1	373	56	76	82	2.6	9.1		34.37	**109.8**
	120	644.58								0.57		**108.8**
1	0	645.15	1.7	373	49	73	73	2.2	8.1		30.92	
	3	647.58	1.8	374	42	73	72	2.2	8.1		31.84	**111.7**
	6	650.02	1.7	373	41	74	73	2.3	8.2		30.92	**109.1**
	9	652.43	1.6	373	42	74	74	2.2	8.2		30.00	**110.7**
2	12	654.75	1.6	373	42	74	74	2.1	8.1		30.00	**109.7**
	15	657.06	1.7	374	42	74	76	2.1	8.1		30.94	**109.2**
	18	659.42	1.6	373	43	74	77	2.2	8.2		30.00	**108.1**
	21	661.75	1.6	374	43	74	78	2.1	8.1		30.02	**109.8**
3	24	664.08	1.8	373	44	74	79	2.1	8.1		31.82	**109.8**
	27	666.49	1.7	373	44	75	80	2.35	8.8		30.92	**106.9**
	30	668.90	2	374	45	75	80	2.2	8.5		33.56	**109.8**
	33	671.48	1.8	373	45	75	81	2.6	9.1		31.82	**108.4**
4	36	673.99	2	371	47	76	81	2.3	8.8		33.50	**111.1**
	39	676.56	1.9	371	48	76	81	2.6	9.1		32.65	**107.7**
	42	679.12	1.9	368	51	76	81	2.5	9.1		32.59	**110.1**
	45	681.67	1.8	367	55	76	82	2.5	9.0		31.70	**109.4**
5	48	684.20	1.8	370	60	77	82	2.4	8.9		31.76	**111.4**
	51	686.71	1.8	369	58	77	82	2.4	8.9		31.74	**110.6**
	54	689.21	1.8	369	55	77	83	2.4	8.9		31.74	**110.1**
	57	691.72	1.8	370	55	77	83	2.4	8.9		31.76	**110.4**
6	60	694.22	2	369	55	78	83	2.4	8.9		33.46	**110.0**
	63	696.81	1.9	370	57	78	83	2.6	9.3		32.63	**108.0**
	66	699.39	2	369	60	78	83	2.5	9.1		33.46	**110.5**
	69	702.00	1.9	368	63	78	84	2.6	9.2		32.59	**108.8**
7	72	704.59	2.2	368	52	79	84	2.5	9.0		35.07	**110.7**
	75	707.31	2.2	366	50	79	84	2.85	9.8		35.03	**107.9**
	78	710.04	2.3	368	50	79	84	2.85	9.8		35.86	**108.2**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	1 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 14, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	1.2		
DGMCF	1.035	**Probe (mg)**	3.6		
Barometric Pressure	29.77 "Hg	**CWTR (g)**	4281.8		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	45.6		
Nozzle	0.2641 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.57 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.98
CO2%	8.82
COppm	52.4

Measured H2O
49.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	81	712.82	2.2	367	51	79	84	2.99	9.9		35.05	**107.9**
8	84	715.58	2.3	368	53	79	84	2.85	9.9		35.86	**109.5**
	87	718.35	2.2	367	50	79	84	2.99	10.0		35.05	**107.5**
	90	721.09	2.2	367	47	79	84	2.85	9.8		35.05	**108.7**
	93	723.81	2.2	366	46	79	84	2.85	9.8		35.03	**107.9**
9	96	726.53	2.2	368	45	80	84	2.85	9.8		35.07	**107.9**
	99	729.29	2.2	368	45	80	84	2.9	9.9		35.07	**109.5**
	102	732.04	2.1	367	45	80	84	2.85	9.9		34.24	**109.1**
	105	734.75	2.1	369	48	80	84	2.75	9.8		34.29	**109.9**
10	108	737.45	2.2	369	48	80	84	2.75	9.8		35.09	**109.6**
	111	740.16	2.1	368	47	80	84	2.85	9.9		34.26	**107.5**
	114	742.88	2.2	369	45	80	84	2.75	9.9		35.09	**110.4**
	117	745.60	2.1	368	46	80	84	2.9	9.9		34.26	**107.9**
	120	748.32										**110.4**

ORTECH Consulting Inc.

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test Location:	Incinerator Exhaust Stack
Test No.:	2 - Particulate & Metals
Date:	November 15, 2023

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.846
DGM CORRECTION FACTOR	1.035
NOZZLE DIAMETER	6.37 mm
DRY REF GAS VOLUME SAMPLED	5.144 m^3
AVGERGE ISOKINETICITY	102.7 %
STACK DIAMETER	1.47 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.70 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	187.7 °C
AVERAGE GAS MOISTURE BY VOLUME	48.9 %
AVERAGE GAS VELOCITY	33.45 m/s
BAROMETRIC PRESSURE (Station)	99.966 Kpa
STATIC PRESSURE	0.164 Kpa
ABSOLUTE GAS PRESSURE	100.131 Kpa
OXYGEN CONCENTRATION	8.85 %
CARBON DIOXIDE CONCENTRATION	9.11 %
CARBON MONOXIDE CONCENTRATION	89.7 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	57.01 m^3/s
DRY REF GAS FLOWRATE	18.62 Rm^3/s
DRY ADJ GAS FLOWRATE	22.66 Rm^3/s
WET REF GAS FLOWRATE	36.45 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	1.8 mg
	-FILTER	1.1 mg
	-TOTAL	2.9 mg
DRY REF GAS VOLUME SAMPLED		5.144 m^3
PARTICULATE CONC. - ACTUAL		0.184 mg/m^3
PARTICULATE CONC. - DRY REF		0.564 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.463 mg/m^3
PARTICULATE CONC. - WET REF		0.288 mg/m^3
PARTICULATE EMISSION RATE		0.010498 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	2 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 15, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	1.1		
DGMCF	1.035	**Probe (mg)**	1.8		
Barometric Pressure	29.52 "Hg	**CWTR (g)**	3585.8		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	33.4		
Nozzle	0.2506 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.57 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.85
CO2%	9.11
COppm	89.7

Measured H2O
48.9 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	749.33	2.1	372	48	70	70	1.75	5.3		34.46	
	3	751.48	2.1	372	48	71	69	1.75	5.3		34.46	**98.4**
	6	753.62	2.2	371	46	71	67	1.8	5.3		35.25	**97.9**
	9	755.82	2.1	370	45	71	66	1.95	5.5		34.42	**98.5**
2	12	758.01	2.3	372	44	71	66	1.9	5.8		36.06	**100.4**
	15	760.26	2.1	369	43	70	67	2.05	6.0		34.40	**98.7**
	18	762.48	2	371	43	70	68	1.95	5.9		33.61	**101.8**
	21	764.67	2.1	371	43	70	70	1.9	5.9		34.44	**102.9**
3	24	766.90	2.1	372	43	70	71	2	6.0		34.46	**102.0**
	27	769.13	2.1	373	43	70	72	1.95	6.1		34.48	**102.0**
	30	771.36	2.1	372	43	70	73	1.95	6.1		34.46	**102.0**
	33	773.59	2.3	371	42	71	74	1.95	6.1		36.04	**101.8**
4	36	775.95	2.2	371	42	71	74	2.15	6.4		35.25	**102.7**
	39	778.31	2.2	369	42	72	75	2.15	6.4		35.21	**105.0**
	42	780.65	2.2	369	43	72	75	2.1	6.4		35.21	**103.8**
	45	782.98	2.2	370	43	72	75	2.1	6.4		35.23	**103.4**
5	48	785.31	2.3	369	43	72	75	2.1	6.4		36.00	**103.4**
	51	787.68	2.2	368	43	72	74	2.2	6.8		35.19	**102.8**
	54	789.99	2.4	369	43	72	74	2.1	6.5		36.77	**102.5**
	57	792.42	2.3	368	43	72	75	2.25	6.6		35.98	**103.3**
6	60	794.82	2.5	368	43	72	75	2.2	6.9		37.51	**104.1**
	63	797.27	2.3	368	41	72	75	2.3	7.0		35.98	**101.9**
	66	799.70	2.3	368	41	72	75	2.2	6.9		35.98	**105.4**
	69	802.09	2.3	369	41	72	76	2.2	6.9		36.00	**103.7**
7	72	804.46	2.1	370	42	72	77	2.15	6.9		34.42	**102.8**
	75	806.78	2	369	42	73	78	2.05	6.8		33.57	**105.2**
	78	809.06	2	370	41	73	78	2	6.5		33.59	**105.7**
	81	811.31	2.1	369	41	73	78	2	6.5		34.40	**104.3**
8	84	813.57	1.9	370	41	73	78	2	6.5		32.74	**102.2**
	87	815.79	1.8	371	42	73	78	1.9	6.3		31.88	**105.6**
	90	817.93	1.9	369	42	73	79	1.75	6.1		32.72	**104.6**
	93	820.10	1.8	369	43	73	79	1.85	6.1		31.85	**103.0**
9	96	822.23	2	368	45	73	79	1.75	6.1		33.55	**103.9**
	99	824.40	1.6	368	43	73	79	1.9	6.2		30.01	**100.4**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	2 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 15, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	1.1		
DGMCF	1.035	**Probe (mg)**	1.8		
Barometric Pressure	29.52 "Hg	**CWTR (g)**	3585.8		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	33.4		
Nozzle	0.2506 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.57 ft³	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.85
CO2%	9.11
COppm	89.7

Measured H2O
48.9 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	102	826.46	1.8	367	42	73	79	1.55	6.0		31.81	**106.6**
	105	828.54	1.6	371	43	74	79	1.9	6.1		30.06	**101.3**
10	108	830.73	1.6	366	45	74	79	1.7	6.0		29.97	**113.4**
	111	832.82	1.6	366	45	74	79	1.6	6.0		29.97	**107.8**
	114	834.83	1.7	366	46	74	79	1.55	6.0		30.89	**103.7**
	117	836.87	1.6	365	47	74	79	1.65	6.1		29.95	**102.1**
	120	838.87								0.57		**103.1**
1	0	839.44	1.5	369	52	71	71	1.45	5.5		29.07	
	3	841.40	1.7	369	46	72	70	1.45	5.5		30.95	**105.6**
	6	843.39	1.6	370	46	72	69	1.55	5.7		30.04	**100.8**
	9	845.34	1.5	370	44	72	70	1.45	5.5		29.09	**101.9**
2	12	847.25	1.5	370	43	72	72	1.4	5.4		29.09	**103.0**
	15	849.14	1.6	372	43	72	73	1.4	5.4		30.08	**101.7**
	18	851.08	1.7	372	44	72	74	1.5	5.8		31.00	**101.1**
	21	853.02	1.5	372	44	72	75	1.5	5.8		29.12	**98.0**
3	24	854.98	1.7	373	44	73	76	1.5	5.8		31.02	**105.3**
	27	856.98	1.8	372	41	73	77	1.6	6.1		31.90	**100.8**
	30	858.90	1.7	373	41	73	77	1.6	6.2		31.02	**94.0**
	33	861.05	1.8	373	41	73	78	1.65	6.4		31.92	**108.3**
4	36	863.13	1.9	373	41	74	78	1.7	6.4		32.80	**101.8**
	39	865.23	1.9	373	42	74	78	1.75	6.5		32.80	**99.9**
	42	867.40	1.8	374	42	74	79	1.8	6.5		31.94	**103.3**
	45	869.53	2	374	43	74	79	1.75	6.3		33.67	**104.1**
5	48	871.73	1.9	375	43	75	79	1.9	6.8		32.84	**102.0**
	51	873.91	1.9	376	43	75	79	1.8	6.6		32.86	**103.7**
	54	876.07	2	375	43	75	79	1.8	6.6		33.69	**102.8**
	57	878.27	1.9	375	45	75	79	2	6.6		32.84	**102.0**
6	60	880.49	2.1	373	44	75	80	1.9	6.8		34.48	**105.7**
	63	882.75	2.1	372	42	76	79	2	6.9		34.46	**102.1**
	66	885.03	2.1	371	42	76	79	2	6.9		34.44	**102.9**
	69	887.31	2.1	370	43	76	80	2	6.9		34.42	**102.9**
7	72	889.59	2.2	371	44	76	80	2	6.9		35.25	**102.7**
	75	891.89	2.2	370	44	76	80	2.05	7.0		35.23	**101.3**
	78	894.20	2.3	369	45	76	80	2.05	7.0		36.00	**101.7**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	2 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 15, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	1.1		
DGMCF	1.035	**Probe (mg)**	1.8		
Barometric Pressure	29.52 "Hg	**CWTR (g)**	3585.8		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	33.4		
Nozzle	0.2506 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.57 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.85
CO2%	9.11
COppm	89.7

Measured H2O
48.9 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	81	896.55	2.2	369	45	76	80	2.15	7.1		35.21	**101.1**
8	84	898.89	2.1	369	45	77	80	2.1	7.0		34.40	**103.0**
	87	901.18	2.2	368	46	77	80	2	6.9		35.19	**103.0**
	90	903.40	2.1	369	47	77	80	2.1	7.1		34.40	**97.5**
	93	905.79	2.3	368	49	77	81	2	7.0		35.98	**107.5**
9	96	908.17	2	367	51	77	81	2.2	7.2		33.53	**102.1**
	99	910.41	2.1	365	49	77	80	1.9	6.9		34.31	**103.1**
	102	912.69	2.1	365	49	77	81	2	7.0		34.31	**102.3**
	105	915.00	2	365	49	77	81	2.05	7.0		33.49	**103.6**
10	108	917.22	2.1	365	49	78	81	1.9	6.9		34.31	**102.0**
	111	919.48	2	365	48	78	81	2	6.9		33.49	**101.2**
	114	921.71	2	367	49	78	81	1.9	7.0		33.53	**102.3**
	117	923.92	2	367	49	78	81	1.9	6.9		33.53	**101.5**
	120	926.14										**102.0**

ORTECH Consulting Inc.

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test Location:	Incinerator Exhaust Stack
Test No.:	3 - Particulate & Metals
Date:	November 16, 2023

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.846	
DGM CORRECTION FACTOR	1.035	
NOZZLE DIAMETER	6.37	mm
DRY REF GAS VOLUME SAMPLED	4.946	m^3
AVGERGE ISOKINETICITY	102.5	%
STACK DIAMETER	1.47	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.70	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	197.1	°C
AVERAGE GAS MOISTURE BY VOLUME	48.5	%
AVERAGE GAS VELOCITY	32.68	m/s
BAROMETRIC PRESSURE (Station)	99.831	Kpa
STATIC PRESSURE	0.164	Kpa
ABSOLUTE GAS PRESSURE	99.995	Kpa
OXYGEN CONCENTRATION	8.3	%
CARBON DIOXIDE CONCENTRATION	9.11	%
CARBON MONOXIDE CONCENTRATION	89.3	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	55.70	m^3/s
DRY REF GAS FLOWRATE	17.93	Rm^3/s
DRY ADJ GAS FLOWRATE	22.82	Rm^3/s
WET REF GAS FLOWRATE	34.86	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	6.5	mg
	-FILTER	8	mg
	-TOTAL	14.5	mg
DRY REF GAS VOLUME SAMPLED		4.946	m^3
PARTICULATE CONC. - ACTUAL		0.944	mg/m^3
PARTICULATE CONC. - DRY REF		2.932	mg/m^3
PARTICULATE CONC. - DRY ADJ		2.303	mg/m^3
PARTICULATE CONC. - WET REF		1.508	mg/m^3
PARTICULATE EMISSION RATE		0.052567	g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	3 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 16, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	8		
DGMCF	1.035	**Probe (mg)**	6.5		
Barometric Pressure	29.48 "Hg	**CWTR (g)**	3396.9		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	34		
Nozzle	0.2506 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.76 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.3
CO2%	9.11
COppm	89.3

Measured H2O
48.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	27.72	1.6	374	53	61	61	1.45	5.2		30.12	
	3	29.64	1.5	374	45	62	60	1.45	5.2		29.16	**101.7**
	6	31.50	1.4	376	43	62	59	1.4	5.2		28.20	**101.8**
	9	33.33	1.5	376	41	62	60	1.3	5.1		29.19	**103.9**
2	12	35.18	1.4	376	41	63	61	1.4	5.2		28.20	**101.3**
	15	36.98	1.5	378	42	63	63	1.3	5.2		29.23	**101.9**
	18	38.83	1.5	379	43	63	64	1.4	5.2		29.25	**101.0**
	21	40.70	1.7	380	44	63	66	1.4	5.4		31.15	**102.1**
3	24	42.69	1.6	380	42	64	67	1.55	5.9		30.22	**101.9**
	27	44.67	1.6	381	43	64	68	1.5	5.9		30.24	**104.4**
	30	46.64	1.5	382	43	64	69	1.5	5.9		29.30	**103.8**
	33	48.53	1.6	384	42	65	69	1.4	5.8		30.30	**102.8**
4	36	50.46	1.6	383	42	65	70	1.5	5.9		30.28	**101.7**
	39	52.41	1.5	383	43	65	71	1.5	5.9		29.32	**102.6**
	42	54.32	1.7	384	43	66	71	1.4	5.8		31.23	**103.7**
	45	56.33	1.6	383	45	66	72	1.6	6.0		30.28	**102.4**
5	48	58.28	1.9	385	46	67	73	1.5	5.9		33.03	**102.3**
	51	60.39	1.8	385	44	67	73	1.75	6.3		32.15	**101.5**
	54	62.48	1.8	386	42	67	74	1.7	6.2		32.17	**103.4**
	57	64.58	1.8	388	42	68	74	1.7	6.2		32.21	**103.8**
6	60	66.66	1.9	390	43	69	75	1.7	6.2		33.13	**102.9**
	63	68.79	1.9	391	43	69	75	1.8	6.4		33.15	**102.4**
	66	70.92	1.9	393	44	70	75	1.8	6.4		33.19	**102.5**
	69	73.05	2	395	46	70	76	1.8	6.4		34.09	**102.6**
7	72	75.24	1.9	394	49	71	76	1.9	6.5		33.21	**102.8**
	75	77.41	2.2	394	51	71	76	1.8	6.5		35.73	**104.4**
	78	79.65	2.2	392	53	71	76	2	6.8		35.69	**100.1**
	81	81.95	2.1	392	54	72	76	2.05	6.9		34.87	**102.7**
8	84	84.21	2.1	392	55	72	77	2	6.9		34.87	**103.2**
	87	86.48	2	392	55	72	77	2	6.9		34.03	**103.6**
	90	88.65	2.1	393	56	73	77	1.8	6.8		34.89	**101.4**
	93	90.87	2.1	393	58	73	78	1.9	6.9		34.89	**101.2**
9	96	93.11	2	393	61	74	78	1.9	6.9		34.05	**102.0**
	99	95.33	2	394	55	74	79	1.85	6.8		34.07	**103.5**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	3 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 16, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	8		
DGMCF	1.035	**Probe (mg)**	6.5		
Barometric Pressure	29.48 "Hg	**CWTR (g)**	3396.9		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	34		
Nozzle	0.2506 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.76 ft³	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.3
CO2%	9.11
COppm	89.3

Measured H2O
48.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	102	97.52	2	394	54	75	79	1.85	6.8		34.07	**102.1**
	105	99.72	2	393	56	75	79	1.85	6.8		34.05	**102.4**
10	108	101.92	2.1	394	57	75	79	1.85	6.8		34.91	**102.4**
	111	104.16	2	392	60	75	79	1.95	6.9		34.03	**101.8**
	114	106.38	1.8	392	61	75	79	1.9	6.8		32.28	**103.3**
	117	108.52	1.8	391	55	75	79	1.7	6.5		32.27	**104.9**
	120	110.60								0.76		**101.9**
1	0	111.36	1.9	387	56	73	73	1.7	5.8		33.07	
	3	113.46	1.9	388	46	73	72	1.7	5.8		33.09	**100.6**
	6	115.56	2	386	45	73	71	1.7	5.8		33.91	**100.8**
	9	117.68	1.9	387	45	73	72	1.8	6.1		33.07	**99.1**
2	12	119.81	1.9	387	45	73	73	1.8	6.1		33.07	**102.2**
	15	121.92	1.9	387	45	73	74	1.75	6.1		33.07	**101.1**
	18	124.05	2.1	387	46	73	75	1.8	6.2		34.77	**102.0**
	21	126.28	2	387	46	73	76	1.95	6.5		33.93	**101.5**
3	24	128.50	2.1	387	42	73	76	1.9	6.7		34.77	**103.5**
	27	130.74	2.1	387	41	73	77	2	6.9		34.77	**101.9**
	30	133.02	2	385	41	73	77	2	7.0		33.89	**103.6**
	33	135.26	2	383	42	73	77	1.9	6.9		33.85	**104.2**
4	36	137.48	2.1	384	44	74	78	1.9	6.9		34.71	**103.1**
	39	139.74	2.1	383	43	74	78	2	7.0		34.69	**102.3**
	42	142.01	2	383	44	74	78	2	7.1		33.85	**102.7**
	45	144.24	2.1	384	45	74	78	1.9	7.0		34.71	**103.4**
5	48	146.52	2.1	383	46	74	78	2	7.1		34.69	**103.2**
	51	148.80	2.1	384	44	74	79	2	7.1		34.71	**103.2**
	54	151.09	2.1	384	44	75	79	2	7.1		34.71	**103.6**
	57	153.38	2.2	385	44	75	79	2	7.1		35.55	**103.5**
6	60	155.69	2.1	385	45	75	79	2.1	7.3		34.73	**102.1**
	63	157.98	2.2	386	45	75	79	2	7.1		35.57	**103.6**
	66	160.29	2.2	386	46	75	79	2.1	7.3		35.57	**102.1**
	69	162.62	2.1	388	47	75	79	2.1	7.3		34.79	**103.0**
7	72	164.91	2.1	389	50	75	79	2	7.1		34.81	**103.8**
	75	167.19	1.8	388	50	76	79	2	7.1		32.21	**103.3**
	78	169.31	1.9	389	51	76	79	1.7	6.9		33.11	**103.6**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	3 - Particulate & Metals	**Test Location:**	Incinerator Exhaust Stack
Date:	November 16, 2023	**Operator:**	TC

Pitot Factor	0.846	**Filter (mg)**	8		
DGMCF	1.035	**Probe (mg)**	6.5		
Barometric Pressure	29.48 "Hg	**CWTR (g)**	3396.9		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	34		
Nozzle	0.2506 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.76 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.3
CO2%	9.11
COppm	89.3

Measured H2O
48.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	81	171.46	1.8	388	54	76	80	1.8	6.9		32.21	**102.3**
8	84	173.69	1.8	389	55	76	80	1.7	6.8		32.23	**108.9**
	87	175.67	1.8	388	53	76	80	1.65	6.8		32.21	**96.7**
	90	177.77	1.7	389	53	77	81	1.7	6.8		31.32	**102.5**
	93	179.82	1.7	389	53	77	81	1.6	6.8		31.32	**102.8**
9	96	181.86	1.7	390	53	77	81	1.6	6.8		31.34	**102.3**
	99	183.90	1.7	389	53	77	81	1.6	6.8		31.32	**102.4**
	102	185.93	1.6	389	53	77	81	1.6	6.8		30.38	**101.8**
	105	187.90	1.6	389	53	77	81	1.5	6.6		30.38	**101.8**
10	108	189.89	1.6	388	55	77	81	1.5	6.6		30.37	**102.8**
	111	191.85	1.6	388	56	77	81	1.5	6.6		30.37	**101.2**
	114	193.83	1.6	386	57	77	81	1.5	6.6		30.33	**102.3**
	117	195.80	1.6	386	59	77	81	1.5	6.6		30.33	**101.6**
	120	197.77										**101.6**

APPENDIX 18

Semi-Volatile Organic Compound
Emission Calculation Outputs
(12 pages)

ORTECH Consulting Inc.

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test Location:	Incinerator Exhaust Stack
Test No.:	1 - SVOC
Date:	November 14, 2023

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.963	
NOZZLE DIAMETER	6.25	mm
DRY REF GAS VOLUME SAMPLED	4.756	m^3
AVGERGE ISOKINETICITY	100.6	%
STACK DIAMETER	1.47	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.70	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	187.4	°C
AVERAGE GAS MOISTURE BY VOLUME	49.2	%
AVERAGE GAS VELOCITY	32.64	m/s
BAROMETRIC PRESSURE (Station)	100.813	Kpa
STATIC PRESSURE	0.164	Kpa
ABSOLUTE GAS PRESSURE	100.977	Kpa
OXYGEN CONCENTRATION	8.98	%
CARBON DIOXIDE CONCENTRATION	8.82	%
CARBON MONOXIDE CONCENTRATION	52.4	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	55.64	m^3/s
DRY REF GAS FLOWRATE	18.24	Rm^3/s
DRY ADJ GAS FLOWRATE	21.96	Rm^3/s
WET REF GAS FLOWRATE	35.90	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.756	m^3
PARTICULATE CONC. - ACTUAL		0.000	mg/m^3
PARTICULATE CONC. - DRY REF		0.000	mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000	mg/m^3
PARTICULATE CONC. - WET REF		0.000	mg/m^3
PARTICULATE EMISSION RATE		0.000000	g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	1 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 14, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.77 "Hg	**CWTR (g)**	3365.2		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	17.5		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.81 ft³	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.98
CO2%	8.82
COppm	52.4

Measured H2O
49.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	7.12	1.55	367	43	61	59	1.3	3.5		29.32	
	3	9.18	1.5	368	43	63	61	1.2	3.5		28.86	**108.9**
	6	11.04	1.55	369	43	63	61	1.2	3.5		29.36	**99.6**
	9	12.81	1.55	370	40	64	61	1.2	3.5		29.37	**93.3**
2	12	14.57	1.5	370	42	63	61	1.2	3.5		28.90	**92.7**
	15	16.48	1.55	371	39	63	61	1.2	3.5		29.39	**102.4**
	18	18.39	1.55	371	37	63	62	1.2	3.5		29.39	**100.8**
	21	20.29	1.5	370	37	63	62	1.2	3.5		28.90	**100.2**
3	24	22.18	1.6	371	40	64	63	1.3	4.0		29.86	**101.2**
	27	24.12	1.65	370	39	64	63	1.3	4.0		30.31	**100.5**
	30	26.06	1.65	370	39	64	63	1.3	4.0		30.31	**98.9**
	33	28.02	1.65	370	38	65	63	1.3	4.0		30.31	**99.9**
4	36	29.96	1.7	369	38	65	63	1.3	4.0		30.74	**98.8**
	39	31.92	1.75	369	39	67	65	1.4	4.0		31.19	**98.3**
	42	33.94	1.75	369	39	67	65	1.4	4.0		31.19	**99.5**
	45	35.96	1.8	369	39	67	65	1.4	4.0		31.63	**99.5**
5	48	38.00	1.8	370	39	67	65	1.4	4.0		31.65	**99.1**
	51	40.03	1.85	369	39	68	66	1.5	4.5		32.07	**98.7**
	54	42.12	1.85	369	39	68	66	1.5	4.5		32.07	**100.0**
	57	44.19	1.8	369	39	68	66	1.5	4.5		31.63	**99.0**
6	60	46.29	2.1	368	39	70	67	1.8	5.0		34.15	**101.8**
	63	48.52	2.05	368	39	70	68	1.7	5.0		33.74	**99.8**
	66	50.77	2.05	368	39	70	68	1.7	5.0		33.74	**101.8**
	69	52.99	2.05	368	39	70	68	1.7	5.0		33.74	**100.5**
7	72	55.22	2.1	369	40	70	68	1.7	5.0		34.17	**100.9**
	75	57.47	2.2	369	40	71	68	1.7	5.0		34.97	**100.7**
	78	59.74	2.15	368	40	71	68	1.7	5.0		34.55	**99.1**
	81	61.96	2.2	369	40	71	68	1.8	5.0		34.97	**98.0**
8	84	64.27	2.1	370	40	71	69	1.8	5.0		34.19	**100.9**
	87	66.55	2.15	369	40	71	69	1.8	5.0		34.57	**101.9**
	90	68.83	2.15	370	41	71	70	1.8	5.0		34.59	**100.7**
	93	71.14	2.2	370	41	71	70	1.8	5.0		34.99	**101.9**
9	96	73.42	2.1	370	40	71	70	1.8	5.0		34.19	**99.5**
	99	75.70	2.15	370	40	72	70	1.8	5.0		34.59	**101.8**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	1 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 14, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.77 "Hg	**CWTR (g)**	3365.2		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	17.5		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.81 ft³	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.98
CO2%	8.82
COppm	52.4

Measured H2O
49.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	102	77.99	2.15	370	40	72	70	1.8	5.0		34.59	**101.0**
	105	80.27	2.15	370	40	72	70	1.8	5.0		34.59	**100.5**
10	108	82.53	2.2	371	43	72	71	1.8	5.0		35.01	**99.6**
	111	84.80	2.15	371	43	72	71	1.8	5.0		34.61	**98.9**
	114	87.08	2.2	371	43	72	71	1.8	5.0		35.01	**100.5**
	117	89.34	2.2	371	46	72	71	1.8	5.0		35.01	**98.5**
	120	91.61								0.81		**98.9**
1	0	92.42	1.65	374	44	74	72	1.4	3.5		30.38	
	3	94.39	1.7	373	39	73	73	1.4	4.0		30.82	**98.9**
	6	96.38	1.65	373	38	73	73	1.4	4.0		30.36	**98.4**
	9	98.37	1.65	373	37	73	73	1.4	4.0		30.36	**99.9**
2	12	100.41	1.7	373	37	73	73	1.4	4.0		30.82	**102.4**
	15	102.41	1.8	373	38	72	73	1.4	4.0		31.71	**98.9**
	18	104.42	1.7	372	39	73	73	1.4	4.0		30.80	**96.7**
	21	106.43	1.65	373	39	72	73	1.4	4.0		30.36	**99.3**
3	24	108.45	1.75	373	39	72	73	1.4	4.0		31.27	**101.5**
	27	110.48	1.75	373	39	73	73	1.4	4.0		31.27	**99.0**
	30	112.54	1.85	372	38	73	73	1.4	4.0		32.13	**100.4**
	33	114.56	1.75	371	38	73	73	1.4	4.0		31.23	**95.7**
4	36	116.60	1.9	370	39	73	73	1.6	4.5		32.52	**99.3**
	39	118.72	1.8	369	40	73	73	1.5	4.5		31.63	**99.0**
	42	120.86	2	367	40	73	73	1.7	5.0		33.30	**102.6**
	45	123.04	1.8	367	40	73	73	1.7	5.0		31.60	**99.1**
5	48	125.26	2.1	368	40	73	73	1.8	5.0		34.15	**106.4**
	51	127.52	1.95	368	39	74	73	1.8	5.0		32.91	**100.3**
	54	129.80	1.9	368	39	74	73	1.8	5.0		32.48	**104.9**
	57	132.06	1.95	368	39	74	74	1.7	6.0		32.91	**105.4**
6	60	134.28	2.1	368	38	74	74	1.7	6.0		34.15	**102.1**
	63	136.28	2.1	368	42	74	74	1.8	5.0		34.15	**88.6**
	66	138.45	2.2	367	39	75	74	1.9	5.5		34.93	**96.2**
	69	140.79	2.1	368	39	75	75	1.9	5.5		34.15	**101.2**
7	72	143.13	2.1	366	39	75	75	1.9	5.5		34.11	**103.5**
	75	145.45	2.15	367	39	75	75	1.9	5.5		34.53	**102.5**
	78	147.81	2.15	368	38	75	75	1.9	5.5		34.55	**103.1**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	1 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 14, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.77 "Hg	**CWTR (g)**	3365.2		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	17.5		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.81 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.98
CO2%	8.82
COppm	52.4

Measured H2O
49.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	81	150.15	2.15	367	38	75	75	1.9	5.5		34.53	**102.3**
8	84	152.51	2.1	367	39	75	75	1.9	5.5		34.13	**103.1**
	87	154.81	2.2	367	39	75	75	1.9	5.5		34.93	**101.7**
	90	157.18	2.2	367	39	75	75	1.9	5.5		34.93	**102.4**
	93	159.53	2.2	367	40	75	75	1.9	5.5		34.93	**101.5**
9	96	161.86	2.2	367	40	75	75	1.9	5.5		34.93	**100.6**
	99	164.21	2.15	367	40	75	75	1.9	5.5		34.53	**101.5**
	102	166.53	2	368	40	76	76	1.9	5.5		33.33	**101.4**
	105	168.89	2.1	369	39	76	75	1.9	5.5		34.17	**106.8**
10	108	171.22	2	368	42	76	76	1.9	5.5		33.33	**103.0**
	111	173.55	1.9	369	41	76	76	1.9	5.5		32.50	**105.4**
	114	175.91	1.9	368	41	76	76	1.6	5.0		32.48	**109.6**
	117	178.11	1.9	369	42	76	76	1.6	5.0		32.50	**102.0**
	120	180.31										**102.1**

ORTECH Consulting Inc.

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test Location:	Incinerator Exhaust Stack
Test No.:	2 - SVOC
Date:	November 15, 2023

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.963	
NOZZLE DIAMETER	6.25	mm
DRY REF GAS VOLUME SAMPLED	4.805	m^3
AVGERGE ISOKINETICITY	100.3	%
STACK DIAMETER	1.47	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.70	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	186.7	°C
AVERAGE GAS MOISTURE BY VOLUME	48.8	%
AVERAGE GAS VELOCITY	33.12	m/s
BAROMETRIC PRESSURE (Station)	99.966	Kpa
STATIC PRESSURE	0.164	Kpa
ABSOLUTE GAS PRESSURE	100.131	Kpa
OXYGEN CONCENTRATION	8.85	%
CARBON DIOXIDE CONCENTRATION	9.11	%
CARBON MONOXIDE CONCENTRATION	89.7	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	56.46	m^3/s
DRY REF GAS FLOWRATE	18.51	Rm^3/s
DRY ADJ GAS FLOWRATE	22.53	Rm^3/s
WET REF GAS FLOWRATE	36.18	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.805	m^3
PARTICULATE CONC. - ACTUAL		0.000	mg/m^3
PARTICULATE CONC. - DRY REF		0.000	mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000	mg/m^3
PARTICULATE CONC. - WET REF		0.000	mg/m^3
PARTICULATE EMISSION RATE		0.000000	g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	2 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 15, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.52 "Hg	**CWTR (g)**	3355.9		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	13.2		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		1.26 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.85
CO2%	9.11
COppm	89.7

Measured H2O
48.8 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	81.16	2	370	42	68	67	1.7	5.0		33.46	
	3	83.30	2.1	369	42	69	68	1.8	6.0		34.27	**97.5**
	6	85.50	2.05	369	41	69	68	1.8	6.0		33.86	**97.6**
	9	87.68	2.05	369	40	68	68	1.8	6.0		33.86	**97.9**
2	12	89.88	2.1	370	40	68	68	1.8	6.0		34.29	**98.9**
	15	92.06	2.05	369	39	67	67	1.8	6.0		33.86	**96.8**
	18	94.31	2.1	371	39	67	67	1.8	6.0		34.31	**101.3**
	21	96.56	2.1	372	39	67	67	1.8	6.0		34.33	**100.2**
3	24	98.81	2.2	371	38	66	67	1.8	6.0		35.12	**100.3**
	27	101.06	2.1	372	38	67	67	1.8	6.0		34.33	**98.0**
	30	103.31	2.05	372	38	67	67	1.8	6.0		33.92	**100.3**
	33	105.56	2.1	370	38	67	68	1.8	6.0		34.29	**101.5**
4	36	107.81	2.05	370	38	67	67	1.8	6.0		33.88	**100.1**
	39	110.06	2.1	368	37	67	67	1.8	6.0		34.25	**101.4**
	42	112.33	2.1	368	37	67	67	1.8	6.0		34.25	**100.9**
	45	114.56	2.15	367	37	68	68	1.8	6.0		34.63	**99.1**
5	48	116.81	2.2	366	37	68	68	1.8	6.0		35.01	**98.6**
	51	119.05	2.2	366	39	68	68	1.8	6.0		35.01	**97.0**
	54	121.34	2.2	367	40	68	68	1.8	6.0		35.03	**99.2**
	57	123.56	2.1	366	40	68	68	1.8	6.0		34.21	**96.2**
6	60	125.85	2.2	368	40	68	68	1.8	6.0		35.05	**101.5**
	63	128.07	2.2	368	40	68	68	1.8	6.0		35.05	**96.2**
	66	130.37	2.3	367	40	68	68	1.9	6.0		35.82	**99.7**
	69	132.69	2.3	368	40	68	68	1.9	7.0		35.84	**98.3**
7	72	135.04	2.3	368	40	68	68	1.9	7.0		35.84	**99.7**
	75	137.35	2.1	368	41	68	68	1.8	7.0		34.25	**98.0**
	78	139.56	2.3	368	41	68	68	1.9	7.0		35.84	**98.1**
	81	142.00	2.1	368	41	68	68	1.7	6.5		34.25	**103.5**
8	84	144.23	1.85	368	42	69	69	1.6	6.0		32.14	**98.9**
	87	146.43	1.9	369	42	69	69	1.6	6.0		32.59	**103.8**
	90	148.64	1.8	368	41	69	69	1.6	6.0		31.71	**102.9**
	93	150.82	2.1	368	41	69	69	1.8	7.0		34.25	**104.2**
9	96	153.12	1.9	367	43	69	69	1.6	6.0		32.56	**101.9**
	99	155.34	1.7	366	44	69	69	1.6	6.0		30.78	**103.2**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	2 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 15, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.52 "Hg	**CWTR (g)**	3355.9		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	13.2		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		1.26 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.85
CO2%	9.11
COppm	89.7

Measured H2O
48.8 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	102	157.53	1.8	367	44	69	69	1.5	6.0		31.69	**107.6**
	105	159.65	1.75	366	41	69	69	1.5	6.0		31.23	**101.3**
10	108	161.75	1.8	365	44	69	70	1.5	6.0		31.65	**101.7**
	111	163.85	1.75	365	44	70	70	1.5	6.0		31.21	**100.1**
	114	165.95	1.8	364	45	70	70	1.5	6.0		31.63	**101.4**
	117	168.06	1.8	364	45	70	70	1.5	6.0		31.63	**100.4**
	120	170.16								1.26		**99.9**
1	0	171.42	1.6	365	56	71	72	1.4	5.0		29.84	
	3	173.43	1.6	366	48	72	72	1.4	5.0		29.86	**101.2**
	6	175.39	1.6	368	47	72	72	1.4	6.0		29.89	**98.7**
	9	177.37	1.65	367	46	72	72	1.4	6.0		30.34	**99.8**
2	12	179.33	1.6	368	45	71	71	1.4	6.0		29.89	**97.2**
	15	181.29	1.55	369	46	71	71	1.4	6.0		29.44	**99.0**
	18	183.26	1.6	369	45	71	71	1.4	6.0		29.91	**101.1**
	21	185.22	1.6	369	46	71	71	1.4	6.0		29.91	**99.0**
3	24	187.17	1.75	371	45	71	71	1.5	6.5		31.32	**98.5**
	27	189.25	1.7	371	45	71	71	1.5	6.5		30.87	**100.6**
	30	191.33	1.7	371	44	71	71	1.5	6.5		30.87	**102.1**
	33	193.43	1.7	372	44	71	71	1.5	6.5		30.89	**103.1**
4	36	195.51	1.7	371	44	71	71	1.5	6.5		30.87	**102.2**
	39	197.58	1.7	372	46	72	72	1.5	6.5		30.89	**101.6**
	42	199.68	1.75	372	45	72	72	1.5	6.5		31.34	**103.0**
	45	201.76	1.65	373	46	72	72	1.5	6.5		30.45	**100.5**
5	48	203.85	1.75	373	47	72	72	1.5	6.5		31.36	**104.1**
	51	205.93	1.85	373	47	72	72	1.6	6.5		32.24	**100.6**
	54	208.05	1.8	373	46	72	72	1.6	6.5		31.80	**99.7**
	57	210.17	1.85	373	46	72	73	1.6	6.5		32.24	**101.1**
6	60	212.28	1.9	370	47	73	72	1.6	6.5		32.61	**99.2**
	63	214.43	2.1	370	47	73	73	1.8	7.0		34.29	**99.5**
	66	216.68	2	369	48	73	73	1.8	7.0		33.44	**99.0**
	69	218.95	1.9	369	48	73	73	1.6	7.0		32.59	**102.3**
7	72	221.18	1.95	369	47	73	73	1.6	7.0		33.02	**103.1**
	75	223.42	2.15	369	47	73	73	1.8	7.0		34.67	**102.2**
	78	225.68	2.15	367	47	73	73	1.8	7.0		34.63	**98.2**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	2 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 15, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.52 "Hg	**CWTR (g)**	3355.9		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	13.2		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		1.26 ft^3	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.85
CO2%	9.11
COppm	89.7

Measured H2O
48.8 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	81	227.95	2.15	367	47	73	73	1.8	7.0		34.63	**98.6**
8	84	230.23	2.15	366	47	73	73	1.8	7.0		34.61	**99.0**
	87	232.51	2.1	366	47	73	73	1.8	7.0		34.21	**98.9**
	90	234.79	2.15	367	48	74	74	1.8	7.0		34.63	**100.1**
	93	237.06	2.2	365	48	74	74	1.9	7.0		34.99	**98.4**
9	96	239.39	2.1	364	49	74	74	1.9	7.5		34.16	**99.7**
	99	241.73	2.1	365	48	74	74	1.9	7.5		34.18	**102.4**
	102	244.05	2.1	363	47	74	74	1.8	7.5		34.14	**101.6**
	105	246.35	2.15	363	47	74	74	1.8	7.5		34.55	**100.6**
10	108	248.67	2.15	363	46	74	74	1.8	7.5		34.55	**100.3**
	111	251.01	2.25	363	46	74	74	1.8	7.5		35.34	**101.2**
	114	253.32	2.15	363	46	74	74	1.8	7.5		34.55	**97.6**
	117	255.64	2.15	364	47	74	74	1.8	7.5		34.57	**100.3**
	120	257.95										**99.9**

ORTECH Consulting Inc.

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test Location:	Incinerator Exhaust Stack
Test No.:	3 - SVOC
Date:	November 16, 2023

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.963	
NOZZLE DIAMETER	6.25	mm
DRY REF GAS VOLUME SAMPLED	4.724	m^3
AVGERGE ISOKINETICITY	101.6	%
STACK DIAMETER	1.47	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.70	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	195.8	^oC
AVERAGE GAS MOISTURE BY VOLUME	49.0	%
AVERAGE GAS VELOCITY	32.93	m/s
BAROMETRIC PRESSURE (Station)	99.831	Kpa
STATIC PRESSURE	0.164	Kpa
ABSOLUTE GAS PRESSURE	99.995	Kpa
OXYGEN CONCENTRATION	8.3	%
CARBON DIOXIDE CONCENTRATION	9.11	%
CARBON MONOXIDE CONCENTRATION	89.3	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	56.13	m^3/s
DRY REF GAS FLOWRATE	17.95	Rm^3/s
DRY ADJ GAS FLOWRATE	22.85	Rm^3/s
WET REF GAS FLOWRATE	35.23	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.724	m^3
PARTICULATE CONC. - ACTUAL		0.000	mg/m^3
PARTICULATE CONC. - DRY REF		0.000	mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000	mg/m^3
PARTICULATE CONC. - WET REF		0.000	mg/m^3
PARTICULATE EMISSION RATE		0.000000	g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	3 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 16, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.48 "Hg	**CWTR (g)**	3318.1		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	21.6		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.63 ft	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.3
CO2%	9.11
COppm	89.3

Measured H2O
49.0 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	58.75	1.6	374	50	61	59	1.3	3.0		30.04	
	3	60.67	1.6	373	44	61	60	1.3	3.0		30.03	**99.6**
	6	62.51	1.6	375	44	62	60	1.3	3.5		30.06	**95.3**
	9	64.43	1.6	375	44	61	60	1.3	3.5		30.06	**99.5**
2	12	66.39	1.6	375	43	61	60	1.3	3.5		30.06	**101.6**
	15	68.31	1.55	377	43	61	60	1.3	3.5		29.62	**99.6**
	18	70.26	1.55	378	43	61	60	1.3	3.5		29.64	**102.9**
	21	72.19	1.6	378	40	61	61	1.3	3.5		30.12	**101.9**
3	24	74.14	1.7	380	41	61	61	1.4	3.5		31.08	**101.2**
	27	76.15	1.65	379	40	62	61	1.4	3.5		30.60	**101.4**
	30	78.17	1.65	380	40	62	62	1.4	3.5		30.62	**103.2**
	33	80.18	1.7	381	40	62	61	1.4	3.5		31.10	**102.7**
4	36	82.21	1.7	381	40	63	62	1.4	3.5		31.10	**102.3**
	39	84.23	1.75	381	40	63	63	1.4	3.5		31.55	**101.6**
	42	86.24	1.7	382	41	63	63	1.4	3.5		31.12	**99.6**
	45	88.26	1.7	382	40	64	63	1.4	3.5		31.12	**101.6**
5	48	90.29	1.75	383	40	64	63	1.4	3.5		31.59	**102.0**
	51	92.30	1.75	383	40	64	63	1.4	3.5		31.59	**99.6**
	54	94.33	1.75	384	39	65	63	1.4	3.5		31.61	**100.6**
	57	96.35	1.75	387	40	65	63	1.4	3.5		31.66	**100.1**
6	60	98.38	2	387	40	66	64	1.6	3.5		33.85	**100.7**
	63	100.50	1.85	389	40	66	64	1.6	3.5		32.60	**98.3**
	66	102.63	2	392	40	66	64	1.6	3.5		33.95	**102.8**
	69	104.76	2	391	40	67	64	1.6	3.5		33.93	**99.0**
7	72	106.90	2	390	40	67	65	1.6	3.5		33.91	**99.3**
	75	109.04	2.15	390	41	67	65	1.8	4.0		35.16	**99.2**
	78	111.28	2.1	390	42	67	65	1.8	4.0		34.75	**100.2**
	81	113.54	2.1	390	42	67	65	1.8	4.0		34.75	**102.3**
8	84	115.80	2.15	390	42	68	66	1.8	4.0		35.16	**102.3**
	87	118.05	2.2	390	42	68	66	1.8	4.0		35.57	**100.4**
	90	120.35	2.2	391	42	68	66	1.8	4.0		35.59	**101.5**
	93	122.65	2.2	391	42	68	67	1.8	4.0		35.59	**101.5**
9	96	124.93	2.1	391	41	68	67	1.8	4.0		34.77	**100.6**
	99	127.23	2.1	392	42	69	67	1.8	4.0		34.79	**103.8**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	3 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 16, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.48 "Hg	**CWTR (g)**	3318.1		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	21.6		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.63 ft³	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.3
CO2%	9.11
COppm	89.3

Measured H2O
49.0 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	102	129.52	2.15	390	43	69	68	1.8	4.0		35.16	**103.3**
	105	131.80	2.1	390	43	70	68	1.8	4.0		34.75	**101.5**
10	108	134.09	2.3	390	45	70	68	1.9	4.0		36.37	**103.0**
	111	136.42	2.1	390	45	70	68	1.8	4.0		34.75	**100.2**
	114	138.71	2.1	389	45	70	68	1.8	4.0		34.73	**103.0**
	117	140.99	2.1	389	45	70	68	1.8	4.0		34.73	**102.5**
	120	143.33								0.63		**105.2**
1	0	143.96	1.9	384	55	72	70	1.6	4.0		32.94	
	3	146.13	1.9	384	54	72	70	1.6	4.0		32.94	**101.8**
	6	148.22	1.85	384	54	72	71	1.6	4.0		32.50	**98.1**
	9	150.35	1.85	384	47	71	71	1.6	4.0		32.50	**101.2**
2	12	152.38	1.85	385	47	71	71	1.6	4.0		32.52	**96.6**
	15	154.62	2	384	48	71	71	1.7	4.0		33.79	**106.6**
	18	156.80	1.85	385	49	71	71	1.7	4.0		32.52	**99.7**
	21	159.00	1.85	385	49	71	70	1.7	4.0		32.52	**104.7**
3	24	161.19	2	385	49	71	70	1.7	4.0		33.81	**104.3**
	27	163.39	2.05	384	50	71	71	1.7	4.0		34.21	**100.8**
	30	165.58	2.05	382	50	71	71	1.7	4.0		34.17	**99.0**
	33	167.83	2	381	51	72	71	1.7	4.0		33.73	**101.6**
4	36	170.07	2.2	381	51	72	71	1.8	4.0		35.38	**102.2**
	39	172.38	2.1	381	52	72	71	1.8	4.0		34.56	**100.5**
	42	174.66	2.1	381	53	72	72	1.8	4.0		34.56	**101.6**
	45	176.93	2.05	382	53	72	72	1.8	4.0		34.17	**101.0**
5	48	179.21	2.1	382	52	72	72	1.8	4.0		34.58	**102.8**
	51	181.48	2.1	382	54	73	72	1.8	4.0		34.58	**101.1**
	54	183.77	2.1	383	54	73	72	1.8	4.0		34.60	**101.9**
	57	186.05	2.1	383	54	73	72	1.8	4.0		34.60	**101.5**
6	60	188.33	2.15	384	55	73	72	1.8	4.0		35.03	**101.5**
	63	190.62	2.25	384	55	73	73	1.9	4.0		35.84	**100.8**
	66	192.93	2.15	384	55	74	73	1.9	4.0		35.03	**99.3**
	69	195.26	2.15	386	57	74	73	1.9	4.0		35.08	**102.4**
7	72	197.60	2.2	385	58	74	73	1.9	4.0		35.46	**103.0**
	75	199.92	1.9	385	59	74	73	1.7	4.0		32.95	**100.8**
	78	202.16	2	386	59	74	73	1.7	4.0		33.83	**104.7**

ORTECH Consulting Inc.

Plant:	Clean Harbors	**Plant Location:**	Corunna, ON
Test No.:	3 - SVOC	**Test Location:**	Incinerator Exhaust Stack
Date:	November 16, 2023	**Operator:**	DU

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.963	**Probe (mg)**	0		
Barometric Pressure	29.48 "Hg	**CWTR (g)**	3318.1		
Static Pressure	0.660 "H_2O	**WCBDA (g)**	21.6		
Nozzle	0.2459 inches				
Stack Diameter	4.833 ft	**Leak Check Volume**		0.63 ft	
Length	0.000 ft	**Reading Interval**		3 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		10	

Combustion Gases	
O2%	8.3
CO2%	9.11
COppm	89.3

Measured H2O
49.0 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	81	204.39	1.9	387	60	75	74	1.7	4.0		32.99	**101.7**
8	84	206.60	1.9	386	60	75	73	1.7	4.0		32.97	**103.2**
	87	208.82	1.8	387	61	75	74	1.6	4.0		32.11	**103.8**
	90	210.98	2	386	62	75	74	1.6	4.0		33.83	**103.7**
	93	213.14	1.8	387	62	75	74	1.6	4.0		32.11	**98.3**
9	96	215.30	1.7	387	64	75	74	1.6	4.0		31.21	**103.7**
	99	217.45	1.6	386	65	75	74	1.4	4.0		30.26	**106.2**
	102	219.49	1.6	387	63	75	74	1.4	4.0		30.28	**103.7**
	105	221.54	1.6	386	61	75	74	1.4	4.0		30.26	**104.3**
10	108	223.58	1.6	385	60	75	74	1.4	4.0		30.24	**103.7**
	111	225.60	1.6	384	57	76	75	1.4	4.0		30.22	**102.6**
	114	227.67	1.6	383	57	76	75	1.4	4.0		30.21	**104.9**
	117	229.69	1.6	383	56	76	75	1.4	4.0		30.21	**102.3**
	120	231.65										**99.3**

APPENDIX 19

ORTECH CEM Data
(30 pages)

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023

Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
09:33	9.35	8.46	0.8	65.6	8.0		136	149
09:34	8.95	8.78	0.6	61.3	8.0		142	151
09:35	9.26	8.58	0.7	57.9	8.2		139	151
09:36	8.74	8.96	0.8	67.3	9.6		136	145
09:37	8.97	8.80	0.8	53.0	7.8		134	147
09:38	8.48	9.16	0.6	76.3	11.9		130	139
09:39	9.00	8.76	0.7	60.1	8.3		121	135
09:40	8.60	9.06	0.7	49.2	7.5		143	152
09:41	9.24	8.56	0.7	43.5	5.6		133	146
09:42	8.99	8.76	0.6	43.3	6.0	8.1	149	159
09:43	9.27	8.54	0.6	44.7	5.9	7.9	142	154
09:44	9.00	8.76	0.8	52.5	6.7	7.7	143	154
09:45	9.08	8.68	0.8	46.1	5.9	7.5	139	151
09:46	8.83	8.88	0.6	53.5	7.7	7.3	140	151
09:47	9.08	8.69	0.5	50.1	6.7	7.2	130	141
09:48	8.91	8.82	0.4	50.2	6.4	6.7	144	156
09:49	9.14	8.62	0.4	42.6	5.6	6.4	139	149
09:50	9.07	8.71	0.5	49.6	6.4	6.3	144	157
09:51	9.10	8.67	0.5	44.6	6.2	6.3	142	152
09:52	9.04	8.72	0.5	41.2	5.9	6.3	142	155
09:53	8.79	8.89	0.4	45.8	6.5	6.4	135	144
09:54	8.83	8.88	0.3	46.6	6.9	6.4	135	147
09:55	8.65	8.98	0.2	51.9	8.6	6.7	127	136
09:56	8.96	8.77	0.3	47.7	6.4	6.6	135	150
09:57	8.84	8.84	0.4	62.1	8.6	6.8	142	152
09:58	9.29	8.52	0.4	57.5	6.3	6.7	140	153
09:59	8.98	8.74	0.2	42.9	5.4	6.7	145	155
10:00	9.29	8.53	0.2	59.1	7.2	6.8	140	153
10:01	8.81	8.88	0.1	64.8	9.0	7.1	139	148
10:02	9.12	8.65	0.2	59.8	7.1	7.2	138	150
10:03	8.74	8.93	0.3	59.7	7.7	7.3	137	147
10:04	9.26	8.54	0.1	60.2	7.1	7.3	135	148
10:05	8.81	8.88	0.1	52.7	6.1	7.1	145	155
10:06	9.45	8.38	0.1	48.6	5.3	7.0	140	152
10:07	9.07	8.69	0.2	56.2	6.7	6.8	145	155
10:08	9.31	8.50	0.3	55.6	6.4	6.8	138	150
10:09	8.92	8.81	0.1	53.9	7.1	7.0	138	149
10:10	8.97	8.75	0.1	58.4	8.0	7.0	133	145
10:11	8.58	9.06	0.1	65.9	10.6	7.2	132	143
10:12	8.88	8.81	0.0	68.1	9.4	7.4	120	131
10:13	8.86	8.84	0.1	55.0	7.4	7.4	146	158
10:14	9.13	8.60	0.1	59.9	7.7	7.5	136	147
10:15	9.16	8.62	0.2	68.6	7.9	7.6	143	156
10:16	9.17	8.59	0.2	57.1	6.9	7.8	140	149
10:17	9.16	8.62	0.1	55.9	6.6	7.8	139	152
10:18	8.96	8.76	0.0	67.6	8.9	8.0	136	145
10:19	9.04	8.70	0.0	59.9	7.1	8.0	139	150
10:20	8.95	8.75	0.0	63.0	8.6	8.1	134	143
10:21	9.10	8.67	0.0	68.1	8.1	7.8	140	152
10:22	8.91	8.79	0.1	75.4	8.9	7.8	141	150
10:23	9.39	8.45	0.1	55.5	5.9	7.7	138	152
10:24	9.10	8.65	0.1	56.7	6.9	7.6	143	154
10:25	9.36	8.48	0.2	56.4	5.9	7.4	138	150
10:26	8.84	8.86	0.0	50.1	7.0	7.4	137	146
10:27	9.06	8.70	0.0	61.1	7.7	7.5	135	145
10:28	8.62	9.01	0.0	62.9	8.7	7.5	130	139
10:29	9.17	8.61	0.0	55.5	6.9	7.4	131	143
10:30	8.77	8.92	0.0	46.6	6.4	7.2	143	153

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023

Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
10:31	9.33	8.49	0.0	48.7	6.3	7.0	134	148
10:32	9.02	8.74	0.3	57.6	7.6	6.9	143	154
10:33	9.26	8.55	0.2	47.9	6.0	6.9	135	145
10:34	8.90	8.83	0.0	43.8	6.4	6.9	141	151
10:35	9.03	8.70	0.0	46.1	5.8	6.9	135	146
10:36	8.89	8.82	0.0	41.9	5.8	6.8	143	153
10:37	9.12	8.62	0.0	45.5	6.2	6.6	131	145
10:38	8.98	8.75	0.1	43.5	5.9	6.3	147	159
10:39	9.31	8.47	0.2	44.3	5.7	6.2	138	149
10:40	9.33	8.49	0.2	73.9	8.2	6.4	144	156
10:41	9.21	8.57	0.1	56.2	6.6	6.4	137	146
10:42	8.99	8.81	0.0	50.4	7.6	6.4	139	151
10:43	8.84	8.92	0.0	51.9	7.4	6.6	133	142
10:44	8.83	8.93	0.0	52.1	8.9	6.8	137	149
10:45	8.80	8.93	0.0	54.1	8.0	7.0	128	138
10:46	9.04	8.78	0.0	51.3	6.7	7.1	142	157
10:47	8.96	8.79	0.0	53.9	7.3	7.2	144	154
10:48	9.34	8.54	0.0	50.1	5.7	7.2	140	155
10:49	9.04	8.74	0.0	58.2	7.4	7.4	145	155
10:50	9.28	8.57	0.0	51.0	6.5	7.2	141	152
10:51	8.88	8.85	0.0	53.2	7.5	7.3	141	151
10:52	9.08	8.71	0.0	54.1	7.8	7.3	140	152
10:53	8.64	9.00	0.0	58.7	9.1	7.5	133	142
10:54	9.17	8.63	0.0	48.8	6.6	7.3	132	148
10:55	8.74	8.94	0.0	54.3	7.9	7.3	146	156
10:56	9.46	8.40	0.0	66.7	8.2	7.4	135	149
10:57	9.02	8.74	0.0	62.5	7.7	7.4	144	154
10:58	9.27	8.53	0.0	55.4	7.4	7.6	138	150
10:59	8.85	8.86	0.0	61.6	9.0	7.8	139	149
11:00	8.96	8.77	0.0	55.5	7.9	7.9	133	146
11:01	8.63	9.03	0.0	56.9	9.0	8.1	137	146
11:02	8.93	8.79	0.0	58.1	8.4	8.1	121	135
11:03	8.71	8.97	0.0	48.9	7.9	8.0	146	157
11:04	9.08	8.67	0.2	55.3	7.9	8.1	132	143
11:05	9.02	8.74	0.2	58.4	8.0	8.1	146	158
11:06	9.10	8.67	0.1	57.4	7.5	8.1	140	149
11:07	8.98	8.78	0.0	55.1	8.5	8.2	142	154
11:08	8.84	8.86	0.0	57.6	7.9	8.2	134	144
11:09	8.85	8.88	0.0	107.9	19.8	9.3	136	149
11:10	9.07	8.67	0.0	49.7	6.0	9.1	140	152
11:11	9.28	8.55	0.0	42.2	4.9	8.7	150	166
11:12	8.94	8.77	0.0	55.8	8.8	8.7	143	152
11:13	9.23	8.59	0.2	59.6	8.0	8.7	138	153
11:14	8.88	8.82	0.2	56.9	8.4	8.8	143	152
11:15	9.09	8.70	0.1	45.5	6.7	8.6	138	150
11:16	8.67	9.00	0.1	46.2	7.6	8.6	137	146
11:17	8.90	8.82	0.0	50.3	7.8	8.6	136	148
11:18	8.45	9.15	0.0	62.9	11.4	8.9	128	137
11:19	9.01	8.75	0.0	56.1	8.0	7.7	127	143
11:20	8.57	9.08	0.0	49.7	8.3	8.0	144	153
11:21	9.21	8.60	0.0	41.6	5.7	8.1	133	148
11:22	8.88	8.85	0.1	43.3	7.2	7.9	148	158
11:23	9.11	8.67	0.2	43.8	6.8	7.8	137	149
11:24	8.77	8.93	0.2	50.5	8.8	7.8	143	153
11:25	8.94	8.80	0.3	41.1	5.8	7.7	135	148
11:26	8.69	8.99	0.3	39.2	7.2	7.7	142	152
11:27	9.03	8.73	0.3	37.7	5.6	7.5	128	142
11:28	8.81	8.91	0.3	36.5	5.7	6.9	150	162

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023

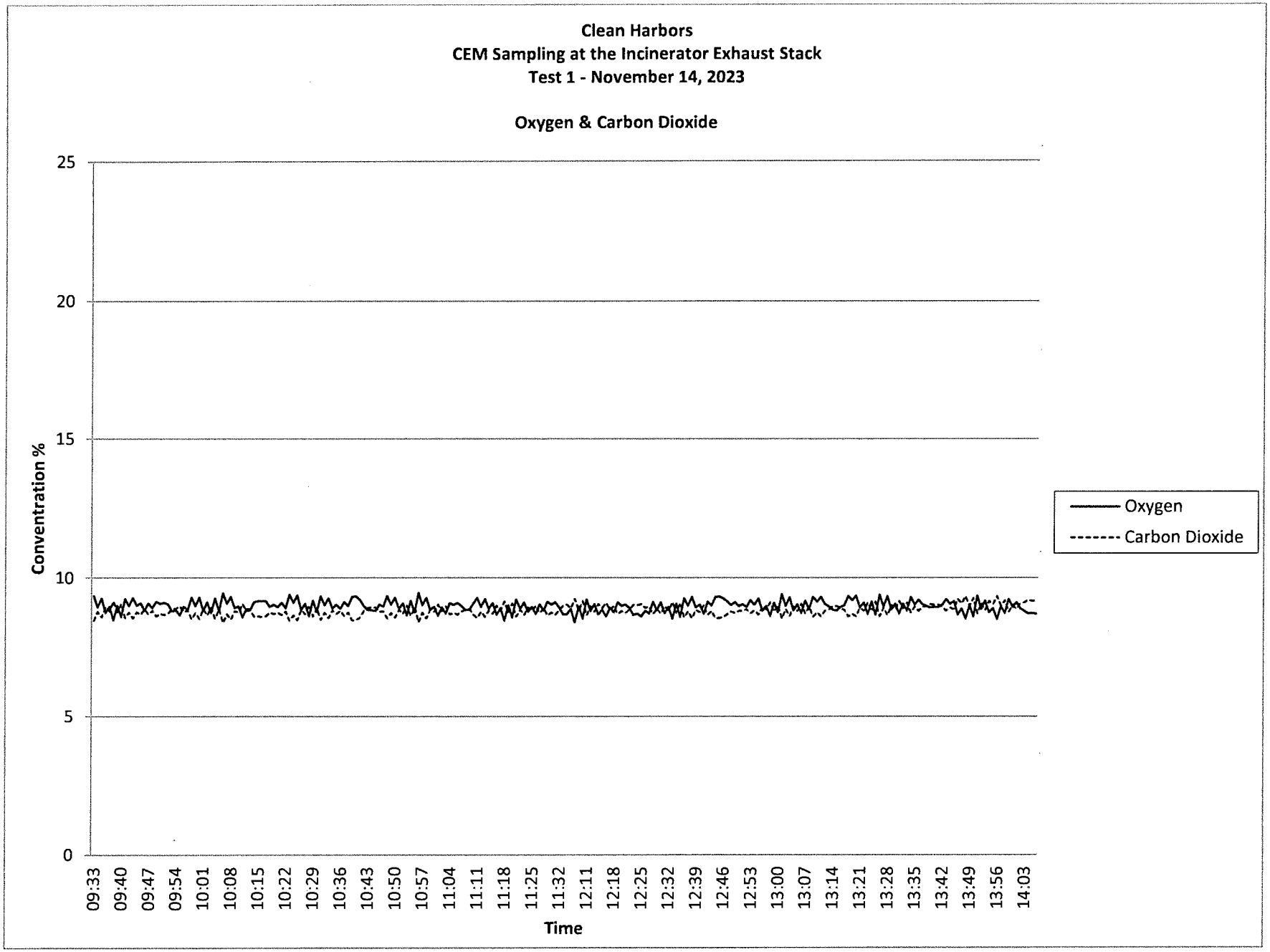
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
11:29	9.13	8.64	0.3	33.3	4.6	6.6	137	149
11:30	9.03	8.75	0.3	30.7	4.5	6.2	149	162
11:31	9.12	8.67	0.3	34.7	5.1	6.1	143	153
11:32	8.93	8.82	0.4	42.5	7.2	6.1	144	156
11:33	8.68	8.99	0.4	40.2	6.6	6.1	133	142
12:06	8.68	9.03	0.9	31.0	6.1		146	160
12:07	8.87	8.89	0.7	33.3	6.2		144	162
12:08	8.39	9.24	1.0	51.6	10.1		133	146
12:09	8.96	8.83	0.8	42.3	6.5		132	154
12:10	8.53	9.16	0.7	31.1	6.2		150	165
12:11	9.21	8.65	1.0	31.9	5.1		138	158
12:12	8.80	8.97	1.1	31.6	5.6		153	168
12:13	9.04	8.78	1.1	30.7	5.7		143	160
12:14	8.67	9.06	1.1	34.3	6.8		146	161
12:15	8.85	8.91	0.9	32.8	5.8	6.4	140	158
12:16	8.60	9.10	1.0	35.7	7.2	6.5	146	160
12:17	8.91	8.84	1.1	41.1	6.3	6.5	130	150
12:18	8.75	8.98	0.9	30.7	5.7	6.1	157	174
12:19	9.11	8.69	1.0	34.6	6.1	6.1	141	158
12:20	8.99	8.80	1.1	31.8	5.5	6.0	156	174
12:21	9.03	8.73	1.1	35.3	5.9	6.1	148	162
12:22	8.90	8.85	1.3	35.3	6.8	6.2	149	167
12:23	8.66	9.02	1.2	40.6	7.1	6.3	136	150
12:24	8.70	9.01	1.2	40.5	8.1	6.5	143	161
12:25	8.60	9.06	1.0	72.0	11.8	7.1	124	136
12:26	8.81	8.91	0.9	42.5	6.6	7.0	142	165
12:27	8.71	8.96	1.1	37.9	6.9	7.1	143	157
12:28	9.13	8.69	1.0	32.3	5.5	7.0	145	166
12:29	8.82	8.89	1.0	31.5	6.0	7.0	150	165
12:30	9.11	8.70	1.1	29.8	5.7	7.0	147	164
12:31	8.72	8.98	1.4	31.1	6.5	7.1	145	159
12:32	8.95	8.82	1.3	32.8	6.1	7.0	145	162
12:33	8.52	9.12	1.2	42.2	9.4	7.3	139	152
12:34	9.06	8.74	1.2	38.3	6.5	7.1	136	158
12:35	8.59	9.08	1.0	29.1	6.3	6.5	151	166
12:36	9.26	8.57	1.1	28.0	4.8	6.4	143	163
12:37	8.99	8.79	0.9	31.3	5.3	6.2	158	173
12:38	9.31	8.54	1.1	32.3	5.1	6.2	149	166
12:39	8.93	8.84	1.3	37.5	6.7	6.2	150	165
12:40	9.03	8.76	1.4	31.8	5.7	6.2	142	159
12:41	8.69	9.02	1.3	40.6	8.6	6.5	144	158
12:42	9.14	8.66	1.5	37.6	6.2	6.5	134	153
12:43	8.99	8.80	1.6	35.9	6.1	6.1	156	173
12:44	9.31	8.54	1.5	34.1	5.4	6.0	145	162
12:45	9.32	8.55	1.4	38.4	5.7	6.0	154	172
12:46	9.26	8.58	1.2	38.4	6.2	6.1	147	162
12:47	9.15	8.68	1.2	37.8	6.9	6.3	149	166
12:48	9.01	8.78	1.1	37.2	6.7	6.4	143	157
12:49	9.12	8.73	1.1	47.3	7.2	6.5	151	169
12:50	8.98	8.80	1.3	55.6	10.4	6.9	142	156
12:51	9.03	8.81	1.2	53.7	7.5	6.8	147	168
12:52	8.94	8.87	1.5	55.2	9.4	7.1	147	161
12:53	9.19	8.71	1.5	58.2	8.1	7.4	146	168
12:54	9.02	8.82	1.4	68.8	10.3	7.8	149	164
12:55	9.25	8.67	1.4	56.9	8.5	8.1	148	166
12:56	8.80	8.98	1.3	63.1	10.8	8.6	140	154
12:57	8.98	8.86	1.4	54.5	9.1	8.8	140	157
12:58	8.62	9.11	1.4	64.4	12.8	9.4	130	143

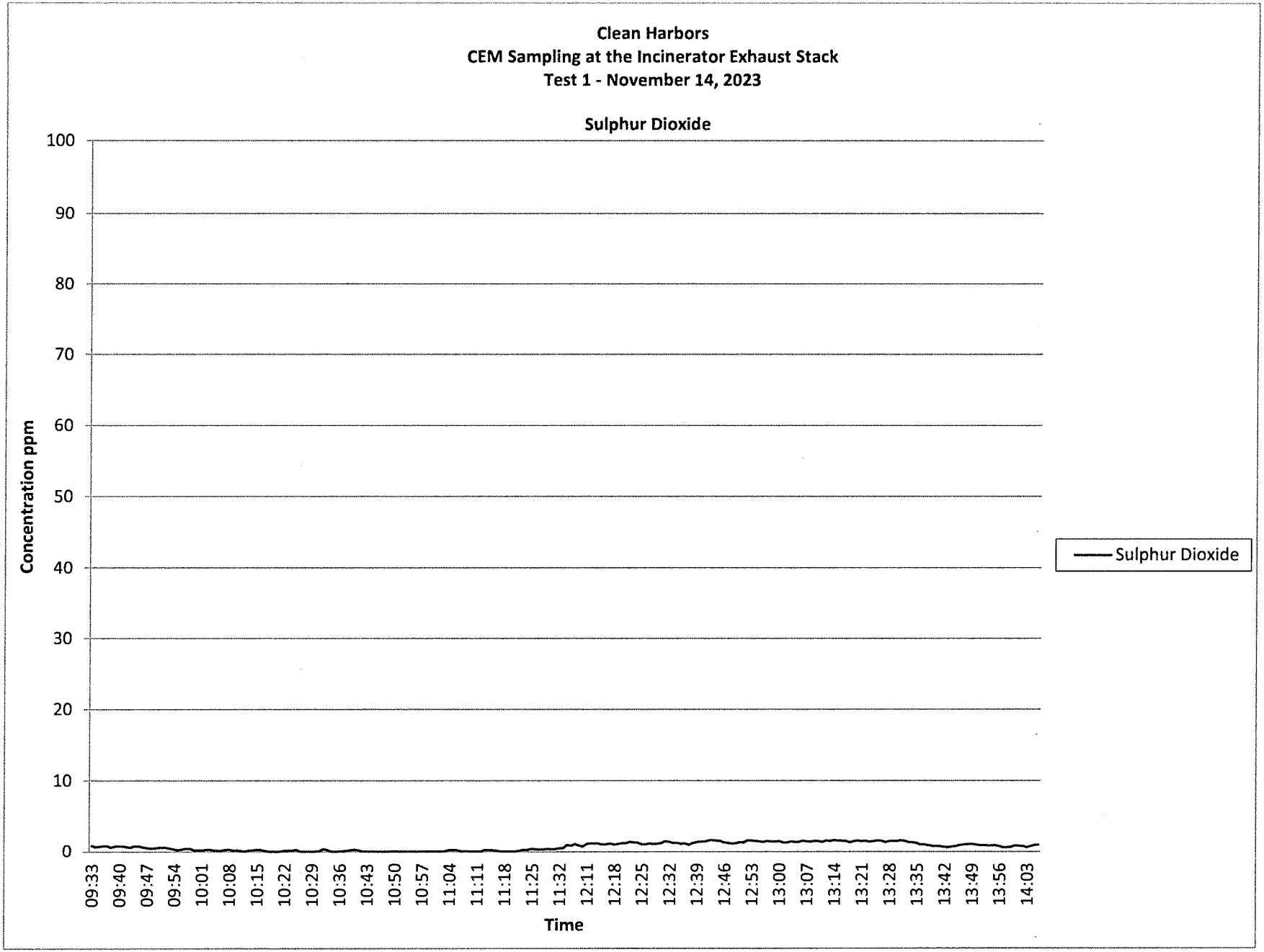
Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023

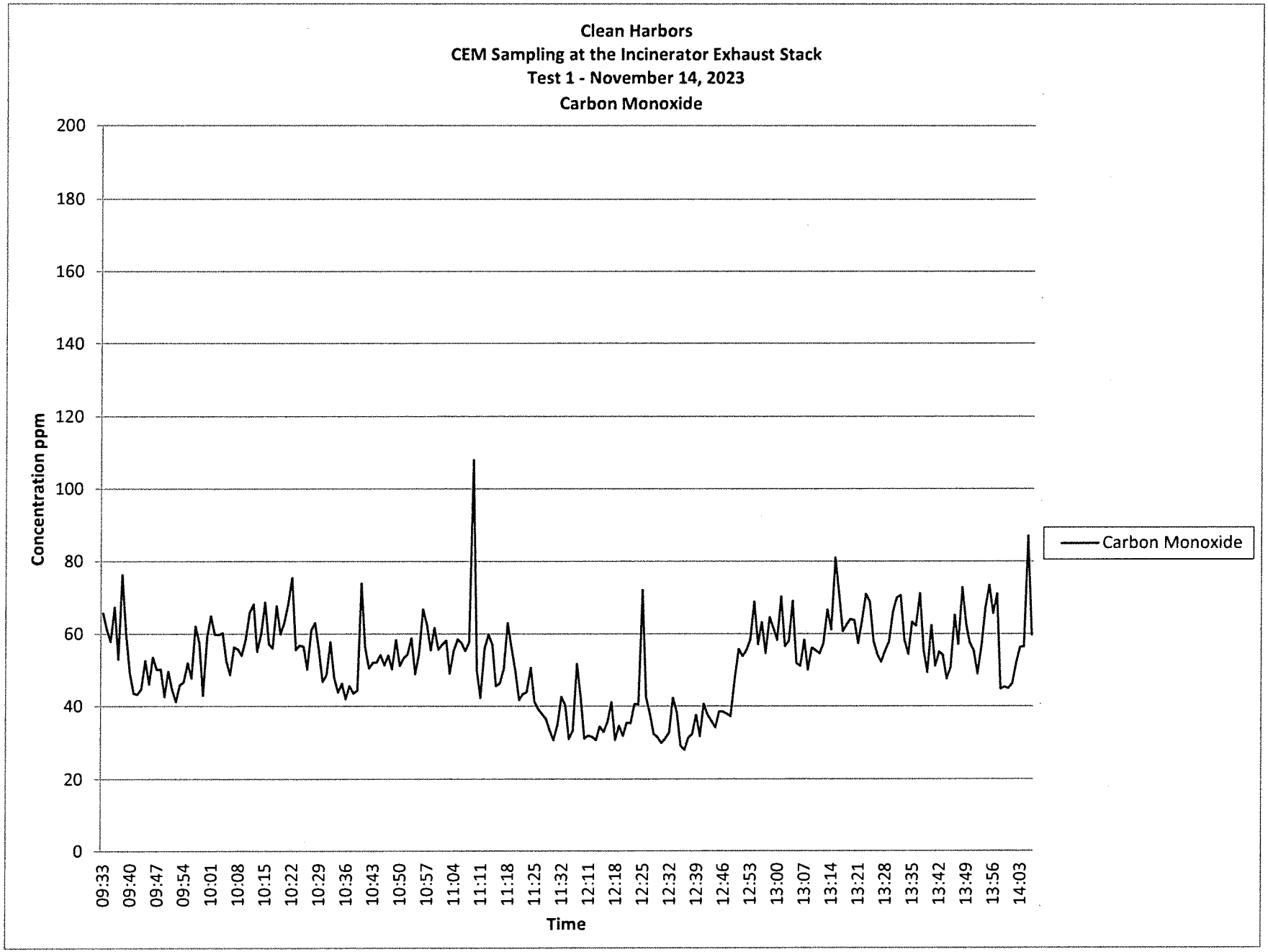
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
12:59	9.09	8.77	1.3	61.4	9.3	9.6	133	153
13:00	8.75	9.02	1.4	58.2	9.8	9.6	148	162
13:01	9.40	8.53	1.2	70.1	10.7	9.9	139	160
13:02	8.98	8.86	1.2	56.4	9.0	9.8	151	165
13:03	9.29	8.62	1.4	57.9	9.3	10.0	143	160
13:04	8.81	8.97	1.3	68.9	11.6	10.1	143	157
13:05	9.04	8.80	1.3	51.8	9.0	10.1	139	156
13:06	8.73	9.05	1.5	51.0	10.0	10.1	144	158
13:07	9.16	8.71	1.4	58.2	9.7	10.1	134	153
13:08	8.85	8.95	1.3	50.0	8.4	9.7	154	169
13:09	9.31	8.60	1.4	56.0	9.1	9.7	140	159
13:10	9.14	8.75	1.4	55.3	8.2	9.5	153	169
13:11	9.31	8.60	1.3	54.4	8.5	9.3	144	160
13:12	9.05	8.81	1.5	57.2	9.6	9.3	147	163
13:13	8.96	8.86	1.4	66.6	11.6	9.6	137	151
13:14	8.85	8.97	1.6	61.1	11.6	9.6	143	159
13:15	8.81	8.98	1.5	80.9	15.0	10.2	123	135
13:16	8.93	8.90	1.5	71.3	11.9	10.4	143	164
13:17	9.00	8.84	1.4	60.6	10.4	10.4	140	154
13:18	9.34	8.60	1.2	62.4	9.2	10.5	146	167
13:19	9.20	8.70	1.4	63.9	9.5	10.5	148	162
13:20	9.34	8.61	1.5	63.6	9.0	10.6	144	161
13:21	8.93	8.91	1.4	57.2	10.3	10.8	140	154
13:22	9.09	8.80	1.4	63.9	10.3	10.9	142	159
13:23	8.68	9.10	1.3	70.9	13.9	11.1	134	147
13:24	9.13	8.79	1.4	68.7	11.1	11.1	135	155
13:25	8.66	9.13	1.5	57.9	10.6	10.6	144	158
13:26	9.38	8.61	1.4	54.1	8.7	10.3	139	160
13:27	8.95	8.93	1.3	52.1	9.5	10.2	151	165
13:28	9.33	8.65	1.4	55.1	8.7	10.2	142	159
13:29	8.85	9.01	1.4	57.7	10.5	10.3	143	157
13:30	9.05	8.86	1.4	66.0	10.7	10.4	138	155
13:31	8.70	9.16	1.5	69.8	12.3	10.6	139	152
13:32	9.06	8.89	1.4	70.5	11.7	10.8	125	144
13:33	8.82	9.11	1.3	58.2	9.4	10.3	150	165
13:34	9.30	8.74	1.2	54.2	8.9	10.1	136	155
13:35	9.03	8.96	1.1	63.1	10.7	10.1	150	165
13:36	9.20	8.81	0.9	62.1	10.3	10.3	139	155
13:37	9.03	8.95	0.9	71.0	11.5	10.5	147	163
13:38	8.98	8.98	0.8	55.1	9.6	10.6	138	153
13:39	8.92	9.04	0.7	49.3	9.2	10.4	146	163
13:40	8.93	9.02	0.7	62.2	11.4	10.5	130	142
13:41	8.94	9.02	0.7	51.0	8.8	10.1	147	168
13:42	9.02	8.94	0.6	54.9	9.9	9.9	143	157
13:43	9.22	8.81	0.5	54.0	8.3	9.8	145	166
13:44	9.06	8.92	0.6	47.5	8.2	9.8	148	163
13:45	9.15	8.87	0.7	50.6	8.9	9.6	144	161
13:46	8.66	9.23	0.9	65.0	12.0	9.8	132	145
13:47	8.88	9.07	0.9	57.0	10.5	9.7	138	155
13:48	8.52	9.33	1.0	72.6	13.2	10.0	126	139
13:49	9.00	8.98	1.0	62.6	9.0	10.0	133	153
13:50	8.60	9.27	0.9	57.4	10.5	9.9	143	157
13:51	9.35	8.71	0.8	55.2	8.6	9.9	139	160
13:52	8.87	9.08	0.8	48.9	8.4	9.8	151	165
13:53	9.17	8.83	0.8	56.6	8.8	9.8	141	158
13:54	8.75	9.16	0.7	66.9	11.9	10.2	142	155
13:55	8.89	9.04	0.8	73.3	12.2	10.5	134	151
13:56	8.51	9.34	0.7	65.5	12.3	10.5	136	149

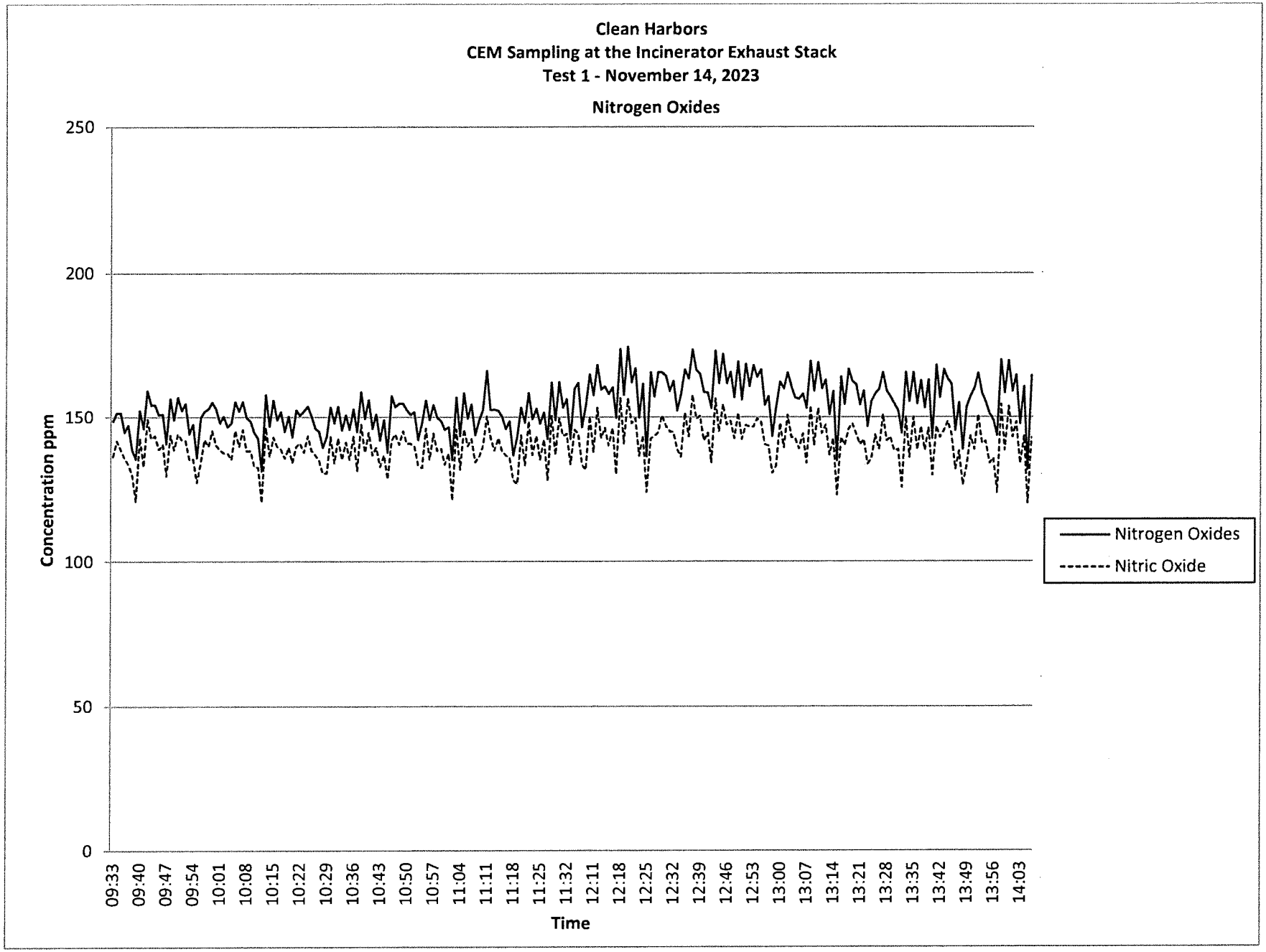
Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023

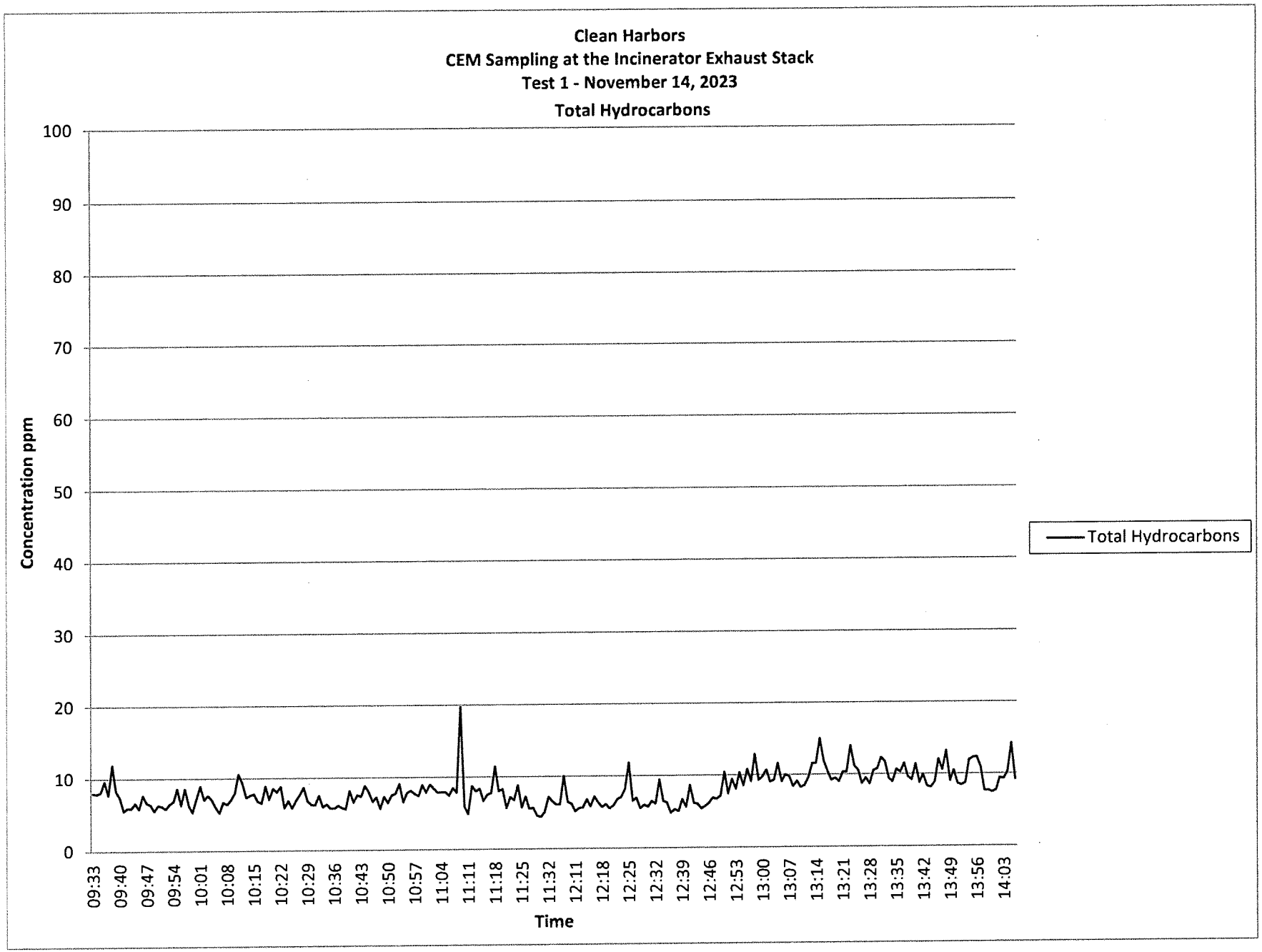
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
13:57	8.96	8.98	0.5	70.9	10.9	10.6	124	143
13:58	8.72	9.18	0.5	44.7	7.7	10.0	154	170
13:59	9.23	8.77	0.6	45.2	7.7	9.9	138	158
14:00	8.94	9.01	0.8	44.8	7.4	9.6	154	169
14:01	9.11	8.87	0.7	46.1	7.7	9.5	143	159
14:02	8.89	9.07	0.7	51.6	9.4	9.6	148	164
14:03	8.80	9.11	0.5	56.1	9.2	9.7	134	148
14:04	8.71	9.20	0.7	56.3	10.2	9.5	143	160
14:05	8.72	9.17	0.9	86.9	14.2	9.7	120	132
14:06	8.70	9.18	0.9	59.6	9.2	9.4	143	164
Min	8.39	8.38	0.0	28.0	4.5	6.0	120	131
Max	9.46	9.34	1.6	108	19.8	11.1	158	174
Avg	8.98	8.82	0.7	52.4	8.1	8.1	140	154


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023
Oxygen & Carbon Dioxide
Conventration %
25
20
15
10
5
0
09:33
09:40
09:47
09:54
10:01
10:08
10:15
10:22
10:29
10:36
10:43
10:50
10:57
11:04
11:11
11:18
11:25
11:32
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
13:42
13:49
13:56
14:03
Time
Oxygen
Carbon Dioxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023
Sulphur Dioxide
Concentration ppm
100
90
80
70
60
50
40
30
20
10
0
09:33
09:40
09:47
09:54
10:01
10:08
10:15
10:22
10:29
10:36
10:43
10:50
10:57
11:04
11:11
11:18
11:25
11:32
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
13:42
13:49
13:56
14:03
Time
Sulphur Dioxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023
Carbon Monoxide
Concentration ppm
200
180
160
140
120
100
80
60
40
20
0
09:33
09:40
09:47
09:54
10:01
10:08
10:15
10:22
10:29
10:36
10:43
10:50
10:57
11:04
11:11
11:18
11:25
11:32
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
13:42
13:49
13:56
14:03
Time
Carbon Monoxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023
Nitrogen Oxides
250
200
150
100
50
0
Concentration ppm
09:33
09:40
09:47
09:54
10:01
10:08
10:15
10:22
10:29
10:36
10:43
10:50
10:57
11:04
11:11
11:18
11:25
11:32
11:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
13:42
13:49
13:56
14:03
Time
Nitrogen Oxides
Nitric Oxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 1 - November 14, 2023
Total Hydrocarbons
Concentration ppm
100
90
80
70
60
50
40
30
20
10
0
09:33
09:40
09:47
09:54
10:01
10:08
10:15
10:22
10:29
10:36
10:43
10:50
10:57
11:04
11:11
11:18
11:25
11:32
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
13:42
13:49
13:56
14:03
Time
Total Hydrocarbons

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023

Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
08:49	8.64	9.29	15.7	102	23.4		155	227
08:50	8.51	9.35	15.7	106	23.6		146	209
08:51	8.77	9.17	15.8	93.3	18.9		154	201
08:52	8.55	9.32	20.6	104	22.3		157	199
08:53	9.09	8.92	24.2	92.7	17.7		154	218
08:54	8.79	9.12	31.8	104	19.6		162	228
08:55	9.11	8.89	33.9	102	19.8		154	227
08:56	8.64	9.25	27.5	124	24.9		155	224
08:57	8.77	9.14	21.2	119	24.5		150	220
08:58	8.34	9.48	20.6	144	33.1	22.8	146	196
08:59	8.77	9.13	27.0	122	23.3	22.8	139	189
09:00	8.42	9.41	32.2	106	23.9	22.8	159	213
09:01	8.99	8.94	21.6	108	20.4	22.9	147	225
09:02	8.62	9.25	22.9	109	24.1	23.1	160	215
09:03	8.85	9.07	26.8	101	22.1	23.6	149	206
09:04	8.45	9.38	28.9	114	26.8	24.3	151	216
09:05	8.60	9.25	29.0	104	21.8	24.5	146	216
09:06	8.39	9.43	28.9	107	27.7	24.8	153	220
09:07	8.58	9.27	25.6	118	24.9	24.8	137	219
09:08	8.48	9.36	20.9	100	23.1	23.8	156	196
09:09	8.63	9.22	22.3	130	29.4	24.4	143	186
09:10	8.89	9.02	26.5	85.5	16.8	23.7	157	179
09:11	8.94	8.97	29.2	96.3	18.1	23.5	157	186
09:12	8.91	9.02	26.0	108	20.8	23.1	154	212
09:13	8.65	9.20	27.6	117	23.3	23.3	150	208
09:14	8.75	9.13	26.4	118	23.5	22.9	151	200
09:15	8.55	9.28	25.3	134	26.2	23.4	143	193
09:16	8.85	9.07	25.3	112	19.1	22.5	145	205
09:17	8.68	9.18	31.5	127	23.7	22.4	151	212
09:18	9.14	8.86	35.5	120	19.0	22.0	144	207
09:19	8.80	9.09	32.9	129	22.7	21.3	150	209
09:20	9.10	8.88	25.1	148	24.7	22.1	142	219
09:21	8.64	9.23	23.9	177	31.0	23.4	141	220
09:22	8.90	9.02	25.8	146	24.2	23.7	141	207
09:23	8.60	9.25	28.7	166	29.5	24.4	141	198
09:24	9.06	8.91	32.3	142	21.9	24.2	134	212
09:25	8.70	9.19	33.1	172	28.8	24.5	145	201
09:26	9.31	8.70	32.6	151	22.2	24.8	137	195
09:27	9.04	8.93	27.7	147	22.7	24.7	147	191
09:28	9.26	8.75	23.4	145	20.8	24.9	140	197
09:29	8.97	8.98	17.8	144	23.4	24.9	143	193
09:30	9.02	8.93	17.7	144	22.1	24.7	140	176
09:31	8.83	9.09	25.3	166	29.8	24.6	142	170
09:32	8.95	8.99	35.0	177	28.3	25.0	132	169
09:33	8.83	9.09	32.1	135	22.6	24.3	149	183
09:34	9.09	8.87	25.2	116	18.2	23.9	146	201
09:35	9.15	8.85	21.9	109	18.0	22.8	151	202
09:36	9.10	8.86	22.4	106	16.9	22.3	151	202
09:37	9.16	8.84	21.3	89.3	16.0	21.6	154	203
09:38	8.93	9.00	15.8	86.9	15.1	21.0	154	202
09:39	9.05	8.92	15.5	82.4	15.5	20.3	156	200
09:40	8.89	9.02	22.8	87.0	16.5	19.7	152	205
09:41	9.09	8.89	28.2	85.3	15.4	18.2	155	213
09:42	8.83	9.06	26.8	88.4	17.0	17.1	159	206
09:43	9.34	8.70	20.4	79.5	14.0	16.2	153	210
09:44	8.99	8.95	19.5	87.3	15.5	16.0	160	218
09:45	9.30	8.72	22.2	85.7	16.0	15.8	153	225
09:46	8.82	9.08	26.9	104	19.4	16.0	153	198

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023

Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
09:47	8.98	8.96	18.0	92.3	17.1	16.1	152	187
09:48	8.57	9.27	17.6	100	21.2	16.8	152	189
09:49	9.05	8.90	21.7	92.1	17.7	17.0	146	211
09:50	8.64	9.20	24.6	97.2	19.1	17.2	159	212
09:51	9.18	8.76	25.2	74.5	14.3	17.1	152	218
09:52	8.94	8.97	27.3	79.7	15.9	17.0	162	221
09:53	9.18	8.78	30.5	82.2	15.1	17.1	155	213
09:54	8.82	9.07	23.9	97.4	19.8	17.6	156	216
09:55	8.86	9.01	20.6	91.9	17.1	17.7	151	223
09:56	8.70	9.14	21.3	87.8	18.8	17.6	157	216
09:57	8.88	8.99	25.7	91.3	18.6	17.8	147	207
09:58	8.79	9.06	26.3	82.2	16.9	17.3	161	204
09:59	9.00	8.87	27.9	84.7	16.4	17.2	155	212
10:00	9.06	8.85	30.4	74.4	14.2	16.7	160	209
10:01	9.02	8.86	28.5	82.6	16.4	16.9	159	195
10:02	9.00	8.89	23.0	85.7	17.7	17.1	156	216
10:03	8.72	9.09	23.7	87.6	18.6	17.4	153	232
10:04	8.85	8.98	30.1	80.6	17.6	17.2	156	214
10:05	8.69	9.08	28.4	92.9	19.7	17.5	152	202
10:06	8.94	8.92	24.4	77.7	15.8	17.2	155	192
10:07	8.71	9.04	27.8	78.4	16.3	16.9	161	209
10:08	9.22	8.67	29.6	69.9	14.6	16.7	156	219
10:09	8.81	8.97	24.7	82.0	16.6	16.7	160	201
10:10	9.15	8.71	18.0	75.9	16.2	16.9	156	189
10:11	8.83	8.91	18.1	88.4	18.4	17.1	156	184
10:12	10.44	7.77	18.9	67.7	16.4	17.0	135	189
10:13	8.48	9.20	28.2	80.4	18.6	17.0	156	218
10:14	8.91	8.87	39.3	74.8	15.5	16.8	151	238
10:15	8.53	9.16	42.6	77.6	16.6	16.5	165	228
10:16	9.11	8.73	31.8	71.6	14.0	16.3	155	217
10:17	8.81	8.98	28.5	70.2	15.2	16.2	166	210
10:18	9.05	8.81	20.8	66.2	14.1	16.2	158	198
10:19	8.81	9.01	17.7	66.8	14.5	15.9	163	198
10:20	8.97	8.87	26.6	72.4	13.7	15.7	159	211
10:21	8.85	8.99	36.2	76.5	16.2	15.5	160	209
10:22	9.03	8.85	24.0	78.0	14.7	15.3	150	217
10:23	8.92	8.96	10.6	78.2	15.4	15.0	161	227
10:24	9.16	8.76	10.1	83.3	14.9	14.9	154	224
10:25	9.20	8.75	11.5	90.1	16.1	14.9	155	226
10:26	9.17	8.77	18.2	88.6	16.0	15.1	155	217
10:27	9.15	8.77	20.1	98.5	17.8	15.3	153	210
10:28	8.90	8.94	21.3	96.7	17.6	15.7	150	197
10:29	8.97	8.91	20.8	105	20.0	16.2	151	198
10:30	8.77	9.05	20.2	113	21.8	17.1	146	200
10:31	9.05	8.86	20.9	103	18.6	17.3	150	200
10:32	8.83	9.01	25.0	112	19.4	17.8	153	195
10:33	9.35	8.67	28.9	91.0	15.5	17.8	149	192
10:34	9.00	8.96	20.0	99.1	17.6	18.0	154	192
10:35	9.30	8.74	12.6	92.5	17.8	18.2	149	199
10:36	8.91	9.04	16.8	132	23.4	18.9	149	211
10:37	9.14	8.88	28.7	103	17.9	18.9	148	205
10:38	8.81	9.14	30.0	112	21.5	19.3	149	202
10:39	9.21	8.83	30.0	109	18.1	19.1	145	210
10:40	8.81	9.15	22.4	104	19.5	18.9	155	224
10:41	9.41	8.69	21.1	91.3	15.5	18.6	148	232
10:42	9.12	8.94	28.4	91.3	16.5	18.3	157	218
10:43	9.33	8.76	31.4	95.2	16.6	18.4	151	200
10:44	8.97	9.06	30.1	103	19.9	18.7	151	193

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023

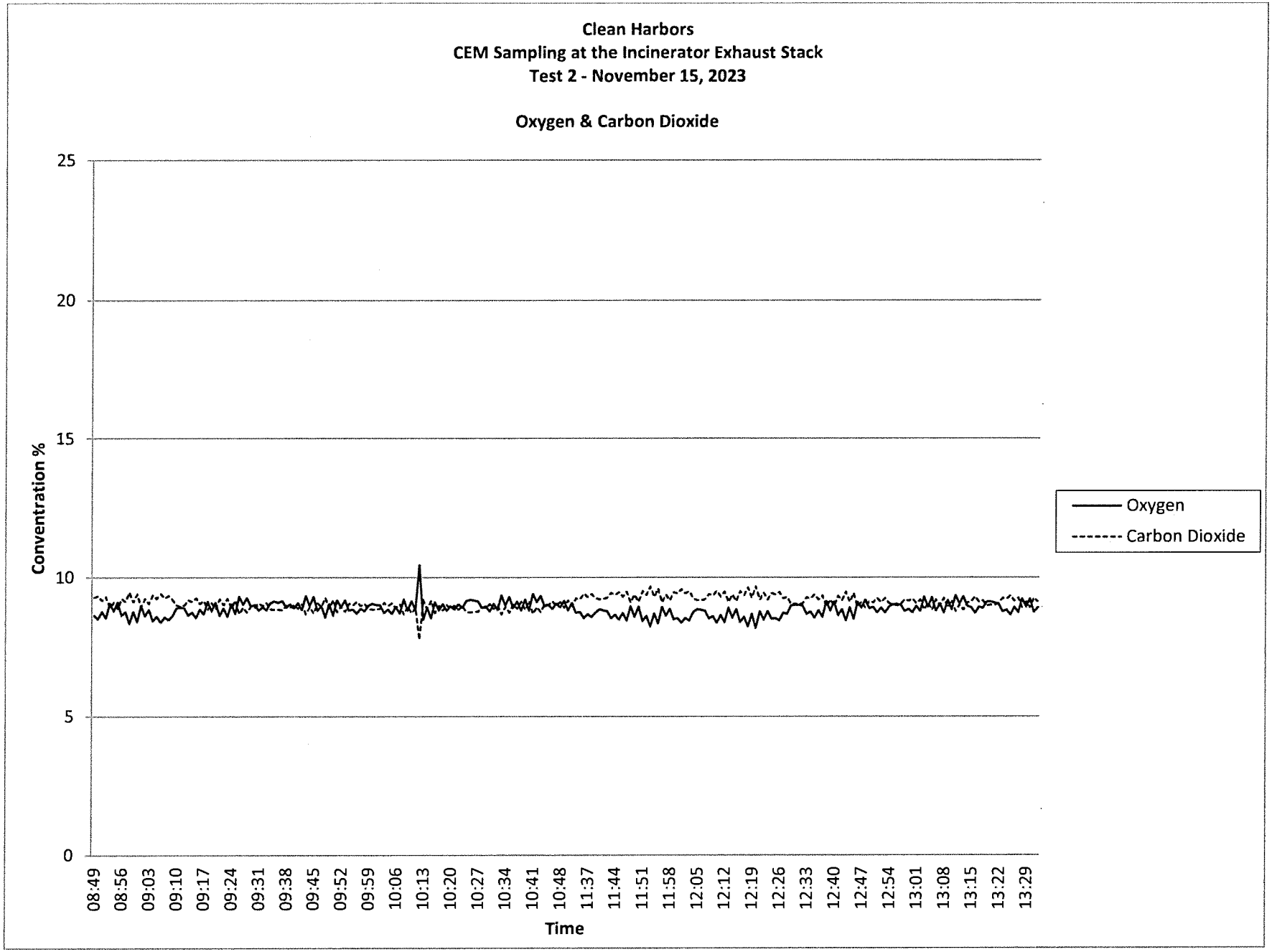
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
10:45	9.01	9.02	18.9	102	17.8	18.7	147	197
10:46	8.87	9.15	18.5	108	20.6	18.4	151	196
10:47	9.05	9.00	20.6	105	18.7	18.5	145	187
10:48	8.93	9.12	20.8	95.7	19.1	18.2	155	188
10:49	9.16	8.91	24.4	109	19.5	18.4	154	188
11:32	8.81	9.18	16.7	58.8	14.0		174	204
11:33	9.07	8.97	10.9	59.5	13.0		165	216
11:34	8.74	9.25	10.4	65.6	16.0		167	217
11:35	8.75	9.23	21.7	63.1	15.2		161	233
11:36	8.54	9.43	21.1	68.5	18.5		166	239
11:37	8.68	9.30	15.7	70.8	17.2		151	215
11:38	8.58	9.40	17.3	58.6	15.1		170	207
11:39	8.74	9.26	25.4	62.0	15.7		161	209
11:40	8.86	9.22	31.0	53.0	13.3		171	215
11:41	8.82	9.23	32.0	63.8	15.2	15.3	169	225
11:42	8.78	9.28	27.9	62.2	16.2	15.6	168	228
11:43	8.53	9.45	26.8	63.1	16.0	15.9	162	214
11:44	8.66	9.36	26.7	60.0	15.2	15.8	167	220
11:45	8.48	9.47	21.8	69.6	18.2	16.1	159	230
11:46	8.71	9.31	21.7	56.2	14.1	15.6	164	222
11:47	8.44	9.49	21.9	64.1	17.3	15.6	169	204
11:48	8.96	9.10	21.9	53.3	13.2	15.4	164	212
11:49	8.58	9.38	22.4	56.5	14.8	15.3	173	218
11:50	8.94	9.12	20.8	51.6	13.9	15.4	168	217
11:51	8.43	9.51	18.6	64.2	17.7	15.7	167	210
11:52	8.61	9.37	19.5	57.8	15.0	15.5	164	201
11:53	8.23	9.67	24.3	64.6	18.5	15.8	163	199
11:54	8.70	9.30	24.5	58.0	14.5	15.7	154	202
11:55	8.33	9.59	28.8	56.3	16.1	15.5	176	206
11:56	8.94	9.10	28.6	53.3	13.2	15.4	164	214
11:57	8.62	9.38	24.5	53.4	14.2	15.1	180	229
11:58	8.86	9.18	21.1	47.9	12.6	15.0	168	235
11:59	8.50	9.47	25.4	56.7	16.5	15.2	170	230
12:00	8.53	9.43	33.3	58.1	14.7	15.3	160	217
12:01	8.37	9.58	36.5	61.8	19.3	15.4	169	212
12:02	8.54	9.43	27.8	68.6	17.5	15.7	151	207
12:03	8.44	9.51	20.3	58.7	15.9	15.4	173	213
12:04	8.75	9.24	22.7	54.2	13.5	15.3	167	214
12:05	8.85	9.18	27.4	45.9	12.3	15.0	177	208
12:06	8.83	9.17	28.7	57.9	13.9	15.0	173	209
12:07	8.80	9.22	29.0	51.9	14.3	15.0	173	218
12:08	8.52	9.41	28.6	62.9	16.2	15.4	166	229
12:09	8.60	9.35	22.2	55.6	15.8	15.3	169	224
12:10	8.37	9.51	18.8	73.0	20.1	15.9	157	204
12:11	8.64	9.32	25.0	57.1	14.5	15.4	163	208
12:12	8.38	9.49	29.8	64.3	17.8	15.4	169	230
12:13	8.91	9.12	26.6	50.9	12.5	15.1	165	232
12:14	8.55	9.38	21.4	52.3	14.4	15.2	175	230
12:15	8.86	9.14	21.1	51.6	14.1	15.3	167	222
12:16	8.39	9.50	23.3	66.0	19.3	15.9	167	214
12:17	8.58	9.35	21.5	61.2	15.7	16.0	160	205
12:18	8.23	9.63	18.0	78.3	22.2	16.6	161	219
12:19	8.68	9.27	24.3	73.2	17.0	16.7	151	222
12:20	8.18	9.67	28.7	78.3	22.6	17.0	167	213
12:21	8.78	9.20	29.1	75.3	17.1	17.3	149	204
12:22	8.48	9.44	25.6	61.1	16.7	17.1	171	212
12:23	8.78	9.20	28.4	60.5	14.9	17.4	161	225
12:24	8.51	9.43	35.6	64.4	17.9	17.7	168	236

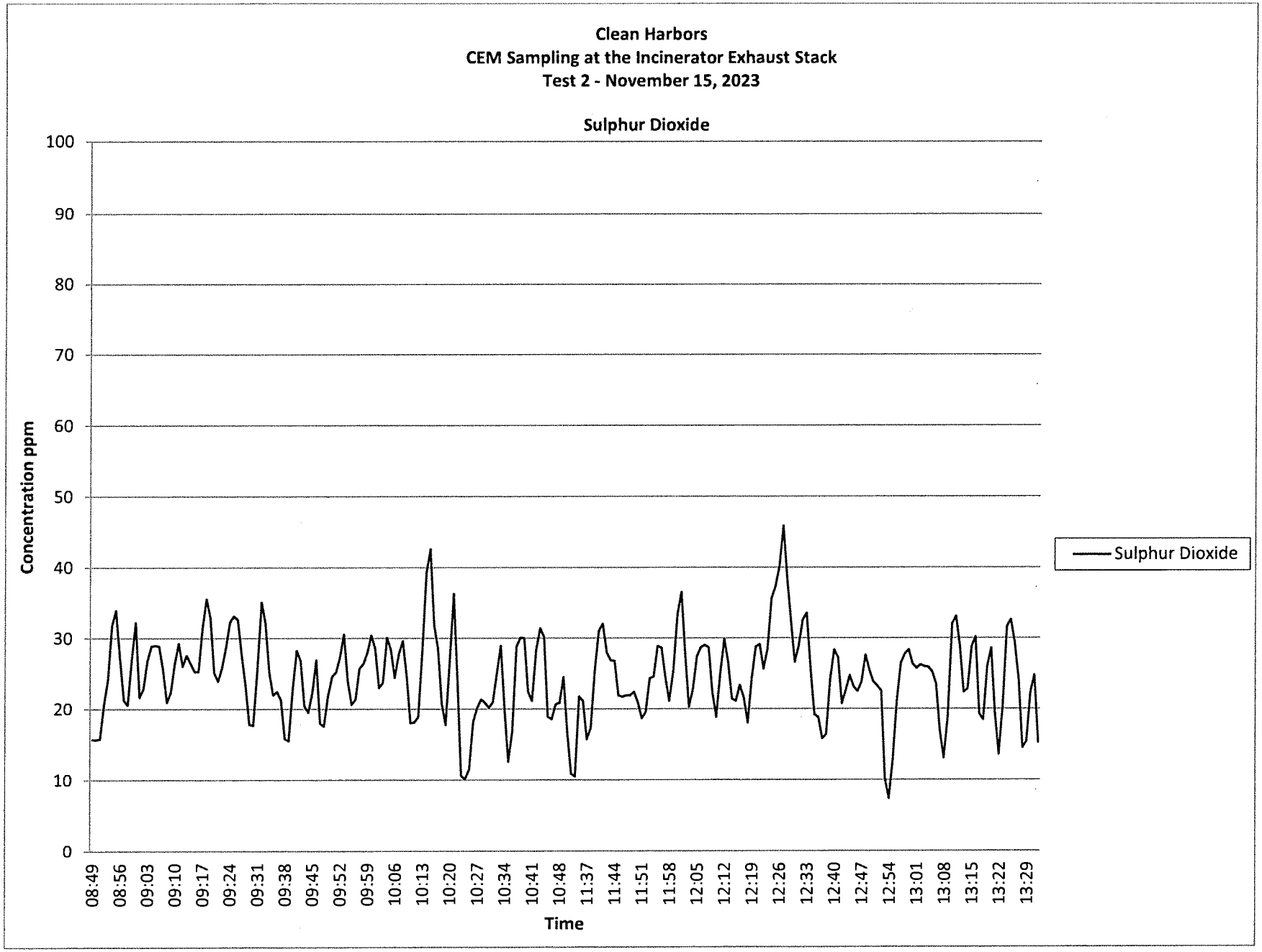
Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023

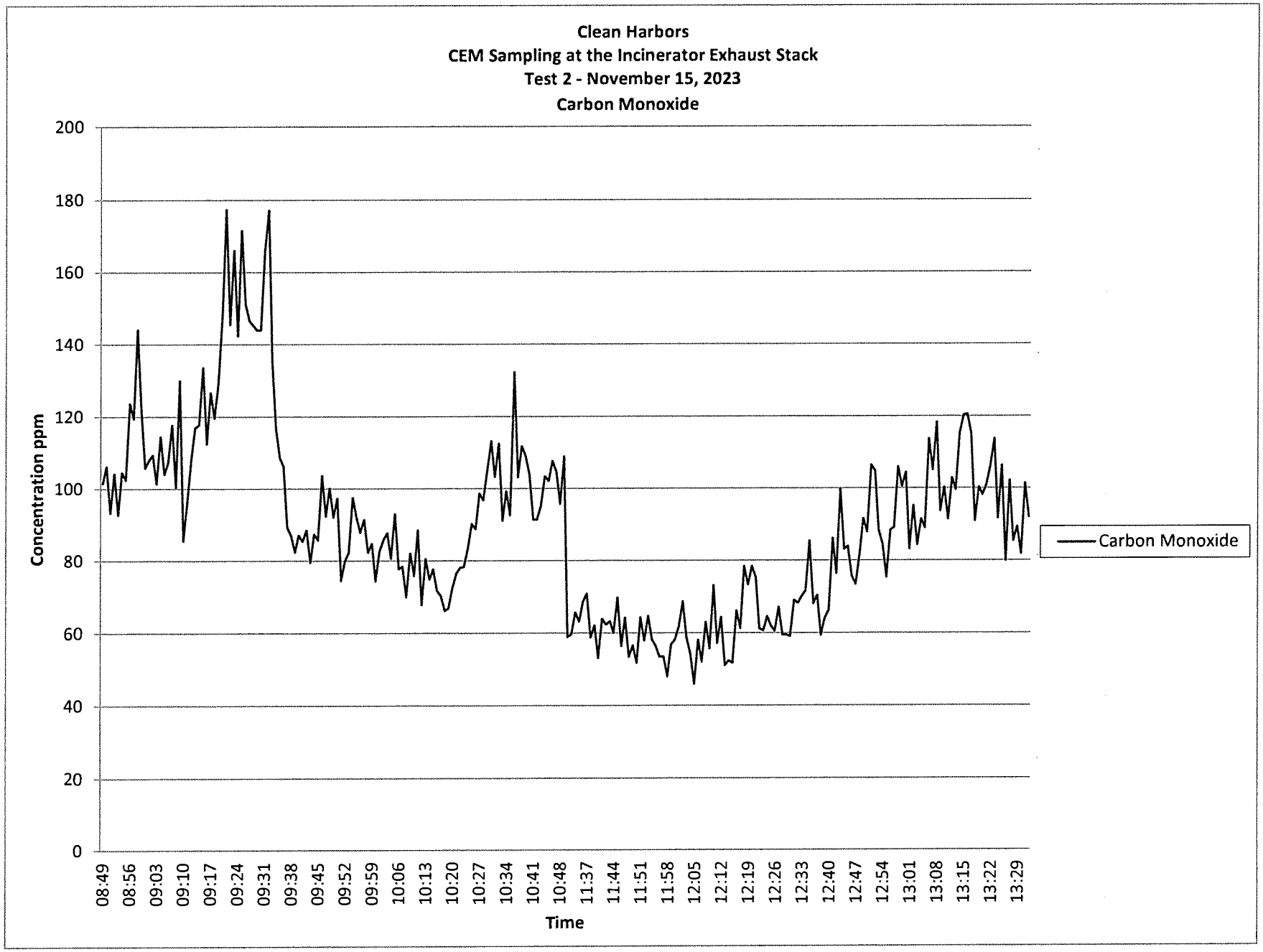
	O2	CO2	SO2	CO	THC (ppm)		NO	NOx
Time	%	%	ppm	ppm	1-min	10-min	ppm	ppm
12:25	8.53	9.39	37.3	61.8	15.0	17.8	158	232
12:26	8.45	9.47	40.2	60.4	16.3	17.5	168	228
12:27	8.72	9.25	45.9	67.0	16.0	17.6	156	226
12:28	8.68	9.29	38.4	59.4	13.9	16.7	173	219
12:29	8.99	9.04	32.3	59.4	13.5	16.4	166	226
12:30	9.01	9.05	26.5	58.9	13.4	15.5	169	232
12:31	9.01	9.02	28.9	68.9	14.2	15.2	168	247
12:32	8.98	9.07	32.6	68.1	15.8	15.1	164	230
12:33	8.68	9.29	33.5	70.1	16.4	15.2	160	208
12:34	8.76	9.23	25.5	71.5	17.9	15.2	163	204
12:35	8.55	9.38	19.2	85.3	20.8	15.8	152	225
12:36	8.81	9.20	18.8	68.0	15.3	15.7	161	238
12:37	8.57	9.35	15.8	70.3	16.7	15.8	165	236
12:38	9.14	8.94	16.4	59.2	12.8	15.7	161	220
12:39	8.80	9.20	24.1	64.1	14.9	15.8	169	217
12:40	9.13	8.96	28.3	66.2	14.6	15.9	162	208
12:41	8.63	9.33	27.2	86.0	20.2	16.5	159	204
12:42	8.84	9.17	20.7	76.3	16.9	16.6	157	204
12:43	8.45	9.48	22.6	99.7	25.0	17.5	156	208
12:44	8.91	9.11	24.7	83.0	17.6	17.5	147	224
12:45	8.50	9.43	23.1	83.8	20.1	17.4	165	225
12:46	9.11	8.94	22.4	75.6	15.2	17.4	153	230
12:47	8.90	9.12	23.8	73.3	16.5	17.4	167	234
12:48	9.19	8.89	27.6	81.6	15.5	17.6	159	215
12:49	8.89	9.14	25.5	91.5	18.7	18.0	158	204
12:50	8.93	9.09	23.8	87.7	17.2	18.3	152	203
12:51	8.74	9.26	23.2	106	23.2	18.6	155	203
12:52	8.90	9.10	22.5	105	20.9	19.0	144	203
12:53	8.74	9.25	10.2	88.3	18.5	18.3	158	206
12:54	8.94	9.07	7.3	84.5	17.2	18.3	154	211
12:55	9.03	9.03	12.8	75.3	15.9	17.9	159	227
12:56	8.99	9.04	21.2	88.2	17.7	18.1	157	240
12:57	9.02	9.04	26.4	89.1	18.1	18.3	157	221
12:58	8.78	9.21	27.7	106	21.4	18.9	152	207
12:59	8.86	9.15	28.3	100	20.0	19.0	154	206
13:00	8.74	9.23	26.3	104	22.8	19.6	149	214
13:01	8.97	9.07	25.7	83.1	16.1	18.9	154	218
13:02	8.78	9.20	26.2	95.1	19.0	18.7	159	212
13:03	9.30	8.83	25.9	84.3	15.5	18.4	152	197
13:04	8.93	9.09	25.8	91.4	17.7	18.4	158	211
13:05	9.29	8.83	25.2	88.9	17.8	18.6	153	224
13:06	8.79	9.20	23.5	114	21.9	19.0	153	230
13:07	9.05	8.99	16.9	105	19.7	19.2	151	217
13:08	8.72	9.26	13.0	118	21.9	19.2	149	210
13:09	9.18	8.90	18.7	93.7	17.1	18.9	147	217
13:10	8.85	9.18	32.0	100	18.6	18.5	157	220
13:11	9.35	8.78	33.0	91.3	16.0	18.5	147	216
13:12	9.06	9.02	28.8	103	19.3	18.5	154	205
13:13	9.31	8.83	22.3	99.5	17.3	18.7	147	193
13:14	8.97	9.09	22.7	115	22.0	19.2	149	189
13:15	8.92	9.13	28.8	120	22.9	19.7	143	198
13:16	8.71	9.31	30.1	120	25.7	20.0	149	193
13:17	8.94	9.12	19.3	115	21.5	20.2	139	187
13:18	8.90	9.17	18.4	90.9	18.1	19.8	156	208
13:19	9.12	8.98	25.9	100	18.7	20.0	149	233
13:20	9.12	9.01	28.5	98.1	18.1	20.0	151	229
13:21	9.09	9.01	19.4	101	19.8	20.3	151	220
13:22	9.04	9.08	13.6	106	21.2	20.5	150	204

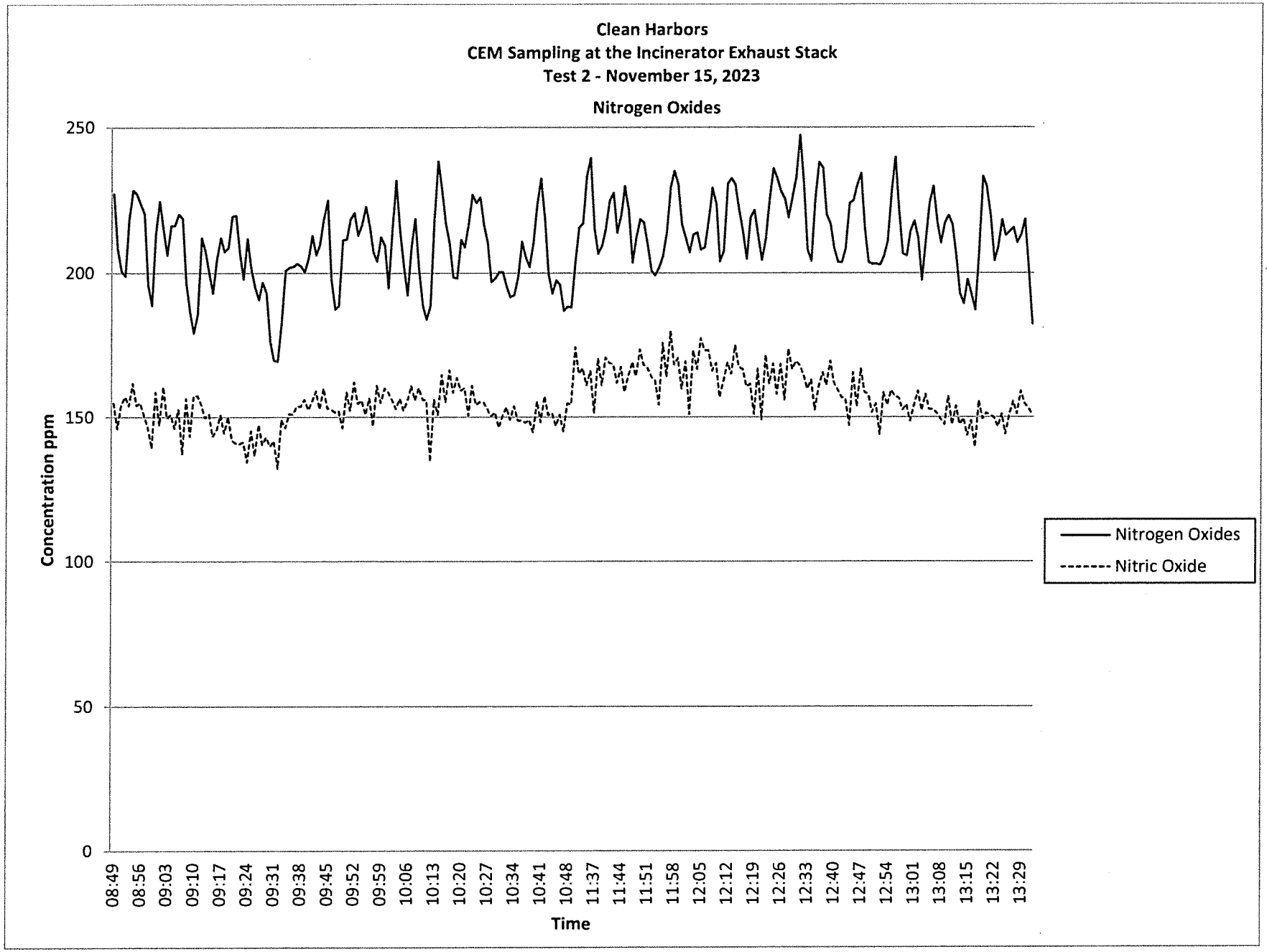
Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023

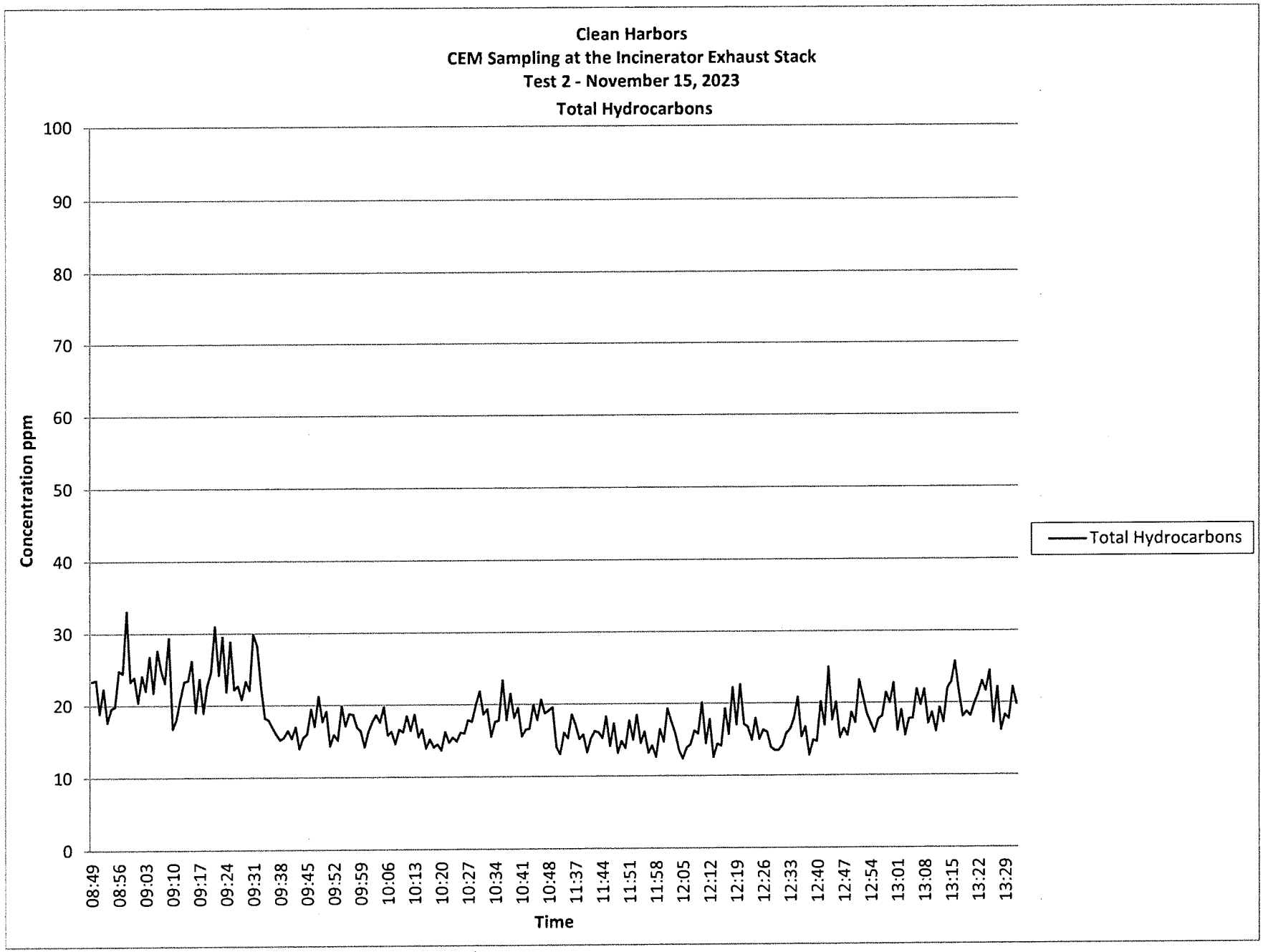
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
13:23	8.76	9.26	20.5	114	23.0	21.1	147	209
13:24	8.83	9.22	31.6	91.6	21.6	21.1	151	218
13:25	8.65	9.34	32.6	106	24.4	21.2	144	213
13:26	8.93	9.15	29.4	79.8	17.2	20.4	151	214
13:27	8.74	9.27	24.0	102	22.1	20.4	155	215
13:28	9.22	8.91	14.5	85.3	16.2	20.2	151	210
13:29	8.93	9.13	15.4	89.2	18.3	20.2	159	213
13:30	9.23	8.91	22.3	81.8	17.7	20.1	155	218
13:31	8.75	9.26	24.7	101	22.1	20.4	153	202
13:32	8.92	9.13	15.2	91.9	19.7	20.2	151	182
Min	8.18	7.77	7.3	45.9	12.3	14.9	132	169
Max	10.44	9.67	45.9	177	33.1	25.0	180	247
Avg	8.85	9.11	24.5	89.7	18.4	18.4	156	211


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023
Oxygen & Carbon Dioxide
Conventration %
25
20
15
10
5
0
08:49
08:56
09:03
09:10
09:17
09:24
09:31
09:38
09:45
09:52
09:59
10:06
10:13
10:20
10:27
10:34
10:41
10:48
11:37
11:44
11:51
11:58
12:05
12:12
12:19
12:26
12:33
12:40
12:47
12:54
13:01
13:08
13:15
13:22
13:29
Time
Oxygen
Carbon Dioxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023
Sulphur Dioxide
Concentration ppm
100
90
80
70
60
50
40
30
20
10
0
08:49
08:56
09:03
09:10
09:17
09:24
09:31
09:38
09:45
09:52
09:59
10:06
10:13
10:20
10:27
10:34
10:41
10:48
11:37
11:44
11:51
11:58
12:05
12:12
12:19
12:26
12:33
12:40
12:47
12:54
13:01
13:08
13:15
13:22
13:29
Time
Sulphur Dioxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023
Carbon Monoxide
Concentration ppm
200
180
160
140
120
100
80
60
40
20
0
08:49
08:56
09:03
09:10
09:17
09:24
09:31
09:38
09:45
09:52
09:59
10:06
10:13
10:20
10:27
10:34
10:41
10:48
11:37
11:44
11:51
11:58
12:05
12:12
12:19
12:26
12:33
12:40
12:47
12:54
13:01
13:08
13:15
13:22
13:29
Time
Carbon Monoxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023
Nitrogen Oxides
Concentration ppm
250
200
150
100
50
0
08:49
08:56
09:03
09:10
09:17
09:24
09:31
09:38
09:45
09:52
09:59
10:06
10:13
10:20
10:27
10:34
10:41
10:48
11:37
11:44
11:51
11:58
12:05
12:12
12:19
12:26
12:33
12:40
12:47
12:54
13:01
13:08
13:15
13:22
13:29
Time
Nitrogen Oxides
Nitric Oxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 2 - November 15, 2023
Total Hydrocarbons
Concentration ppm
100
90
80
70
60
50
40
30
20
10
0
08:49
08:56
09:03
09:10
09:17
09:24
09:31
09:38
09:45
09:52
09:59
10:06
10:13
10:20
10:27
10:34
10:41
10:48
11:37
11:44
11:51
11:58
12:05
12:12
12:19
12:26
12:33
12:40
12:47
12:54
13:01
13:08
13:15
13:22
13:29
Time
Total Hydrocarbons

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023

Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
09:11	9.37	8.27	42.8	129	15.7		124	160
09:12	8.84	8.67	44.2	132	14.8		130	166
09:13	9.22	8.40	43.4	110	12.7		122	157
09:14	8.64	8.82	39.1	139	12.5		132	166
09:15	8.81	8.71	39.2	132	13.2		139	175
09:16	8.30	9.09	42.0	184	13.6		136	176
09:17	8.79	8.71	47.8	162	16.3		117	158
09:18	8.50	8.94	57.1	105	18.0		119	158
09:19	8.93	8.61	58.4	109	18.3		124	161
09:20	8.75	8.75	57.6	84.6	16.9	15.2	121	156
09:21	8.83	8.65	56.7	92.1	13.6	15.0	123	161
09:22	8.66	8.78	57.7	85.6	11.0	14.6	119	159
09:23	8.47	8.83	51.2	97.5	11.1	14.4	126	165
09:24	8.69	8.68	44.0	88.5	11.7	14.4	138	175
09:25	8.32	8.89	43.8	111	11.9	14.2	144	182
09:26	8.80	8.51	44.3	90.1	11.9	14.1	163	199
09:27	8.51	8.77	44.7	84.9	12.0	13.6	167	203
09:28	8.97	8.36	47.3	76.1	11.8	13.0	160	199
09:29	8.86	8.50	53.9	73.1	11.1	12.3	154	195
09:30	8.87	8.42	53.6	75.8	9.3	11.5	151	191
09:31	8.88	8.51	53.3	79.3	9.8	11.2	154	192
09:32	8.60	8.64	47.9	88.7	11.5	11.2	158	195
09:33	8.54	8.74	46.8	103	12.6	11.4	146	185
09:34	8.33	8.80	47.0	125	13.9	11.6	127	166
09:35	8.57	8.67	47.4	90.4	14.7	11.9	138	182
09:36	8.44	8.69	48.2	94.1	14.3	12.1	158	200
09:37	8.83	8.46	51.3	76.9	12.8	12.2	153	189
09:38	8.57	8.60	43.2	83.4	11.7	12.2	133	164
09:39	8.86	8.41	36.5	72.9	11.4	12.2	131	165
09:40	8.55	8.64	33.3	81.9	11.3	12.4	146	185
09:41	8.55	8.55	39.8	82.8	11.2	12.6	165	204
09:42	8.98	7.95	51.1	82.9	11.3	12.5	163	200
09:43	9.63	8.40	55.8	81.4	13.4	12.6	137	177
09:44	9.30	8.43	59.1	81.2	16.2	12.8	129	169
09:45	9.20	8.39	62.0	81.0	16.7	13.0	146	189
09:46	9.17	8.20	58.0	80.8	15.5	13.1	150	192
09:47	9.18	8.09	55.7	80.8	13.3	13.2	126	167
09:48	8.98	8.40	55.8	80.5	12.2	13.2	133	171
09:49	9.63	8.43	56.2	80.7	12.5	13.3	148	186
09:50	9.30	8.39	61.7	81.3	15.6	13.8	153	195
09:51	9.20	8.20	61.9	81.7	16.6	14.3	144	186
09:52	9.00	8.09	54.9	83.1	16.6	14.8	152	189
09:53	8.90	8.30	42.8	86.9	15.3	15.0	164	201
09:54	8.98	8.36	40.8	104	13.9	14.8	160	198
09:55	8.80	8.51	44.8	103	11.7	14.3	153	188
09:56	8.44	8.76	45.0	125	11.4	13.9	146	184
09:57	8.59	8.66	45.9	118	11.4	13.7	138	176
09:58	8.34	8.80	49.0	159	11.0	13.6	142	179
09:59	8.63	8.60	54.1	120	11.2	13.5	147	187
10:00	8.25	8.87	53.6	135	12.5	13.1	154	191
10:01	8.82	8.46	48.4	119	13.1	12.8	144	179
10:02	8.23	8.89	45.5	133	13.0	12.4	132	167
10:03	8.52	8.67	44.0	119	13.2	12.2	129	165
10:04	7.94	9.11	43.0	141	14.7	12.3	133	168
10:05	8.13	8.96	44.9	124	15.6	12.7	137	174
10:06	7.63	9.33	51.7	162	15.8	13.1	139	177
10:07	8.17	8.93	59.5	130	17.5	13.7	152	192
10:08	7.77	9.23	61.4	106	18.2	14.5	150	196

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023

Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
10:09	8.29	8.83	62.1	103	18.3	15.2	153	193
10:10	8.05	9.02	61.8	88.3	15.8	15.5	161	199
10:11	8.22	8.88	59.2	91.0	14.6	15.7	165	200
10:12	7.85	9.18	56.2	97.4	14.2	15.8	158	196
10:13	7.85	9.18	56.3	103	14.1	15.9	152	191
10:14	7.69	9.33	57.0	97.7	14.0	15.8	146	185
10:15	7.86	9.19	60.5	141	14.1	15.7	142	183
10:16	7.69	9.34	68.4	85.0	15.8	15.7	133	178
10:17	7.80	9.27	69.2	115	16.7	15.6	134	178
10:18	8.07	9.08	69.8	70.5	17.3	15.5	138	183
10:19	8.07	9.08	70.4	74.9	17.1	15.4	145	186
10:20	8.14	9.06	66.3	73.7	14.4	15.2	150	193
10:21	7.77	9.42	53.0	93.7	13.2	15.1	141	182
10:22	7.85	9.44	49.3	92.8	12.3	14.9	126	165
10:23	7.56	9.67	58.3	135	12.3	14.7	137	176
10:24	8.01	9.36	61.8	89.2	14.3	14.8	137	175
10:25	7.63	9.65	64.2	97.4	15.8	14.9	128	165
10:26	8.38	9.11	66.9	68.8	15.5	14.9	137	176
10:27	7.99	9.40	63.7	67.4	13.9	14.6	148	186
10:28	8.38	9.12	53.4	63.6	13.4	14.2	156	195
10:29	7.88	9.51	51.4	75.2	12.7	13.8	150	190
10:30	8.07	9.36	50.5	75.3	12.2	13.6	146	185
10:31	7.62	9.71	53.4	105	12.3	13.5	151	190
10:32	8.09	9.35	62.8	107	13.6	13.6	156	195
10:33	7.61	9.73	68.0	88.2	14.4	13.8	156	196
10:34	8.16	9.33	68.0	103	15.2	13.9	166	208
10:35	7.82	9.58	68.7	74.6	15.4	13.8	175	215
10:36	8.11	9.35	69.2	81.4	15.4	13.8	185	225
10:37	7.90	9.53	68.0	68.1	14.1	13.9	173	213
10:38	7.89	9.54	65.0	86.3	13.0	13.8	176	217
10:39	7.76	9.63	58.3	89.4	13.0	13.8	163	204
10:40	7.91	9.46	57.0	121	13.2	13.9	159	199
10:41	7.95	9.44	57.0	72.3	15.0	14.2	165	201
10:42	7.99	9.19	63.8	77.8	15.9	14.4	174	210
10:43	8.38	9.34	66.5	6.2	15.4	14.5	173	212
10:44	7.88	9.27	60.9	19.9	14.7	14.5	180	222
10:45	8.07	9.08	53.7	66.7	14.5	14.4	179	220
10:46	7.62	9.08	53.5	101	14.2	14.3	176	216
10:47	8.09	9.06	53.7	86.4	12.6	14.2	170	208
10:48	7.61	9.42	59.1	119	12.6	14.1	152	192
10:49	8.16	9.44	63.7	63.4	14.1	14.2	137	178
10:50	7.82	9.67	67.7	5.7	15.2	14.4	142	183
10:51	8.11	9.36	67.4	4.8	15.7	14.5	150	192
10:52	7.90	9.65	61.4	4.5	14.4	14.3	158	199
10:53	7.89	9.11	56.0	4.3	12.2	14.0	160	202
10:54	7.76	9.40	51.6	4.2	10.4	13.6	161	200
10:55	7.91	9.12	47.9	3.8	10.9	13.2	160	195
10:56	7.99	9.51	52.7	2.9	12.5	13.1	161	197
10:57	8.38	9.19	54.8	0.2	13.0	13.1	155	194
10:58	7.88	9.34	55.3	0.1	13.0	13.1	137	184
10:59	8.07	9.27	55.4	0.0	13.0	13.0	144	190
11:00	7.62	9.08	54.1	0.0	12.3	12.7	153	194
11:01	8.09	9.08	49.4	0.0	11.5	12.3	146	186
11:02	7.61	9.06	47.1	0.0	10.9	12.0	142	184
11:03	8.16	9.42	48.3	0.0	10.3	11.8	157	199
11:04	7.82	9.44	53.8	0.0	10.1	11.7	143	184
11:05	8.11	9.67	57.4	23.8	11.4	11.8	128	169
11:06	7.90	9.36	58.7	11.3	12.3	11.8	135	176

Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023

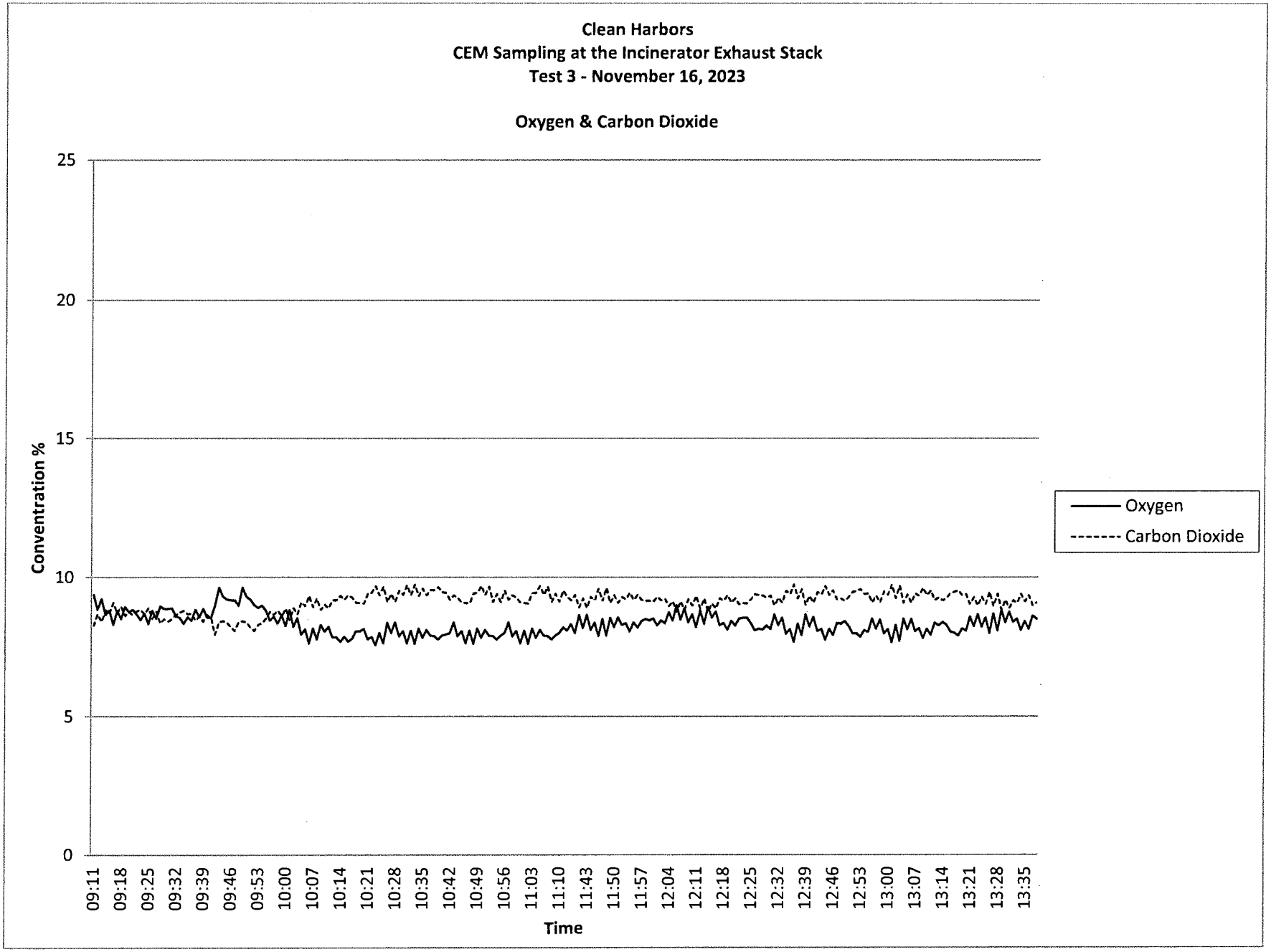
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
11:07	7.89	9.65	60.4	8.8	12.1	11.7	151	194
11:08	7.76	9.11	48.8	9.6	10.2	11.4	161	201
11:09	7.91	9.40	41.8	8.2	10.4	11.1	152	190
11:10	8.00	9.12	38.0	8.6	10.3	10.9	135	173
11:11	8.20	9.51	41.1	9.0	10.3	10.8	142	179
11:38	8.08	9.29	43.0	148	13.8		152	191
11:39	8.31	9.17	51.3	99.8	18.3		156	201
11:40	8.00	9.36	50.5	106	19.9		144	186
11:41	8.63	8.91	48.4	80.9	19.5		135	172
11:42	8.17	9.23	57.4	85.1	17.1		137	174
11:43	8.65	8.89	57.0	71.9	15.6		141	180
11:44	8.11	9.29	50.3	95.1	14.9		145	184
11:45	8.36	9.16	43.9	85.8	14.4		147	181
11:46	7.89	9.58	42.8	123	14.4		150	185
11:47	8.49	9.15	48.9	114	15.5	16.3	161	199
11:48	7.91	9.60	59.8	92.3	16.6	16.6	161	201
11:49	8.54	9.07	59.7	92.1	17.1	16.5	154	193
11:50	8.21	9.35	56.2	73.1	17.1	16.2	140	179
11:51	8.56	9.08	52.8	69.9	16.9	16.0	148	189
11:52	8.28	9.28	52.6	75.2	14.9	15.7	155	209
11:53	8.35	9.20	55.1	87.3	13.4	15.5	152	196
11:54	8.06	9.44	58.1	107	12.6	15.3	157	196
11:55	8.37	9.19	57.2	117	15.2	15.4	154	193
11:56	8.19	9.36	52.0	73.1	16.1	15.6	145	181
11:57	8.42	9.17	43.0	87.7	16.5	15.6	151	187
11:58	8.49	9.15	36.0	63.3	15.9	15.6	155	191
11:59	8.44	9.15	36.0	73.6	14.6	15.3	154	193
12:00	8.51	9.13	37.3	67.6	13.9	15.0	136	175
12:01	8.27	9.29	47.1	82.4	13.3	14.7	130	167
12:02	8.45	9.17	49.7	75.1	12.8	14.4	139	174
12:03	8.34	9.22	37.2	103	12.6	14.4	153	190
12:04	8.73	8.96	29.1	73.8	12.9	14.4	154	193
12:05	8.43	9.13	33.4	96.3	12.9	14.2	143	187
12:06	8.99	8.75	40.2	72.6	12.8	13.8	143	183
12:07	8.47	9.13	46.6	86.3	12.9	13.5	147	187
12:08	8.88	8.83	44.2	79.4	12.9	13.2	136	173
12:09	8.37	9.20	33.7	97.0	12.4	12.9	112	151
12:10	8.66	8.98	28.2	89.4	12.4	12.8	102	141
12:11	8.21	9.32	30.6	116	12.5	12.7	114	150
12:12	8.79	8.87	41.2	98.8	13.8	12.8	141	180
12:13	8.32	9.23	48.8	103	15.4	13.1	152	196
12:14	8.92	8.76	40.8	104	16.7	13.5	136	177
12:15	8.54	9.05	36.4	93.0	15.3	13.7	134	173
12:16	8.76	8.87	35.9	104	14.5	13.9	132	170
12:17	8.27	9.24	33.6	131	14.2	14.0	137	177
12:18	8.35	9.15	33.6	126	15.1	14.2	149	193
12:19	8.11	9.35	45.6	127	17.1	14.7	151	192
12:20	8.43	9.09	51.6	136	17.9	15.2	158	198
12:21	8.26	9.24	52.9	90.8	18.6	15.8	149	189
12:22	8.51	9.02	50.3	103	19.0	16.4	143	183
12:23	8.54	9.06	39.7	74.8	18.7	16.7	140	177
12:24	8.55	9.06	43.5	93.1	17.8	16.8	146	183
12:25	8.36	9.20	48.6	106	17.5	17.0	147	183
12:26	8.10	9.38	52.5	128	16.9	17.3	161	201
12:27	8.15	9.35	51.9	98.2	16.5	17.5	163	203
12:28	8.12	9.34	52.3	144	17.4	17.7	170	207
12:29	8.27	9.26	51.7	89.4	20.1	18.0	173	211
12:30	8.14	9.33	50.6	89.4	20.4	18.3	160	200

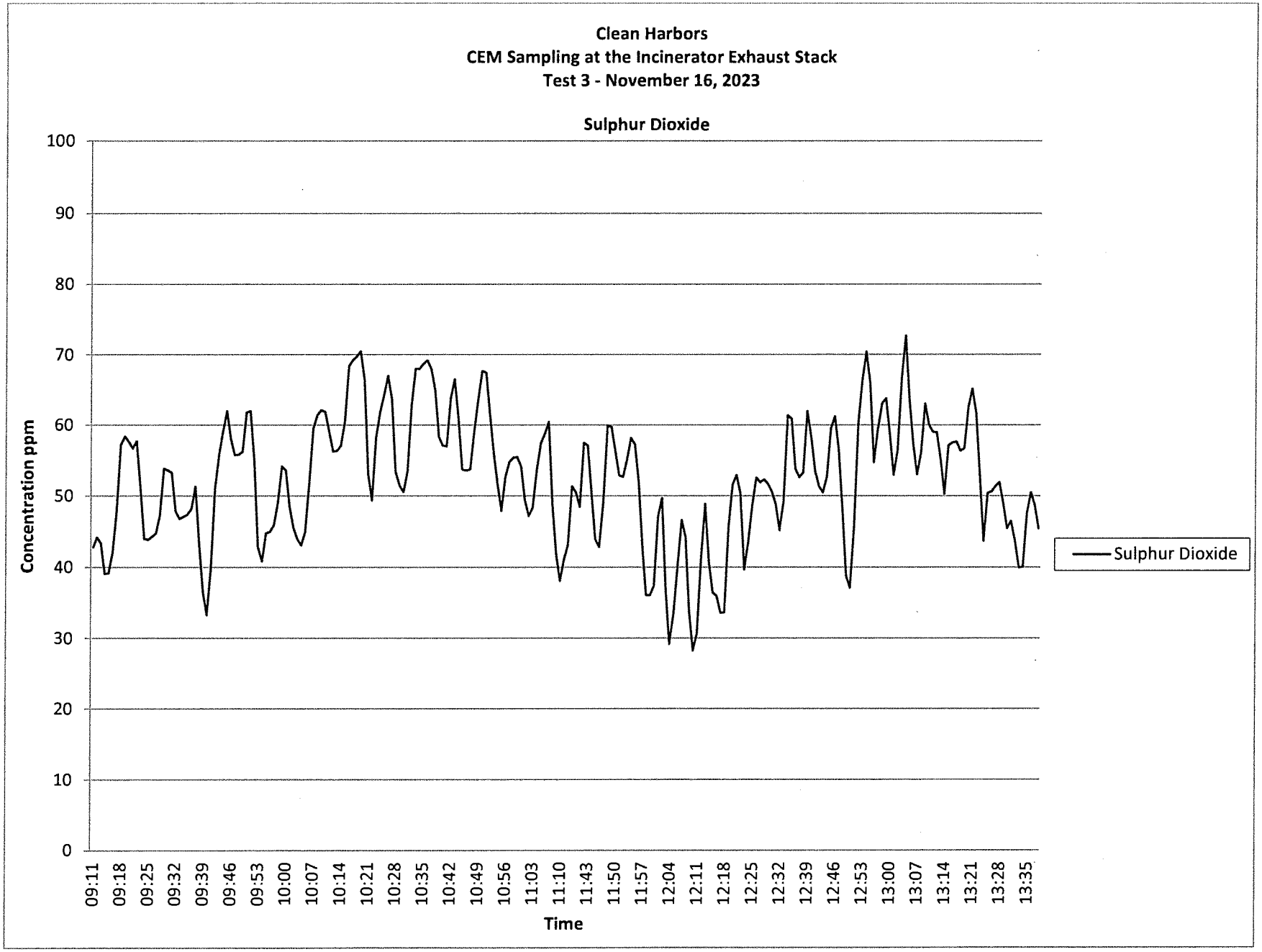
Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023

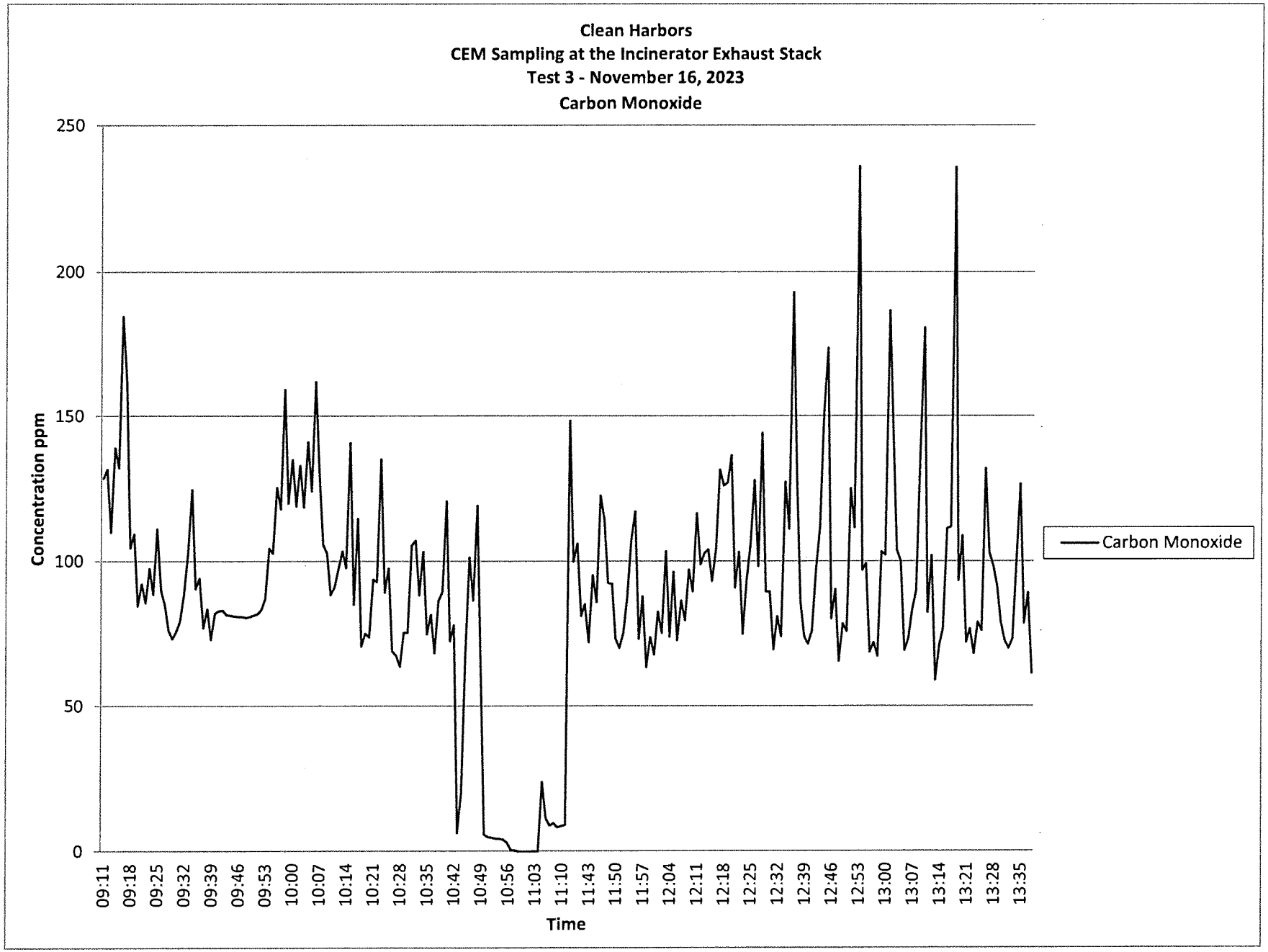
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
12:31	8.65	8.98	48.8	69.4	19.3	18.4	145	187
12:32	8.27	9.25	45.1	80.8	17.2	18.2	146	188
12:33	8.53	9.07	49.2	74.0	15.5	17.9	152	195
12:34	7.96	9.50	61.4	127	14.8	17.6	142	183
12:35	8.13	9.38	60.8	111	15.6	17.4	139	180
12:36	7.67	9.73	53.8	193	17.1	17.4	133	173
12:37	8.33	9.23	52.6	130	21.2	17.9	131	172
12:38	7.92	9.55	53.2	85.9	24.4	18.6	126	167
12:39	8.66	9.01	61.9	73.7	24.5	19.0	130	176
12:40	8.23	9.33	58.1	71.3	19.6	18.9	146	187
12:41	8.56	9.07	53.4	75.8	16.0	18.6	147	186
12:42	8.06	9.46	51.3	97.0	15.0	18.4	128	168
12:43	8.15	9.38	50.4	112	14.1	18.2	135	182
12:44	7.75	9.67	52.7	151	14.1	18.1	166	214
12:45	8.14	9.36	59.5	173	19.3	18.5	186	227
12:46	7.92	9.52	61.2	80.1	22.1	19.0	168	207
12:47	8.35	9.19	56.5	90.2	23.4	19.2	161	201
12:48	8.32	9.22	48.2	65.3	21.1	18.9	169	204
12:49	8.42	9.14	38.8	78.3	17.9	18.2	164	198
12:50	8.25	9.28	37.0	75.6	14.9	17.8	166	199
12:51	7.98	9.46	45.6	125	13.1	17.5	171	206
12:52	7.99	9.49	60.3	112	13.8	17.4	170	209
12:53	7.85	9.56	66.4	236	17.3	17.7	162	204
12:54	8.09	9.39	70.4	96.9	24.0	18.7	143	189
12:55	8.04	9.40	65.9	99.1	26.1	19.4	137	182
12:56	8.51	9.09	54.7	68.4	24.9	19.6	132	177
12:57	8.15	9.33	59.4	71.8	21.2	19.4	127	173
12:58	8.47	9.10	63.0	67.1	17.9	19.1	131	178
12:59	7.98	9.48	63.7	103	16.8	19.0	139	184
13:00	8.14	9.36	58.6	102	16.3	19.1	138	179
13:01	7.65	9.71	52.9	187	16.5	19.5	129	170
13:02	8.28	9.24	56.4	143	19.7	20.1	123	165
13:03	7.71	9.68	66.6	104	22.8	20.6	121	162
13:04	8.50	9.07	72.7	99.9	23.6	20.6	132	173
13:05	8.13	9.37	63.6	69.0	21.6	20.1	152	193
13:06	8.49	9.07	57.2	73.2	18.0	19.4	162	196
13:07	8.06	9.40	53.0	83.0	15.6	18.9	153	190
13:08	8.17	9.33	56.1	89.6	14.7	18.6	152	192
13:09	7.81	9.60	63.0	137	15.2	18.4	144	182
13:10	8.14	9.34	60.0	181	18.5	18.6	133	166
13:11	7.93	9.51	59.0	82.2	22.3	19.2	136	170
13:12	8.36	9.17	58.9	102	23.2	19.6	137	176
13:13	8.26	9.26	55.1	58.8	21.7	19.5	152	193
13:14	8.39	9.16	50.2	70.6	19.6	19.1	166	207
13:15	8.28	9.25	57.1	76.7	17.3	18.6	162	203
13:16	8.04	9.42	57.5	111	15.6	18.4	149	188
13:17	8.00	9.46	57.6	112	15.2	18.3	139	179
13:18	7.90	9.51	56.3	236	18.3	18.7	131	167
13:19	8.16	9.34	56.6	93.3	24.1	19.6	128	168
13:20	8.07	9.38	62.4	109	26.3	20.4	127	166
13:21	8.58	9.03	65.1	71.9	24.3	20.6	122	162
13:22	8.23	9.27	61.7	76.6	22.2	20.5	118	156
13:23	8.65	8.97	52.8	67.9	18.9	20.2	129	168
13:24	8.21	9.29	43.6	78.9	16.9	19.9	139	177
13:25	8.55	9.04	50.4	75.9	14.9	19.7	149	189
13:26	8.00	9.45	50.6	132	14.1	19.5	152	191
13:27	8.68	8.95	51.3	103	15.1	19.5	152	191
13:28	8.08	9.39	51.9	98.4	16.0	19.3	152	192

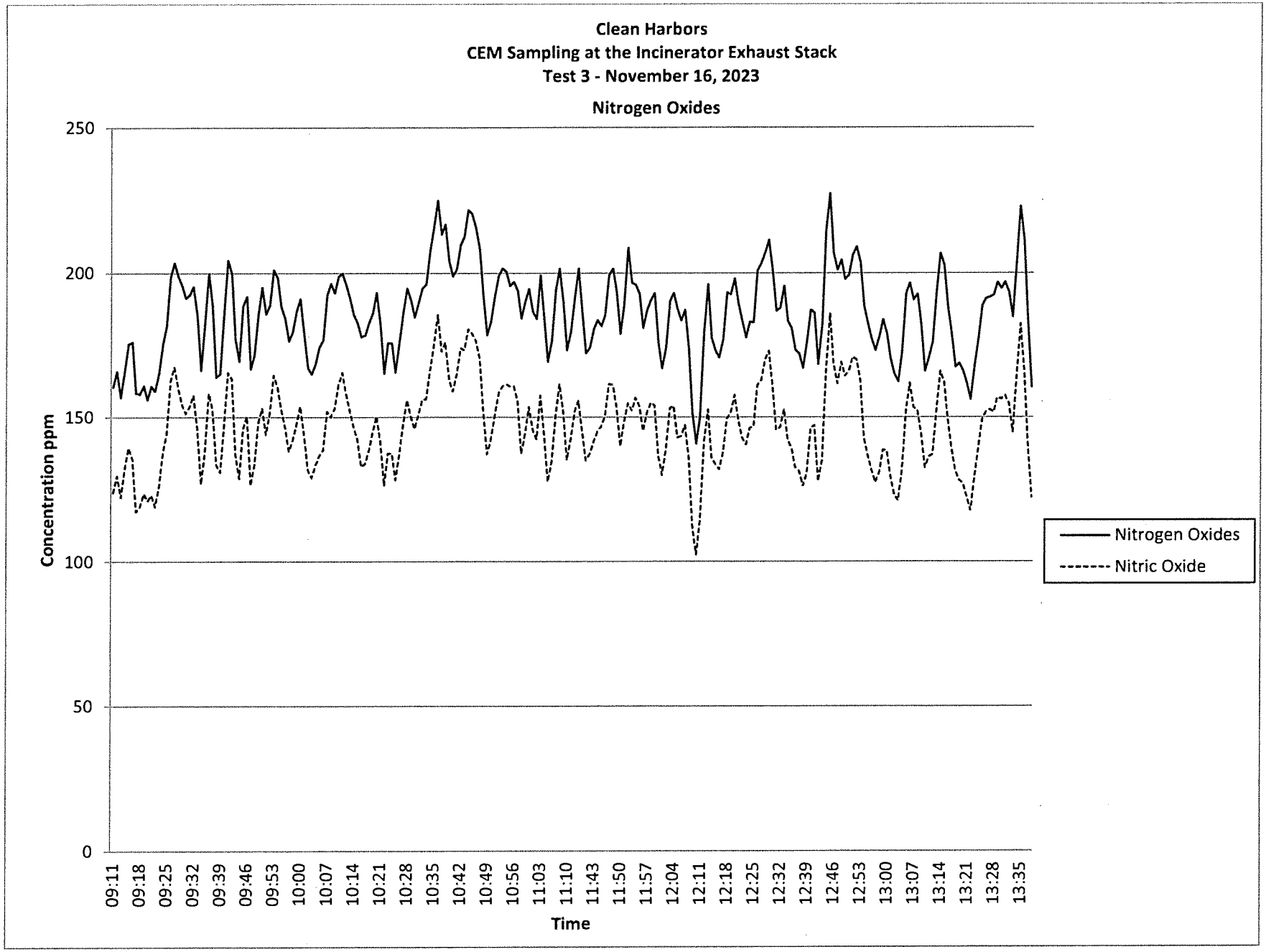
Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023

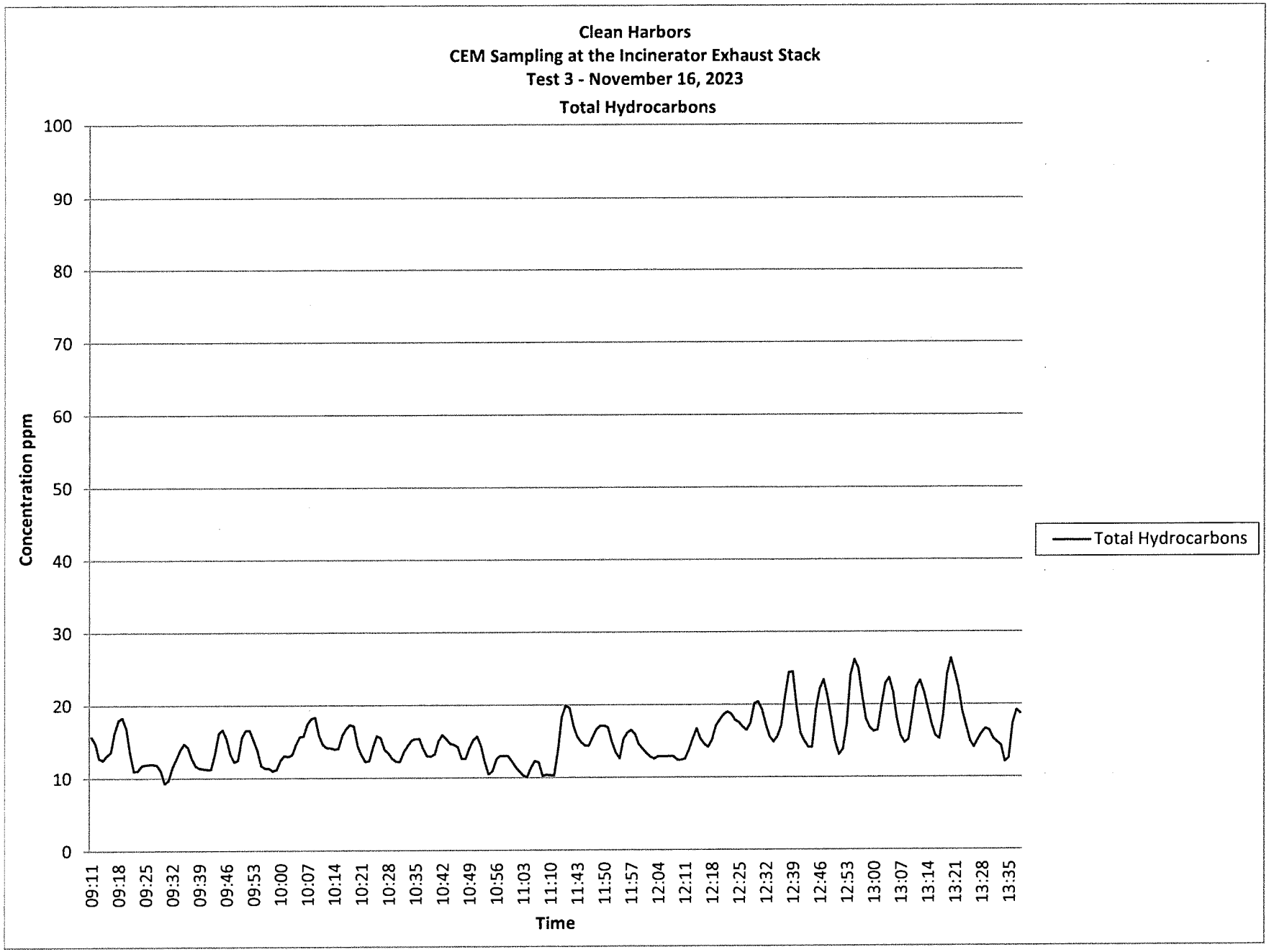
Time	O2 %	CO2 %	SO2 ppm	CO ppm	THC (ppm) 1-min	THC (ppm) 10-min	NO ppm	NOx ppm
13:29	8.81	8.82	49.0	91.3	16.6	18.5	157	197
13:30	8.37	9.17	45.4	79.0	16.4	17.5	156	194
13:31	8.75	8.88	46.4	72.5	15.2	16.6	157	197
13:32	8.39	9.17	43.8	69.8	14.8	15.9	155	193
13:33	8.50	9.07	39.9	73.0	14.3	15.4	145	185
13:34	8.10	9.39	40.0	99.2	12.1	15.0	164	203
13:35	8.42	9.13	47.5	126	12.5	14.7	182	223
13:36	8.14	9.34	50.5	78.5	17.3	15.0	165	211
13:37	8.61	8.98	48.7	89.0	19.2	15.4	140	183
13:38	8.50	9.09	45.4	61.1	18.7	15.7	122	160
Min	7.56	7.95	28.2	0.0	9.3	10.8	102	141
Max	9.63	9.73	72.7	236	26.3	20.6	186	227
Avg	8.30	9.11	52.4	89.3	15.3	15.4	147	186


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023
Oxygen & Carbon Dioxide
Conventration %
25
20
15
10
5
0
09:11
09:18
09:25
09:32
09:39
09:46
09:53
10:00
10:07
10:14
10:21
10:28
10:35
10:42
10:49
10:56
11:03
11:10
11:43
11:50
11:57
12:04
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
Time
Oxygen
Carbon Dioxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023
Sulphur Dioxide
Concentration ppm
100
90
80
70
60
50
40
30
20
10
0
09:11
09:18
09:25
09:32
09:39
09:46
09:53
10:00
10:07
10:14
10:21
10:28
10:35
10:42
10:49
10:56
11:03
11:10
11:43
11:50
11:57
12:04
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
Time
Sulphur Dioxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023
Carbon Monoxide
Concentration ppm
250
200
150
100
50
0
09:11
09:18
09:25
09:32
09:39
09:46
09:53
10:00
10:07
10:14
10:21
10:28
10:35
10:42
10:49
10:56
11:03
11:10
11:43
11:50
11:57
12:04
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
Time
Carbon Monoxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023
Nitrogen Oxides
Concentration ppm
250
200
150
100
50
0
09:11
09:18
09:25
09:32
09:39
09:46
09:53
10:00
10:07
10:14
10:21
10:28
10:35
10:42
10:49
10:56
11:03
11:10
11:43
11:50
11:57
12:04
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
Time
Nitrogen Oxides
Nitric Oxide


Clean Harbors
CEM Sampling at the Incinerator Exhaust Stack
Test 3 - November 16, 2023
Total Hydrocarbons
Concentration ppm
100
90
80
70
60
50
40
30
20
10
0
09:11
09:18
09:25
09:32
09:39
09:46
09:53
10:00
10:07
10:14
10:21
10:28
10:35
10:42
10:49
10:56
11:03
11:10
11:43
11:50
11:57
12:04
12:11
12:18
12:25
12:32
12:39
12:46
12:53
13:00
13:07
13:14
13:21
13:28
13:35
Time
Total Hydrocarbons

APPENDIX 20

Process Data
(30 pages)

November 14/2023		Waste Flows							Flows	Air Flows				Temperatures							Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack		Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C		mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	FT-260-REFDRYHour	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258		PT-242A	PT-249	PT-615	PDT-622
2023-11-14	9:33:00	36.6	8.17	175	218	5.72	343	27.2	24.1	19550	11629	30.2	66046	1486	1105	1106	502	190	186		-20.2	-56.4	-158	400
2023-11-14	9:34:00	36.4	8.12	174	216	4.28	257	27.2	24.1	19238	11528	30.0	65532	1485	1108	1108	503	190	186		-16.9	-53.0	-149	406
2023-11-14	9:35:00	36.4	9.31	175	216	5.97	358	27.1	24.3	19950	11652	29.9	65198	1489	1109	1109	503	189	187		-26.5	-65.5	-169	383
2023-11-14	9:36:00	36.3	9.20	175	215	4.21	253	27.1	24.3	19488	11545	29.3	63679	1487	1108	1108	503	190	187		-20.8	-58.5	-158	396
2023-11-14	9:37:00	36.6	8.57	175	214	6.54	392	27.1	24.1	19988	11657	30.5	66144	1490	1108	1108	503	190	187		-29.8	-71.5	-174	381
2023-11-14	9:38:00	36.4	9.39	175	215	6.61	397	27.1	24.2	19475	11657	29.9	64904	1489	1107	1106	504	190	187		-22.3	-60.1	-161	390
2023-11-14	9:39:00	36.4	8.89	175	215	6.59	395	27.1	25.0	19913	11657	30.2	65672	1488	1110	1111	504	191	187		-23.1	-61.5	-165	370
2023-11-14	9:40:00	36.3	8.68	174	216	6.60	396	27.1	24.4	19263	11556	30.1	65333	1485	1110	1111	504	191	187		-19.2	-59.1	-154	380
2023-11-14	9:41:00	36.3	8.50	175	214	6.60	396	27.1	24.4	20188	11657	29.9	65460	1492	1115	1115	504	190	187		-23.1	-63.4	-167	396
2023-11-14	9:42:00	36.5	9.00	176	214	6.59	395	27.1	24.1	19150	11545	29.8	64924	1487	1114	1114	504	190	187		-11.9	-51.0	-144	406
2023-11-14	9:43:00	36.5	9.34	175	215	6.62	397	27.1	24.8	20100	11680	31.4	68185	1492	1118	1118	504	190	187		-40.1	-80.8	-194	353
2023-11-14	9:44:00	36.5	9.03	175	216	6.60	396	27.1	24.9	19419	11579	30.4	65547	1487	1118	1117	505	190	187		-17.5	-57.5	-155	394
2023-11-14	9:45:00	36.3	8.50	175	213	6.31	379	27.1	24.1	19888	11680	32.1	69049	1491	1122	1122	505	190	187		-42.7	-89.4	-196	347
2023-11-14	9:46:00	36.5	8.71	175	215	6.59	395	27.1	25.1	19606	11680	30.6	65826	1489	1118	1119	505	191	188		-25.2	-65.9	-165	386
2023-11-14	9:47:00	35.9	8.49	176	215	5.21	313	27.1	24.8	19538	11579	31.7	68407	1488	1119	1119	505	191	188		-36.5	-82.6	-179	350
2023-11-14	9:48:00	35.9	8.70	175	214	4.98	299	27.1	24.1	19469	11573	30.0	64786	1485	1115	1116	505	192	188		-21.8	-63.5	-159	372
2023-11-14	9:49:00	35.9	8.88	175	215	5.82	349	27.1	24.3	19219	11573	31.4	68044	1487	1118	1118	505	191	188		-25.7	-77.1	-162	361
2023-11-14	9:50:00	36.0	8.57	175	215	6.60	396	27.1	24.6	19438	11573	30.4	66014	1486	1116	1117	506	192	188		-17.9	-56.8	-154	397
2023-11-14	9:51:00	36.1	8.88	175	215	6.61	397	27.1	24.4	19031	11573	29.6	64246	1488	1121	1121	506	191	188		-11.1	-48.4	-144	406
2023-11-14	9:52:00	36.2	9.24	176	215	6.59	395	27.1	24.2	19663	11590	29.8	64522	1488	1117	1118	506	191	188		-25.3	-67.8	-164	385
2023-11-14	9:53:00	36.2	8.38	176	215	6.61	397	27.1	24.0	19206	11590	29.5	63916	1489	1117	1117	506	191	188		-18.6	-57.5	-154	396
2023-11-14	9:54:00	36.2	8.87	176	216	6.03	362	27.1	24.7	19581	11697	30.2	65155	1490	1116	1116	506	192	188		-24.9	-66.9	-167	383
2023-11-14	9:55:00	36.0	8.52	175	214	6.27	376	27.1	24.3	19475	11590	29.8	64443	1487	1118	1117	506	192	188		-21.7	-62.4	-158	394
2023-11-14	9:56:00	36.0	8.88	175	215	6.60	396	27.1	24.1	19556	11590	30.2	65464	1485	1118	1118	506	192	188		-18.3	-59.3	-155	373
2023-11-14	9:57:00	36.0	8.29	174	213	5.78	347	27.1	1.9	19113	11483	29.7	64421	1486	1119	1119	506	191	188		-15.6	-55.4	-150	383
2023-11-14	9:58:00	36.0	8.48	175	214	4.81	288	27.1	24.1	19375	11607	29.8	64583	1487	1118	1119	506	191	188		-15.6	-54.3	-150	405
2023-11-14	9:59:00	36.1	7.96	175	214	6.59	396	27.1	24.1	19031	11478	29.5	64065	1486	1122	1121	506	191	188		-9.0	-46.4	-140	410
2023-11-14	10:00:00	35.8	8.86	175	214	6.61	397	27.1	24.1	19725	11702	30.1	65052	1490	1121	1121	506	190	188		-24.1	-65.4	-166	387
2023-11-14	10:01:00	35.8	8.51	175	213	6.59	395	27.1	25.0	19363	11601	29.8	64388	1486	1117	1117	506	191	188		-17.9	-58.6	-153	398
2023-11-14	10:02:00	36.0	8.21	175	216	6.61	396	26.5	24.6	19994	11725	30.2	65073	1488	1114	1115	506	191	188		-28.0	-71.6	-174	379
2023-11-14	10:03:00	35.8	9.23	174	215	6.60	396	26.5	24.3	19606	11539	30.1	64825	1488	1114	1114	507	191	188		-23.3	-66.0	-162	389
2023-11-14	10:04:00	36.0	8.35	175	215	7.24	435	26.5	24.8	20069	11635	30.2	65187	1489	1114	1115	507	191	188		-26.3	-70.6	-170	367
2023-11-14	10:05:00	36.1	8.53	175	214	5.61	337	27.5	25.0	19375	11523	30.2	65334	1487	1112	1112	507	191	188		-19.0	-63.3	-155	375
2023-11-14	10:06:00	35.9	8.92	175	215	6.61	397	26.5	25.0	20156	11635	30.2	65585	1491	1111	1112	507	191	188		-25.7	-69.6	-173	388
2023-11-14	10:07:00	35.8	8.06	175	215	6.59	395	26.5	24.5	19344	11506	30.1	65477	1488	1112	1112	506	191	188		-16.9	-55.9	-153	401
2023-11-14	10:08:00	35.8	8.39	175	216	6.61	396	27.5	24.0	20175	11714	31.5	68137	1492	1115	1115	506	191	188		-46.4	-92.5	-200	352
2023-11-14	10:09:00	35.7	9.28	175	218	6.61	396	26.4	24.1	19525	11607	30.0	64965	1488	1111	1111	506	191	188		-20.7	-64.9	-160	390
2023-11-14	10:10:00	35.6	8.36	175	217	6.59	395	26.5	24.7	19969	11607	32.0	69191	1489	1113	1113	506	191	188		-44.1	-92.3	-198	348
2023-11-14	10:11:00	35.9	8.88	175	216	6.61	396	26.5	25.0	19700	11607	30.8	66501	1487	1109	1109	506	191	188		-22.4	-64.5	-166	384
2023-11-14	10:12:00	35.8	9.06	175	217	6.49	389	26.5	24.7	19494	11635	32.4	70041	1487	1111	1110	506	191	188		-34.7	-82.9	-180	352
2023-11-14	10:13:00	35.8	8.65	175	215	6.60	396	27.5	24.3	19406	11534	30.3	65599	1485	1110	1110	506	191	188		-18.3	-61.1	-155	376
2023-11-14	10:14:00	35.7	8.46	175	215	4.05	243	27.5	24.9	19263	11534	31.5	68372	1487	1114	1114	506	190	188		-21.5	-72.4	-158	364
2023-11-14	10:15:00	35.9	8.63	175	215	3.96	238	27.4	24.2	19069	11534	29.9	65035	1485	1114	1113	506	190	188		-11.5	-51.9	-145	404
2023-11-14	10:16:00	36.0	8.98	175	215	4.93	296	27.4	24.4	18950	11421	29.6	64543	1486	1120	1119	506	190	188		-10.1	-50.3	-141	413
2023-11-14	10:17:00	35.8	8.83	175	215	6.34	381	27.5	25.0	19588	11534	30.2	65112	1489	1114	1115	506	190	188		-20.0	-62.0	-160	391
2023-11-14	10:18:00	35.8	8.73	175	215	5.28	317	27.5	24.6	19350	11534	29.6	63604	1486	1115	1114	506	190	188		-16.8	-58.8	-151	402
2023-11-14	10:19:00	35.9	8.50	175	213	3.89	233	26.3	25.0	19644	11646	30.5	65793	1488	1110	1111	506	190	188		-25.5	-68.6	-168	384
2023-11-14	10:20:00	36.0	8.55	175	215	3.90	234	27.4	25.1	19394	11528	30.0	64704	1486	1110	1110	506	190	188		-21.8	-66.8	-161	394
2023-11-14	10:21:00	35.8	8.27	175	215	4.02	241	27.4	24.2	19700	11641	30.4	65731	1486	1108	1108	506	190	188		-20.6	-62.4	-161	369
2023-11-14	10:22:00	35.8	8.20	175	215	5.89	354	27.3	25.0	19388	11534	29.9	64845	1487	1110	1110	506	190	187		-18.0	-60.5	-154	378
2023-11-14	10:23:00	36.0	8.62	176	214	6.59	395	26.4	25.0	19650	11567	30.0	65203	1488	1110	1111	506	190	187		-21.1	-64.9	-162	399
2023-11-14	10:24:00	35.7	8.72	175	214	3.95	237	27.5	25.0	19356	11461	29.7	64725	1484	1114	1113	506	190	187		-15.1	-56.1	-150	404
2023-11-14	10:25:00	35.8	8.86	175	216	4.78	287	27.5	24.2	19869	11702	30.2	65550	1490	1111	1112	506	190	187		-26.6	-70.6	-172	383
2023-11-14	10:26:00	35.8	8.22	175	216	7.26	436	27.5	24.1	19600	11596	29.6	64193	1488	1107	1107	506	190	188		-20.0	-64.8	-159	395
2023-11-14	10:27:00	35.9	8.38	176	216	6.59	395	27.5	24.2	20081	11697	30.7	66505	1490	1109	1110	506	190	188		-27.9	-72.6	-174	378
2023-11-14	10:28:00	35.5	8.42	174	213	5.32	319	27.5	25.0	19650	11596	30.7	66587	1490	1109	1109	506	190	188		-23.2	-65.6	-165	390
2023-11-14	10:29:00	35.7	8.95	175	215	6.05	363	27.5	25.0	19769	11601	30.4	65907	1490	1108	1109	506	190	188		-25.3	-68.1	-167	371
2023-11-14	10:30:00	35.9	8.64	175	215	4.09	245	27.5	24.1	19450	11500	30.2	65852	1487	1112	1112	506	190	187		-17.3	-58.4	-154	379
2023-11-14	10:31:00	35.7	8.74	174	214	6.59	396	27.5	25.0	19969	11719	29.9	65438	1490	1113	1113	506	190	187		-22.2	-60.8	-168	396
2023-11-14	10:32:00	35.7	8.64	174	215	4.24	254	27.5	25.1	19138	11506	29.4	64077	1485	1114	1114	506	189	187		-14.5	-54.0	-146	409
2023-11-14	10:33:00	35.7	8.92	175	214	4.41	264	27.5	24.9	19994	11635	32.0	69269	1490	1118	1119	505	189	187		-45.5	-96.4	-199	357
2023-11-14	10:34:00	36.1	7.63	174	214	4.17	250	27.5	24.6	19450	11523	30.5	65846	1487	1116	1115	505	189	187		-21.3	-62.4	-160	395
2023-11-14	10:35:00	36.0	8.71	174	213	5.98	359	27.5	24.4	19800	11629	32.0	69181	1490	1119	1119	505	189	187		-45.2	-95.0	-199	350
2023-11-14	10:36:00	36.1	8.76	176	215	4.92	295	26.4	25.0	19694	11629	30.7	65908	1486	1114	1114	506	189	187		-24.2	-69.3	-165	388
2023-11-14	10:37:00	36.2	8.88	175	216	3.86	231	27.6	24.2	19456	11629	32.3	69883	1489	1116	1116	506	190	187		-37.8	-86.3	-181	351

November 14/2023		Waste Flows							Flows	Air Flows				Temperatures						Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	FT-260-REFDRYHour	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-14	10:38:00	36.3	8.96	175	216	4.28	257	27.6	25.0	19538	11528	30.1	65756	1486	1117	1116	506	190	187	-21.4	-63.4	-160	373
2023-11-14	10:39:00	36.1	8.51	175	215	4.02	241	27.6	25.0	19188	11528	31.2	67827	1487	1119	1118	506	190	187	-20.2	-68.0	-161	361
2023-11-14	10:40:00	36.0	8.93	175	215	6.60	396	27.5	24.5	19494	11438	30.0	65112	1486	1117	1117	506	190	187	-17.7	-57.9	-156	399
2023-11-14	10:41:00	35.8	8.74	175	214	5.32	319	27.3	25.0	19225	11539	30.0	65068	1486	1120	1120	506	189	187	-12.5	-51.0	-147	406
2023-11-14	10:42:00	35.9	8.98	175	215	6.59	396	27.3	25.1	19706	11669	30.4	65684	1490	1117	1117	506	190	187	-25.1	-68.1	-167	385
2023-11-14	10:43:00	35.9	8.82	174	214	4.00	240	27.3	25.0	19363	11545	30.0	64902	1487	1117	1117	506	190	187	-18.7	-60.9	-157	398
2023-11-14	10:44:00	36.3	8.56	175	215	4.08	245	27.3	24.1	19913	11646	29.9	64735	1489	1111	1112	506	190	188	-28.2	-72.1	-172	382
2023-11-14	10:45:00	36.2	9.09	175	215	4.42	265	27.3	24.1	19338	11523	30.4	65928	1485	1108	1107	506	190	188	-22.2	-65.3	-162	393
2023-11-14	10:46:00	36.2	9.00	176	216	5.23	314	25.5	25.0	19594	11534	30.2	65671	1485	1114	1114	506	190	187	-21.9	-64.5	-161	372
2023-11-14	10:47:00	36.2	9.05	176	215	6.38	383	26.9	25.0	19344	11534	30.0	65229	1486	1116	1116	506	190	187	-15.1	-54.6	-152	381
2023-11-14	10:48:00	36.4	9.69	175	215	6.59	395	26.9	24.2	19375	11539	29.7	64826	1487	1118	1119	506	190	187	-15.5	-54.0	-154	403
2023-11-14	10:49:00	36.1	8.52	171	215	6.61	396	26.9	24.2	19094	11539	29.4	63945	1484	1121	1121	506	190	187	-14.7	-53.0	-146	412
2023-11-14	10:50:00	35.9	9.50	173	216	6.58	395	26.9	25.0	19731	11646	29.7	64405	1489	1120	1120	506	189	187	-24.4	-66.5	-168	386
2023-11-14	10:51:00	35.9	9.30	173	214	6.61	397	26.9	24.1	19469	11539	29.1	62553	1490	1118	1118	506	190	187	-17.0	-55.3	-156	398
2023-11-14	10:52:00	35.8	9.14	174	214	6.59	395	26.9	24.0	19938	11663	30.4	65448	1490	1117	1117	506	190	188	-29.5	-73.0	-176	380
2023-11-14	10:53:00	36.2	7.89	175	214	6.16	370	26.9	24.1	19581	11556	30.0	64792	1486	1115	1115	506	190	188	-20.6	-63.0	-162	390
2023-11-14	10:54:00	36.2	8.66	175	215	4.49	270	26.9	24.5	20000	11657	30.1	65226	1489	1114	1114	507	190	188	-26.3	-70.0	-172	367
2023-11-14	10:55:00	36.0	8.60	174	215	6.59	395	26.9	24.4	19475	11551	29.6	64054	1484	1115	1115	507	191	187	-19.5	-63.3	-159	375
2023-11-14	10:56:00	36.0	9.06	175	215	6.61	397	26.9	24.7	19988	11669	30.0	65364	1490	1115	1116	507	190	187	-27.6	-70.8	-175	390
2023-11-14	10:57:00	36.1	8.86	175	216	6.60	396	26.9	24.8	19156	11567	29.4	63968	1485	1116	1116	507	191	188	-17.3	-57.6	-152	403
2023-11-14	10:58:00	36.2	9.19	175	215	6.59	395	26.9	24.7	20069	11663	30.3	65763	1490	1121	1120	507	190	188	-43.8	-87.0	-203	354
2023-11-14	10:59:00	36.1	8.57	175	214	5.94	356	26.9	24.8	19475	11556	29.7	64126	1488	1117	1117	507	190	188	-21.5	-63.1	-162	392
2023-11-14	11:00:00	36.1	8.42	175	215	6.59	395	26.9	25.0	19831	11607	31.7	68494	1490	1118	1118	507	190	188	-44.2	-91.8	-199	348
2023-11-14	11:01:00	36.1	8.65	175	215	7.25	435	26.9	24.9	19606	11573	30.3	65252	1489	1110	1110	507	191	188	-23.8	-65.5	-167	387
2023-11-14	11:02:00	36.2	8.32	175	214	6.60	396	26.9	24.9	19363	11579	31.2	67167	1488	1114	1113	507	191	188	-34.1	-82.0	-180	353
2023-11-14	11:03:00	36.1	8.99	174	214	6.59	395	26.9	24.4	19406	11579	29.2	63106	1486	1114	1114	507	191	188	-18.7	-60.8	-158	375
2023-11-14	11:04:00	35.9	8.74	175	212	6.60	396	26.6	24.3	19144	11472	31.4	68164	1487	1119	1118	507	191	188	-25.0	-76.3	-159	362
2023-11-14	11:05:00	36.1	9.10	175	214	6.61	396	27.7	24.5	19219	11472	29.8	64653	1487	1118	1118	508	191	188	-14.5	-56.1	-150	403
2023-11-14	11:06:00	36.0	8.81	174	213	6.59	395	27.7	24.7	18975	11472	28.9	62450	1486	1123	1123	507	191	188	-10.6	-50.0	-141	410
2023-11-14	11:07:00	36.5	8.72	176	216	6.60	396	27.7	24.3	19550	11584	29.8	64137	1489	1120	1120	508	191	188	-21.6	-63.9	-161	388
2023-11-14	11:08:00	36.3	9.14	175	215	6.61	397	27.7	24.4	19219	11483	28.8	62022	1488	1121	1120	508	191	188	-16.7	-57.3	-153	400
2023-11-14	11:09:00	36.3	8.97	175	214	6.16	370	27.7	24.6	19706	11601	30.4	65140	1488	1116	1116	508	191	188	-25.0	-68.6	-169	383
2023-11-14	11:10:00	36.0	8.40	174	214	6.60	396	27.7	25.0	19363	11601	30.1	64613	1489	1116	1116	508	191	188	-20.3	-62.5	-160	393
2023-11-14	11:11:00	36.0	9.62	175	213	6.09	365	27.7	24.5	19519	11612	29.7	63935	1491	1117	1116	508	192	188	-22.0	-65.5	-162	370
2023-11-14	11:12:00	36.1	8.14	176	215	6.59	396	27.7	24.9	19375	11511	29.8	64353	1486	1118	1119	509	192	188	-13.8	-54.3	-153	376
2023-11-14	11:13:00	36.0	8.51	193	214	5.68	341	27.7	24.8	19619	11612	30.1	64848	1487	1116	1116	509	192	188	-9.4	-49.0	-152	393
2023-11-14	11:14:00	36.1	8.69	167	214	6.59	396	27.7	24.4	19344	11449	29.5	63821	1486	1118	1117	509	192	188	-16.7	-57.5	-150	404
2023-11-14	11:15:00	36.2	8.32	165	216	6.60	396	27.7	24.6	20000	11685	29.8	64213	1492	1120	1120	508	191	189	-31.0	-74.4	-175	381
2023-11-14	11:16:00	36.0	8.26	176	214	6.62	397	27.7	24.2	19356	11472	29.8	64066	1487	1117	1118	508	190	189	-18.7	-61.1	-158	391
2023-11-14	11:17:00	36.3	8.65	176	216	6.60	396	27.7	25.1	19794	11590	30.1	64927	1491	1116	1117	508	191	188	-27.1	-72.1	-176	376
2023-11-14	11:18:00	36.3	7.97	175	216	6.61	397	27.7	24.2	19550	11590	29.6	64182	1486	1117	1116	509	191	188	-22.0	-65.1	-164	388
2023-11-14	11:19:00	36.3	8.73	176	216	7.25	435	27.7	24.2	19850	11590	29.4	63716	1490	1119	1118	509	191	188	-24.9	-68.1	-170	368
2023-11-14	11:20:00	36.1	8.12	175	214	6.61	396	27.7	24.9	19288	11489	29.7	64348	1487	1122	1121	509	192	188	-17.7	-59.1	-155	378
2023-11-14	11:21:00	36.3	8.29	175	216	6.58	395	27.7	24.1	20013	11697	29.4	63434	1491	1124	1125	509	192	188	-20.6	-62.1	-168	395
2023-11-14	11:22:00	36.3	8.40	176	215	6.59	395	27.9	24.7	18906	11455	29.1	63229	1488	1125	1125	509	192	188	-12.2	-52.1	-147	404
2023-11-14	11:23:00	36.2	8.74	175	215	6.60	396	27.9	24.3	19831	11663	30.7	66016	1493	1126	1127	509	191	188	-39.2	-79.5	-198	354
2023-11-14	11:24:00	36.3	8.66	175	216	6.59	395	26.9	25.1	19381	11562	29.3	62465	1487	1124	1123	509	192	189	-18.3	-59.4	-158	393
2023-11-14	11:25:00	36.2	8.65	175	215	6.61	396	26.9	24.3	19625	11579	31.2	66665	1492	1126	1126	510	192	189	-43.2	-91.5	-199	349
2023-11-14	11:26:00	36.4	8.67	175	215	6.94	416	26.9	24.4	19525	11483	29.9	63754	1489	1123	1123	510	192	189	-23.5	-66.3	-167	385
2023-11-14	11:27:00	36.4	8.72	175	217	7.25	435	28.0	25.0	19394	11483	31.3	66924	1490	1125	1125	510	192	189	-36.1	-84.9	-180	347
2023-11-14	11:28:00	36.7	8.82	176	218	7.25	435	27.0	24.0	19319	11528	30.1	64707	1487	1122	1122	510	192	189	-19.2	-60.5	-162	370
2023-11-14	11:29:00	36.0	8.16	175	215	7.24	434	27.0	24.1	19156	11528	31.1	66943	1487	1127	1126	510	192	189	-23.9	-76.1	-160	359
2023-11-14	11:30:00	36.3	8.69	175	215	7.25	435	27.0	24.1	19225	11528	29.5	63551	1488	1127	1127	510	192	189	-16.6	-57.0	-155	395
2023-11-14	11:31:00	36.3	9.24	175	214	7.25	435	27.0	24.3	19031	11528	29.0	62381	1486	1131	1131	510	192	189	-13.9	-52.6	-148	405
2023-11-14	11:32:00	36.5	8.24	175	214	7.26	436	27.0	24.2	19644	11545	29.2	62832	1489	1128	1128	510	192	189	-22.3	-64.5	-168	384
2023-11-14	11:33:00	36.2	8.90	175	214	7.24	434	27.0	24.3	19356	11545	29.3	62903	1491	1127	1126	511	193	189	-18.7	-61.4	-155	393
2023-11-14	11:34:00	36.3	8.49	175	216	7.25	435	27.0	24.7	19631	11669	30.0	64144	1490	1126	1126	511	193	190	-25.9	-70.6	-170	380
2023-11-14	11:35:00	36.3	8.63	174	214	6.60	396	27.0	25.0	19494	11567	30.2	64830	1488	1127	1126	511	193	189	-16.7	-56.8	-159	388
2023-11-14	11:36:00	36.3	7.97	176	216	6.61	396	27.0	25.1	19538	11551	29.3	63073	1490	1125	1125	511	193	189	-18.4	-56.6	-161	370
2023-11-14	11:37:00	36.4	9.56	175	216	6.59	396	27.0	24.9	19175	11449	29.6	63851	1492	1128	1128	511	193	189	-13.0	-53.1	-150	378
2023-11-14	11:38:00	36.4	9.24	176	214	6.60	396	27.0	24.4	19250	11562	29.2	63168	1493	1130	1131	510	192	189	-13.8	-52.8	-152	403
2023-11-14	11:39:00	36.2	8.55	175	214	6.59	395	27.0	24.4	18894	11461	28.8	61934	1492	1136	1136	510	192	189	-11.7	-49.8	-143	407
2023-11-14	11:40:00	36.3	8.97	175	213	6.60	396	27.1	25.0	19675	11567	29.7	63709	1495	1135	1135	510	191	189	-22.6	-66.3	-167	384
2023-11-14	11:41:00	36.3	8.32	175	214	6.61	396	27.1	24.5	19356	11567	29.5	62944	1492	1133	1132	510	192	189	-15.5	-55.4	-155	397
2023-11-14	11:42:00	36.3	8.51	175	214	6.60	396	27.1	25.1	19819	11573	29.9	63607	1495	1133	1133	510	192	189	-26.9	-72.6	-175	377

November 14/2023		Waste Flows							Flows	Air Flows				Temperatures						Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	FT-260-REFDRYHour	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-14	11:43:00	36.2	7.94	175	213	6.59	395	27.1	24.1	19338	11573	28.9	61763	1492	1131	1131	510	192	189	-23.0	-66.3	-164	389
2023-11-14	11:44:00	36.3	9.03	175	213	6.60	396	27.2	24.1	19863	11573	30.4	64960	1492	1129	1130	511	193	189	-25.0	-66.8	-171	364
2023-11-14	11:45:00	36.3	8.55	175	215	6.59	395	27.2	24.2	19194	11472	29.2	62863	1492	1130	1130	511	193	189	-17.4	-59.5	-156	374
2023-11-14	11:46:00	36.2	8.80	175	215	6.61	397	27.2	24.2	20175	11714	29.9	64422	1496	1131	1131	511	193	189	-25.6	-68.3	-178	386
2023-11-14	11:47:00	36.5	8.73	175	214	6.28	377	27.2	24.5	19256	11506	29.3	63197	1492	1130	1130	511	193	189	-14.9	-54.5	-151	400
2023-11-14	11:48:00	36.4	8.98	175	215	6.58	395	27.2	24.7	20038	11612	31.5	67523	1497	1132	1132	511	192	189	-43.1	-89.3	-202	347
2023-11-14	11:49:00	36.5	9.07	175	216	6.61	396	27.2	25.1	19450	11590	29.9	63855	1492	1129	1129	511	193	189	-20.4	-62.5	-161	386
2023-11-14	11:50:00	36.3	8.48	175	215	6.58	395	27.2	24.1	19713	11590	31.8	67763	1494	1131	1130	511	192	190	-41.9	-91.8	-198	343
2023-11-14	11:51:00	36.2	8.29	175	215	6.60	396	27.2	24.8	19663	11596	30.0	64037	1492	1128	1128	511	193	190	-21.6	-63.3	-167	383
2023-11-14	11:52:00	36.4	9.05	175	215	6.60	396	27.2	24.6	19288	11494	31.4	67163	1492	1130	1129	511	193	190	-34.4	-81.3	-179	349
2023-11-14	11:53:00	36.3	8.29	175	215	6.60	396	27.2	24.9	19338	11494	29.5	63460	1491	1130	1130	511	193	190	-16.7	-58.0	-158	372
2023-11-14	11:54:00	36.5	8.36	175	213	6.59	395	27.2	25.1	19106	11494	30.7	66166	1491	1134	1134	511	193	190	-17.9	-64.6	-155	362
2023-11-14	11:55:00	36.3	9.61	175	213	6.61	396	27.2	24.1	18975	11399	29.8	63971	1488	1133	1133	511	193	189	-11.1	-50.5	-148	400
2023-11-14	11:56:00	36.5	8.34	175	216	6.59	395	27.2	24.3	18756	11399	29.4	63054	1490	1138	1137	511	193	190	-5.6	-42.8	-140	406
2023-11-14	11:57:00	36.6	9.44	175	216	6.60	396	28.1	24.4	19206	11539	29.5	62690	1494	1135	1135	511	193	190	-20.5	-62.5	-162	385
2023-11-14	11:58:00	36.4	8.11	175	215	6.58	395	27.9	24.1	19119	11438	29.7	63195	1495	1138	1137	511	193	190	-13.2	-52.5	-150	396
2023-11-14	11:59:00	36.4	9.23	175	215	6.61	396	27.9	24.1	19450	11545	30.0	63976	1496	1134	1134	511	193	190	-21.0	-62.0	-168	380
2023-11-14	12:00:00	36.2	8.52	175	215	6.60	396	27.9	24.8	19238	11444	29.0	61669	1492	1136	1135	511	193	190	-18.3	-60.4	-160	391
2023-11-14	12:01:00	36.3	9.31	175	215	6.58	395	27.9	24.1	19406	11545	29.8	63433	1493	1134	1134	511	193	190	-20.2	-64.1	-161	367
2023-11-14	12:02:00	36.0	8.77	174	216	6.61	396	27.9	24.5	19144	11545	29.6	63310	1492	1136	1136	511	193	190	-15.4	-56.9	-153	377
2023-11-14	12:03:00	36.3	8.34	175	216	6.59	395	27.9	24.4	19238	11534	29.6	63549	1493	1134	1134	511	193	190	-20.3	-62.1	-161	395
2023-11-14	12:04:00	36.3	8.12	175	214	6.61	396	27.9	25.1	19094	11421	29.6	63442	1491	1137	1137	511	193	190	-11.9	-50.0	-149	402
2023-11-14	12:05:00	36.1	7.81	175	215	6.60	396	27.9	24.4	19738	11539	30.2	64704	1493	1135	1135	511	193	190	-26.8	-70.0	-174	378
2023-11-14	12:06:00	36.1	8.75	175	215	6.58	395	27.9	24.3	19100	11438	30.1	64606	1489	1133	1133	511	193	190	-17.2	-58.5	-159	388
2023-11-14	12:07:00	36.4	8.22	175	215	6.61	396	27.9	24.5	19650	11551	30.6	65310	1497	1134	1135	511	193	190	-26.7	-70.4	-176	373
2023-11-14	12:08:00	36.5	9.10	175	215	6.59	395	27.9	24.1	19475	11551	29.7	63554	1493	1133	1133	511	194	190	-19.3	-60.6	-163	384
2023-11-14	12:09:00	36.2	8.47	175	214	6.60	396	27.9	24.1	19669	11534	29.9	64293	1494	1135	1134	511	194	191	-22.7	-63.4	-168	364
2023-11-14	12:10:00	36.1	8.64	175	214	6.59	395	27.9	25.1	19256	11421	29.6	63801	1490	1135	1134	511	194	190	-15.2	-56.0	-156	374
2023-11-14	12:11:00	36.2	8.78	175	214	6.59	395	27.9	24.5	19738	11545	29.7	63729	1495	1137	1138	511	193	190	-20.1	-59.5	-171	391
2023-11-14	12:12:00	36.2	8.99	174	215	6.60	396	27.9	24.1	18856	11444	29.5	63250	1487	1137	1137	511	193	190	-9.4	-47.4	-146	403
2023-11-14	12:13:00	36.1	8.67	175	214	6.58	395	27.9	24.0	19788	11545	31.0	66431	1496	1140	1140	510	192	190	-40.7	-87.6	-199	347
2023-11-14	12:14:00	36.1	8.42	175	214	6.61	396	27.9	24.3	18994	11438	29.6	63131	1493	1137	1136	510	193	190	-16.6	-57.0	-158	391
2023-11-14	12:15:00	36.0	8.82	175	212	6.59	395	27.9	24.9	19369	11545	32.1	68114	1495	1141	1141	510	192	190	-39.7	-87.4	-196	346
2023-11-14	12:16:00	36.2	7.67	175	215	6.61	397	27.9	24.3	19294	11545	30.2	64509	1494	1135	1136	510	193	190	-21.9	-63.3	-166	383
2023-11-14	12:17:00	36.3	8.91	175	216	6.61	396	27.9	24.1	19069	11449	31.2	66588	1492	1139	1139	511	193	190	-30.1	-78.9	-176	348
2023-11-14	12:18:00	36.2	8.96	175	216	6.58	395	27.9	24.5	19131	11449	29.5	62924	1493	1136	1136	511	193	190	-16.6	-56.8	-158	369
2023-11-14	12:19:00	36.1	8.21	175	214	6.59	396	27.9	24.3	19131	11449	31.0	66486	1490	1139	1139	511	193	190	-16.0	-62.5	-155	358
2023-11-14	12:20:00	36.1	8.85	175	214	6.60	396	27.9	24.7	19156	11573	29.1	62334	1492	1139	1138	511	193	190	-13.9	-54.6	-154	395
2023-11-14	12:21:00	36.1	8.86	175	214	6.58	395	27.9	25.0	18869	11360	29.1	62222	1493	1142	1142	511	192	190	-9.4	-48.4	-145	403
2023-11-14	12:22:00	36.2	9.16	175	213	6.60	396	27.9	24.7	19219	11478	29.7	63173	1492	1138	1139	511	192	190	-21.1	-61.3	-167	381
2023-11-14	12:23:00	36.0	8.64	175	214	6.58	395	27.9	24.8	19106	11478	29.7	63217	1493	1137	1136	511	193	190	-15.9	-56.8	-158	393
2023-11-14	12:24:00	36.2	8.54	175	213	6.60	396	27.9	25.0	19506	11478	30.4	64557	1494	1132	1132	511	193	190	-22.5	-66.3	-169	379
2023-11-14	12:25:00	36.2	8.69	175	214	6.59	395	28.3	25.0	19238	11478	30.4	64858	1490	1132	1132	511	193	190	-17.1	-57.9	-162	389
2023-11-14	12:26:00	36.0	8.82	175	215	6.59	395	27.3	24.1	19144	11483	30.2	64832	1492	1132	1132	511	193	190	-18.7	-59.4	-163	368
2023-11-14	12:27:00	36.2	8.98	175	216	6.59	396	27.3	24.4	19031	11483	29.7	63943	1490	1136	1136	511	193	190	-12.8	-53.0	-153	377
2023-11-14	12:28:00	36.2	8.21	176	214	6.58	395	28.5	24.1	19038	11478	30.0	64415	1491	1137	1137	511	193	190	-12.5	-52.1	-153	398
2023-11-14	12:29:00	36.2	8.14	175	214	6.58	395	27.5	24.2	18781	11376	29.4	63065	1489	1139	1138	511	192	190	-8.5	-47.4	-145	406
2023-11-14	12:30:00	36.2	8.57	175	215	6.60	396	27.5	25.0	19413	11590	30.0	64186	1491	1136	1137	511	192	190	-19.6	-59.4	-169	382
2023-11-14	12:31:00	36.1	8.72	175	214	6.58	395	27.5	24.7	18900	11371	29.2	62095	1492	1138	1138	511	192	190	-15.2	-56.4	-156	395
2023-11-14	12:32:00	36.0	7.35	175	213	6.61	396	27.5	24.3	19644	11618	30.4	64524	1491	1136	1136	511	192	190	-26.0	-70.1	-176	377
2023-11-14	12:33:00	36.1	8.78	175	214	6.59	395	27.5	24.2	19269	11517	29.7	63431	1489	1134	1134	511	193	190	-15.8	-57.8	-160	386
2023-11-14	12:34:00	36.1	9.49	175	214	6.59	395	27.5	24.1	19569	11539	30.6	65189	1491	1135	1136	511	193	190	-24.2	-67.4	-172	364
2023-11-14	12:35:00	36.2	8.29	175	215	6.60	396	27.5	24.7	19000	11438	30.1	64450	1487	1137	1136	511	193	190	-16.3	-57.0	-158	373
2023-11-14	12:36:00	36.1	8.99	175	214	6.60	396	27.5	24.4	19656	11545	30.3	65011	1491	1138	1138	510	193	190	-20.9	-63.4	-173	383
2023-11-14	12:37:00	36.3	9.36	176	215	6.58	395	27.5	24.1	18931	11438	29.4	63080	1489	1139	1138	511	192	190	-12.8	-53.6	-151	398
2023-11-14	12:38:00	36.1	8.24	175	215	6.60	396	27.5	25.1	19775	11562	31.5	67589	1497	1142	1142	510	192	190	-41.3	-89.5	-202	344
2023-11-14	12:39:00	36.6	9.12	176	215	6.60	396	27.5	24.9	19113	11455	30.1	64212	1492	1140	1140	511	192	190	-18.8	-61.9	-162	385
2023-11-14	12:40:00	36.0	8.57	175	214	6.59	395	27.5	24.1	19444	11455	30.8	65688	1496	1141	1140	511	192	190	-42.2	-90.8	-201	344
2023-11-14	12:41:00	35.6	8.71	175	215	6.60	396	27.5	24.2	19194	11455	30.4	65078	1493	1135	1136	511	193	190	-21.2	-62.0	-169	381
2023-11-14	12:42:00	35.3	8.38	175	214	6.59	395	27.5	25.1	19088	11455	31.7	67621	1492	1133	1134	510	193	190	-31.9	-80.0	-179	348
2023-11-14	12:43:00	35.2	8.63	175	217	6.58	395	28.4	24.1	19069	11433	30.2	64612	1490	1129	1129	510	193	190	-18.2	-60.3	-159	373
2023-11-14	12:44:00	35.3	8.52	175	216	6.61	396	28.1	24.5	18825	11332	30.5	65801	1487	1132	1132	509	192	190	-15.5	-59.5	-158	362
2023-11-14	12:45:00	35.2	8.69	175	218	6.58	395	28.1	24.3	19000	11343	29.6	63625	1488	1131	1131	509	192	190	-13.9	-55.1	-152	401
2023-11-14	12:46:00	34.0	8.18	175	216	6.61	397	28.1	25.0	18869	11343	29.1	62581	1490	1134	1134	508	191	188	-9.2	-48.3	-145	411
2023-11-14	12:47:00	34.5	8.16	176	218	6.60	396	28.1	24.5	19288	11472	29.7	64027	1493	1128	1128	508	190	188	-19.6	-63.1	-163	388

November 14/2023		Waste Flows							Flows	Air Flows				Temperatures						Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	FT-260-REFDRYHour	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-14	12:48:00	34.1	8.31	175	217	6.59	395	28.1	24.7	19031	11371	29.4	62858	1491	1129	1128	507	189	188	-15.2	-56.5	-153	398
2023-11-14	12:49:00	34.1	8.04	174	214	6.60	396	28.1	24.2	19469	11511	30.2	64633	1494	1122	1122	506	189	188	-23.0	-65.5	-172	381
2023-11-14	12:50:00	35.2	8.87	174	213	6.58	395	28.1	25.1	19250	11405	30.5	65575	1489	1122	1122	506	189	188	-18.3	-58.8	-163	393
2023-11-14	12:51:00	35.4	8.51	175	215	6.61	396	28.1	25.0	19200	11388	30.1	64958	1488	1124	1123	506	189	187	-19.4	-58.6	-166	368
2023-11-14	12:52:00	35.4	8.41	175	215	6.59	396	28.1	24.2	19031	11388	29.6	63940	1491	1127	1127	506	189	187	-16.5	-57.5	-158	379
2023-11-14	12:53:00	35.5	7.70	175	214	6.58	395	28.1	24.2	19331	11506	29.6	64166	1472	1122	1122	506	189	187	-15.8	-56.4	-160	395
2023-11-14	12:54:00	35.9	8.22	175	213	6.59	396	28.1	24.1	18881	11405	29.9	64721	1470	1122	1121	506	188	187	-13.6	-53.3	-150	402
2023-11-14	12:55:00	36.6	7.97	175	214	6.60	396	28.1	24.5	19494	11494	30.3	65449	1470	1123	1123	506	188	186	-22.9	-66.8	-172	379
2023-11-14	12:56:00	36.7	8.45	175	216	6.59	395	28.1	24.2	19150	11393	29.8	64411	1471	1123	1123	506	189	187	-15.9	-56.0	-160	393
2023-11-14	12:57:00	36.6	8.65	174	214	6.61	396	28.1	25.1	19625	11461	30.0	64556	1469	1123	1123	507	189	187	-26.5	-70.1	-180	379
2023-11-14	12:58:00	36.3	8.82	175	214	6.60	396	28.1	24.1	19281	11461	29.8	64242	1468	1119	1119	507	189	187	-18.9	-60.5	-168	390
2023-11-14	12:59:00	36.5	8.85	175	213	6.59	395	28.1	25.2	19606	11567	30.2	65089	1464	1120	1120	507	190	187	-22.4	-66.0	-173	370
2023-11-14	13:00:00	36.3	8.82	175	213	6.59	396	28.1	25.0	18938	11461	29.8	64018	1475	1120	1119	507	190	187	-15.8	-57.5	-160	378
2023-11-14	13:01:00	36.1	8.75	175	214	6.60	396	28.1	24.2	19844	11545	30.0	64949	1492	1122	1122	507	190	187	-21.0	-62.8	-172	391
2023-11-14	13:02:00	36.1	8.43	175	215	6.60	396	28.1	24.3	18738	11332	29.7	64291	1490	1125	1125	507	190	187	-11.4	-50.0	-153	406
2023-11-14	13:03:00	36.0	8.30	175	213	6.58	395	28.1	24.1	19706	11449	31.4	67731	1494	1128	1129	507	189	187	-40.3	-86.1	-203	361
2023-11-14	13:04:00	35.6	7.33	175	214	6.60	397	28.1	25.1	19238	11449	30.1	64481	1489	1123	1123	507	189	187	-18.3	-58.4	-163	394
2023-11-14	13:05:00	35.6	9.09	175	215	7.25	435	28.1	24.7	19463	11567	31.7	67754	1486	1122	1122	507	189	187	-37.4	-86.8	-200	347
2023-11-14	13:06:00	35.6	7.89	175	215	6.58	396	28.1	24.1	19400	11466	30.0	64312	1491	1116	1116	507	190	187	-21.2	-64.8	-169	384
2023-11-14	13:07:00	35.8	8.42	176	215	6.60	396	28.1	25.1	19050	11466	31.8	68438	1487	1119	1118	507	190	187	-30.2	-79.0	-183	348
2023-11-14	13:08:00	36.1	8.61	175	215	6.59	395	28.1	24.1	19175	11466	30.0	64735	1489	1119	1119	507	190	187	-17.5	-59.8	-165	371
2023-11-14	13:09:00	35.7	8.43	175	213	6.60	396	28.1	25.0	18906	11354	31.4	67943	1488	1124	1123	507	190	187	-21.1	-73.5	-161	362
2023-11-14	13:10:00	35.8	8.54	175	214	6.59	395	28.1	25.1	19000	11455	29.8	64537	1488	1124	1123	507	190	187	-14.6	-56.0	-158	397
2023-11-14	13:11:00	35.8	8.66	174	214	6.60	396	28.1	24.7	18825	11444	29.7	63700	1485	1126	1126	507	190	187	-11.1	-50.5	-150	404
2023-11-14	13:12:00	35.7	8.07	174	214	6.60	396	28.1	25.0	19331	11444	30.3	65063	1490	1123	1122	507	190	187	-20.7	-63.0	-171	385
2023-11-14	13:13:00	35.7	8.99	175	214	6.58	395	28.1	25.0	18963	11343	29.8	64056	1487	1121	1121	507	190	187	-15.3	-56.8	-160	397
2023-11-14	13:14:00	35.7	7.90	175	215	6.59	396	28.1	24.1	19431	11472	30.6	65947	1490	1118	1118	507	190	187	-23.4	-65.6	-174	382
2023-11-14	13:15:00	35.6	8.77	175	216	6.58	395	28.1	25.0	19125	11472	29.4	63441	1488	1118	1118	507	190	187	-19.8	-62.6	-167	392
2023-11-14	13:16:00	35.7	8.30	175	212	6.59	395	28.1	24.5	19094	11472	29.9	64626	1484	1117	1117	507	190	187	-18.2	-60.1	-165	372
2023-11-14	13:17:00	35.9	8.48	174	213	6.60	396	28.1	24.1	18963	11365	29.3	63497	1486	1120	1120	506	190	187	-14.7	-55.0	-159	381
2023-11-14	13:18:00	35.9	8.28	175	215	6.58	395	28.1	24.9	19044	11348	29.8	64630	1488	1119	1118	506	189	186	-17.8	-60.6	-162	401
2023-11-14	13:19:00	36.0	8.74	176	215	6.58	395	28.1	24.2	18631	11348	29.3	63840	1486	1124	1124	506	189	186	-9.3	-47.9	-149	407
2023-11-14	13:20:00	36.0	8.30	176	214	6.60	396	28.1	25.0	19500	11551	29.7	64017	1489	1121	1121	505	188	186	-24.7	-68.1	-175	383
2023-11-14	13:21:00	35.7	8.22	175	214	6.60	396	28.1	24.2	18975	11449	30.0	64393	1484	1119	1119	506	188	186	-15.4	-57.0	-162	398
2023-11-14	13:22:00	35.6	8.49	174	214	6.58	395	28.1	24.1	19650	11545	30.2	65036	1487	1118	1119	505	188	186	-26.3	-69.6	-182	379
2023-11-14	13:23:00	35.7	7.56	175	215	6.59	395	28.1	24.6	19138	11433	29.6	63127	1485	1114	1113	505	189	186	-21.9	-64.0	-170	390
2023-11-14	13:24:00	35.8	8.52	175	215	6.60	396	28.1	24.1	19844	11545	29.9	64029	1486	1114	1115	505	189	186	-24.2	-67.3	-178	366
2023-11-14	13:25:00	36.0	8.18	175	217	6.59	395	28.1	24.8	19044	11438	29.6	64004	1484	1117	1117	505	189	186	-17.5	-59.3	-161	375
2023-11-14	13:26:00	35.8	8.88	175	214	7.25	435	28.1	24.3	19744	11556	30.2	65645	1486	1118	1118	505	189	186	-23.9	-67.1	-181	387
2023-11-14	13:27:00	36.4	8.62	175	215	5.25	315	28.1	24.4	18819	11343	29.4	63782	1481	1118	1118	505	189	186	-14.0	-53.9	-157	401
2023-11-14	13:28:00	36.2	8.89	176	214	7.26	436	28.1	24.1	19706	11500	30.9	66691	1489	1123	1124	505	189	186	-43.1	-92.8	-210	348
2023-11-14	13:29:00	36.7	8.49	175	216	7.25	435	28.1	24.8	19081	11399	29.6	64004	1482	1119	1118	506	189	186	-19.5	-62.0	-165	389
2023-11-14	13:30:00	36.4	8.48	175	215	7.26	436	28.1	24.1	19269	11517	31.7	68366	1484	1123	1123	506	189	186	-38.4	-89.8	-202	346
2023-11-14	13:31:00	36.3	8.15	175	214	6.59	395	28.1	24.1	19231	11416	29.8	64329	1484	1122	1122	506	190	186	-21.4	-64.8	-171	386
2023-11-14	13:32:00	36.2	8.27	175	215	7.26	436	28.1	25.0	19025	11416	31.4	67405	1482	1120	1121	507	190	187	-31.9	-82.1	-182	352
2023-11-14	13:33:00	36.3	9.04	176	215	7.25	435	28.1	24.3	18981	11320	29.5	63533	1479	1121	1120	507	190	186	-18.3	-61.8	-164	375
2023-11-14	13:34:00	36.1	8.12	176	215	7.26	436	28.1	24.7	18881	11320	30.5	66158	1480	1124	1123	507	189	186	-16.8	-65.6	-161	364
2023-11-14	13:35:00	36.2	8.22	175	214	7.25	434	28.1	24.2	18938	11326	29.6	64073	1476	1120	1119	507	189	186	-13.9	-54.6	-157	402
2023-11-14	13:36:00	36.3	8.14	175	215	7.24	436	28.1	24.0	18763	11326	29.1	63137	1478	1124	1123	506	189	186	-7.9	-49.4	-148	409
2023-11-14	13:37:00	36.3	8.46	175	213	7.24	435	28.1	24.1	19156	11320	29.4	63324	1482	1118	1119	506	189	186	-19.9	-64.4	-170	385
2023-11-14	13:38:00	36.4	8.36	175	214	7.26	436	28.1	24.4	18950	11421	30.0	64455	1479	1121	1120	506	189	186	-11.7	-51.1	-158	396
2023-11-14	13:39:00	36.3	8.54	176	216	7.26	436	28.1	25.0	19400	11393	30.1	64479	1485	1119	1120	506	189	186	-21.5	-65.8	-175	377
2023-11-14	13:40:00	36.4	8.88	175	215	7.26	436	28.1	25.1	19031	11393	29.5	63490	1483	1119	1118	506	189	186	-18.1	-62.1	-166	389
2023-11-14	13:41:00	36.2	8.48	175	215	7.25	435	28.1	24.9	19094	11405	29.9	64332	1488	1118	1118	506	189	186	-18.9	-60.3	-169	364
2023-11-14	13:42:00	36.2	8.25	175	215	7.25	435	28.1	24.1	18994	11405	28.8	62237	1484	1120	1119	507	189	186	-15.8	-57.4	-161	374
2023-11-14	13:43:00	36.2	7.97	175	214	7.26	435	28.1	24.1	19069	11393	29.5	63962	1485	1121	1122	506	189	186	-17.5	-59.0	-167	393
2023-11-14	13:44:00	36.1	8.39	175	215	7.25	435	28.1	24.2	18856	11292	29.8	64484	1483	1128	1127	506	189	186	-11.5	-50.5	-158	401
2023-11-14	13:45:00	36.0	8.25	175	214	7.26	435	28.1	25.1	19513	11438	29.6	64007	1488	1126	1126	506	189	186	-24.5	-67.1	-179	378
2023-11-14	13:46:00	36.2	7.75	175	214	7.25	435	28.1	24.5	19100	11438	29.2	62904	1487	1125	1124	506	189	186	-16.9	-61.1	-166	391
2023-11-14	13:47:00	36.3	7.99	175	215	7.24	434	28.1	24.1	19563	11438	30.0	64728	1486	1122	1122	506	189	186	-24.4	-70.1	-182	375
2023-11-14	13:48:00	36.4	8.18	175	214	7.26	436	28.1	24.9	19281	11427	30.1	64907	1485	1124	1123	507	190	186	-18.3	-63.6	-171	386
2023-11-14	13:49:00	36.4	7.94	176	214	7.24	435	28.1	24.9	19575	11427	29.4	63376	1486	1125	1125	506	190	186	-20.5	-63.0	-178	367
2023-11-14	13:50:00	36.6	7.55	175	215	7.26	435	28.1	24.3	18775	11303	29.2	63261	1483	1127	1127	506	190	186	-15.1	-57.5	-160	375
2023-11-14	13:51:00	36.3	9.18	176	214	7.24	434	26.1	25.1	19394	11539	29.5	64052	1490	1130	1131	506	190	186	-20.2	-62.5	-176	392
2023-11-14	13:52:00	36.1	8.49	175	214	7.26	436	27.6	25.0	18656	11332	29.1	63177	1483	1130	1130	506	190	186	-9.9	-51.5	-154	402

November 14/2023		Waste Flows							Flows	Air Flows				Temperatures						Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	FT-260-REFDRYHour	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-14	13:53:00	36.4	8.23	174	216	7.24	434	28.6	25.0	19544	11551	30.9	66512	1488	1134	1134	506	189	186	-39.8	-89.5	-208	349
2023-11-14	13:54:00	36.3	7.98	175	215	7.25	435	28.6	24.8	18981	11337	29.4	63038	1484	1130	1130	506	189	186	-16.5	-60.5	-167	392
2023-11-14	13:55:00	36.4	8.44	175	215	6.36	382	28.6	24.8	19350	11444	30.9	66069	1487	1132	1131	506	189	187	-38.4	-87.3	-205	348
2023-11-14	13:56:00	36.3	8.02	175	214	7.25	435	28.6	25.0	19150	11315	30.0	64129	1485	1126	1127	507	190	187	-20.5	-65.3	-172	384
2023-11-14	13:57:00	36.6	8.76	175	214	7.26	435	28.6	25.0	19025	11320	31.3	67188	1483	1128	1128	507	190	187	-32.5	-82.6	-186	351
2023-11-14	13:58:00	36.6	8.43	176	214	4.83	290	28.6	24.9	19075	11326	29.6	64031	1484	1125	1124	507	191	187	-17.4	-62.0	-170	371
2023-11-14	13:59:00	36.7	8.06	176	217	4.98	299	28.6	24.9	18913	11326	29.8	64495	1483	1128	1129	508	191	186	-17.5	-67.5	-165	361
2023-11-14	14:00:00	36.7	8.32	175	217	7.26	435	28.6	24.7	18963	11348	29.6	64067	1484	1130	1130	508	191	187	-13.1	-55.4	-161	394
2023-11-14	14:01:00	36.6	8.80	175	218	7.26	435	28.6	25.0	18831	11348	28.7	61995	1483	1133	1133	508	190	187	-9.2	-49.6	-155	402
2023-11-14	14:02:00	36.7	7.60	175	219	7.24	435	28.6	25.0	19188	11376	29.2	62765	1486	1132	1132	508	191	187	-19.4	-64.6	-174	383
2023-11-14	14:03:00	36.7	8.04	175	218	4.43	266	28.6	24.3	18925	11376	29.3	62823	1484	1133	1133	508	191	187	-15.7	-57.3	-162	394
2023-11-14	14:04:00	36.4	8.22	175	219	7.25	435	27.6	24.9	19244	11511	29.6	63388	1489	1131	1132	508	191	187	-22.7	-70.3	-180	380
2023-11-14	14:05:00	36.5	8.03	176	219	7.24	434	27.7	24.0	19050	11399	29.3	63040	1486	1132	1132	508	191	187	-16.2	-59.3	-170	389
2023-11-14	14:06:00	36.5	8.49	175	215	5.85	351	28.7	25.0	19244	11405	29.0	62475	1485	1132	1132	508	191	187	-14.7	-57.1	-168	368

November 14/2023	Waste Flows							Flows	Air Flows				Temperatures						Pressures			
	Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	SecondaryA	SecondaryB	Quench	SprayDryer	Stack	Incinerator	SDA Inlet	SD Outlet	Baghouse
Test 1	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	Lbs/h	PV-236	PV-209	FT-260-VEL	FT-260-REFDRYHOUR	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
Units	LPM	LPM	LPM	LPM	LPM	SCFM	LPM	SC-PAC-FT	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
Max	36.7	9.69	193	219	7.26	436	28.7	25.2	20188	11725	32.4	70041	1497	1142	1142	511	194	191	-5.6	-42.8	-140	413
Min	34.0	7.33	165	212	3.86	231	25.5	1.9	18631	11292	28.7	61669	1464	1105	1106	502	188	186	-46.4	-96.4	-210	343
Average	36.1	8.58	175	215	6.41	385	27.6	24.5	19367	11512	30.1	64772	1488	1123	1123	508	191	188	-21.3	-63.9	-165	382
Variance	0.1	0.17	2	1	0.63	2264	0.3	2.0	113049	9640	0.5	2492825	22	77	76	5	2	1	66.3	112.4	195	289

November 15/2023		Waste Flows							Flows	Air Flows		Temperatures								Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	tack Velocit	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	260-REFDRYH	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-15	8:49:00	41.4	8.23	175	203	3.81	229	28.2	26.1	19725	11511	30.0	69117	1464	1120	1120	514	195	189	-21.6	-56.1	-167	376
2023-11-15	8:50:00	41.1	7.92	174	203	4.08	245	28.2	25.9	19481	11506	29.2	67195	1465	1120	1120	514	195	189	-17.8	-53.0	-158	385
2023-11-15	8:51:00	41.3	8.40	176	203	3.80	228	28.2	25.7	19531	11506	29.8	68875	1463	1118	1118	513	195	189	-16.7	-48.8	-158	366
2023-11-15	8:52:00	41.2	8.01	175	202	3.42	205	28.2	25.8	19413	11399	29.4	68088	1462	1119	1118	513	194	188	-14.4	-46.3	-149	375
2023-11-15	8:53:00	41.5	7.61	175	223	3.96	238	28.2	25.7	19244	11517	29.4	68314	1465	1119	1119	513	194	188	-16.6	-48.0	-155	387
2023-11-15	8:54:00	41.1	8.12	174	204	3.59	215	28.2	26.3	19244	11511	29.4	67783	1463	1122	1122	512	192	188	-12.6	-44.8	-147	400
2023-11-15	8:55:00	41.2	7.89	176	204	4.02	241	28.2	25.9	19619	11612	29.7	68660	1468	1120	1121	512	192	188	-22.7	-58.5	-167	375
2023-11-15	8:56:00	41.0	8.02	175	206	3.89	233	28.2	26.7	19425	11489	29.1	66769	1467	1119	1119	512	192	188	-16.1	-51.3	-153	384
2023-11-15	8:57:00	41.1	8.08	175	205	3.89	233	28.2	25.8	20063	11596	29.5	67768	1470	1119	1119	513	192	188	-27.0	-61.1	-175	371
2023-11-15	8:58:00	41.1	8.14	175	206	3.86	232	28.2	25.7	19431	11494	29.7	68336	1467	1116	1115	513	192	188	-17.9	-52.5	-164	381
2023-11-15	8:59:00	41.1	8.43	175	206	3.85	231	28.3	25.8	19981	11618	29.4	67806	1467	1115	1115	513	192	188	-23.0	-57.5	-171	363
2023-11-15	9:00:00	41.2	8.30	174	206	3.94	237	28.3	26.2	19444	11405	29.5	68213	1465	1115	1114	513	192	188	-17.5	-50.6	-155	370
2023-11-15	9:01:00	41.2	8.64	175	207	4.00	240	28.2	25.7	20019	11472	29.5	68436	1469	1116	1116	512	192	188	-21.5	-56.5	-170	387
2023-11-15	9:02:00	41.5	8.35	176	207	3.83	230	28.2	26.2	19131	11472	29.1	67867	1467	1117	1117	512	192	187	-12.8	-45.1	-147	395
2023-11-15	9:03:00	41.6	8.34	176	207	3.74	224	28.2	26.7	19981	11601	29.9	69278	1470	1118	1118	512	191	188	-35.9	-70.5	-195	350
2023-11-15	9:04:00	41.7	8.32	175	206	3.78	227	28.2	26.3	19381	11399	28.7	66261	1470	1119	1119	512	192	187	-16.2	-47.6	-158	385
2023-11-15	9:05:00	41.5	8.68	176	207	3.96	238	28.1	25.7	19613	11511	31.0	71210	1468	1120	1120	513	192	188	-39.6	-81.3	-192	343
2023-11-15	9:06:00	41.8	8.07	176	207	4.01	240	28.1	25.9	19381	11511	30.1	69095	1469	1119	1119	513	192	188	-21.3	-55.5	-164	381
2023-11-15	9:07:00	42.0	7.69	176	207	3.84	230	28.1	26.5	19263	11405	30.9	71008	1468	1120	1120	513	192	188	-29.9	-66.5	-173	346
2023-11-15	9:08:00	41.7	8.30	175	207	4.14	248	28.1	25.7	19288	11517	29.5	68187	1469	1121	1121	513	193	188	-15.0	-48.4	-155	369
2023-11-15	9:09:00	41.5	8.41	175	205	4.13	248	28.1	25.6	19225	11393	30.0	69270	1470	1123	1122	513	192	187	-16.3	-54.3	-153	356
2023-11-15	9:10:00	41.6	8.95	176	207	3.95	237	28.1	25.8	19219	11511	28.7	66305	1467	1122	1122	513	193	188	-15.5	-49.5	-152	390
2023-11-15	9:11:00	41.7	8.24	175	206	4.04	242	28.1	26.5	19075	11393	29.2	67323	1467	1126	1125	513	192	188	-9.2	-40.0	-145	397
2023-11-15	9:12:00	41.9	8.82	176	208	4.00	240	28.1	25.7	19388	11489	29.2	66973	1472	1123	1124	513	193	188	-19.4	-53.1	-163	377
2023-11-15	9:13:00	42.2	9.19	175	210	3.84	230	28.1	26.6	19131	11489	28.9	66157	1472	1125	1124	514	193	188	-13.2	-46.1	-154	388
2023-11-15	9:14:00	41.2	8.14	175	205	3.81	229	28.1	25.9	19675	11601	30.3	69506	1471	1122	1123	514	193	188	-23.2	-63.1	-171	373
2023-11-15	9:15:00	41.3	8.18	175	205	4.04	242	28.1	26.6	19538	11494	29.7	68027	1469	1119	1119	514	194	189	-19.4	-52.6	-163	384
2023-11-15	9:16:00	41.3	8.43	174	203	3.99	239	28.1	26.6	19450	11596	30.3	69865	1469	1116	1116	514	194	188	-19.7	-52.5	-162	363
2023-11-15	9:17:00	41.2	7.53	175	203	4.04	242	28.1	25.6	19306	11483	29.0	67098	1469	1117	1116	515	194	189	-14.7	-47.4	-155	373
2023-11-15	9:18:00	41.5	8.57	175	204	3.93	236	28.1	26.6	19425	11573	28.8	66708	1470	1114	1115	515	194	189	-18.3	-53.3	-157	391
2023-11-15	9:19:00	41.5	8.06	174	204	4.01	241	28.1	26.6	19181	11360	28.5	66192	1467	1115	1115	514	194	189	-10.4	-42.8	-146	396
2023-11-15	9:20:00	41.4	7.48	175	204	4.01	240	28.1	26.7	19794	11562	29.2	67478	1469	1114	1115	514	194	189	-23.7	-59.9	-169	378
2023-11-15	9:21:00	41.2	8.69	175	203	4.05	243	28.1	25.7	19281	11438	29.0	67153	1468	1113	1113	514	194	189	-17.3	-49.5	-155	387
2023-11-15	9:22:00	41.3	8.11	176	202	3.96	237	28.1	26.0	19819	11545	29.7	68492	1470	1112	1112	514	193	189	-25.7	-62.6	-173	373
2023-11-15	9:23:00	41.4	7.86	175	204	4.04	243	28.1	25.7	19531	11444	29.7	68634	1467	1110	1110	513	194	189	-19.6	-51.3	-163	384
2023-11-15	9:24:00	41.3	7.91	175	203	4.03	242	28.1	26.6	19844	11652	30.0	69426	1470	1109	1110	513	193	189	-22.9	-58.8	-169	365
2023-11-15	9:25:00	41.4	8.53	175	205	3.99	240	28.1	26.6	19300	11444	29.3	67971	1467	1108	1108	513	193	189	-15.5	-48.5	-155	371
2023-11-15	9:26:00	41.2	8.54	174	203	4.04	243	28.1	26.2	20081	11545	29.6	68865	1471	1110	1110	512	192	188	-23.0	-57.3	-174	389
2023-11-15	9:27:00	41.3	7.96	175	204	4.01	241	28.1	26.7	19356	11433	29.2	67876	1466	1109	1109	512	192	188	-13.3	-45.5	-150	397
2023-11-15	9:28:00	41.2	8.50	176	205	4.03	242	28.1	25.7	20025	11545	30.8	71500	1471	1111	1110	511	191	188	-39.8	-74.9	-197	350
2023-11-15	9:29:00	41.5	8.58	176	205	4.09	246	28.1	26.2	19431	11545	29.3	68173	1466	1106	1107	511	191	188	-18.8	-53.6	-161	384
2023-11-15	9:30:00	41.3	8.27	175	204	4.11	247	28.1	25.9	19844	11444	31.3	72336	1467	1106	1106	511	191	188	-40.5	-80.8	-196	340
2023-11-15	9:31:00	41.6	7.68	174	204	4.07	244	27.4	25.8	19775	11545	29.4	68295	1466	1105	1105	510	191	188	-25.1	-61.3	-168	378
2023-11-15	9:32:00	41.6	7.69	173	204	4.05	243	28.4	26.3	19600	11427	30.9	71642	1466	1104	1104	510	191	188	-34.4	-74.1	-177	346
2023-11-15	9:33:00	41.5	7.33	174	205	4.02	241	27.3	26.6	19506	11534	29.2	68018	1466	1105	1104	510	191	188	-20.7	-56.4	-160	369
2023-11-15	9:34:00	41.6	7.76	173	204	4.14	249	27.3	26.3	19463	11433	31.0	72665	1467	1106	1106	510	190	187	-22.2	-64.5	-157	359
2023-11-15	9:35:00	41.7	9.06	174	205	4.11	246	27.4	25.7	19413	11545	29.1	68078	1465	1105	1106	509	190	187	-16.1	-47.6	-156	394
2023-11-15	9:36:00	42.2	8.42	173	204	4.04	242	27.4	26.1	19194	11421	28.8	67492	1468	1107	1107	509	189	187	-14.0	-49.3	-147	401
2023-11-15	9:37:00	42.4	8.57	172	206	4.12	247	28.5	25.7	19869	11534	29.4	68698	1466	1107	1108	509	189	187	-19.2	-52.5	-163	383
2023-11-15	9:38:00	42.1	8.57	170	206	4.10	246	28.6	25.8	19506	11416	29.4	68409	1468	1108	1108	509	189	187	-13.8	-48.3	-153	394
2023-11-15	9:39:00	42.3	8.69	170	205	4.15	249	28.5	26.7	19881	11539	29.7	68923	1471	1109	1109	508	189	187	-22.6	-56.0	-168	379
2023-11-15	9:40:00	42.4	8.29	170	204	4.07	244	27.4	28.4	19788	11433	28.4	66118	1469	1109	1109	508	189	187	-17.3	-51.9	-159	389
2023-11-15	9:41:00	42.3	8.19	168	204	4.12	247	28.5	28.6	19750	11534	29.7	69466	1469	1111	1110	508	189	187	-18.3	-52.1	-162	368
2023-11-15	9:42:00	42.2	8.33	169	205	4.13	248	28.5	28.3	19525	11433	28.7	67395	1468	1113	1113	508	189	186	-16.6	-50.3	-155	378
2023-11-15	9:43:00	42.3	8.16	168	206	4.17	250	28.4	27.9	19769	11534	29.2	69081	1468	1113	1113	508	189	186	-19.7	-52.6	-160	397
2023-11-15	9:44:00	42.1	7.69	169	204	4.13	248	28.4	28.0	19469	11416	29.1	68534	1469	1114	1113	508	189	186	-12.3	-42.9	-150	402
2023-11-15	9:45:00	42.2	7.69	170	204	4.09	245	27.5	28.3	19806	11528	28.9	67775	1472	1114	1115	507	188	186	-26.1	-63.4	-171	379
2023-11-15	9:46:00	42.2	8.45	170	206	4.04	243	27.6	28.5	19606	11416	29.4	68907	1468	1115	1114	507	189	186	-17.7	-52.0	-158	391
2023-11-15	9:47:00	42.3	8.13	169	206	4.08	245	27.6	27.8	20138	11528	29.4	68705	1473	1114	1114	507	189	186	-30.1	-67.5	-179	376
2023-11-15	9:48:00	42.3	7.01	172	204	4.07	244	27.6	28.8	19644	11523	29.7	69537	1468	1113	1113	507	189	186	-22.9	-57.8	-167	386
2023-11-15	9:49:00	42.2	8.09	171	207	4.10	246	27.6	28.2	20006	11534	29.1	68410	1470	1113	1113	507	190	186	-25.2	-62.4	-173	365
2023-11-15	9:50:00	42.3	8.13	171	207	4.07	244	27.6	28.0	19594	11534	29.6	69503	1470	1111	1111	507	190	186	-18.3	-53.8	-160	374
2023-11-15	9:51:00	42.3	8.41	171	209	4.05	243	27.6	28.8	20113	11534	29.7	69716	1471	1114	1114	507	190	186	-22.7	-55.4	-174	389

November 15/2023		Waste Flows							Flows	Air Flows				Temperatures							Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack		Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C		mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	260-REFDRY	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258		PT-242A	PT-249	PT-615	PDT-622
2023-11-15	9:52:00	42.7	8.00	172	210	4.05	243	27.6	27.9	19425	11433	29.2	68528	1471	1116	1115	507	190	186		-14.0	-48.4	-153	397
2023-11-15	9:53:00	42.2	8.19	171	209	4.07	244	27.6	28.4	20250	11449	31.1	73078	1473	1119	1118	507	190	186		-41.0	-80.1	-200	346
2023-11-15	9:54:00	42.5	9.20	171	210	4.08	245	27.6	28.4	19675	11433	29.7	69417	1468	1115	1115	507	190	186		-15.9	-52.1	-159	386
2023-11-15	9:55:00	42.3	8.51	171	206	4.03	242	27.6	28.9	19931	11433	31.6	73480	1473	1118	1118	507	190	187		-39.7	-82.5	-196	345
2023-11-15	9:56:00	42.5	7.24	171	204	4.03	242	27.6	27.9	19694	11545	29.6	69019	1471	1115	1116	507	190	187		-24.0	-61.3	-166	382
2023-11-15	9:57:00	42.0	8.36	171	204	4.01	241	27.6	28.6	19544	11438	30.8	71888	1471	1115	1115	507	191	187		-31.7	-71.6	-176	351
2023-11-15	9:58:00	42.5	9.10	172	206	4.13	248	27.6	27.9	19563	11427	29.4	68698	1472	1114	1115	507	191	187		-20.4	-56.5	-160	372
2023-11-15	9:59:00	42.4	7.85	171	203	4.01	241	27.6	28.1	19325	11427	30.6	71925	1470	1117	1116	507	190	186		-19.4	-61.4	-157	361
2023-11-15	10:00:00	42.4	8.20	170	205	3.91	235	27.6	28.7	19338	11416	29.3	68778	1469	1117	1116	507	191	186		-16.2	-50.0	-155	397
2023-11-15	10:01:00	42.2	8.16	171	204	3.97	238	27.6	27.9	19213	11416	28.5	66682	1471	1121	1120	507	190	187		-12.0	-45.4	-144	402
2023-11-15	10:02:00	42.3	8.08	171	204	4.07	244	27.6	28.4	19631	11517	29.6	68933	1472	1118	1119	507	190	187		-21.0	-57.3	-163	383
2023-11-15	10:03:00	42.3	8.94	171	204	4.06	243	27.6	28.8	19481	11388	28.9	67282	1471	1118	1118	507	191	187		-16.7	-50.6	-155	394
2023-11-15	10:04:00	42.3	8.03	171	205	4.09	245	27.6	28.3	19831	11500	29.6	68853	1470	1117	1117	507	191	187		-26.1	-65.9	-171	379
2023-11-15	10:05:00	42.4	8.45	171	204	4.09	245	27.6	28.8	19694	11393	29.4	68393	1470	1118	1117	507	191	187		-18.5	-55.0	-161	386
2023-11-15	10:06:00	42.3	8.27	171	204	3.95	237	28.7	28.4	19544	11500	30.3	70726	1470	1116	1117	508	191	187		-18.6	-50.6	-163	366
2023-11-15	10:07:00	42.4	8.36	170	205	3.91	234	27.6	28.6	19381	11281	29.5	69011	1472	1120	1119	508	191	187		-16.2	-51.1	-154	375
2023-11-15	10:08:00	42.4	7.99	171	203	3.97	238	27.6	28.7	19675	11405	30.1	70367	1470	1118	1119	508	191	187		-18.0	-51.4	-159	393
2023-11-15	10:09:00	42.2	8.32	171	204	4.10	246	27.6	28.2	19225	11405	29.4	68561	1474	1120	1119	508	191	187		-12.1	-46.3	-149	399
2023-11-15	10:10:00	42.4	7.84	171	203	3.95	237	27.6	28.8	19794	11528	30.1	69785	1475	1121	1121	507	190	187		-24.2	-61.5	-170	378
2023-11-15	10:11:00	42.3	7.95	170	204	4.10	246	27.6	28.5	19294	11427	30.1	69913	1474	1121	1121	507	191	187		-18.9	-53.0	-157	389
2023-11-15	10:12:00	42.5	8.41	171	203	4.00	240	27.6	28.9	19913	11534	30.5	70436	1473	1120	1121	507	191	187		-26.8	-62.9	-176	373
2023-11-15	10:13:00	42.7	8.92	170	204	4.04	242	27.6	28.6	19563	11427	30.3	70315	1472	1118	1118	508	192	187		-19.9	-55.8	-164	384
2023-11-15	10:14:00	42.4	7.83	171	203	4.07	244	27.6	28.7	19850	11528	30.0	70223	1475	1119	1119	508	192	188		-22.1	-57.1	-169	364
2023-11-15	10:15:00	42.6	7.59	170	205	4.06	244	27.6	27.9	19231	11410	29.6	69054	1474	1120	1119	508	192	188		-16.7	-52.0	-156	373
2023-11-15	10:16:00	42.4	8.15	170	204	4.08	245	27.6	28.7	19819	11517	29.4	68767	1478	1121	1121	508	192	187		-25.0	-60.5	-174	387
2023-11-15	10:17:00	42.5	8.23	170	203	4.05	243	27.6	28.3	19075	11416	29.3	68411	1477	1123	1122	508	192	187		-15.2	-48.3	-151	397
2023-11-15	10:18:00	42.5	8.30	170	204	4.10	246	27.6	28.3	19975	11539	31.3	72803	1478	1126	1126	508	191	188		-40.7	-81.0	-199	344
2023-11-15	10:19:00	42.6	8.17	171	204	4.07	244	27.5	28.1	19344	11326	29.7	68561	1472	1123	1123	508	192	188		-18.7	-52.6	-160	385
2023-11-15	10:20:00	42.5	8.71	170	204	4.04	243	27.5	28.7	19763	11534	31.6	73042	1475	1124	1124	508	192	188		-40.2	-80.6	-195	342
2023-11-15	10:21:00	42.7	8.49	171	204	3.93	236	27.5	27.9	19475	11534	29.8	68963	1473	1122	1122	508	192	188		-20.7	-56.0	-165	377
2023-11-15	10:22:00	42.7	7.70	171	204	4.04	242	27.6	28.2	19275	11433	31.3	72766	1476	1123	1123	508	192	188		-32.8	-73.6	-175	345
2023-11-15	10:23:00	41.4	8.90	172	205	3.92	235	28.6	28.8	19294	11332	29.6	68949	1484	1123	1123	508	192	188		-18.9	-50.5	-161	368
2023-11-15	10:24:00	41.3	8.66	170	204	4.04	242	27.4	27.9	19269	11332	30.5	71200	1484	1122	1122	508	192	188		-18.7	-55.4	-156	357
2023-11-15	10:25:00	41.3	8.46	171	204	4.06	244	28.4	27.8	19206	11427	29.7	69217	1484	1119	1120	508	191	188		-19.5	-55.0	-155	391
2023-11-15	10:26:00	41.2	8.46	171	205	4.07	244	28.4	28.8	19050	11326	29.6	68945	1484	1121	1120	507	191	188		-11.3	-44.4	-148	399
2023-11-15	10:27:00	41.3	7.76	171	206	3.96	237	28.4	28.2	19406	11455	29.3	68146	1483	1118	1118	507	190	188		-22.6	-57.0	-165	380
2023-11-15	10:28:00	41.2	8.25	171	205	4.00	240	28.4	28.9	19175	11348	29.5	68747	1481	1116	1117	507	190	188		-17.4	-51.0	-156	394
2023-11-15	10:29:00	41.5	7.96	171	205	3.98	239	28.4	28.7	19569	11461	29.5	68783	1480	1112	1112	507	190	187		-26.0	-60.4	-172	377
2023-11-15	10:30:00	41.3	9.13	171	205	4.00	240	28.4	27.9	19419	11461	29.3	68348	1482	1113	1113	507	190	187		-21.2	-55.5	-161	382
2023-11-15	10:31:00	41.3	8.23	171	204	3.98	239	28.4	28.4	19500	11461	29.6	69120	1479	1111	1111	506	190	187		-21.4	-54.3	-162	367
2023-11-15	10:32:00	41.2	8.55	171	205	3.99	239	28.4	28.9	19138	11360	29.0	68064	1479	1113	1112	506	190	187		-18.7	-53.3	-156	376
2023-11-15	10:33:00	41.5	8.67	171	206	3.99	239	28.4	28.3	19325	11466	29.3	68643	1479	1112	1112	506	189	187		-21.4	-56.8	-159	393
2023-11-15	10:34:00	41.6	7.92	171	207	4.08	245	28.4	28.6	19044	11360	29.5	69206	1481	1115	1115	506	189	187		-14.1	-44.9	-148	401
2023-11-15	10:35:00	41.4	7.93	171	206	3.99	239	28.5	27.8	19613	11376	30.0	70193	1481	1114	1114	506	189	187		-25.3	-59.1	-171	379
2023-11-15	10:36:00	41.3	8.39	171	204	3.93	236	28.5	27.9	19144	11371	29.3	68194	1478	1112	1112	506	189	187		-19.2	-52.1	-158	391
2023-11-15	10:37:00	41.3	7.84	171	204	4.00	240	28.5	27.9	19856	11483	29.9	69642	1481	1113	1114	505	189	187		-31.1	-66.5	-179	378
2023-11-15	10:38:00	41.4	7.92	171	204	3.96	238	28.5	27.9	19550	11483	29.2	68149	1484	1111	1111	505	189	187		-23.4	-57.8	-167	385
2023-11-15	10:39:00	41.4	7.96	171	205	3.99	239	28.5	28.4	19663	11472	29.4	68551	1483	1112	1111	505	189	187		-26.3	-58.9	-173	364
2023-11-15	10:40:00	41.4	7.88	171	205	3.84	231	28.5	28.1	19238	11365	29.7	69609	1482	1110	1110	505	189	185		-22.6	-55.3	-161	374
2023-11-15	10:41:00	41.1	7.98	171	202	3.78	227	28.5	28.3	19888	11567	29.9	70194	1485	1112	1112	505	188	185		-28.5	-61.0	-178	384
2023-11-15	10:42:00	41.2	8.00	170	205	3.76	226	28.5	28.0	19269	11354	29.7	69747	1485	1110	1110	505	188	185		-16.8	-47.4	-154	396
2023-11-15	10:43:00	41.5	8.98	171	204	3.70	222	28.5	28.7	19969	11461	31.0	72662	1485	1113	1113	504	187	185		-44.6	-84.1	-202	345
2023-11-15	10:44:00	41.7	8.29	172	205	3.93	236	28.5	28.8	19363	11427	30.1	70331	1481	1112	1113	504	188	185		-22.6	-53.6	-166	389
2023-11-15	10:45:00	41.5	8.79	171	205	3.87	232	28.5	28.5	19781	11421	31.8	74649	1483	1114	1114	504	187	185		-45.7	-84.5	-200	345
2023-11-15	10:46:00	41.5	8.09	170	204	3.90	234	28.5	28.7	19531	11421	29.7	69853	1480	1111	1111	504	188	185		-26.3	-60.4	-172	384
2023-11-15	10:47:00	41.4	8.71	171	203	4.06	244	28.5	28.1	19394	11421	30.9	72784	1480	1112	1111	504	188	185		-34.9	-74.5	-179	348
2023-11-15	10:48:00	41.5	7.64	171	204	4.02	241	28.5	28.8	19456	11405	29.2	68730	1481	1111	1111	504	189	185		-21.5	-55.3	-161	369
2023-11-15	10:49:00	41.5	7.76	172	205	4.08	245	28.5	28.0	19156	11416	29.9	70529	1485	1113	1113	504	188	185		-20.4	-53.4	-161	364
2023-11-15	10:50:00	41.5	7.58	171	204	4.05	243	28.5	28.8	19325	11410	29.6	69860	1480	1113	1114	503	188	185		-20.4	-52.0	-159	398
2023-11-15	10:51:00	41.6	8.54	170	205	4.07	244	28.5	27.9	19000	11410	29.0	68441	1481	1116	1116	503	188	185		-16.1	-49.1	-149	402
2023-11-15	10:52:00	41.8	8.43	172	205	4.08	245	28.5	28.9	19444	11511	29.8	69966	1482	1113	1114	503	188	185		-23.6	-55.3	-168	384
2023-11-15	10:53:00	41.8	8.47	171	205	3.98	239	28.5	28.8	19263	11393	29.7	69615	1483	1113	1114	503	188	185		-18.2	-47.1	-158	394
2023-11-15	10:54:00	41.6	7.83	171	205	3.95	237	28.5	28.6	19613	11399	30.0	70196	1479	1110	1110	503	188	185		-27.6	-62.4	-173	379

November 15/2023		Waste Flows							Flows	Air Flows				Temperatures							Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack		Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C		mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	260-REFDRY	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258		PT-242A	PT-249	PT-615	PDT-622
2023-11-15	10:55:00	41.6	8.32	171	205	3.97	238	28.5	28.7	19425	11399	29.4	68817	1480	1111	1110	503	188	185		-23.0	-54.3	-165	388
2023-11-15	10:56:00	41.7	8.07	171	205	3.96	238	28.4	28.0	19538	11388	29.6	69499	1481	1110	1110	503	188	185		-23.9	-54.9	-166	369
2023-11-15	10:57:00	41.5	8.45	170	206	3.93	236	28.4	28.8	19294	11275	29.0	68283	1481	1111	1110	503	188	185		-21.4	-55.4	-160	379
2023-11-15	10:58:00	41.2	8.18	171	205	3.96	237	28.4	28.6	19313	11478	29.2	68681	1483	1110	1110	503	188	184		-22.9	-55.0	-164	392
2023-11-15	10:59:00	41.2	8.74	171	204	4.14	248	28.4	28.3	19194	11371	28.8	67855	1482	1111	1110	502	187	184		-16.8	-48.8	-154	400
2023-11-15	11:00:00	41.3	7.74	170	205	4.02	241	28.4	28.5	19669	11478	29.6	69620	1481	1110	1110	502	187	184		-28.8	-63.1	-173	380
2023-11-15	11:01:00	41.4	8.09	170	204	4.09	245	28.4	28.8	19313	11371	29.1	68422	1480	1108	1108	502	187	184		-25.1	-58.4	-164	391
2023-11-15	11:02:00	41.3	8.53	170	205	4.17	250	27.1	28.4	19913	11421	29.8	69922	1480	1107	1107	502	187	184		-33.6	-69.4	-182	375
2023-11-15	11:03:00	41.6	7.91	171	206	4.13	248	28.2	28.7	19469	11320	29.7	69930	1482	1104	1104	502	187	184		-26.8	-61.3	-170	385
2023-11-15	11:04:00	41.4	7.37	171	205	4.01	240	28.2	28.0	19894	11438	29.5	69727	1481	1104	1104	502	187	184		-27.5	-61.3	-175	366
2023-11-15	11:05:00	41.5	7.66	171	205	4.02	241	28.2	27.8	19338	11438	29.0	68725	1483	1104	1103	501	187	184		-23.8	-57.8	-162	375
2023-11-15	11:06:00	41.5	7.98	171	206	3.87	232	28.2	27.8	19963	11438	29.4	69559	1479	1106	1106	501	186	184		-29.4	-61.1	-179	389
2023-11-15	11:07:00	41.5	8.04	172	207	3.87	232	28.2	28.8	19181	11225	28.7	67717	1482	1107	1107	501	186	184		-20.6	-53.5	-157	401
2023-11-15	11:08:00	41.9	7.88	171	206	4.04	242	28.2	28.2	20144	11433	30.4	71847	1483	1110	1110	501	185	183		-46.2	-84.3	-205	350
2023-11-15	11:09:00	42.0	8.44	171	207	4.02	241	28.2	28.9	19463	11416	28.7	67985	1483	1109	1110	501	186	183		-22.2	-56.0	-165	390
2023-11-15	11:10:00	41.5	8.40	171	208	3.87	232	28.2	27.9	19844	11421	30.6	71986	1482	1109	1110	501	185	183		-47.5	-88.3	-202	347
2023-11-15	11:11:00	42.1	8.47	172	207	3.84	230	28.2	27.8	19519	11523	29.6	69553	1481	1106	1106	500	186	183		-28.5	-65.9	-174	383
2023-11-15	11:12:00	41.9	8.22	172	209	3.91	235	28.2	28.1	19338	11421	30.9	72613	1482	1107	1106	500	186	183		-36.9	-76.0	-183	349
2023-11-15	11:13:00	42.1	7.70	172	207	3.74	224	28.2	27.9	19344	11433	28.9	68227	1483	1109	1109	500	187	183		-23.8	-59.4	-166	371
2023-11-15	11:14:00	42.1	7.77	172	209	3.76	226	28.2	27.8	19194	11332	30.9	73252	1485	1113	1113	500	187	183		-22.9	-66.4	-161	360
2023-11-15	11:15:00	42.2	7.69	172	206	4.07	244	28.2	27.9	19250	11416	29.3	69420	1485	1113	1113	500	187	183		-19.4	-51.4	-160	393
2023-11-15	11:16:00	42.1	8.04	171	204	3.96	237	28.2	28.9	19025	11303	28.8	68136	1487	1116	1116	500	187	183		-14.7	-45.3	-151	403
2023-11-15	11:17:00	42.1	7.53	171	204	4.06	243	28.2	28.6	19475	11416	29.0	68507	1483	1114	1114	500	187	184		-25.0	-60.4	-166	384
2023-11-15	11:18:00	41.9	7.45	171	204	3.75	225	28.2	28.2	19225	11309	28.8	67868	1483	1114	1114	500	187	184		-19.2	-50.4	-159	393
2023-11-15	11:19:00	42.1	7.71	171	205	3.84	230	28.2	27.7	19644	11511	30.1	70466	1484	1115	1114	500	188	184		-27.8	-62.5	-176	377
2023-11-15	11:20:00	42.1	7.76	171	204	3.84	231	28.2	28.3	19356	11416	28.9	67772	1485	1115	1114	500	188	184		-21.7	-56.4	-166	387
2023-11-15	11:21:00	41.9	7.42	171	204	3.67	220	28.2	28.7	19438	11416	29.3	68858	1487	1117	1117	500	189	184		-25.2	-56.4	-168	369
2023-11-15	11:22:00	42.0	8.17	170	204	3.66	220	28.2	27.9	19219	11416	28.9	68087	1486	1120	1120	500	189	184		-19.6	-52.9	-159	377
2023-11-15	11:23:00	41.9	8.45	171	203	3.95	237	28.2	28.6	19369	11405	29.3	69024	1485	1120	1120	501	189	184		-22.2	-57.1	-164	397
2023-11-15	11:24:00	41.9	8.11	172	204	3.97	238	28.3	28.8	19081	11298	28.4	66725	1487	1123	1123	501	189	185		-17.0	-49.4	-155	404
2023-11-15	11:25:00	42.0	7.83	171	205	3.89	233	28.3	28.0	19594	11523	29.9	70260	1489	1125	1125	501	189	185		-26.0	-59.5	-173	380
2023-11-15	11:26:00	42.0	7.76	171	205	3.74	225	28.3	27.9	19075	11298	28.9	67510	1488	1126	1125	501	190	185		-20.6	-54.9	-159	392
2023-11-15	11:27:00	42.0	7.59	171	205	3.91	234	28.3	28.5	19756	11506	29.4	68531	1488	1126	1126	501	190	185		-27.6	-62.6	-181	373
2023-11-15	11:28:00	42.0	8.40	171	205	3.78	227	28.3	28.9	19425	11399	29.3	68326	1492	1126	1125	501	191	186		-25.0	-59.8	-168	385
2023-11-15	11:29:00	42.0	8.07	171	204	3.88	233	28.3	28.1	19756	11523	29.2	68250	1486	1127	1127	501	191	186		-27.2	-61.5	-176	365
2023-11-15	11:30:00	41.8	7.78	171	204	3.74	225	28.3	27.9	19325	11320	28.8	67336	1484	1127	1127	501	191	186		-20.0	-51.9	-163	374
2023-11-15	11:31:00	41.7	7.72	171	204	3.89	233	28.3	28.8	19813	11433	29.3	68755	1480	1129	1129	502	191	186		-27.8	-60.5	-180	384
2023-11-15	11:32:00	41.8	7.79	172	204	3.90	234	28.3	28.2	19150	11326	29.4	68674	1482	1131	1130	502	191	186		-17.2	-49.8	-160	399
2023-11-15	11:33:00	41.6	8.02	171	205	3.93	236	28.3	28.5	19863	11427	30.7	71826	1482	1133	1133	502	191	186		-45.0	-83.6	-202	347
2023-11-15	11:34:00	41.8	7.94	171	205	3.91	235	28.3	28.7	19281	11326	29.4	68578	1485	1129	1130	502	191	186		-20.6	-52.9	-162	384
2023-11-15	11:35:00	41.7	8.04	171	203	4.03	242	28.3	28.5	19400	11433	31.1	72271	1485	1130	1129	502	191	187		-41.3	-81.3	-198	343
2023-11-15	11:36:00	41.8	7.95	171	204	3.86	232	28.3	28.0	19313	11438	29.4	68112	1487	1129	1129	502	192	187		-24.0	-57.9	-168	378
2023-11-15	11:37:00	41.8	8.18	171	204	3.99	240	28.3	28.7	19056	11320	31.1	72421	1486	1129	1129	503	192	187		-33.1	-73.5	-178	347
2023-11-15	11:38:00	41.9	8.29	171	205	3.87	232	28.3	27.9	19144	11320	28.7	66987	1485	1128	1129	503	192	187		-19.4	-52.1	-161	371
2023-11-15	11:39:00	41.9	7.96	171	205	3.85	231	28.3	28.0	18775	11320	29.5	68754	1489	1130	1129	503	192	187		-16.0	-50.3	-160	359
2023-11-15	11:40:00	41.9	8.30	172	206	3.79	227	28.2	28.7	18994	11315	29.3	68455	1486	1130	1130	503	192	187		-18.5	-50.5	-156	392
2023-11-15	11:41:00	41.8	7.88	171	205	3.84	231	28.2	28.0	18713	11208	28.5	66438	1486	1135	1135	503	192	187		-12.1	-43.0	-146	397
2023-11-15	11:42:00	42.0	7.87	171	205	3.82	229	28.2	28.1	19181	11393	29.1	67343	1487	1134	1134	503	192	187		-20.4	-52.4	-165	378
2023-11-15	11:43:00	41.9	8.73	171	204	3.85	231	28.2	28.3	19038	11292	28.6	66178	1491	1135	1134	503	192	188		-16.3	-47.0	-155	390
2023-11-15	11:44:00	41.9	7.85	171	203	3.94	237	28.2	28.0	19331	11303	29.6	68354	1488	1134	1134	504	193	188		-27.2	-62.5	-172	375
2023-11-15	11:45:00	41.9	7.52	170	204	3.85	231	28.2	27.9	19131	11303	29.2	67651	1489	1132	1132	504	193	188		-22.0	-56.8	-164	386
2023-11-15	11:46:00	42.3	8.10	171	205	3.88	233	28.2	28.7	19144	11405	29.0	67190	1489	1131	1131	504	193	188		-20.7	-55.1	-164	362
2023-11-15	11:47:00	42.0	7.74	171	205	3.86	231	28.2	28.9	18875	11303	28.9	67064	1488	1135	1134	504	193	188		-17.0	-50.9	-155	373
2023-11-15	11:48:00	42.1	8.01	171	204	3.86	231	28.2	28.0	19125	11427	29.1	67662	1488	1135	1136	504	194	188		-19.1	-54.3	-162	389
2023-11-15	11:49:00	42.0	8.15	171	205	3.84	230	28.2	28.8	18819	11309	28.6	66299	1487	1136	1136	505	194	188		-13.4	-46.0	-152	396
2023-11-15	11:50:00	42.0	7.77	171	206	3.84	231	28.2	27.9	19406	11433	29.3	67769	1489	1136	1137	505	193	188		-24.5	-58.9	-171	374
2023-11-15	11:51:00	42.3	7.65	171	207	3.74	224	28.2	28.9	19019	11315	29.3	67411	1488	1137	1137	505	194	189		-18.2	-51.4	-158	384
2023-11-15	11:52:00	42.2	8.53	171	206	3.84	230	28.2	27.9	19456	11405	30.0	69058	1490	1137	1138	505	194	189		-27.3	-61.9	-178	367
2023-11-15	11:53:00	42.2	8.48	171	207	3.84	231	29.2	28.8	19156	11303	29.1	67001	1488	1137	1137	506	194	189		-20.6	-53.4	-165	380
2023-11-15	11:54:00	42.1	7.43	171	206	3.92	235	29.0	28.0	19656	11433	29.7	68088	1489	1137	1137	506	194	189		-23.5	-56.8	-170	358
2023-11-15	11:55:00	42.0	8.19	171	205	4.11	246	29.0	28.1	18906	11214	29.6	68273	1486	1138	1138	506	194	189		-17.4	-49.0	-157	369
2023-11-15	11:56:00	41.6	8.39	170	204	3.92	235	29.0	28.0	19500	11315	29.2	67462	1485	1139	1139	506	194	189		-22.1	-54.4	-174	380
2023-11-15	11:57:00	41.7	7.93	171	204	3.90	234	29.0	28.2	18869	11315	28.9	66743	1483	1140	1139	506	194	189		-12.2	-42.9	-151	392

November 15/2023		Waste Flows							Flows	Air Flows				Temperatures							Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	tack Velocit	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack		Incinerator	SDA Inlet	8H Inlet	8H dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C		mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-3138	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	260-REFDRY	TE-240	T-241A	T-2418	TE-203	TE-204	TE-258		PT-242A	PT-249	PT-615	PDT-622
2023-11-15	11:58:00	42.0	7.66	170	205	3.91	235	29.0	28.7	19600	11315	30.5	70141	1489	1142	1142	507	194	189		-39.6	-76.9	-200	339
2023-11-15	11:59:00	41.9	7.57	171	205	3.89	233	28.8	27.8	19081	11315	28.7	65647	1487	1140	1140	507	194	189		-20.8	-54.3	-161	383
2023-11-15	12:00:00	41.7	7.59	171	204	3.88	233	28.8	28.0	19244	11337	31.5	71989	1486	1140	1140	507	194	190		-40.0	-77.6	-196	339
2023-11-15	12:01:00	41.8	7.79	171	205	3.97	238	28.8	27.8	19131	11337	29.6	67652	1486	1138	1138	507	195	190		-20.3	-53.9	-165	374
2023-11-15	12:02:00	41.8	8.12	171	205	3.89	233	28.8	28.3	19000	11242	31.7	72940	1486	1140	1139	507	195	190		-31.0	-72.0	-174	344
2023-11-15	12:03:00	42.2	7.89	171	205	3.84	231	28.8	27.8	18894	11275	29.6	68448	1486	1139	1139	508	195	190		-17.6	-51.0	-158	363
2023-11-15	12:04:00	41.7	8.42	170	204	3.92	235	28.8	28.7	18894	11275	30.9	71484	1485	1141	1140	508	195	190		-18.5	-59.3	-156	355
2023-11-15	12:05:00	42.1	7.49	171	205	3.80	228	28.8	28.6	18881	11270	29.0	67040	1485	1140	1140	508	195	191		-14.9	-48.0	-154	387
2023-11-15	12:06:00	42.2	7.99	170	205	3.86	231	28.8	28.9	18731	11270	28.9	66395	1489	1144	1144	508	195	190		-11.7	-43.5	-147	395
2023-11-15	12:07:00	42.3	8.00	171	205	3.90	234	28.8	27.9	19106	11371	28.8	66049	1487	1140	1141	508	195	190		-19.7	-51.5	-162	374
2023-11-15	12:08:00	41.5	8.05	170	205	3.86	231	28.8	28.7	19006	11264	28.9	65949	1488	1141	1141	508	195	190		-14.5	-47.8	-153	386
2023-11-15	12:09:00	41.4	7.67	171	205	3.97	238	28.8	27.9	19450	11354	30.0	68076	1483	1139	1140	509	195	190		-25.3	-61.3	-173	373
2023-11-15	12:10:00	41.7	7.12	171	205	3.99	239	28.8	27.9	19106	11354	29.5	67427	1485	1137	1138	509	195	190		-18.3	-52.0	-162	380
2023-11-15	12:11:00	41.5	8.03	171	204	3.85	231	28.8	28.6	19231	11348	29.3	67326	1484	1136	1136	509	195	190		-18.9	-51.3	-161	359
2023-11-15	12:12:00	41.4	8.28	171	203	3.89	234	28.8	28.0	18938	11247	29.3	67483	1484	1137	1137	509	195	190		-14.1	-45.8	-154	367
2023-11-15	12:13:00	41.5	8.36	171	205	3.99	239	28.8	28.9	19169	11253	29.6	68464	1487	1137	1137	509	195	190		-17.8	-52.6	-158	386
2023-11-15	12:14:00	41.6	8.17	171	205	3.94	237	28.8	27.9	18675	11253	28.7	66311	1483	1139	1138	509	195	190		-11.5	-42.3	-145	393
2023-11-15	12:15:00	41.5	7.62	171	204	3.85	231	28.8	28.0	19319	11348	29.5	67915	1487	1138	1139	509	194	190		-22.8	-57.5	-168	373
2023-11-15	12:16:00	41.6	7.59	170	205	3.96	238	28.8	28.6	18913	11348	28.9	66048	1487	1138	1138	509	194	190		-15.9	-49.3	-156	383
2023-11-15	12:17:00	41.6	7.72	171	205	4.02	241	28.8	28.4	19481	11360	30.1	68814	1486	1139	1139	509	194	190		-27.1	-64.4	-174	367
2023-11-15	12:18:00	41.6	8.03	171	205	3.90	234	28.8	28.9	18969	11360	29.7	67854	1486	1140	1139	509	195	190		-19.1	-51.4	-161	378
2023-11-15	12:19:00	41.7	8.48	171	203	3.88	233	28.8	28.0	19600	11371	29.5	67513	1485	1139	1139	510	195	190		-20.4	-53.5	-168	358
2023-11-15	12:20:00	41.6	8.20	173	205	3.95	237	28.8	28.0	18819	11264	29.6	67977	1485	1138	1138	510	195	190		-16.1	-49.0	-156	367
2023-11-15	12:21:00	41.5	8.33	172	203	4.00	240	28.8	28.7	19544	11371	29.5	67879	1487	1139	1139	510	195	190		-21.0	-55.0	-174	379
2023-11-15	12:22:00	41.4	8.13	172	204	4.00	240	28.8	28.1	18700	11270	29.0	66786	1482	1139	1139	510	195	190		-13.0	-45.1	-151	390
2023-11-15	12:23:00	41.4	8.41	173	205	4.03	242	28.8	28.2	19425	11315	31.4	71957	1487	1140	1140	510	195	190		-36.4	-74.4	-197	339
2023-11-15	12:24:00	41.8	8.33	173	206	3.96	237	28.8	28.7	18900	11197	29.2	66746	1486	1138	1138	510	196	190		-14.8	-47.9	-157	379
2023-11-15	12:25:00	41.7	8.67	173	206	3.89	234	28.8	28.2	19200	11303	31.5	71797	1489	1141	1140	510	195	191		-37.6	-75.3	-193	337
2023-11-15	12:26:00	41.7	7.45	173	207	3.87	232	28.8	28.0	19206	11315	29.4	67094	1487	1140	1140	511	196	191		-18.0	-50.6	-164	373
2023-11-15	12:27:00	41.2	7.87	172	207	4.04	242	28.8	28.1	18888	11208	30.7	69831	1486	1140	1140	511	196	191		-31.1	-73.4	-174	341
2023-11-15	12:28:00	41.3	8.43	172	206	4.08	245	28.8	28.4	18888	11315	29.4	67163	1486	1139	1139	511	196	191		-17.2	-50.9	-159	363
2023-11-15	12:29:00	41.1	7.55	171	206	3.92	235	28.8	28.0	18913	11214	30.9	70634	1486	1140	1140	510	196	191		-13.6	-52.5	-153	351
2023-11-15	12:30:00	40.8	8.19	172	208	3.77	226	28.8	28.6	18969	11326	29.7	68146	1485	1138	1139	510	196	191		-15.2	-50.4	-154	388
2023-11-15	12:31:00	40.7	8.32	172	209	3.99	239	28.8	28.0	18681	11214	29.0	66324	1482	1137	1138	510	195	191		-8.7	-39.3	-145	395
2023-11-15	12:32:00	40.1	8.64	173	210	4.01	241	28.8	28.0	19256	11354	29.6	67333	1482	1133	1133	510	195	191		-18.6	-54.4	-162	375
2023-11-15	12:33:00	40.1	8.59	171	208	4.07	244	28.8	28.7	18931	11348	29.8	67815	1482	1132	1133	510	194	191		-15.5	-50.1	-153	385
2023-11-15	12:34:00	40.2	8.62	172	207	4.03	242	28.8	27.9	19275	11348	29.8	68258	1481	1128	1128	510	194	190		-22.3	-57.6	-170	368
2023-11-15	12:35:00	40.4	8.38	172	205	4.04	242	28.8	28.8	19150	11348	30.3	69242	1482	1127	1126	509	194	190		-18.2	-53.9	-161	379
2023-11-15	12:36:00	40.5	7.31	172	206	3.88	233	28.8	28.0	19306	11348	29.9	68581	1480	1124	1124	509	193	190		-19.2	-53.3	-162	358
2023-11-15	12:37:00	40.6	7.90	172	205	3.90	234	28.8	28.1	18963	11247	29.2	67472	1484	1127	1127	509	193	190		-16.4	-48.4	-156	369
2023-11-15	12:38:00	40.8	8.19	172	205	4.07	244	28.8	28.8	19019	11376	29.1	67183	1480	1127	1128	509	192	189		-17.7	-50.0	-160	385
2023-11-15	12:39:00	40.8	7.82	172	205	4.08	245	28.8	27.9	18738	11258	29.4	67820	1483	1129	1129	508	192	189		-12.0	-43.9	-147	392
2023-11-15	12:40:00	40.9	8.36	172	204	4.03	242	28.8	28.0	19300	11376	29.6	68202	1481	1130	1131	508	191	189		-21.4	-55.0	-169	374
2023-11-15	12:41:00	40.5	7.91	172	205	4.10	246	28.8	27.9	18950	11258	29.5	67672	1482	1130	1130	508	191	189		-17.5	-51.0	-157	386
2023-11-15	12:42:00	40.4	8.18	171	204	4.05	243	28.8	28.8	19644	11365	29.7	68089	1480	1129	1130	508	191	189		-26.3	-60.0	-176	370
2023-11-15	12:43:00	40.7	8.60	172	203	3.97	238	28.8	28.4	19188	11348	29.6	68002	1479	1127	1127	508	192	189		-20.5	-55.0	-163	381
2023-11-15	12:44:00	40.3	7.67	172	204	4.07	244	28.8	28.8	19544	11371	29.8	68893	1479	1126	1126	508	192	189		-24.7	-58.5	-172	360
2023-11-15	12:45:00	40.7	8.27	172	206	3.93	236	28.8	28.7	18925	11270	29.7	68382	1478	1126	1126	508	192	189		-14.9	-43.0	-159	369
2023-11-15	12:46:00	40.6	7.88	173	205	4.00	240	28.8	28.6	19625	11500	29.8	69006	1480	1127	1126	508	192	188		-22.6	-54.8	-177	381
2023-11-15	12:47:00	40.8	8.34	173	206	4.03	242	28.8	28.1	18869	11275	29.2	67499	1480	1128	1128	508	191	188		-12.5	-47.1	-153	394
2023-11-15	12:48:00	40.6	7.65	173	205	4.07	244	28.8	28.1	19525	11382	31.9	73843	1483	1130	1130	508	191	188		-41.2	-79.9	-200	343
2023-11-15	12:49:00	40.8	8.19	173	206	3.95	237	28.8	27.9	19056	11264	28.8	66118	1481	1126	1126	507	191	188		-15.5	-49.5	-159	378
2023-11-15	12:50:00	40.3	7.55	173	205	3.97	238	28.8	28.2	19375	11270	30.8	70827	1482	1129	1129	507	191	188		-41.0	-81.1	-196	339
2023-11-15	12:51:00	40.0	8.46	173	205	3.92	235	28.8	28.0	19263	11258	28.8	66170	1482	1125	1125	507	191	188		-23.0	-59.1	-170	375
2023-11-15	12:52:00	40.2	7.66	173	206	4.05	243	28.8	28.7	18913	11258	30.5	70180	1487	1123	1123	507	191	188		-32.7	-72.9	-177	341
2023-11-15	12:53:00	40.0	7.94	173	204	3.96	237	28.8	28.6	18925	11264	29.0	67066	1494	1120	1120	507	191	188		-19.7	-52.0	-163	365
2023-11-15	12:54:00	40.2	7.31	173	204	4.06	243	28.8	28.1	18906	11281	30.1	69735	1495	1123	1122	507	191	188		-19.0	-57.1	-161	355
2023-11-15	12:55:00	39.8	7.38	173	205	4.19	252	28.8	28.8	19000	11264	29.2	67888	1494	1121	1121	506	190	188		-16.4	-45.1	-158	389
2023-11-15	12:56:00	40.0	7.68	173	204	4.22	253	28.8	28.9	18775	11264	28.4	65983	1495	1123	1123	506	190	188		-11.2	-42.1	-148	397
2023-11-15	12:57:00	39.8	7.26	173	204	4.33	260	28.8	28.7	19206	11365	29.1	67358	1485	1121	1121	506	190	187		-19.6	-54.0	-163	376
2023-11-15	12:58:00	39.7	7.70	173	205	4.44	266	28.8	28.0	18963	11354	28.7	66222	1483	1123	1123	506	190	188		-16.3	-49.3	-157	388
2023-11-15	12:59:00	39.8	8.03	173	205	4.37	262	28.8	28.7	19213	11360	29.2	67494	1483	1121	1122	506	190	188		-22.6	-56.5	-171	371
2023-11-15	13:00:00	39.8	8.53	173	207	4.19	252	28.8	28.1	19119	11242	28.6	66182	1484	1120	1119	506	190	187		-20.2	-54.0	-162	382

November 15/2023	Waste Flows								Flows	Air Flows				Temperatures							Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	tack Velocit	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack		Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C		mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	260-REFDRYH	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258		PT-242A	PT-249	PT-615	PDT-622
2023-11-15	13:01:00	39.6	7.35	172	205	4.11	247	29.0	28.3	19213	11354	29.2	67475	1480	1119	1119	505	190	187		-19.7	-54.5	-163	362
2023-11-15	13:02:00	39.7	7.38	174	205	4.04	242	29.0	27.9	18806	11242	28.7	66618	1478	1119	1118	505	190	187		-16.0	-48.8	-155	370
2023-11-15	13:03:00	39.7	8.42	174	204	4.07	244	29.0	28.6	19081	11258	29.3	67820	1479	1118	1118	505	190	187		-18.2	-52.6	-161	389
2023-11-15	13:04:00	39.5	8.13	173	204	4.24	254	29.0	28.2	18731	11258	28.4	66099	1480	1120	1120	505	190	187		-15.0	-50.3	-151	397
2023-11-15	13:05:00	39.6	8.23	173	205	4.22	253	29.0	28.6	19269	11360	29.5	68338	1478	1121	1122	505	189	187		-25.0	-59.5	-172	375
2023-11-15	13:06:00	39.6	7.95	173	203	4.28	257	29.0	28.5	18894	11253	28.7	66577	1479	1119	1119	505	189	187		-18.6	-51.4	-159	385
2023-11-15	13:07:00	39.6	8.15	174	206	4.22	253	29.0	27.9	19344	11360	29.1	67134	1475	1118	1118	505	189	187		-28.8	-66.3	-179	371
2023-11-15	13:08:00	39.7	7.85	173	206	4.21	252	29.0	28.5	19206	11360	28.5	65914	1476	1116	1116	504	189	187		-22.8	-58.0	-167	379
2023-11-15	13:09:00	39.5	7.57	173	206	4.17	250	29.0	28.2	19381	11371	29.2	67544	1476	1116	1116	504	189	187		-24.0	-54.4	-177	360
2023-11-15	13:10:00	39.6	7.46	173	206	4.24	254	29.0	28.4	19006	11281	28.9	67126	1473	1117	1116	504	189	187		-19.5	-51.9	-162	368
2023-11-15	13:11:00	39.3	7.98	173	206	4.12	247	29.0	28.5	19900	11405	28.5	66421	1472	1116	1116	504	188	186		-25.3	-59.0	-177	381
2023-11-15	13:12:00	39.2	7.62	172	207	4.21	253	29.0	28.2	18913	11298	28.8	67080	1471	1113	1113	503	188	186		-14.4	-48.0	-155	392
2023-11-15	13:13:00	39.2	7.98	173	207	4.13	248	29.0	28.1	19463	11410	30.5	70830	1472	1117	1116	503	187	186		-44.2	-82.5	-203	341
2023-11-15	13:14:00	39.1	7.21	173	206	4.20	252	29.0	28.9	18969	11309	28.7	66675	1470	1113	1113	503	187	186		-19.9	-54.3	-163	383
2023-11-15	13:15:00	39.1	7.76	173	204	4.14	248	29.0	27.9	19306	11202	30.9	71726	1470	1116	1115	503	187	186		-44.5	-85.9	-200	340
2023-11-15	13:16:00	39.6	7.76	174	205	4.02	241	29.0	28.8	19131	11303	29.0	67139	1471	1111	1112	502	187	186		-23.6	-55.4	-172	376
2023-11-15	13:17:00	39.6	7.40	173	204	4.08	245	29.0	28.7	19063	11303	30.7	71566	1470	1113	1112	502	188	186		-35.1	-77.0	-181	347
2023-11-15	13:18:00	39.5	7.70	173	204	4.15	249	29.0	28.7	19125	11281	28.3	66084	1471	1112	1112	502	188	186		-20.3	-55.0	-166	365
2023-11-15	13:19:00	40.0	7.61	174	206	4.47	268	29.0	28.3	18888	11292	29.6	69413	1475	1114	1113	502	188	185		-16.5	-50.5	-163	356
2023-11-15	13:20:00	39.6	8.47	173	205	4.32	259	29.0	28.8	18956	11287	28.8	67235	1475	1114	1114	502	188	185		-17.3	-50.0	-159	390
2023-11-15	13:21:00	39.5	8.25	174	205	4.23	254	29.0	28.2	18744	11180	28.5	66526	1474	1117	1117	502	187	185		-12.0	-42.8	-150	396
2023-11-15	13:22:00	39.5	7.72	173	205	4.58	275	29.0	28.3	19125	11298	28.8	67045	1474	1115	1116	502	187	185		-22.5	-56.0	-168	379
2023-11-15	13:23:00	40.0	7.76	174	205	4.25	255	29.0	28.9	18863	11298	29.0	67368	1473	1116	1115	501	187	185		-16.4	-49.6	-158	390
2023-11-15	13:24:00	40.0	7.60	173	206	4.33	260	29.0	28.3	19213	11292	28.7	66463	1474	1113	1114	501	187	185		-26.1	-63.1	-175	374
2023-11-15	13:25:00	40.0	7.76	173	204	4.51	271	29.0	28.5	19088	11303	28.4	66210	1475	1115	1114	501	188	185		-20.2	-53.1	-167	383
2023-11-15	13:26:00	40.2	8.62	173	205	4.53	272	29.0	28.8	19100	11315	29.0	67929	1475	1113	1114	501	188	185		-21.2	-54.9	-167	364
2023-11-15	13:27:00	40.2	8.37	174	205	4.63	278	29.0	28.1	18850	11208	28.5	66589	1472	1117	1116	501	188	185		-17.5	-48.3	-163	372
2023-11-15	13:28:00	40.4	8.14	174	206	4.60	276	29.0	28.3	18950	11332	28.8	67884	1474	1117	1117	501	188	185		-19.1	-51.8	-163	388
2023-11-15	13:29:00	40.4	7.76	173	205	4.55	273	29.0	28.8	18719	11219	28.5	66558	1475	1122	1122	501	188	185		-13.0	-45.1	-153	397
2023-11-15	13:30:00	40.2	7.27	172	205	4.58	275	29.0	28.4	19194	11320	29.3	68138	1475	1123	1124	501	188	185		-24.0	-57.5	-173	375
2023-11-15	13:31:00	40.3	7.76	173	204	5.07	304	29.0	28.4	18906	11230	28.8	66725	1473	1121	1121	501	188	186		-17.5	-50.1	-160	387
2023-11-15	13:32:00	40.2	7.77	173	206	4.74	284	29.0	27.9	19500	11376	29.3	67975	1473	1121	1121	501	188	186		-29.2	-64.6	-180	370

November 15/2023	Waste Flows							Flows	Air Flows				Temperatures							Pressures			
	Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	tack Velocit	Stack Flow	Primary	SecondaryA	SecondaryB	Quench	SprayDryer	Stack		Incinerator	SDA Inlet	SD Outlet	Baghouse
Test 2	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	Lbs/h	PV-236	PV-209	FT-260-VEL	260-REFDRYH	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258		PT-242A	PT-249	PT-615	PDT-622
Units	LPM	LPM	LPM	LPM	LPM	SCFM	LPM	5C-PAC-FT	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C		mmH2O	mmH2O	mmH2O	mmH2O
Max	42.7	9.20	176	223	5.07	304	29.2	28.9	20250	11652	31.9	74649	1495	1144	1144	515	196	191		-8.7	-39.3	-144	404
Min	39.1	7.01	168	202	3.42	205	27.1	25.6	18675	11180	28.3	65647	1462	1104	1103	500	185	183		-47.5	-88.3	-205	337
Average	41.4	8.08	172	205	4.01	241	28.4	27.9	19343	11392	29.5	68637	1478	1121	1121	507	191	187		-22.0	-56.5	-165	376
Variance	0.7	0.17	3	3	0.03	115	0.2	0.9	112621	9650	0.5	3036843	57	102	102	15	7	4		57.6	93.0	162	258

November 16/2023		Waste Flows							Flows	Air Flows				Temperatures						Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	T-260-REFDRYHo	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-16	9:11:00	40.6	8.49	169	184	5.57	334	27.0	26.3	19394	11455	28.9	68992	1478	1102	1101	504	201	191	-27.9	-62.0	-186	389
2023-11-16	9:12:00	40.5	8.53	170	187	5.58	335	26.8	26.4	18488	11354	29.5	70107	1479	1101	1101	504	201	192	-17.5	-50.0	-165	401
2023-11-16	9:13:00	40.7	8.24	169	187	5.56	334	26.8	26.2	19269	11596	30.0	70487	1480	1105	1104	503	200	192	-42.0	-75.6	-215	350
2023-11-16	9:14:00	40.9	8.50	169	187	5.59	335	26.8	27.1	18781	11354	28.7	66973	1479	1103	1103	503	200	192	-23.9	-61.9	-175	387
2023-11-16	9:15:00	41.2	8.20	169	186	5.59	335	26.8	26.2	19181	11472	30.8	71809	1481	1105	1104	503	199	192	-45.0	-85.9	-213	346
2023-11-16	9:16:00	41.0	8.72	169	189	5.61	337	26.8	26.2	18869	11371	29.3	68384	1479	1104	1104	503	199	192	-25.4	-61.4	-176	375
2023-11-16	9:17:00	41.0	8.49	168	188	5.59	335	26.8	26.2	18713	11371	30.2	70594	1481	1106	1106	503	199	192	-33.7	-75.0	-189	345
2023-11-16	9:18:00	41.2	8.59	169	189	5.57	334	26.8	26.2	18800	11360	29.0	67870	1484	1108	1107	504	199	192	-21.1	-55.8	-169	364
2023-11-16	9:19:00	41.3	8.40	169	188	5.60	336	26.8	26.3	18400	11236	30.4	71190	1487	1112	1111	503	199	192	-23.1	-66.0	-167	354
2023-11-16	9:20:00	41.2	9.03	170	189	5.34	320	26.8	26.5	18338	11343	28.4	66336	1486	1112	1111	504	199	192	-15.9	-50.0	-160	391
2023-11-16	9:21:00	41.1	8.61	169	190	4.95	297	26.8	26.6	18225	11230	28.5	66464	1488	1118	1117	503	198	192	-9.7	-41.4	-151	399
2023-11-16	9:22:00	41.1	8.34	169	191	4.84	290	26.8	27.2	18863	11371	28.5	65874	1489	1117	1117	504	198	192	-20.7	-55.1	-171	378
2023-11-16	9:23:00	41.1	8.80	169	191	4.37	262	26.8	27.0	18481	11225	28.6	65909	1486	1116	1116	504	198	192	-17.2	-51.1	-162	385
2023-11-16	9:24:00	41.1	9.15	170	191	4.29	257	26.8	26.3	19025	11343	29.6	68029	1486	1115	1115	505	198	192	-26.4	-62.4	-178	371
2023-11-16	9:25:00	41.3	8.88	169	191	4.30	258	26.8	26.3	18700	11343	28.6	65994	1486	1116	1115	505	199	192	-20.7	-56.8	-169	380
2023-11-16	9:26:00	41.5	8.98	169	190	4.31	258	26.8	27.2	18763	11348	29.0	67007	1485	1117	1116	505	199	193	-21.2	-56.0	-173	360
2023-11-16	9:27:00	41.0	9.20	168	188	4.26	255	26.8	27.2	18538	11348	28.7	66510	1489	1120	1119	505	199	192	-17.9	-50.1	-165	367
2023-11-16	9:28:00	40.9	9.25	169	189	4.27	256	26.8	26.9	18838	11455	29.3	68203	1486	1119	1120	506	199	192	-21.9	-57.6	-171	390
2023-11-16	9:29:00	41.1	7.97	169	189	4.22	253	26.8	27.2	18506	11354	28.8	66461	1489	1120	1120	506	199	193	-14.4	-48.6	-159	398
2023-11-16	9:30:00	41.3	9.48	169	190	4.26	255	26.8	26.7	19044	11455	29.4	67707	1486	1122	1123	506	199	193	-27.3	-63.3	-182	375
2023-11-16	9:31:00	41.1	9.30	168	188	4.26	255	26.8	26.5	18575	11354	29.0	66814	1489	1121	1122	506	199	193	-20.7	-55.0	-169	386
2023-11-16	9:32:00	41.1	7.87	169	189	4.27	256	26.8	27.2	19150	11455	29.4	68063	1487	1120	1121	507	199	193	-30.3	-67.5	-189	370
2023-11-16	9:33:00	40.7	8.62	169	189	4.24	254	26.8	26.9	18800	11354	29.1	67231	1486	1118	1118	507	200	193	-25.2	-61.1	-176	379
2023-11-16	9:34:00	40.9	8.82	169	188	4.28	257	26.8	27.1	19094	11354	29.0	66887	1485	1119	1118	508	201	194	-24.4	-60.3	-179	360
2023-11-16	9:35:00	40.9	9.14	169	187	4.26	255	26.8	26.2	18600	11354	28.9	66979	1489	1120	1120	508	201	194	-21.8	-56.4	-168	370
2023-11-16	9:36:00	41.0	8.99	170	188	4.28	257	26.8	27.0	19188	11472	29.2	67844	1488	1121	1122	508	201	194	-23.6	-56.6	-180	383
2023-11-16	9:37:00	41.2	8.65	170	190	4.24	254	26.8	26.2	18356	11253	28.9	67079	1491	1123	1122	508	201	194	-14.1	-47.5	-157	395
2023-11-16	9:38:00	41.0	9.08	171	190	4.27	256	26.8	26.8	18950	11461	30.2	69696	1490	1125	1125	508	200	194	-42.9	-83.4	-208	346
2023-11-16	9:39:00	41.3	8.29	170	190	4.25	255	26.8	26.8	18719	11337	28.8	66237	1489	1124	1124	509	201	194	-18.3	-53.1	-169	382
2023-11-16	9:40:00	41.2	9.74	170	189	4.23	254	26.8	26.4	18919	11438	31.7	72535	1494	1125	1125	509	201	194	-41.9	-82.9	-206	340
2023-11-16	9:41:00	41.2	8.47	171	190	4.25	255	26.8	26.3	18738	11438	29.6	67564	1490	1123	1124	509	201	195	-22.4	-57.9	-175	376
2023-11-16	9:42:00	41.0	9.13	169	187	4.21	253	26.8	27.0	18500	11309	30.6	69899	1493	1124	1124	509	201	195	-33.6	-74.1	-188	345
2023-11-16	9:43:00	40.8	9.31	170	188	4.25	255	26.8	26.7	18531	11444	28.8	65858	1493	1123	1124	510	202	195	-21.1	-55.5	-169	365
2023-11-16	9:44:00	40.8	8.70	169	186	4.22	253	26.8	26.2	18425	11332	30.1	69174	1492	1124	1124	510	202	195	-18.4	-56.6	-167	353
2023-11-16	9:45:00	41.2	9.07	171	188	4.25	255	26.8	26.3	18456	11348	28.7	66200	1492	1124	1125	510	203	195	-18.3	-53.1	-163	391
2023-11-16	9:46:00	41.1	8.38	170	188	4.22	253	26.8	26.9	18225	11236	29.2	67107	1496	1128	1128	510	202	195	-11.2	-43.1	-154	395
2023-11-16	9:47:00	41.2	8.95	170	188	4.25	255	26.8	27.2	18519	11326	29.4	67423	1492	1126	1127	510	203	196	-24.1	-52.6	-171	375
2023-11-16	9:48:00	40.8	8.94	170	186	4.25	255	26.8	26.3	18663	11326	29.0	66372	1491	1116	1116	508	202	196	-23.4	-48.4	-162	386
2023-11-16	9:49:00	40.8	9.02	170	186	4.25	255	26.8	26.3	19094	11427	29.6	67831	1486	1111	1111	507	202	196	-31.9	-59.1	-176	371
2023-11-16	9:50:00	41.2	8.85	169	188	4.23	254	26.8	26.9	18744	11320	29.0	66227	1489	1111	1111	507	202	196	-27.1	-53.8	-168	380
2023-11-16	9:51:00	41.3	8.88	171	188	4.27	256	26.8	26.2	18819	11438	29.1	66718	1491	1113	1112	507	202	196	-26.1	-50.4	-170	361
2023-11-16	9:52:00	41.3	8.38	169	190	4.24	254	26.8	26.8	18675	11332	29.0	66756	1489	1114	1113	507	202	196	-23.9	-49.8	-161	369
2023-11-16	9:53:00	41.2	8.50	171	189	4.26	255	26.8	26.2	18844	11438	29.1	66707	1489	1114	1114	508	202	196	-23.4	-49.5	-163	390
2023-11-16	9:54:00	41.1	8.98	169	189	4.23	254	26.8	27.1	18619	11219	28.7	65970	1492	1115	1115	508	201	196	-17.9	-41.4	-154	395
2023-11-16	9:55:00	40.8	9.35	171	191	4.29	258	26.8	27.1	19356	11466	29.6	67788	1488	1116	1116	508	201	196	-29.7	-56.3	-176	371
2023-11-16	9:56:00	40.8	9.11	170	190	4.24	254	26.8	27.0	18863	11365	28.7	65609	1490	1114	1114	508	201	196	-25.5	-51.4	-164	382
2023-11-16	9:57:00	40.7	8.28	169	188	4.23	254	26.8	26.3	19381	11483	29.7	68005	1488	1114	1114	509	201	196	-36.3	-64.0	-185	366
2023-11-16	9:58:00	40.5	8.78	169	191	4.84	290	26.8	26.2	18938	11376	29.5	67350	1486	1110	1111	509	202	196	-31.4	-56.6	-175	375
2023-11-16	9:59:00	40.6	8.73	170	192	4.86	291	26.8	26.5	19413	11371	29.3	66928	1488	1110	1110	510	202	196	-35.2	-61.6	-184	357
2023-11-16	10:00:00	40.5	8.21	171	190	4.88	293	26.8	26.2	18844	11371	29.2	66964	1488	1110	1109	510	202	196	-27.9	-53.8	-168	364
2023-11-16	10:01:00	40.2	9.03	170	190	4.88	293	26.8	26.5	19394	11500	29.1	67092	1487	1113	1113	510	202	196	-35.2	-61.5	-184	379
2023-11-16	10:02:00	40.4	8.13	170	190	4.86	292	26.8	26.4	18588	11287	28.6	66095	1487	1111	1111	510	203	196	-25.1	-50.3	-161	392
2023-11-16	10:03:00	40.5	8.97	169	190	4.88	293	26.8	26.5	19469	11500	30.9	71044	1486	1112	1112	510	203	196	-51.3	-82.1	-208	344
2023-11-16	10:04:00	40.7	8.54	170	190	4.87	292	26.8	26.3	18850	11388	29.1	66614	1483	1111	1111	511	203	196	-27.2	-55.4	-170	380
2023-11-16	10:05:00	40.4	8.62	170	188	5.29	317	26.8	26.4	19106	11405	31.1	71321	1484	1112	1112	511	203	197	-46.5	-78.6	-204	339
2023-11-16	10:06:00	40.7	8.38	170	190	5.42	325	26.8	26.9	18850	11410	29.3	67099	1486	1110	1111	511	204	197	-30.7	-59.5	-175	374
2023-11-16	10:07:00	40.8	8.77	170	189	5.57	334	26.7	26.3	18831	11303	31.1	71127	1488	1114	1113	512	204	197	-38.8	-68.4	-185	342
2023-11-16	10:08:00	40.7	9.13	170	189	5.67	340	26.6	26.6	18694	11382	29.0	66606	1489	1116	1115	512	204	197	-23.5	-47.8	-165	363
2023-11-16	10:09:00	40.4	8.95	170	188	5.68	341	26.4	26.6	18531	11275	30.1	69074	1490	1120	1119	512	204	197	-22.2	-51.5	-163	352
2023-11-16	10:10:00	40.6	9.33	170	188	5.65	339	26.7	26.6	18481	11275	28.1	64380	1493	1122	1122	513	205	197	-20.1	-44.6	-157	386
2023-11-16	10:11:00	40.3	9.10	169	187	5.66	340	26.7	27.0	18200	11275	29.0	66416	1495	1126	1125	513	205	198	-15.0	-39.8	-149	396

November 16/2023		Waste Flows							Flows	Air Flows				Temperatures							Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack		Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C		mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	T-260-REFDRYHo	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258		PT-242A	PT-249	PT-615	PDT-622
2023-11-16	10:12:00	40.3	8.60	171	189	5.66	340	26.7	27.1	18756	11376	29.7	67392	1490	1125	1125	514	205	198		-26.1	-53.0	-169	374
2023-11-16	10:13:00	40.3	8.45	170	189	5.66	340	26.7	26.6	18519	11264	28.9	65313	1493	1127	1126	515	206	198		-20.0	-43.3	-158	383
2023-11-16	10:14:00	40.1	8.22	170	188	5.63	338	26.7	26.5	18931	11371	29.8	66971	1491	1125	1125	516	207	199		-28.3	-54.5	-175	366
2023-11-16	10:15:00	40.3	8.96	170	189	5.64	338	26.5	27.0	18688	11258	29.5	66658	1494	1126	1125	517	208	199		-25.7	-53.9	-167	376
2023-11-16	10:16:00	40.5	8.81	170	187	5.66	340	27.6	27.2	18663	11360	29.4	66659	1494	1127	1126	519	208	199		-26.0	-51.8	-169	357
2023-11-16	10:17:00	40.5	9.27	170	189	5.65	339	27.6	26.3	18544	11242	29.2	66254	1497	1130	1129	519	208	199		-21.3	-48.6	-160	364
2023-11-16	10:18:00	40.2	8.09	170	188	5.59	336	26.6	27.0	18500	11337	29.5	67165	1496	1132	1131	520	209	200		-22.6	-48.4	-163	384
2023-11-16	10:19:00	40.2	8.87	170	188	5.59	335	26.6	27.1	18363	11236	29.1	66015	1501	1133	1133	520	209	200		-15.4	-40.9	-151	389
2023-11-16	10:20:00	40.7	8.81	170	190	5.58	335	26.6	26.2	18888	11332	29.3	65898	1497	1135	1134	521	209	200		-24.8	-54.0	-171	368
2023-11-16	10:21:00	40.7	8.90	170	189	5.62	337	27.5	26.2	18450	11219	28.9	64914	1500	1136	1136	522	209	201		-19.0	-44.9	-159	378
2023-11-16	10:22:00	40.1	8.34	169	186	5.60	336	27.1	27.1	18925	11433	29.8	66817	1499	1138	1138	522	210	201		-30.3	-56.8	-178	364
2023-11-16	10:23:00	39.6	9.87	170	188	5.63	338	27.1	26.4	18488	11309	29.2	65689	1499	1136	1136	523	211	201		-25.5	-53.1	-166	374
2023-11-16	10:24:00	39.5	8.86	170	194	5.61	336	27.1	26.2	18944	11421	30.0	66895	1498	1134	1135	522	211	202		-26.4	-54.4	-172	354
2023-11-16	10:25:00	39.8	8.64	170	195	5.65	339	27.1	26.4	18463	11303	29.6	66072	1500	1133	1134	522	210	202		-20.0	-45.4	-157	362
2023-11-16	10:26:00	39.8	9.45	170	194	5.63	338	27.1	26.3	19069	11393	29.4	66167	1501	1134	1134	522	209	201		-24.7	-48.8	-172	378
2023-11-16	10:27:00	40.0	8.77	170	194	5.62	337	27.1	26.2	18206	11287	29.1	65376	1503	1136	1135	521	208	201		-14.7	-39.6	-151	387
2023-11-16	10:28:00	39.6	8.61	170	193	5.63	338	27.1	26.3	19063	11399	30.5	68261	1502	1139	1139	521	207	201		-44.8	-74.9	-200	342
2023-11-16	10:29:00	39.8	9.50	170	193	5.60	336	27.1	26.3	18363	11287	29.2	64980	1503	1138	1138	522	207	201		-21.4	-46.1	-161	376
2023-11-16	10:30:00	39.7	9.13	170	195	5.62	337	27.1	26.9	18681	11405	30.6	68129	1504	1140	1139	521	207	201		-43.3	-74.6	-198	334
2023-11-16	10:31:00	39.5	8.79	170	194	5.61	337	27.1	26.9	18619	11292	29.0	64469	1496	1136	1137	522	207	201		-26.6	-53.6	-169	369
2023-11-16	10:32:00	39.6	9.11	170	193	5.62	337	27.1	27.2	18381	11275	30.3	67597	1500	1135	1135	523	207	201		-35.1	-63.9	-182	338
2023-11-16	10:33:00	39.4	8.84	170	194	5.66	339	27.1	27.1	18525	11275	29.1	64828	1499	1135	1135	523	207	201		-22.8	-49.0	-163	360
2023-11-16	10:34:00	39.4	9.09	170	195	5.68	341	27.1	26.6	18369	11247	29.6	66431	1501	1137	1137	523	207	201		-21.4	-49.8	-161	349
2023-11-16	10:35:00	39.7	8.63	170	195	5.66	340	27.1	27.2	18350	11270	29.2	65620	1500	1137	1137	523	207	201		-17.0	-39.5	-155	384
2023-11-16	10:36:00	39.6	8.51	170	196	5.66	340	27.1	26.2	18094	11169	28.3	63679	1506	1140	1140	522	207	201		-13.0	-36.1	-147	392
2023-11-16	10:37:00	40.1	8.69	171	196	5.71	342	27.1	26.3	18638	11275	28.4	63431	1500	1140	1141	523	207	201		-23.3	-49.9	-165	372
2023-11-16	10:38:00	39.9	9.12	170	196	5.68	341	27.1	27.1	18263	11258	29.1	64958	1505	1142	1142	523	207	201		-16.5	-39.4	-155	380
2023-11-16	10:39:00	40.0	9.06	170	196	5.58	335	27.1	27.2	18669	11399	29.4	65573	1502	1143	1143	524	207	201		-24.9	-49.8	-170	368
2023-11-16	10:40:00	39.9	8.54	170	196	5.56	334	27.1	26.8	18350	11298	28.3	63308	1503	1144	1143	524	207	201		-21.0	-45.6	-162	377
2023-11-16	10:41:00	39.8	8.81	170	195	5.56	333	27.1	26.4	18488	11202	28.3	62958	1501	1143	1144	524	207	201		-23.6	-49.0	-166	359
2023-11-16	10:42:00	39.6	8.77	170	194	5.47	328	27.1	26.3	18375	11348	28.8	64163	1502	1144	1143	524	207	201		-18.7	-44.5	-156	368
2023-11-16	10:43:00	38.9	8.83	170	194	5.46	328	27.1	26.5	18431	11371	28.3	63194	1502	1143	1143	525	207	201		-19.7	-45.6	-159	385
2023-11-16	10:44:00	39.1	9.04	170	196	5.43	326	27.1	26.4	18138	11152	28.5	63822	1505	1144	1143	524	207	201		-15.2	-39.6	-149	392
2023-11-16	10:45:00	39.0	8.94	169	197	5.26	316	27.1	26.4	18788	11371	29.5	65614	1503	1144	1144	524	207	201		-25.2	-51.0	-171	368
2023-11-16	10:46:00	39.3	8.43	170	195	5.34	320	27.1	27.0	18406	11146	28.5	63406	1505	1142	1143	524	207	201		-19.0	-44.1	-159	380
2023-11-16	10:47:00	39.0	8.36	170	194	5.29	317	27.1	26.6	18894	11270	29.6	65876	1502	1143	1144	524	207	201		-28.8	-56.4	-179	362
2023-11-16	10:48:00	39.5	8.71	170	195	5.29	318	27.1	26.3	18531	11236	28.7	63771	1502	1142	1143	525	207	201		-24.2	-50.5	-165	372
2023-11-16	10:49:00	39.1	9.11	170	194	5.34	320	27.1	27.1	18919	11444	29.0	64581	1502	1142	1142	524	207	201		-27.2	-55.3	-173	352
2023-11-16	10:50:00	39.2	8.36	170	195	5.32	319	27.1	27.1	18213	11326	28.5	63764	1503	1143	1143	524	207	201		-19.7	-44.8	-160	363
2023-11-16	10:51:00	39.0	8.79	170	195	5.17	310	27.1	27.0	18931	11309	29.0	64531	1503	1146	1146	524	207	201		-24.7	-48.9	-174	376
2023-11-16	10:52:00	38.7	8.65	169	195	5.17	310	27.1	27.3	18163	11208	28.1	62681	1504	1145	1145	524	207	201		-15.9	-39.1	-151	388
2023-11-16	10:53:00	38.5	8.59	169	194	5.06	304	27.1	26.3	18925	11337	30.3	67450	1503	1145	1145	523	207	201		-44.0	-71.5	-199	340
2023-11-16	10:54:00	38.5	8.97	170	193	5.10	306	27.1	27.2	18344	11225	28.6	63547	1501	1141	1142	524	207	201		-19.4	-44.1	-160	378
2023-11-16	10:55:00	38.7	9.13	170	194	5.09	305	27.1	26.2	18838	11348	30.8	68172	1502	1141	1141	523	207	201		-42.9	-72.6	-197	336
2023-11-16	10:56:00	38.7	9.03	170	197	4.96	297	27.1	26.5	18538	11360	29.3	64993	1501	1141	1141	523	207	201		-24.0	-49.9	-167	372
2023-11-16	10:57:00	38.8	9.07	170	196	4.96	298	27.1	27.0	18375	11247	30.4	67724	1501	1141	1141	523	207	201		-33.7	-64.5	-179	341
2023-11-16	10:58:00	38.5	8.90	170	195	4.95	297	27.1	27.0	18319	11236	28.4	63487	1503	1140	1140	522	206	201		-21.9	-47.4	-161	362
2023-11-16	10:59:00	38.6	8.61	170	196	4.92	295	27.1	26.7	18175	11202	30.7	68747	1505	1144	1144	522	206	201		-24.7	-58.6	-159	351
2023-11-16	11:00:00	38.3	8.78	169	193	4.92	295	27.1	27.2	18094	11185	28.9	64430	1502	1142	1142	522	206	201		-17.1	-41.5	-154	387
2023-11-16	11:01:00	38.2	8.89	170	193	4.90	294	27.1	26.5	18088	11185	28.0	62836	1503	1143	1142	521	205	200		-14.4	-38.4	-146	396
2023-11-16	11:02:00	38.4	8.83	170	193	4.86	291	27.1	27.2	18538	11303	28.8	63888	1501	1140	1141	522	206	201		-24.7	-49.5	-166	373
2023-11-16	11:03:00	38.5	9.20	170	193	4.78	287	27.1	27.2	18281	11303	28.2	62600	1503	1140	1140	521	206	201		-20.6	-45.0	-158	384
2023-11-16	11:04:00	38.7	9.24	170	193	4.77	286	27.1	27.2	18688	11332	29.0	64633	1500	1138	1138	522	206	201		-27.4	-52.1	-173	365
2023-11-16	11:05:00	37.9	8.84	170	193	4.70	282	27.1	27.2	18356	11219	28.3	63056	1499	1138	1138	522	207	201		-23.2	-51.0	-163	374
2023-11-16	11:06:00	38.0	8.68	171	195	4.23	254	27.1	26.4	18581	11326	29.0	64816	1500	1136	1136	521	207	201		-24.1	-48.4	-166	356
2023-11-16	11:07:00	38.5	8.55	171	196	4.28	257	27.1	26.3	18219	11225	28.2	63411	1502	1136	1136	520	206	201		-19.1	-44.0	-158	364
2023-11-16	11:08:00	38.2	8.67	170	196	4.30	258	27.1	26.8	18419	11354	28.6	64400	1503	1136	1136	519	206	200		-20.6	-44.4	-160	381
2023-11-16	11:09:00	38.1	9.07	170	196	4.24	255	27.1	26.8	18019	11236	28.6	64089	1505	1138	1137	518	205	200		-14.9	-39.5	-150	390
2023-11-16	11:10:00	38.1	8.98	170	195	4.28	257	27.1	27.2	18825	11371	28.8	64502	1500	1138	1138	518	204	200		-26.3	-52.1	-171	371
2023-11-16	11:11:00	37.9	8.93	170	195	4.27	256	27.1	26.9	18250	11258	28.6	63791	1500	1136	1136	518	204	200		-21.3	-45.8	-161	381
2023-11-16	11:12:00	37.7	8.36	170	192	4.33	260	27.1	26.4	18750	11360	28.9	64410	1501	1135	1135	518	204	200		-32.5	-59.5	-178	367

November 16/2023		Waste Flows							Flows	Air Flows				Temperatures						Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	T-260-REFDRYHo	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-16	11:13:00	37.9	8.57	169	193	4.28	257	27.1	26.3	18506	11360	28.9	64352	1500	1134	1134	518	204	200	-25.1	-51.0	-167	376
2023-11-16	11:14:00	37.7	9.08	170	194	4.27	256	27.1	26.5	18725	11320	29.1	65191	1500	1134	1134	518	204	200	-28.7	-55.3	-173	356
2023-11-16	11:15:00	38.2	7.94	170	194	4.27	256	27.1	26.3	18325	11298	28.8	64717	1504	1135	1135	518	204	200	-23.7	-50.1	-161	366
2023-11-16	11:16:00	38.0	8.81	172	196	4.25	255	27.1	27.2	19013	11320	28.5	64264	1501	1136	1137	517	204	199	-25.8	-49.1	-177	378
2023-11-16	11:17:00	37.7	8.56	172	198	4.24	254	27.1	26.3	18169	11214	28.3	63760	1502	1135	1136	517	204	199	-18.1	-42.8	-154	391
2023-11-16	11:18:00	37.7	8.73	171	194	4.28	257	27.1	27.2	18900	11320	30.3	67944	1503	1135	1136	516	203	199	-45.7	-75.3	-203	344
2023-11-16	11:19:00	37.5	8.59	172	196	4.22	253	27.1	26.8	18413	11219	28.7	64034	1500	1131	1131	517	203	199	-23.6	-50.0	-164	378
2023-11-16	11:20:00	37.6	8.68	172	196	4.28	257	27.1	26.6	18750	11354	30.9	68732	1502	1131	1131	516	203	199	-46.1	-75.9	-205	337
2023-11-16	11:21:00	37.6	8.40	173	197	4.28	257	27.1	26.5	18531	11247	29.1	64841	1498	1128	1128	517	204	199	-28.4	-54.8	-174	371
2023-11-16	11:22:00	37.4	8.30	172	195	4.27	256	27.1	26.3	18425	11332	30.6	68547	1500	1129	1128	516	204	199	-39.8	-70.3	-186	340
2023-11-16	11:23:00	37.5	9.05	173	197	4.28	257	27.1	26.8	18400	11230	28.9	64566	1498	1127	1127	516	204	199	-24.7	-50.5	-166	360
2023-11-16	11:24:00	37.6	8.29	173	197	4.26	256	27.1	26.3	18300	11230	30.0	67610	1499	1130	1130	516	204	199	-25.4	-57.1	-166	351
2023-11-16	11:25:00	38.0	9.31	173	201	4.27	256	27.1	26.7	18163	11202	28.6	64356	1499	1130	1130	516	204	199	-18.3	-46.0	-158	387
2023-11-16	11:26:00	37.4	8.57	174	197	4.28	257	27.1	27.0	17956	11202	28.5	64398	1502	1135	1135	516	203	199	-15.5	-40.0	-150	393
2023-11-16	11:27:00	37.3	8.51	173	195	4.29	257	27.1	27.2	18394	11343	29.0	65165	1497	1132	1132	516	203	199	-24.2	-51.3	-168	374
2023-11-16	11:28:00	37.1	8.24	173	195	4.29	257	27.1	26.7	18181	11202	28.6	64037	1498	1133	1133	516	203	199	-21.0	-44.9	-158	384
2023-11-16	11:29:00	37.2	8.95	174	193	4.28	257	27.1	27.0	18700	11298	28.8	64105	1497	1130	1130	517	203	199	-29.6	-57.6	-175	370
2023-11-16	11:30:00	37.1	8.37	173	192	4.29	257	27.1	26.3	18344	11298	28.5	63830	1499	1129	1129	517	203	199	-24.4	-49.9	-166	379
2023-11-16	11:31:00	37.2	8.71	174	195	4.31	258	27.1	27.1	18325	11197	28.9	64689	1496	1129	1129	517	204	199	-24.9	-52.3	-166	360
2023-11-16	11:32:00	37.1	9.26	174	193	4.27	256	27.1	27.2	18163	11197	28.4	63835	1500	1131	1131	517	203	199	-21.2	-48.3	-158	367
2023-11-16	11:33:00	37.3	8.90	174	192	4.33	260	27.1	27.2	18338	11320	28.0	62945	1495	1129	1129	516	203	199	-21.3	-45.8	-163	387
2023-11-16	11:34:00	37.3	8.66	174	195	4.22	253	27.1	26.5	18056	11208	28.2	63437	1499	1130	1130	516	203	199	-16.6	-39.8	-152	394
2023-11-16	11:35:00	37.6	8.46	174	195	4.28	257	27.1	26.2	18631	11421	29.5	66073	1498	1130	1131	516	203	199	-26.7	-53.0	-174	371
2023-11-16	11:36:00	37.4	9.52	174	195	4.28	257	27.1	26.2	18250	11214	28.9	64488	1499	1129	1128	515	203	199	-23.1	-49.0	-162	381
2023-11-16	11:37:00	37.8	9.25	173	198	4.26	256	27.1	26.2	18781	11320	28.9	64722	1499	1130	1131	516	202	199	-32.1	-60.5	-181	364
2023-11-16	11:38:00	37.9	8.84	174	198	4.21	252	27.1	26.3	18313	11320	28.4	63393	1498	1130	1130	516	203	199	-25.9	-51.3	-171	374
2023-11-16	11:39:00	38.1	8.68	174	197	4.19	251	27.1	26.2	18938	11326	29.1	65011	1497	1130	1131	516	202	199	-30.7	-58.4	-179	356
2023-11-16	11:40:00	38.2	8.38	173	197	4.23	254	27.1	26.7	18275	11202	28.7	64427	1499	1130	1130	516	202	198	-23.0	-48.1	-164	363
2023-11-16	11:41:00	37.7	8.55	174	197	4.24	254	27.1	26.2	18725	11315	28.9	64971	1497	1132	1132	517	202	198	-28.0	-53.5	-178	379
2023-11-16	11:42:00	37.8	8.06	174	196	4.18	251	27.1	27.2	18125	11197	28.5	63971	1501	1133	1133	517	202	198	-17.2	-39.0	-156	390
2023-11-16	11:43:00	37.9	8.86	174	197	4.28	257	27.1	26.9	18869	11309	30.4	68164	1501	1135	1135	517	201	198	-47.2	-78.4	-205	340
2023-11-16	11:44:00	38.3	9.44	175	200	4.21	253	27.1	26.8	18294	11197	28.6	63911	1498	1133	1134	517	202	198	-22.3	-48.5	-165	378
2023-11-16	11:45:00	38.0	8.11	174	199	4.21	253	27.1	26.3	18606	11281	30.2	67449	1502	1135	1135	517	201	198	-45.3	-75.6	-201	336
2023-11-16	11:46:00	38.1	9.06	174	200	4.18	251	27.1	27.2	18450	11287	29.1	65146	1498	1134	1134	518	201	198	-27.0	-53.1	-170	373
2023-11-16	11:47:00	37.9	8.49	174	198	4.18	251	27.1	27.1	18388	11275	30.2	67335	1501	1134	1134	518	201	198	-34.8	-64.5	-184	342
2023-11-16	11:48:00	38.1	8.17	174	195	4.19	252	27.1	27.1	18263	11275	28.7	64136	1498	1133	1134	518	202	198	-21.9	-49.0	-164	361
2023-11-16	11:49:00	38.1	9.11	175	196	4.17	250	27.7	26.2	18131	11275	28.5	63910	1500	1134	1134	518	202	198	-20.6	-49.0	-164	351
2023-11-16	11:50:00	37.8	9.30	174	197	4.22	253	27.6	26.9	18075	11169	28.7	63926	1502	1134	1135	518	202	198	-18.5	-42.4	-158	386
2023-11-16	11:51:00	37.9	9.36	173	198	4.21	253	27.6	26.3	17950	11169	28.2	63346	1504	1137	1137	518	202	198	-16.3	-40.3	-149	394
2023-11-16	11:52:00	38.2	9.20	174	199	4.25	255	27.6	26.5	18406	11376	28.9	64522	1499	1137	1138	518	202	198	-26.2	-53.8	-170	372
2023-11-16	11:53:00	38.0	8.52	173	200	4.28	257	27.6	26.6	18144	11152	28.7	64085	1504	1138	1138	518	201	198	-20.0	-45.3	-159	381
2023-11-16	11:54:00	38.3	8.92	174	199	4.17	250	27.6	26.8	18506	11270	28.9	64488	1499	1137	1137	519	202	198	-27.5	-54.0	-177	366
2023-11-16	11:55:00	38.0	9.66	174	197	4.17	250	27.6	27.2	18394	11169	28.7	63940	1500	1137	1137	518	202	198	-23.2	-49.3	-169	375
2023-11-16	11:56:00	37.7	9.12	173	197	4.18	251	27.6	27.1	18550	11298	28.7	64226	1498	1136	1137	518	202	198	-26.1	-53.0	-169	359
2023-11-16	11:57:00	37.8	8.95	173	196	4.19	251	27.6	26.2	18044	11197	28.4	63846	1500	1136	1137	518	202	198	-21.0	-48.4	-162	366
2023-11-16	11:58:00	37.8	8.51	174	197	4.22	253	27.6	26.9	18250	11298	28.8	64523	1498	1135	1135	518	203	198	-21.6	-43.9	-162	384
2023-11-16	11:59:00	37.6	8.75	173	196	4.17	250	27.6	27.2	17906	11197	28.2	63410	1502	1135	1135	518	202	198	-18.6	-44.1	-154	393
2023-11-16	12:00:00	37.7	8.75	174	199	4.11	246	27.6	26.5	18544	11230	28.9	64557	1499	1135	1135	518	202	198	-29.2	-56.9	-175	372
2023-11-16	12:01:00	38.0	8.89	174	199	4.08	245	27.6	27.2	18219	11230	28.9	64571	1501	1134	1133	518	202	198	-20.5	-44.5	-163	382
2023-11-16	12:02:00	37.7	8.74	174	198	4.03	242	27.6	27.1	18719	11332	28.9	64503	1499	1135	1136	518	202	198	-33.6	-60.9	-182	366
2023-11-16	12:03:00	38.2	9.24	174	199	3.99	239	27.6	26.6	18400	11309	29.0	64754	1498	1134	1133	518	202	198	-25.8	-53.3	-171	376
2023-11-16	12:04:00	38.0	8.69	174	198	3.87	232	27.6	27.2	18763	11320	28.6	64203	1499	1134	1135	517	202	198	-29.2	-55.5	-176	354
2023-11-16	12:05:00	38.0	8.63	173	199	3.94	237	27.6	26.3	18225	11320	28.6	64019	1499	1134	1133	517	202	198	-21.4	-47.0	-163	363
2023-11-16	12:06:00	37.8	9.00	174	198	3.87	232	27.6	26.9	18788	11332	28.3	64081	1498	1133	1133	516	201	198	-30.9	-58.6	-180	377
2023-11-16	12:07:00	37.7	8.71	173	197	3.89	234	27.6	26.8	18069	11230	28.7	64434	1499	1131	1131	515	201	197	-20.9	-43.5	-158	388
2023-11-16	12:08:00	37.9	8.39	174	196	3.89	233	27.6	27.2	18781	11230	29.9	66923	1499	1130	1131	514	200	197	-45.6	-72.3	-206	343
2023-11-16	12:09:00	37.8	8.89	174	197	3.90	234	27.6	26.3	18388	11264	28.4	63681	1495	1126	1126	514	200	197	-26.3	-51.4	-169	377
2023-11-16	12:10:00	37.8	8.33	173	198	3.86	232	27.6	26.4	18788	11264	31.2	69817	1496	1124	1125	513	200	197	-48.2	-78.5	-207	336
2023-11-16	12:11:00	38.5	8.53	175	198	3.86	232	27.6	26.9	18306	11270	28.4	63684	1495	1122	1122	513	200	197	-29.1	-54.0	-175	370
2023-11-16	12:12:00	38.6	8.97	174	198	3.83	230	27.6	27.1	18444	11264	30.1	67791	1496	1124	1123	513	200	197	-38.4	-69.3	-190	341
2023-11-16	12:13:00	38.8	8.43	174	198	3.94	236	27.6	26.3	18375	11258	28.6	64481	1493	1123	1123	512	199	197	-27.2	-52.5	-169	362

November 16/2023		Waste Flows							Flows	Air Flows				Temperatures						Pressures			
		Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	SecondaryB	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
		LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	T-260-REFDRYHo	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-16	12:14:00	38.4	8.95	173	198	3.84	231	27.6	26.4	18263	11152	30.2	68171	1495	1125	1125	512	199	196	-29.3	-62.6	-169	351
2023-11-16	12:15:00	38.2	8.43	173	195	4.12	247	27.6	27.2	18113	11152	28.5	64664	1492	1122	1122	512	198	196	-21.9	-46.3	-162	386
2023-11-16	12:16:00	38.1	8.76	173	196	4.06	243	27.6	27.2	18006	11152	28.2	63912	1495	1125	1125	511	198	196	-18.8	-43.9	-153	394
2023-11-16	12:17:00	38.2	8.52	174	198	4.09	246	27.6	26.4	18444	11275	28.2	63489	1493	1123	1124	511	198	196	-27.1	-53.1	-172	374
2023-11-16	12:18:00	38.1	8.63	175	196	4.05	243	27.6	27.2	18200	11174	28.3	63798	1491	1122	1122	511	198	196	-21.6	-44.9	-163	384
2023-11-16	12:19:00	38.3	7.75	175	196	4.10	246	27.6	27.2	18569	11303	28.7	64900	1491	1121	1121	511	198	196	-32.1	-60.8	-180	368
2023-11-16	12:20:00	38.2	8.95	175	196	4.14	248	27.6	26.4	18325	11197	28.5	64331	1492	1120	1120	512	199	196	-26.0	-52.8	-170	376
2023-11-16	12:21:00	38.7	9.26	175	198	4.11	247	27.6	26.2	18388	11298	28.8	65044	1494	1120	1120	512	199	196	-26.4	-55.1	-171	357
2023-11-16	12:22:00	38.4	8.56	174	198	4.11	246	27.6	26.8	18150	11281	28.1	63633	1495	1124	1124	512	199	195	-21.4	-46.0	-163	365
2023-11-16	12:23:00	38.1	9.18	175	197	4.10	246	27.6	27.3	18306	11258	28.6	64975	1495	1125	1125	512	199	195	-24.0	-51.0	-166	383
2023-11-16	12:24:00	38.3	9.21	174	196	4.11	246	27.6	26.9	18038	11157	28.3	64176	1501	1128	1127	512	199	195	-18.9	-42.6	-157	392
2023-11-16	12:25:00	38.3	8.70	174	196	4.14	248	27.6	26.2	18688	11292	28.6	64796	1495	1129	1129	513	199	195	-31.0	-58.4	-179	371
2023-11-16	12:26:00	38.3	8.75	175	196	4.09	245	27.6	26.4	18331	11191	28.0	62791	1498	1128	1128	513	199	196	-24.1	-46.4	-169	383
2023-11-16	12:27:00	38.1	8.24	175	196	4.12	247	27.6	26.6	18825	11410	29.0	65052	1496	1128	1128	514	200	196	-35.3	-62.1	-187	365
2023-11-16	12:28:00	38.5	8.66	176	197	4.10	246	27.6	27.0	18444	11298	28.9	64753	1498	1128	1128	514	201	196	-27.6	-56.3	-175	375
2023-11-16	12:29:00	38.4	9.13	175	198	4.14	248	27.6	26.3	18725	11298	28.8	64829	1496	1128	1128	514	201	196	-32.0	-58.8	-183	357
2023-11-16	12:30:00	38.7	8.65	175	199	4.12	247	27.6	27.2	18138	11185	28.5	64252	1498	1130	1129	515	201	196	-22.7	-49.8	-165	363
2023-11-16	12:31:00	38.3	8.46	175	199	4.07	244	27.6	27.3	18831	11382	28.3	63765	1498	1134	1134	515	201	196	-29.1	-54.3	-181	376
2023-11-16	12:32:00	38.2	8.54	175	199	4.06	244	27.6	26.6	18056	11169	28.1	63392	1500	1135	1135	515	201	196	-18.9	-43.3	-159	388
2023-11-16	12:33:00	38.0	7.93	175	198	4.13	248	27.6	26.8	18875	11264	30.0	67098	1501	1138	1138	515	200	196	-46.1	-74.5	-207	342
2023-11-16	12:34:00	38.1	8.68	175	199	4.12	247	27.6	26.5	18188	11264	28.8	64291	1498	1135	1136	516	201	196	-25.1	-53.6	-168	378
2023-11-16	12:35:00	38.3	8.71	175	197	4.02	241	27.6	26.2	18731	11270	29.8	66964	1498	1136	1136	516	201	197	-46.6	-78.4	-207	337
2023-11-16	12:36:00	38.2	8.69	175	198	4.14	248	27.6	26.3	18481	11270	28.8	63891	1496	1133	1133	517	202	197	-27.5	-52.8	-174	369
2023-11-16	12:37:00	38.3	9.05	175	198	4.14	248	27.6	26.2	18375	11152	29.8	66577	1498	1134	1133	517	202	197	-36.5	-67.5	-189	338
2023-11-16	12:38:00	38.5	8.89	175	199	4.12	247	27.6	26.2	18169	11270	28.6	63907	1499	1134	1133	518	202	197	-23.8	-49.6	-169	361
2023-11-16	12:39:00	38.8	9.14	176	200	4.14	248	27.6	27.2	18013	11152	29.6	66677	1501	1137	1137	517	202	197	-25.1	-58.1	-172	347
2023-11-16	12:40:00	38.7	9.27	175	199	4.09	245	27.6	27.2	17881	11146	28.1	62994	1502	1138	1138	517	202	197	-20.7	-47.0	-160	387
2023-11-16	12:41:00	38.2	8.21	174	198	4.18	251	27.6	26.6	17844	11028	28.1	63143	1503	1143	1143	517	201	197	-15.5	-39.5	-152	393
2023-11-16	12:42:00	37.9	8.68	175	200	4.16	250	27.6	26.6	18200	11242	28.8	64196	1500	1141	1142	518	202	197	-26.2	-52.0	-171	373
2023-11-16	12:43:00	38.1	8.65	174	201	4.16	250	27.6	26.9	18069	11124	27.8	61666	1501	1140	1140	518	202	197	-19.8	-45.9	-162	384
2023-11-16	12:44:00	38.3	7.92	175	201	4.13	248	27.6	27.2	18413	11264	29.4	65241	1498	1139	1139	519	202	198	-29.7	-57.6	-181	368
2023-11-16	12:45:00	38.1	7.97	175	200	4.19	251	27.6	26.3	18075	11157	28.7	63554	1498	1139	1138	519	203	198	-24.9	-52.8	-169	377
2023-11-16	12:46:00	38.1	8.22	175	202	4.16	250	27.6	26.3	18338	11275	28.3	63464	1499	1137	1137	519	203	198	-25.0	-51.0	-171	358
2023-11-16	12:47:00	38.3	8.57	174	201	4.28	257	27.6	27.2	17994	11174	28.4	63576	1503	1139	1139	519	203	198	-21.2	-48.3	-162	366
2023-11-16	12:48:00	38.4	8.83	175	198	4.47	268	27.6	26.9	18194	11287	29.0	65108	1502	1140	1140	519	203	198	-20.7	-47.3	-164	383
2023-11-16	12:49:00	38.3	9.25	175	198	4.50	270	27.6	27.1	17800	11185	27.6	61787	1505	1143	1143	519	203	197	-16.7	-41.0	-156	391
2023-11-16	12:50:00	38.3	8.66	175	198	5.75	345	27.6	27.0	18531	11298	28.5	63679	1505	1143	1143	519	202	197	-25.8	-50.8	-174	371
2023-11-16	12:51:00	38.3	8.76	174	197	4.72	283	27.6	26.7	17950	11084	28.3	62798	1506	1144	1144	519	203	198	-20.6	-47.1	-162	380
2023-11-16	12:52:00	38.0	8.17	175	197	4.57	274	27.6	26.2	18538	11309	29.0	64324	1502	1144	1145	520	203	198	-31.2	-60.5	-183	364
2023-11-16	12:53:00	38.1	9.13	175	197	4.71	282	27.6	26.9	18150	11191	28.2	62489	1502	1141	1141	520	203	198	-24.7	-49.4	-172	374
2023-11-16	12:54:00	38.1	8.69	174	197	4.74	284	27.6	26.4	18544	11197	29.5	65335	1501	1141	1141	520	204	198	-27.6	-54.4	-176	354
2023-11-16	12:55:00	38.2	8.89	175	198	4.91	295	27.6	27.1	18006	11197	28.4	63347	1502	1142	1141	520	204	198	-18.6	-45.0	-161	363
2023-11-16	12:56:00	38.2	9.18	176	196	4.94	296	27.6	26.9	18713	11309	29.0	64780	1505	1142	1142	520	203	198	-25.4	-48.6	-176	379
2023-11-16	12:57:00	38.3	8.67	175	198	5.06	304	27.6	26.2	17963	11073	28.5	63571	1506	1144	1144	520	203	198	-15.7	-39.9	-155	389
2023-11-16	12:58:00	38.2	8.14	175	198	4.96	297	27.6	26.3	18694	11281	31.1	69013	1508	1147	1147	519	203	198	-41.4	-70.0	-203	349
2023-11-16	12:59:00	37.9	8.51	175	196	6.35	381	27.6	27.1	18244	11180	29.0	64069	1506	1144	1144	520	203	198	-21.7	-48.0	-165	377
2023-11-16	13:00:00	38.0	8.67	174	195	6.91	414	27.6	27.1	18413	11191	30.9	68336	1505	1145	1144	520	203	199	-44.1	-75.3	-205	336
2023-11-16	13:01:00	38.2	8.99	175	197	5.98	359	27.6	26.4	18219	11191	29.7	65639	1503	1143	1143	521	204	198	-28.7	-54.9	-175	372
2023-11-16	13:02:00	38.2	8.48	175	197	6.40	384	27.6	27.2	18069	11191	31.0	68589	1506	1145	1145	521	204	199	-36.3	-66.1	-188	338
2023-11-16	13:03:00	37.8	8.36	175	195	6.21	373	27.6	26.5	18100	11191	29.1	64640	1504	1144	1145	522	204	199	-21.8	-47.3	-165	360
2023-11-16	13:04:00	37.9	8.80	175	196	7.24	434	27.6	26.3	17831	11191	30.1	67096	1504	1143	1143	521	204	199	-29.0	-62.1	-168	347
2023-11-16	13:05:00	38.1	9.17	175	197	4.89	293	27.6	26.4	17844	11191	28.7	64042	1504	1144	1143	521	205	199	-17.5	-43.3	-157	386
2023-11-16	13:06:00	38.2	8.89	175	197	4.58	275	27.6	27.1	17631	11079	28.4	63280	1507	1146	1146	520	204	199	-13.6	-37.1	-152	395
2023-11-16	13:07:00	38.0	8.52	176	198	4.90	294	27.6	26.8	18056	11073	29.5	65211	1503	1144	1145	520	204	199	-23.5	-51.3	-167	374
2023-11-16	13:08:00	37.7	9.17	174	198	5.19	311	27.6	26.3	17800	11073	28.8	63232	1504	1145	1145	520	203	199	-18.5	-44.4	-155	382
2023-11-16	13:09:00	37.6	8.83	174	198	5.11	307	27.6	26.4	18313	11180	29.5	65089	1501	1144	1145	520	203	199	-27.3	-55.0	-174	367
2023-11-16	13:10:00	37.8	9.06	175	197	5.09	305	27.6	27.1	18044	11073	28.7	63449	1505	1144	1143	521	204	199	-23.4	-49.4	-165	377
2023-11-16	13:11:00	37.8	8.24	175	198	6.19	372	27.6	27.2	18150	11197	28.9	64017	1501	1143	1143	521	204	199	-26.0	-52.5	-171	359
2023-11-16	13:12:00	37.6	8.48	174	198	6.31	378	27.6	26.3	17931	11090	29.0	64570	1504	1143	1143	521	204	199	-19.4	-41.9	-161	366
2023-11-16	13:13:00	37.8	9.23	175	196	6.03	362	27.6	27.0	18019	11124	29.1	64597	1502	1142	1142	521	204	199	-20.2	-44.9	-162	383
2023-11-16	13:14:00	37.8	8.89	175	196	5.74	344	27.6	26.2	17669	11124	28.1	62670	1505	1146	1146	520	204	198	-15.5	-38.9	-152	391

November 16/2023	Waste Flows							Flows	Air Flows				Temperatures						Pressures			
	Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	Secondary	Quench	SDA	Stack	Incinerator	SDA Inlet	BH Inlet	BH dP
	LPM	LPM	LPM	LPM	LPM	SCFM	LPM	Lbs/h	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
$Date	$Time	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209	FT-260-VEL	T-260-REFDRYHo	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
2023-11-16	13:15:00	37.8	9.28	175	199	5.16	309	27.6	27.0	18206	11236	29.6	65678	1502	1147	1147	520	203	199	-26.6	-53.8	-175	369
2023-11-16	13:16:00	37.8	8.87	175	198	6.93	416	27.6	26.6	17994	11129	28.8	63628	1504	1147	1147	520	203	199	-18.5	-42.4	-161	377
2023-11-16	13:17:00	38.0	9.38	175	197	5.07	304	27.6	27.1	18400	11230	29.9	66043	1500	1146	1147	521	203	199	-29.7	-56.6	-183	362
2023-11-16	13:18:00	37.7	8.03	175	197	6.16	369	27.6	26.3	18013	11129	29.1	63978	1502	1144	1144	521	204	199	-24.6	-48.9	-171	372
2023-11-16	13:19:00	37.6	8.26	174	196	7.25	435	27.6	26.2	18319	11225	29.0	64100	1500	1142	1142	521	204	199	-28.2	-54.0	-178	353
2023-11-16	13:20:00	37.8	9.17	175	198	7.24	434	27.6	26.7	17956	11101	28.8	63944	1502	1142	1141	521	204	199	-21.3	-47.1	-164	361
2023-11-16	13:21:00	37.8	8.99	176	199	7.24	434	27.6	26.6	18381	11202	28.6	63663	1500	1143	1144	521	204	199	-23.5	-48.5	-174	376
2023-11-16	13:22:00	37.9	9.05	176	198	7.24	434	27.6	27.1	17600	11096	28.4	63286	1505	1145	1145	521	204	199	-16.1	-42.1	-154	387
2023-11-16	13:23:00	37.3	8.53	175	200	7.25	435	27.6	26.5	18625	11219	30.8	68254	1504	1147	1148	520	203	199	-42.4	-68.6	-203	350
2023-11-16	13:24:00	37.5	9.08	175	199	7.25	435	27.6	27.1	18025	11118	29.0	64115	1501	1143	1144	520	203	199	-21.1	-46.3	-164	377
2023-11-16	13:25:00	37.4	8.40	175	198	6.73	404	27.6	26.6	18375	11118	30.5	67092	1503	1143	1144	519	203	199	-44.9	-75.8	-202	335
2023-11-16	13:26:00	37.2	9.01	175	198	6.41	406	27.6	27.2	18150	11230	29.4	64822	1501	1140	1140	519	203	199	-23.4	-51.0	-170	370
2023-11-16	13:27:00	37.2	8.79	175	197	7.21	433	27.6	26.2	18113	11242	30.6	67562	1503	1140	1140	519	203	199	-38.1	-69.1	-186	339
2023-11-16	13:28:00	36.8	8.80	175	198	6.40	384	27.6	27.0	18013	11140	29.2	64453	1500	1140	1139	519	203	198	-21.4	-45.5	-166	360
2023-11-16	13:29:00	36.3	9.33	175	196	6.38	383	27.6	27.1	17925	11140	29.3	65236	1500	1139	1139	518	203	198	-26.0	-58.5	-170	347
2023-11-16	13:30:00	36.4	9.19	175	198	7.25	435	27.6	27.0	17844	11135	29.0	64707	1498	1134	1135	517	202	198	-21.2	-46.5	-160	384
2023-11-16	13:31:00	36.4	9.20	175	197	7.24	434	27.6	26.4	17719	11135	28.6	63721	1503	1138	1137	516	201	198	-16.8	-43.3	-153	392
2023-11-16	13:32:00	37.0	9.22	176	199	7.25	435	27.6	26.9	18163	11157	29.3	65378	1499	1134	1135	516	201	198	-24.2	-52.3	-170	370
2023-11-16	13:33:00	36.9	8.50	174	199	6.70	402	27.6	27.2	17900	11157	28.3	62973	1502	1134	1134	515	200	198	-20.2	-44.1	-161	381
2023-11-16	13:34:00	37.3	8.92	175	199	7.25	435	27.6	26.3	18306	11270	29.4	65018	1498	1133	1134	515	200	198	-28.8	-57.5	-178	366
2023-11-16	13:35:00	36.8	8.20	175	197	6.10	366	27.6	27.2	18088	11067	28.9	64254	1497	1135	1135	515	200	197	-25.4	-51.1	-171	375
2023-11-16	13:36:00	36.8	8.52	174	197	7.12	427	27.6	26.6	18125	11174	29.1	64985	1495	1134	1135	515	200	197	-27.0	-55.4	-172	356
2023-11-16	13:37:00	36.6	8.50	175	196	7.26	435	27.6	26.4	18019	11067	28.8	64512	1496	1135	1134	515	200	197	-21.4	-44.6	-163	364
2023-11-16	13:38:00	36.8	8.56	176	198	7.25	435	27.6	26.5	18038	11208	29.1	64985	1496	1133	1134	515	200	197	-21.0	-45.5	-165	382

November 16/2023	Waste Flows							Flows	Air Flows				Temperatures						Pressures			
	Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	Leachate	PAC	Primary	Secondary	Stack Velocity	Stack Flow	Primary	Secondary	Secondary	Quench	SprayDryer	Stack	Incinerator	SDA Inlet	5D Outlet	Baghouse
Test 3	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	Lbs/h	PV-236	PV-209	FT-260-VEL	T-260-REFDRYHO	TE-240	T-241A	T-241B	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
Units	LPM	LPM	LPM	LPM	LPM	SCFM	LPM	SC-PAC-FT	m3/h	m3/h	m/s	Rm3/Hr	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	Degrees C	mmH2O	mmH2O	mmH2O	mmH2O
Max	41.5	9.87	176	202	7.26	435	27.7	27.3	19469	11596	31.7	72535	1508	1147	1148	525	211	202	-9.7	-36.1	-146	401
Min	36.3	7.75	168	184	3.83	230	26.4	26.2	17600	11028	27.6	61666	1478	1101	1101	503	198	191	-51.3	-85.9	-215	334
Average	38.9	8.77	172	194	4.90	294	27.2	26.7	18452	11273	29.1	65507	1497	1131	1131	516	203	198	-25.5	-53.3	-170	370
Variance	1.9	0.14	6	16	0.82	2968	0.1	0.1	130682	9598	0.5	3974167	40	115	116	31	8	6	61.0	97.5	189	250

November 14/2023		Main Analyzers									Backup Analyzers						
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-14	9:33:00	400	68.41	0.35	9.78	48.53	19.6	9.36	2.18	0.7	134.94	10.38	78.38	75.8	21.1	8.8	2.4
2023-11-14	9:34:00	406	68.62	0.35	9.81	48.56	25.4	9.36	2.22	0.7	143.97	17.22	78.38	78.0	19.9	9.0	2.4
2023-11-14	9:35:00	383	68.91	0.35	9.89	48.70	24.1	9.36	2.41	0.7	132.58	12.05	79.72	79.5	26.7	8.6	2.4
2023-11-14	9:36:00	396	69.05	0.35	9.94	48.88	15.1	9.36	2.22	0.7	131.43	8.77	79.72	62.1	20.8	9.2	2.4
2023-11-14	9:37:00	381	69.05	0.35	9.96	48.92	15.0	9.36	2.35	0.7	127.20	6.16	79.72	66.0	18.8	8.8	2.4
2023-11-14	9:38:00	390	66.36	0.35	9.93	48.89	16.9	9.36	2.18	0.7	123.33	17.79	79.72	63.4	16.4	9.4	2.4
2023-11-14	9:39:00	370	60.92	0.35	9.89	48.75	16.0	9.36	2.46	0.7	121.06	14.82	79.72	65.9	16.4	9.0	2.4
2023-11-14	9:40:00	380	56.80	0.35	9.85	48.63	14.5	9.36	2.46	0.7	113.42	14.82	79.72	58.3	15.6	9.4	2.4
2023-11-14	9:41:00	396	54.78	0.35	9.84	48.58	21.2	9.36	1.96	0.7	119.93	12.19	79.72	71.2	18.8	8.8	2.4
2023-11-14	9:42:00	406	53.59	0.35	9.90	48.69	14.5	9.36	2.38	0.7	151.29	13.19	79.72	46.3	16.4	9.0	2.4
2023-11-14	9:43:00	353	53.30	0.35	10.02	48.86	22.2	9.36	2.22	0.7	141.12	18.52	82.24	80.2	22.0	8.6	2.4
2023-11-14	9:44:00	394	53.30	0.35	10.09	49.12	18.8	9.36	2.37	0.7	143.80	18.52	82.24	64.0	21.5	9.1	2.4
2023-11-14	9:45:00	347	53.41	0.35	10.14	49.25	15.0	9.36	2.38	0.7	123.56	12.31	82.24	47.4	15.9	8.7	2.4
2023-11-14	9:46:00	386	51.06	0.35	10.12	49.32	11.4	9.15	2.46	0.7	129.79	18.02	82.24	41.0	15.3	9.7	2.4
2023-11-14	9:47:00	350	43.56	0.35	10.06	49.18	12.7	9.15	2.57	0.7	128.14	14.70	81.19	44.9	12.4	9.1	2.4
2023-11-14	9:48:00	372	38.56	0.35	9.97	49.01	12.3	9.15	2.16	0.7	128.14	11.23	81.19	36.4	13.8	9.6	2.4
2023-11-14	9:49:00	361	36.92	0.35	9.90	48.79	14.0	9.15	2.53	0.7	146.21	8.91	81.19	51.9	15.0	8.9	2.4
2023-11-14	9:50:00	397	36.81	0.35	9.87	48.74	10.9	9.35	2.38	0.7	145.20	14.24	82.23	46.4	15.0	8.9	2.4
2023-11-14	9:51:00	406	36.81	0.35	9.88	48.74	16.7	9.35	2.46	0.7	145.20	17.61	82.23	60.4	13.2	8.9	2.4
2023-11-14	9:52:00	385	37.22	0.35	9.92	48.84	16.3	9.35	2.23	0.7	125.83	9.27	83.75	47.6	16.7	9.3	2.4
2023-11-14	9:53:00	396	37.33	0.35	9.95	48.91	12.6	9.35	2.23	0.7	130.63	9.27	83.75	48.1	13.9	8.9	2.4
2023-11-14	9:54:00	383	37.47	0.35	9.96	48.97	12.8	9.35	2.20	0.7	124.30	6.05	82.02	37.1	14.8	8.7	2.4
2023-11-14	9:55:00	394	37.47	0.35	9.92	48.90	13.1	9.35	2.37	0.7	125.32	11.11	82.02	51.0	13.9	9.2	2.4
2023-11-14	9:56:00	373	37.37	0.35	9.90	48.81	13.9	9.35	2.02	0.7	141.92	15.00	83.05	45.0	14.4	8.9	2.4
2023-11-14	9:57:00	383	36.95	0.35	9.85	48.67	12.7	9.35	2.22	0.7	143.09	14.07	83.05	39.6	14.4	9.0	2.4
2023-11-14	9:58:00	405	35.50	0.35	9.87	48.69	14.2	9.35	2.11	0.7	143.09	8.73	84.13	44.9	15.0	8.6	2.4
2023-11-14	9:59:00	410	34.36	0.35	9.91	48.78	14.0	9.35	2.45	0.7	127.01	2.89	85.14	47.4	13.5	8.8	2.4
2023-11-14	10:00:00	387	34.05	0.35	9.98	48.98	17.3	9.35	2.12	0.7	109.22	20.48	88.53	54.1	16.7	8.4	2.4
2023-11-14	10:01:00	398	34.05	0.35	10.05	49.18	11.6	9.35	2.17	0.7	112.31	25.80	88.53	41.6	16.7	9.0	2.4
2023-11-14	10:02:00	379	35.54	0.35	10.10	49.27	16.4	9.15	2.12	0.7	113.70	12.78	85.88	64.6	18.8	8.6	2.4
2023-11-14	10:03:00	389	38.80	0.35	10.06	49.21	14.6	9.15	2.11	0.7	118.05	12.32	85.88	64.7	17.6	9.3	2.4
2023-11-14	10:04:00	367	42.34	0.35	9.97	49.04	12.3	9.15	2.18	0.7	128.28	13.37	84.85	40.0	13.6	8.9	2.4
2023-11-14	10:05:00	375	42.32	0.35	9.90	48.83	15.8	9.15	2.16	0.7	140.94	13.37	84.85	70.5	14.4	9.4	2.4
2023-11-14	10:06:00	388	42.32	0.35	9.85	48.71	17.7	9.15	2.16	0.7	140.94	8.78	84.85	62.6	16.7	8.7	2.4
2023-11-14	10:07:00	401	42.35	0.35	9.87	48.71	14.1	9.36	2.11	0.7	140.94	5.41	84.85	64.6	18.8	9.1	2.4
2023-11-14	10:08:00	352	44.81	0.35	9.92	48.79	16.4	9.36	2.18	0.7	148.10	11.14	84.85	63.2	18.2	8.7	2.4
2023-11-14	10:09:00	390	46.81	0.35	9.97	48.93	14.3	9.36	2.65	0.7	146.92	14.13	84.85	62.4	15.8	9.3	2.4
2023-11-14	10:10:00	348	47.30	0.35	9.96	48.93	13.4	9.36	2.11	0.7	138.86	8.06	84.85	48.7	15.9	8.8	2.4
2023-11-14	10:11:00	384	47.40	0.35	9.93	48.99	12.0	9.36	2.37	0.7	128.18	7.20	84.85	43.2	14.5	9.8	2.4
2023-11-14	10:12:00	352	46.84	0.35	9.88	48.90	14.9	9.36	1.85	0.7	122.92	8.12	82.24	56.3	14.4	9.1	2.4
2023-11-14	10:13:00	376	45.52	0.35	9.83	48.80	13.0	9.36	1.90	0.7	122.92	12.15	82.24	48.1	15.8	9.5	2.4
2023-11-14	10:14:00	364	45.52	0.35	9.80	48.67	15.4	9.36	2.58	0.7	129.63	13.14	82.24	56.5	15.6	8.9	2.4
2023-11-14	10:15:00	404	45.52	0.35	9.82	48.72	15.5	9.36	2.51	0.7	149.25	12.10	83.76	59.4	17.0	8.9	2.4
2023-11-14	10:16:00	413	45.65	0.35	9.89	48.86	19.8	9.36	2.00	0.7	149.25	18.19	86.14	67.5	17.3	8.4	2.4
2023-11-14	10:17:00	391	46.15	0.35	10.01	49.13	20.6	9.36	2.46	0.7	117.86	17.25	88.57	70.8	21.4	9.0	2.4
2023-11-14	10:18:00	402	46.62	0.35	10.08	49.30	13.9	9.36	2.51	0.7	118.94	15.54	88.57	49.7	14.8	8.8	2.4
2023-11-14	10:19:00	384	47.90	0.35	10.09	49.37	15.3	9.15	2.57	0.7	119.99	22.98	81.84	58.0	17.4	8.6	2.4
2023-11-14	10:20:00	394	48.32	0.35	10.00	49.22	16.7	9.15	2.42	0.7	127.74	20.00	81.84	74.4	16.8	9.1	2.4
2023-11-14	10:21:00	369	50.23	0.35	9.91	49.03	15.3	9.15	2.45	0.7	137.29	15.99	80.65	50.8	16.5	8.9	2.4
2023-11-14	10:22:00	378	51.01	0.35	9.85	48.80	14.6	9.15	2.46	0.7	124.09	19.26	80.65	59.2	16.4	9.2	2.4
2023-11-14	10:23:00	399	51.01	0.35	9.82	48.71	19.5	9.37	2.15	0.7	102.94	20.79	80.65	75.2	16.1	8.8	2.4
2023-11-14	10:24:00	404	50.71	0.35	9.83	48.70	14.6	9.37	2.27	0.7	107.05	15.46	83.67	56.4	16.7	9.3	2.4
2023-11-14	10:25:00	383	50.83	0.35	9.88	48.82	19.8	9.37	2.07	0.7	121.70	7.79	83.67	75.4	17.3	8.8	2.4
2023-11-14	10:26:00	395	50.95	0.35	9.89	48.89	16.2	9.37	2.65	0.7	119.83	4.98	83.67	63.4	17.6	9.2	2.4
2023-11-14	10:27:00	378	51.15	0.35	9.90	48.92	16.9	9.37	1.86	0.7	129.02	2.64	83.67	87.4	20.5	8.8	2.4
2023-11-14	10:28:00	390	52.88	0.35	9.88	48.90	13.4	9.37	2.20	0.7	130.11	10.29	81.81	57.3	14.7	9.4	2.4
2023-11-14	10:29:00	371	54.16	0.35	9.85	48.79	14.3	9.37	2.51	0.7	141.57	12.41	81.81	50.6	14.7	9.2	2.4
2023-11-14	10:30:00	379	53.92	0.35	9.79	48.62	12.4	9.37	2.28	0.7	145.52	7.73	81.81	58.0	17.4	9.6	2.4

November 14/2023		Main Analyzers												Backup Analyzers			
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-14	10:31:00	396	51.45	0.35	9.77	48.55	15.2	9.37	2.03	0.7	131.14	10.34	80.76	46.8	14.7	8.9	1.4
2023-11-14	10:32:00	409	48.08	0.35	9.80	48.63	13.3	9.37	2.31	0.7	121.35	11.83	80.76	61.4	17.0	9.1	1.4
2023-11-14	10:33:00	357	47.40	0.35	9.87	48.83	17.3	9.37	2.35	0.7	118.08	11.83	82.44	63.4	19.3	8.5	1.4
2023-11-14	10:34:00	395	47.52	0.35	9.97	49.07	13.9	9.37	2.28	0.7	118.08	11.12	82.44	58.6	17.6	9.1	1.4
2023-11-14	10:35:00	350	47.52	0.35	10.01	49.14	13.4	9.37	1.81	0.7	115.97	6.55	82.44	45.4	15.0	8.7	1.4
2023-11-14	10:36:00	388	47.16	0.35	10.02	49.17	15.0	9.37	2.27	0.7	132.97	0.46	80.99	49.8	15.3	9.7	1.4
2023-11-14	10:37:00	351	44.17	0.35	9.94	49.09	14.8	9.37	2.31	0.7	148.24	4.53	79.91	65.9	15.6	9.1	1.4
2023-11-14	10:38:00	373	44.05	0.35	9.89	48.91	12.5	9.37	2.46	0.7	148.24	12.45	78.64	44.0	16.1	9.5	1.4
2023-11-14	10:39:00	361	43.92	0.35	9.88	48.80	14.4	9.37	2.23	0.7	161.18	14.83	78.64	46.2	13.8	8.9	1.4
2023-11-14	10:40:00	399	41.03	0.35	9.88	48.84	12.3	9.37	2.35	0.7	151.11	17.91	78.64	46.4	15.9	8.9	1.4
2023-11-14	10:41:00	406	39.33	0.35	9.92	48.91	13.4	9.37	1.97	0.7	133.63	12.74	79.69	40.0	13.8	8.9	1.4
2023-11-14	10:42:00	385	38.47	0.35	9.97	49.03	15.2	9.37	2.42	0.7	112.44	21.10	80.84	46.6	14.7	9.2	1.4
2023-11-14	10:43:00	398	38.05	0.35	9.95	49.01	12.2	9.37	2.28	0.7	133.82	24.71	80.84	37.6	12.9	9.0	1.4
2023-11-14	10:44:00	382	37.62	0.35	9.93	48.99	13.6	9.37	2.48	0.7	129.36	21.39	80.84	41.4	15.1	8.8	1.4
2023-11-14	10:45:00	393	36.50	0.35	9.85	48.90	16.3	9.37	2.38	0.7	125.08	16.88	79.44	79.4	14.2	9.5	1.4
2023-11-14	10:46:00	372	41.42	0.35	9.79	48.69	13.5	9.37	2.35	0.7	118.52	13.85	78.21	54.7	19.7	8.9	1.4
2023-11-14	10:47:00	381	48.24	0.35	9.75	48.55	16.1	9.37	2.65	0.7	116.39	15.31	79.51	48.6	14.2	9.1	1.4
2023-11-14	10:48:00	403	48.67	0.35	9.82	48.59	16.4	9.37	2.46	0.7	119.24	16.19	80.65	54.3	17.9	8.7	1.4
2023-11-14	10:49:00	412	46.75	0.35	9.89	48.78	17.1	9.37	2.23	0.7	109.20	16.56	82.57	49.6	15.3	8.9	1.4
2023-11-14	10:50:00	386	45.42	0.35	10.00	48.93	15.8	9.37	2.42	0.7	119.39	21.19	83.99	55.4	21.5	8.5	1.4
2023-11-14	10:51:00	398	45.42	0.35	10.04	49.16	13.7	9.37	2.35	0.7	133.35	13.24	83.99	57.3	16.2	9.2	1.4
2023-11-14	10:52:00	380	45.42	0.35	10.07	49.21	16.6	9.16	2.03	0.7	134.49	11.69	82.11	59.7	16.2	8.8	1.4
2023-11-14	10:53:00	390	45.25	0.35	10.02	49.08	13.1	9.16	2.48	0.7	126.50	12.87	80.41	55.0	15.1	9.5	1.4
2023-11-14	10:54:00	367	44.96	0.35	9.94	48.97	16.8	9.16	2.22	0.7	130.79	17.78	80.41	66.8	14.2	9.1	1.4
2023-11-14	10:55:00	375	44.85	0.35	9.86	48.73	15.0	9.16	2.20	0.7	148.30	22.45	78.97	48.1	16.8	9.4	1.4
2023-11-14	10:56:00	390	44.85	0.35	9.85	48.68	16.0	9.38	2.16	0.7	123.89	11.80	78.97	53.3	15.9	8.9	1.4
2023-11-14	10:57:00	403	44.85	0.35	9.88	48.71	15.0	9.38	2.51	0.7	126.77	1.05	78.97	55.8	17.4	9.2	1.4
2023-11-14	10:58:00	354	45.09	0.35	9.95	48.81	18.2	9.38	2.53	0.7	126.41	11.25	80.19	61.5	19.3	8.5	1.4
2023-11-14	10:59:00	392	45.42	0.35	10.01	49.05	12.4	9.38	2.22	0.7	130.29	14.28	80.19	53.5	18.4	9.3	1.4
2023-11-14	11:00:00	348	46.04	0.35	10.04	49.16	15.9	9.38	1.86	0.7	144.01	11.30	80.19	57.6	17.0	8.7	1.4
2023-11-14	11:01:00	387	46.04	0.35	10.03	49.22	15.6	9.38	2.16	0.7	144.01	12.63	80.19	67.0	18.0	9.6	1.4
2023-11-14	11:02:00	353	47.74	0.35	9.96	49.08	16.3	9.38	2.57	0.7	153.84	17.25	80.19	64.4	17.4	9.0	1.4
2023-11-14	11:03:00	375	48.86	0.35	9.90	48.93	15.0	9.38	2.65	0.7	127.33	12.14	80.19	53.1	16.2	9.4	1.4
2023-11-14	11:04:00	362	49.20	0.35	9.87	48.80	16.9	9.38	2.50	0.7	127.33	12.14	80.19	66.3	17.1	8.8	1.4
2023-11-14	11:05:00	403	49.53	0.35	9.91	48.84	14.4	9.38	2.37	0.7	144.71	10.17	80.19	56.8	18.6	8.8	1.4
2023-11-14	11:06:00	410	49.80	0.35	9.97	48.92	18.3	9.38	2.57	0.7	141.18	13.83	81.60	53.8	17.9	8.5	1.4
2023-11-14	11:07:00	388	49.80	0.35	10.06	49.12	17.8	9.38	2.47	0.7	121.97	14.80	81.60	61.1	19.9	9.0	1.4
2023-11-14	11:08:00	400	49.68	0.35	10.09	49.25	15.0	9.18	2.61	0.7	121.97	14.80	82.65	50.7	15.6	8.9	1.4
2023-11-14	11:09:00	383	49.16	0.35	10.11	49.33	16.7	9.18	2.38	0.7	121.97	8.54	83.74	54.1	19.0	8.6	1.4
2023-11-14	11:10:00	393	47.20	0.35	10.08	49.28	15.0	9.18	2.18	0.7	147.85	13.04	82.68	67.2	17.7	9.1	1.4
2023-11-14	11:11:00	370	46.80	0.35	10.01	49.18	15.9	9.18	2.20	0.7	144.37	18.55	80.25	60.8	17.4	8.9	1.4
2023-11-14	11:12:00	376	46.67	0.35	9.94	48.98	14.2	9.18	2.53	0.7	143.05	13.80	80.25	49.5	15.4	9.1	1.4
2023-11-14	11:13:00	393	46.67	0.35	9.92	48.87	17.0	9.18	2.28	0.7	130.97	14.91	80.25	59.6	20.0	8.7	1.4
2023-11-14	11:14:00	404	46.96	0.35	9.96	48.90	28.3	9.18	2.61	0.7	138.47	17.09	83.76	98.1	16.2	8.9	1.4
2023-11-14	11:15:00	381	57.36	0.35	10.06	49.06	12.9	9.18	2.27	0.7	152.69	13.59	82.55	40.9	26.6	8.7	2.4
2023-11-14	11:16:00	391	60.58	0.35	10.01	49.13	12.3	9.18	2.12	0.7	143.01	5.09	82.55	37.7	12.3	9.5	2.4
2023-11-14	11:17:00	376	58.94	0.35	9.95	49.02	16.1	9.18	2.37	0.7	153.31	3.93	82.55	53.3	14.1	8.7	2.4
2023-11-14	11:18:00	388	53.61	0.35	9.92	48.88	14.8	9.18	2.38	0.7	160.94	12.15	80.82	57.9	19.4	9.4	2.4
2023-11-14	11:19:00	368	51.18	0.35	9.90	48.82	18.6	9.18	2.38	0.7	170.82	10.93	79.73	65.2	18.7	8.9	2.4
2023-11-14	11:20:00	378	50.77	0.35	9.89	48.77	14.3	9.18	2.51	0.7	157.20	12.37	79.73	49.0	17.6	9.2	2.4
2023-11-14	11:21:00	395	49.33	0.35	9.94	48.82	15.6	9.18	2.76	0.7	145.74	4.83	79.73	47.7	15.9	8.6	2.4
2023-11-14	11:22:00	404	47.63	0.35	10.03	48.98	14.1	9.18	2.41	0.7	145.74	8.54	80.86	51.2	17.3	9.0	2.4
2023-11-14	11:23:00	354	43.97	0.35	10.12	49.18	22.0	9.18	2.38	0.7	134.11	11.35	82.63	71.1	17.9	8.4	2.4
2023-11-14	11:24:00	393	43.97	0.35	10.21	49.43	17.1	9.18	2.30	0.7	126.01	16.05	84.00	63.9	21.5	9.0	2.4
2023-11-14	11:25:00	349	46.13	0.35	10.23	49.52	17.4	9.18	2.12	0.7	129.54	12.42	84.00	53.7	15.5	8.6	2.4
2023-11-14	11:26:00	385	47.56	0.35	10.19	49.52	13.6	9.18	2.66	0.7	127.72	15.08	80.26	42.2	18.8	9.5	2.4
2023-11-14	11:27:00	347	45.85	0.35	10.12	49.34	14.4	8.98	2.68	0.7	124.92	16.96	80.26	47.9	13.2	8.8	2.4
2023-11-14	11:28:00	370	43.85	0.35	10.06	49.19	15.2	8.98	2.31	0.7	124.96	16.96	80.26	42.9	18.2	9.3	2.4

November 14/2023		Main Analyzers									Backup Analyzers						
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-14	11:29:00	359	41.73	0.35	10.02	49.03	16.4	8.98	2.35	0.7	137.61	10.83	81.48	54.7	14.4	8.7	2.4
2023-11-14	11:30:00	395	40.83	0.35	10.03	49.05	14.4	9.18	2.46	0.7	137.61	7.98	81.48	43.0	19.4	8.7	2.4
2023-11-14	11:31:00	405	40.16	0.35	10.06	49.11	13.4	9.18	2.62	0.7	143.26	11.83	82.52	37.5	12.7	8.7	2.4
2023-11-14	11:32:00	384	39.24	0.35	10.12	49.24	13.4	9.18	2.65	0.7	139.35	17.27	83.84	37.1	16.5	9.1	2.4
2023-11-14	11:33:00	393	37.57	0.35	10.11	49.24	12.6	9.18	2.30	0.7	128.85	14.09	83.84	38.6	13.0	8.7	2.4
2023-11-14	11:34:00	380	36.20	0.35	10.11	49.23	11.1	9.18	2.61	0.7	114.89	19.03	81.33	33.7	15.1	8.5	2.4
2023-11-14	11:35:00	388	34.96	0.35	10.05	49.11	10.3	9.18	2.53	0.7	124.64	17.93	81.33	29.3	12.1	9.0	2.4
2023-11-14	11:36:00	370	32.68	0.35	10.01	49.00	12.9	9.18	2.68	0.7	138.31	18.89	81.33	37.3	13.3	8.8	2.4
2023-11-14	11:37:00	378	30.18	0.35	9.94	48.87	14.6	9.18	2.57	0.7	160.56	18.98	81.33	45.7	13.5	8.9	2.4
2023-11-14	11:38:00	403	29.64	0.35	9.96	48.88	15.4	9.18	3.30	0.7	141.65	13.86	84.31	43.0	17.6	8.5	2.4
2023-11-14	11:39:00	407	29.64	0.35	10.03	49.03	14.6	9.18	2.32	0.7	135.60	18.20	85.49	38.5	15.6	8.7	2.4
2023-11-14	11:40:00	384	29.99	0.35	10.15	49.33	20.1	9.18	2.65	0.7	129.58	14.82	87.86	65.6	20.5	8.3	2.4
2023-11-14	11:41:00	397	32.40	0.35	10.23	49.56	12.0	9.18	2.18	0.7	127.85	20.18	87.86	34.5	18.4	8.9	2.4
2023-11-14	11:42:00	377	36.40	0.35	10.26	49.63	13.1	9.18	1.97	0.7	119.90	16.98	87.86	32.9	14.2	8.5	2.4
2023-11-14	11:43:00	389	36.57	0.35	10.21	49.53	11.9	8.96	2.53	0.7	133.25	12.27	83.30	36.3	14.7	9.2	2.4
2023-11-14	11:44:00	364	35.24	0.35	10.13	49.34	14.7	8.96	2.47	0.7	144.22	21.29	82.25	42.5	14.4	8.8	2.4
2023-11-14	11:45:00	374	32.24	0.35	10.04	49.13	11.3	8.96	2.35	0.7	147.13	9.15	79.07	32.7	15.0	9.3	2.4
2023-11-14	11:46:00	386	30.49	0.35	10.03	49.01	14.5	9.17	2.35	0.7	140.58	12.20	80.15	38.0	13.6	8.7	2.4
2023-11-14	11:47:00	400	30.34	0.35	10.05	49.05	12.5	9.17	2.57	0.7	123.99	19.42	84.22	40.7	15.9	8.9	2.4
2023-11-14	11:48:00	347	30.34	0.35	10.10	49.18	16.1	9.17	2.61	0.7	131.98	17.53	84.22	46.2	17.0	8.4	2.4
2023-11-14	11:49:00	386	30.82	0.35	10.16	49.34	12.4	9.17	2.20	0.7	149.88	14.82	85.31	51.6	18.7	9.0	2.4
2023-11-14	11:50:00	343	32.25	0.35	10.16	49.39	17.3	9.17	2.23	0.7	152.80	17.08	85.31	38.7	14.2	8.6	2.4
2023-11-14	11:51:00	383	32.89	0.35	10.15	49.40	14.2	9.17	2.30	0.7	151.29	17.54	85.31	46.0	18.6	9.7	2.4
2023-11-14	11:52:00	349	33.94	0.35	10.10	49.27	12.0	9.17	2.61	0.7	138.94	8.58	85.31	32.9	13.2	8.9	2.4
2023-11-14	11:53:00	372	34.87	0.35	10.02	49.11	11.7	9.17	2.28	0.7	137.40	9.99	83.14	33.6	14.5	9.4	2.4
2023-11-14	11:54:00	362	34.87	0.35	9.98	48.99	14.4	9.17	2.22	0.7	149.87	14.34	83.14	37.6	14.2	8.6	2.4
2023-11-14	11:55:00	400	33.97	0.35	10.03	49.08	13.8	9.17	2.22	0.7	138.34	10.73	84.85	39.7	15.5	8.6	2.4
2023-11-14	11:56:00	406	32.58	0.35	10.10	49.22	19.4	9.17	2.16	0.7	145.96	8.62	86.36	53.8	14.8	8.4	2.4
2023-11-14	11:57:00	385	32.97	0.35	10.19	49.47	23.0	9.17	2.18	0.7	141.69	5.88	87.47	74.1	24.2	8.7	2.4
2023-11-14	11:58:00	396	38.84	0.35	10.23	49.57	14.8	9.17	2.38	0.7	121.81	7.81	87.47	39.7	17.9	8.6	2.4
2023-11-14	11:59:00	380	42.13	0.35	10.26	49.65	14.5	8.95	2.65	0.7	102.64	10.33	85.35	45.2	17.7	8.4	2.4
2023-11-14	12:00:00	391	41.93	0.35	10.20	49.56	11.2	8.95	2.37	0.7	102.64	17.54	85.35	30.2	13.5	8.9	2.4
2023-11-14	12:01:00	367	37.29	0.35	10.16	49.47	11.8	8.95	2.16	0.7	114.71	19.92	82.45	28.2	13.0	8.7	2.4
2023-11-14	12:02:00	377	30.61	0.35	10.09	49.23	12.9	8.95	2.35	0.7	112.49	10.29	82.45	35.5	12.9	9.0	2.4
2023-11-14	12:03:00	395	28.81	0.35	10.09	49.16	13.6	8.95	2.37	0.7	124.73	3.25	82.45	35.4	15.6	8.5	2.4
2023-11-14	12:04:00	402	27.96	0.35	10.08	49.17	14.0	9.16	2.38	0.7	124.73	4.51	83.71	34.6	15.5	9.0	2.4
2023-11-14	12:05:00	378	27.96	0.35	10.12	49.23	17.8	9.16	2.46	0.7	152.49	18.02	85.30	48.3	16.8	8.4	2.4
2023-11-14	12:06:00	388	28.06	0.35	10.14	49.35	12.4	9.16	3.10	0.7	148.30	18.63	84.06	32.6	15.5	9.1	2.4
2023-11-14	12:07:00	373	29.06	0.35	10.16	49.36	13.3	9.16	2.85	0.7	148.30	10.93	84.06	34.3	14.7	8.6	2.4
2023-11-14	12:08:00	384	29.16	0.35	10.13	49.25	12.0	9.16	2.83	0.7	146.95	12.12	84.06	30.6	14.4	9.1	2.4
2023-11-14	12:09:00	364	29.16	0.35	10.09	49.17	14.5	9.16	2.65	0.7	140.79	12.12	84.06	37.3	15.3	8.7	2.4
2023-11-14	12:10:00	374	28.98	0.35	10.04	49.07	12.4	9.16	2.45	0.7	133.02	14.60	83.00	32.7	13.9	9.2	2.4
2023-11-14	12:11:00	391	28.98	0.35	10.05	49.08	13.3	9.16	2.66	0.7	133.02	14.60	83.00	32.0	14.1	8.6	2.4
2023-11-14	12:12:00	403	28.46	0.35	10.07	49.15	13.3	9.16	2.63	0.7	155.56	16.81	84.95	30.4	15.9	9.0	2.4
2023-11-14	12:13:00	347	27.74	0.35	10.14	49.25	20.0	9.16	2.31	0.7	138.52	8.29	87.23	60.3	18.7	8.3	2.4
2023-11-14	12:14:00	391	28.61	0.35	10.21	49.49	11.9	9.16	2.57	0.7	126.27	3.26	87.23	53.4	20.5	9.0	2.4
2023-11-14	12:15:00	346	31.52	0.35	10.23	49.65	14.0	9.16	1.92	0.7	129.30	9.51	84.72	32.0	13.3	8.6	2.4
2023-11-14	12:16:00	383	31.65	0.35	10.21	49.67	11.3	9.16	2.31	0.7	124.92	14.39	84.72	37.1	15.3	9.6	2.4
2023-11-14	12:17:00	348	31.38	0.35	10.16	49.46	12.7	8.95	2.57	0.7	130.69	19.45	83.33	35.8	13.0	8.9	2.4
2023-11-14	12:18:00	369	30.59	0.35	10.09	49.35	12.2	8.95	2.35	0.7	130.69	14.26	83.33	33.7	14.4	9.2	2.4
2023-11-14	12:19:00	358	29.86	0.35	10.07	49.18	13.7	8.95	2.23	0.7	130.69	8.70	83.33	35.9	15.3	8.5	2.4
2023-11-14	12:20:00	395	29.38	0.35	10.09	49.20	12.1	9.15	2.95	0.7	147.67	2.71	84.52	36.7	16.4	8.5	2.4
2023-11-14	12:21:00	403	29.24	0.35	10.13	49.31	15.1	9.15	2.65	0.7	157.42	6.90	84.52	38.1	13.2	8.5	2.4
2023-11-14	12:22:00	381	28.59	0.35	10.16	49.45	14.7	9.15	2.22	0.7	134.07	4.70	84.07	44.7	17.4	9.1	2.4
2023-11-14	12:23:00	393	28.59	0.35	10.16	49.48	13.3	9.15	2.46	0.7	130.29	3.15	84.07	30.5	14.5	8.7	2.4
2023-11-14	12:24:00	379	28.59	0.35	10.17	49.48	14.7	9.15	2.41	0.7	130.29	1.54	84.07	37.0	15.8	8.5	2.4
2023-11-14	12:25:00	389	28.74	0.35	10.11	49.36	12.1	9.15	2.62	0.7	147.86	14.62	82.60	33.1	13.9	9.0	2.4
2023-11-14	12:26:00	368	28.61	0.35	10.06	49.23	13.3	9.15	2.50	0.7	143.74	7.28	82.60	36.7	14.4	8.8	2.4

November 14/2023		Main Analyzers									Backup Analyzers						
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-14	12:27:00	377	28.79	0.35	10.01	49.05	14.3	9.15	3.06	0.7	127.09	8.01	82.60	36.1	14.7	9.0	2.4
2023-11-14	12:28:00	398	28.98	0.35	10.01	49.01	16.8	9.15	2.46	0.7	125.50	11.67	82.60	47.8	18.4	8.4	2.4
2023-11-14	12:29:00	406	29.18	0.35	10.05	49.12	14.2	9.15	2.61	0.7	148.28	14.97	82.60	39.1	16.2	8.9	2.4
2023-11-14	12:30:00	382	29.41	0.35	10.15	49.34	22.1	9.15	2.63	0.7	149.71	6.74	84.03	77.1	20.2	8.2	2.4
2023-11-14	12:31:00	395	39.18	0.35	10.23	49.58	14.3	9.15	2.58	0.7	141.16	12.46	84.03	38.9	20.2	8.9	2.4
2023-11-14	12:32:00	377	41.22	0.35	10.24	49.67	14.9	9.15	2.23	0.7	131.01	7.55	82.93	42.2	15.8	8.4	2.4
2023-11-14	12:33:00	386	41.78	0.35	10.24	49.64	11.8	8.94	2.76	0.7	134.05	9.69	82.93	33.0	16.2	9.1	2.4
2023-11-14	12:34:00	364	40.42	0.35	10.16	49.52	13.3	8.94	2.18	0.7	132.80	10.81	81.61	36.5	15.1	8.7	2.4
2023-11-14	12:35:00	373	37.76	0.35	10.11	49.34	11.4	8.94	2.37	0.7	134.42	18.61	80.51	30.7	14.5	9.2	2.4
2023-11-14	12:36:00	383	31.60	0.35	10.06	49.22	14.4	8.94	2.57	0.7	117.45	20.85	80.51	34.0	15.6	8.8	2.4
2023-11-14	12:37:00	398	28.44	0.35	10.07	49.19	12.6	9.14	2.61	0.7	120.09	20.85	80.51	35.8	16.2	9.0	2.4
2023-11-14	12:38:00	344	28.23	0.35	10.12	49.27	16.2	9.14	2.41	0.7	147.65	18.92	82.77	46.2	14.8	8.5	2.4
2023-11-14	12:39:00	385	28.51	0.35	10.16	49.44	16.7	9.14	2.50	0.7	142.52	20.71	83.82	43.8	20.5	9.2	2.4
2023-11-14	12:40:00	344	30.67	0.35	10.16	49.48	14.0	9.14	2.31	0.7	127.51	18.42	83.82	31.4	14.4	8.5	2.4
2023-11-14	12:41:00	381	31.21	0.35	10.16	49.53	12.5	9.14	2.61	0.7	143.02	16.91	82.63	28.0	15.8	9.7	2.4
2023-11-14	12:42:00	348	30.72	0.35	10.11	49.39	12.4	9.14	2.83	0.7	153.57	11.24	82.63	35.7	13.0	9.1	2.4
2023-11-14	12:43:00	373	28.93	0.35	10.02	49.21	12.6	9.14	2.35	0.7	139.48	11.24	81.61	35.2	14.2	9.5	2.4
2023-11-14	12:44:00	362	28.02	0.35	9.93	49.00	14.7	9.14	2.72	0.7	154.01	13.74	81.61	43.6	15.8	8.9	2.4
2023-11-14	12:45:00	401	27.75	0.35	9.91	48.98	13.5	9.14	2.65	0.7	137.63	11.91	81.61	33.2	15.5	8.7	2.4
2023-11-14	12:46:00	411	27.75	0.35	9.94	49.08	16.6	9.14	2.35	0.7	141.56	11.91	81.61	43.5	14.7	8.7	2.4
2023-11-14	12:47:00	388	27.86	0.35	10.05	49.30	14.4	9.14	2.68	0.7	131.24	18.87	83.30	39.3	18.8	9.1	2.4
2023-11-14	12:48:00	398	28.60	0.35	10.05	49.42	13.3	9.14	2.57	0.7	127.84	16.99	83.30	38.3	13.6	8.9	2.4
2023-11-14	12:49:00	381	30.51	0.35	10.02	49.46	13.6	9.14	2.20	0.7	127.84	13.41	82.00	37.3	15.6	8.7	2.4
2023-11-14	12:50:00	393	31.17	0.35	9.93	49.35	12.4	9.14	2.61	0.7	138.90	15.11	80.93	40.7	14.1	9.2	2.4
2023-11-14	12:51:00	368	31.17	0.35	9.85	49.19	14.6	9.14	2.03	0.7	138.90	11.96	76.92	42.4	15.3	9.0	2.4
2023-11-14	12:52:00	379	31.28	0.35	9.79	48.98	14.8	9.37	2.31	0.7	151.10	14.23	76.92	43.0	14.8	9.1	2.4
2023-11-14	12:53:00	395	32.36	0.35	9.81	48.92	14.7	9.37	2.66	0.7	151.10	18.64	76.92	37.7	17.1	8.9	2.4
2023-11-14	12:54:00	402	32.48	0.35	9.86	48.94	13.8	9.37	2.42	0.7	135.85	12.59	76.92	50.2	16.1	9.3	2.4
2023-11-14	12:55:00	379	32.87	0.35	9.92	49.07	20.2	9.37	2.50	0.7	124.57	18.89	78.35	60.3	17.9	8.7	2.4
2023-11-14	12:56:00	393	37.74	0.35	9.94	49.19	15.7	9.37	2.42	0.7	120.11	21.06	78.35	55.5	20.9	9.2	2.4
2023-11-14	12:57:00	379	42.67	0.35	10.00	49.26	19.7	9.37	2.63	0.7	120.11	14.63	78.35	60.7	17.6	8.6	2.4
2023-11-14	12:58:00	390	44.81	0.35	10.02	49.29	15.2	9.37	2.51	0.7	142.12	3.25	74.93	63.7	19.9	9.3	2.4
2023-11-14	12:59:00	370	47.41	0.35	10.02	49.24	26.5	9.37	2.81	0.7	151.65	5.77	74.93	97.1	19.3	8.9	2.4
2023-11-14	13:00:00	378	50.37	0.35	9.96	49.10	17.5	9.37	2.35	0.7	139.11	12.46	74.93	61.8	20.7	9.4	2.4
2023-11-14	13:01:00	391	52.71	0.35	9.91	49.02	18.0	9.37	2.35	0.7	120.48	12.44	76.33	70.2	19.9	8.7	2.4
2023-11-14	13:02:00	406	54.08	0.35	9.93	49.04	17.1	9.37	3.06	0.7	138.80	15.74	76.33	63.0	22.1	8.9	2.4
2023-11-14	13:03:00	361	55.35	0.35	10.02	49.17	21.8	9.37	1.92	0.7	137.63	13.65	77.48	64.9	19.1	8.5	2.4
2023-11-14	13:04:00	394	55.63	0.35	10.11	49.39	17.7	9.37	2.41	0.7	121.19	12.36	77.48	67.1	27.6	9.1	2.4
2023-11-14	13:05:00	347	55.76	0.35	10.13	49.47	19.1	9.15	2.26	0.7	122.28	12.96	77.48	64.2	19.0	8.7	2.4
2023-11-14	13:06:00	384	55.76	0.35	10.11	49.46	18.7	9.15	2.38	0.7	129.90	12.96	77.48	72.9	21.2	9.6	2.4
2023-11-14	13:07:00	348	55.76	0.35	10.05	49.28	16.7	9.15	2.35	0.7	129.90	17.52	74.18	66.2	23.1	9.0	2.4
2023-11-14	13:08:00	371	56.48	0.35	9.94	49.14	19.2	9.15	2.28	0.7	138.77	15.23	71.42	66.8	20.0	9.5	2.4
2023-11-14	13:09:00	362	56.72	0.35	9.88	48.99	23.8	9.15	2.68	0.7	136.22	15.23	72.66	83.3	22.9	8.9	2.4
2023-11-14	13:10:00	397	56.72	0.35	9.92	49.01	18.5	9.15	2.37	0.7	127.05	14.51	74.66	55.7	22.8	8.9	2.4
2023-11-14	13:11:00	404	56.85	0.35	9.98	49.11	19.4	9.15	1.96	0.7	127.05	19.07	74.66	51.4	19.7	8.7	2.4
2023-11-14	13:12:00	385	55.15	0.35	10.07	49.27	21.1	9.15	2.46	0.7	127.05	12.96	74.66	59.1	21.9	9.3	2.4
2023-11-14	13:13:00	397	53.71	0.35	10.05	49.26	16.1	9.15	2.23	0.7	120.47	12.96	74.66	47.9	20.5	8.9	2.4
2023-11-14	13:14:00	382	52.35	0.35	10.04	49.27	17.7	9.15	2.58	0.7	135.35	14.28	74.66	70.4	20.3	8.7	2.4
2023-11-14	13:15:00	392	51.13	0.35	9.98	49.14	18.3	9.15	2.76	0.7	159.63	16.65	74.66	59.0	17.7	9.2	2.4
2023-11-14	13:16:00	372	50.81	0.35	9.93	49.02	18.7	9.15	3.02	0.7	148.51	17.81	70.68	63.5	19.3	8.9	2.4
2023-11-14	13:17:00	381	50.70	0.35	9.87	48.87	19.8	9.15	2.55	0.7	130.75	14.57	70.68	68.0	18.8	9.1	2.4
2023-11-14	13:18:00	401	50.70	0.35	9.87	48.90	23.9	9.37	2.15	0.7	122.01	13.93	70.68	74.7	20.3	8.9	2.4
2023-11-14	13:19:00	407	51.75	0.35	9.92	49.02	21.5	9.37	2.66	0.7	132.04	18.60	72.15	65.9	25.2	8.9	2.4
2023-11-14	13:20:00	383	56.51	0.35	10.03	49.26	29.5	9.37	2.65	0.7	132.04	25.56	73.34	100.3	23.9	8.4	2.4
2023-11-14	13:21:00	398	59.86	0.35	10.06	49.44	25.0	9.37	2.60	0.7	130.18	19.65	73.34	69.2	24.6	9.0	2.4
2023-11-14	13:22:00	379	63.74	0.35	10.10	49.56	21.0	9.37	2.38	0.7	125.08	7.09	74.48	71.7	24.4	8.6	2.4
2023-11-14	13:23:00	390	64.42	0.35	10.07	49.51	16.6	9.16	2.68	0.7	125.08	2.39	71.99	58.3	20.2	9.5	2.4
2023-11-14	13:24:00	366	64.05	0.35	10.00	49.33	17.7	9.16	2.65	0.7	126.79	7.17	70.23	69.6	22.0	9.1	2.4

November 14/2023		Main Analyzers									Backup Analyzers							
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-14	13:25:00	375	62.30	0.35	9.89	49.09	18.3	9.16	2.27	0.7	121.16	7.17	69.67	79.6	21.1	9.5	2.4
2023-11-14	13:26:00	387	61.70	0.35	9.85	48.94	23.9	9.16	2.62	0.7	118.59	8.24	69.67	57.4	19.3	8.9	2.4
2023-11-14	13:27:00	401	59.26	0.35	9.86	48.92	17.5	9.39	2.41	0.7	118.59	5.61	70.82	73.7	20.9	9.1	2.4
2023-11-14	13:28:00	348	57.76	0.35	9.92	49.05	23.4	9.39	2.40	0.7	134.39	8.87	70.82	84.4	23.5	8.6	2.4
2023-11-14	13:29:00	389	57.88	0.35	9.98	49.18	17.9	9.39	2.26	0.7	134.39	17.09	70.82	83.2	27.5	9.1	2.4
2023-11-14	13:30:00	346	60.72	0.35	10.06	49.25	20.0	9.39	2.22	0.7	134.39	12.38	72.63	61.9	22.6	8.5	2.4
2023-11-14	13:31:00	386	61.06	0.35	10.06	49.31	16.4	9.18	2.83	0.7	117.52	5.88	72.63	71.7	21.6	9.7	2.4
2023-11-14	13:32:00	352	58.53	0.35	10.03	49.21	18.1	9.18	2.15	0.7	110.74	5.88	71.56	56.9	17.6	8.9	2.4
2023-11-14	13:33:00	375	54.15	0.35	9.95	49.14	15.5	9.18	2.63	0.7	115.29	19.26	70.53	60.2	21.6	9.5	2.4
2023-11-14	13:34:00	364	52.02	0.35	9.92	48.98	22.0	9.18	2.66	0.7	127.62	19.26	70.53	60.2	19.7	8.9	2.4
2023-11-14	13:35:00	402	51.85	0.35	9.94	49.01	19.2	9.18	2.35	0.7	129.26	14.39	72.23	60.0	23.2	8.7	2.4
2023-11-14	13:36:00	409	52.55	0.35	10.00	49.14	22.4	9.18	2.68	0.7	125.73	14.06	73.77	72.8	23.7	8.7	2.4
2023-11-14	13:37:00	385	56.93	0.35	10.07	49.27	20.9	9.18	2.65	0.7	122.18	10.45	74.83	76.0	24.8	8.7	2.4
2023-11-14	13:38:00	396	58.55	0.35	10.07	49.38	18.1	9.18	2.61	0.7	127.64	6.52	73.75	61.3	22.6	8.9	2.4
2023-11-14	13:39:00	377	60.32	0.35	10.08	49.43	18.3	9.18	2.62	0.7	135.75	21.22	71.56	63.6	20.0	8.7	2.4
2023-11-14	13:40:00	389	60.04	0.35	10.05	49.32	20.0	9.18	2.50	0.7	133.48	21.22	70.03	72.2	18.1	9.0	2.4
2023-11-14	13:41:00	364	58.99	0.35	10.01	49.18	21.5	9.18	2.45	0.7	129.33	16.86	70.03	73.0	22.6	8.8	2.4
2023-11-14	13:42:00	374	58.49	0.35	9.95	49.03	21.5	9.18	2.48	0.7	121.65	14.01	70.03	91.7	20.8	9.1	2.4
2023-11-14	13:43:00	393	58.62	0.35	9.95	49.01	20.0	9.18	2.18	0.7	119.79	14.01	70.03	64.3	21.0	8.9	2.4
2023-11-14	13:44:00	401	58.77	0.35	9.96	49.06	17.1	9.18	2.61	0.7	121.55	9.69	70.03	57.8	20.9	9.1	2.4
2023-11-14	13:45:00	378	58.32	0.35	10.04	49.18	23.6	9.18	2.68	0.7	126.99	8.56	71.45	65.9	20.3	8.7	2.4
2023-11-14	13:46:00	391	56.26	0.35	10.04	49.28	15.2	9.18	3.31	0.7	138.42	10.38	71.45	49.6	21.7	9.0	2.4
2023-11-14	13:47:00	375	52.99	0.35	10.07	49.30	19.5	9.18	2.18	0.7	112.63	15.41	71.45	53.8	19.4	8.6	2.4
2023-11-14	13:48:00	386	50.95	0.35	10.03	49.28	17.6	9.18	2.45	0.7	110.21	18.50	71.45	62.4	22.3	9.3	2.4
2023-11-14	13:49:00	367	50.35	0.35	10.00	49.18	16.9	9.18	2.31	0.7	114.97	18.50	70.35	54.5	19.4	8.9	2.4
2023-11-14	13:50:00	375	49.73	0.35	9.95	49.03	18.3	9.18	2.80	0.7	132.90	17.23	70.35	58.5	18.5	9.3	2.4
2023-11-14	13:51:00	392	48.68	0.35	9.93	48.93	25.0	9.18	2.35	0.7	131.83	17.23	70.35	81.2	20.8	8.7	2.4
2023-11-14	13:52:00	402	48.47	0.35	9.98	49.01	17.2	9.18	2.77	0.7	116.62	18.24	71.70	54.8	22.8	8.9	2.4
2023-11-14	13:53:00	349	50.39	0.35	10.11	49.20	21.7	9.18	2.85	0.7	108.56	10.30	74.06	80.5	22.3	8.3	2.4
2023-11-14	13:54:00	392	52.35	0.35	10.16	49.46	20.8	9.18	2.72	0.7	107.45	10.30	74.06	76.4	26.4	9.1	2.4
2023-11-14	13:55:00	348	53.85	0.35	10.19	49.56	20.9	9.18	2.27	0.7	118.58	5.90	74.06	62.3	18.2	8.5	2.4
2023-11-14	13:56:00	384	54.48	0.35	10.17	49.59	18.2	9.18	2.35	0.7	115.72	13.85	70.74	58.3	21.1	9.7	2.4
2023-11-14	13:57:00	351	54.36	0.35	10.13	49.43	16.7	8.98	2.66	0.7	113.89	17.51	70.74	48.1	20.0	8.8	2.4
2023-11-14	13:58:00	371	53.12	0.35	10.05	49.26	18.5	8.98	2.42	0.7	129.13	12.23	69.32	58.9	20.6	9.3	2.4
2023-11-14	13:59:00	361	50.80	0.35	10.00	49.06	23.7	8.98	2.50	0.7	143.83	10.35	69.32	77.3	21.1	8.9	2.4
2023-11-14	14:00:00	394	50.33	0.35	10.02	49.03	28.5	9.18	3.17	0.7	142.03	14.54	71.08	97.2	24.6	8.7	2.4
2023-11-14	14:01:00	402	53.14	0.35	10.07	49.11	22.2	9.18	2.61	0.7	143.13	18.37	72.45	62.1	21.1	8.7	2.4
2023-11-14	14:02:00	383	57.36	0.35	10.14	49.31	26.8	9.18	2.73	0.7	121.59	16.73	73.69	91.7	27.5	8.7	2.4
2023-11-14	14:03:00	394	59.32	0.35	10.16	49.42	18.5	9.18	2.48	0.7	119.77	12.83	73.69	45.3	19.9	8.9	2.4
2023-11-14	14:04:00	380	59.98	0.35	10.18	49.45	19.6	9.18	2.35	0.7	137.03	10.57	68.56	53.2	18.0	8.6	2.4
2023-11-14	14:05:00	389	53.33	0.35	10.13	49.34	18.7	9.18	2.58	0.7	130.28	10.57	68.56	55.4	16.4	9.0	2.4
2023-11-14	14:06:00	368	46.16	0.35	10.05	49.19	17.3	9.18	2.58	0.7	132.42	10.86	67.55	50.3	17.7	8.8	2.4

November 14/2023	Main Analyzers									Backup Analyzers						
	Baghouse	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
Test 1	PDT-622	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
Units	mmH2O	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
Max	413	69.05	0.35	10.26	49.67	29.5	9.39	3.31	0.7	170.82	25.80	88.57	100.3	27.6	9.8	2.4
Min	343	27.74	0.35	9.75	48.53	10.3	8.94	1.81	0.7	102.64	0.46	67.55	28.0	12.1	8.2	1.4
Average	382	44.36	0.35	10.01	49.11	16.2	9.22	2.42	0.7	132.41	13.19	79.88	53.8	17.6	8.9	2.2
Variance	289	114.97	0.00	0.01	0.07	12.6	0.02	0.06	0.0	152.89	23.73	24.80	226.0	10.7	0.1	0.1

November 15/2023		Main Analyzers												Backup Analyzers			
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-15	8:49:00	376	67.31	0.35	9.42	45.56	26.9	8.36	2.15	35.8	170.69	50.00	99.50	100.1	31.1	8.4	0.7
2023-11-15	8:50:00	385	66.65	0.35	9.35	45.48	23.2	8.36	2.13	35.8	177.23	50.00	98.41	84.5	24.1	8.8	0.7
2023-11-15	8:51:00	366	65.29	0.35	9.31	45.31	29.8	8.36	2.53	29.4	177.33	50.00	98.41	97.8	27.8	8.6	0.7
2023-11-15	8:52:00	375	65.19	0.35	9.26	45.20	29.2	8.36	2.80	22.9	177.40	50.00	98.41	93.1	23.7	8.9	0.7
2023-11-15	8:53:00	387	68.11	0.35	9.25	45.17	31.3	8.36	2.61	20.6	188.16	50.00	99.42	108.2	31.5	8.5	0.7
2023-11-15	8:54:00	400	72.31	0.35	9.26	45.27	31.1	8.36	2.65	20.6	195.15	47.42	101.89	97.0	27.0	8.7	0.7
2023-11-15	8:55:00	375	75.59	0.35	9.32	45.56	31.3	8.36	2.41	15.1	173.18	44.56	101.89	104.3	31.9	8.3	0.7
2023-11-15	8:56:00	384	76.67	0.35	9.37	45.72	24.6	8.36	2.35	15.1	158.82	42.46	100.25	82.7	23.4	8.9	0.7
2023-11-15	8:57:00	371	76.93	0.35	9.38	45.72	30.3	8.36	2.53	20.2	146.92	44.67	100.25	113.3	32.4	8.5	0.7
2023-11-15	8:58:00	381	76.83	0.35	9.35	45.65	22.3	8.36	2.20	27.5	146.92	50.00	97.53	77.3	22.0	9.2	0.7
2023-11-15	8:59:00	363	76.50	0.35	9.32	45.52	26.3	8.36	2.38	31.7	156.69	50.00	96.46	99.3	27.0	8.8	0.7
2023-11-15	9:00:00	370	76.31	0.35	9.25	45.31	24.1	8.36	2.07	33.9	171.84	50.00	93.88	95.6	24.6	9.4	0.7
2023-11-15	9:01:00	387	77.09	0.35	9.21	45.21	34.6	8.36	2.61	24.1	176.19	44.98	96.61	127.4	35.4	8.6	0.7
2023-11-15	9:02:00	395	80.11	0.35	9.23	45.21	33.4	8.36	2.50	19.6	177.30	42.01	96.61	117.9	31.8	8.8	0.7
2023-11-15	9:03:00	350	88.28	0.35	9.30	45.39	47.3	8.36	2.63	17.2	167.34	44.74	96.61	161.1	44.1	8.4	0.7
2023-11-15	9:04:00	385	96.40	0.35	9.36	45.63	17.7	8.36	2.45	26.6	147.95	46.44	96.61	127.6	44.8	9.0	0.7
2023-11-15	9:05:00	343	99.98	0.35	9.41	45.73	28.6	8.36	2.72	35.7	134.65	49.68	96.61	102.3	29.6	8.4	0.7
2023-11-15	9:06:00	381	99.62	0.35	9.43	45.76	22.4	8.36	2.61	21.4	163.68	43.47	93.31	119.2	34.8	9.5	0.7
2023-11-15	9:07:00	346	92.71	0.35	9.41	45.64	31.8	8.36	2.37	22.4	174.96	46.53	93.31	118.3	31.9	8.6	0.7
2023-11-15	9:08:00	369	90.08	0.35	9.36	45.54	25.5	8.36	2.53	28.5	162.33	45.54	93.31	96.8	30.8	9.2	0.7
2023-11-15	9:09:00	356	88.67	0.35	9.36	45.49	36.4	8.36	2.50	28.5	156.59	48.85	93.31	120.7	37.9	8.4	0.7
2023-11-15	9:10:00	390	87.65	0.35	9.38	45.55	30.6	8.36	2.41	28.5	156.59	50.00	93.31	108.2	33.9	8.6	0.7
2023-11-15	9:11:00	397	85.07	0.35	9.42	45.59	36.2	8.36	2.57	28.5	160.17	50.00	94.32	106.4	31.4	8.4	0.7
2023-11-15	9:12:00	377	84.16	0.35	9.47	45.73	36.0	8.36	2.38	24.2	165.41	50.00	95.33	117.7	43.0	8.7	0.7
2023-11-15	9:13:00	388	84.05	0.35	9.50	45.82	31.4	8.14	2.42	18.0	163.63	50.00	95.33	104.9	30.0	8.5	0.7
2023-11-15	9:14:00	373	84.05	0.35	9.52	45.86	42.2	8.14	2.42	23.9	140.93	50.00	95.33	177.0	58.8	8.1	0.7
2023-11-15	9:15:00	384	84.16	0.35	9.47	45.80	21.2	8.14	2.96	26.6	134.56	50.00	95.33	85.7	21.4	9.0	0.7
2023-11-15	9:16:00	363	84.32	0.35	9.40	45.58	23.0	8.14	2.33	29.9	126.53	50.00	94.21	100.0	26.4	8.8	0.7
2023-11-15	9:17:00	373	82.13	0.35	9.30	45.36	28.8	8.14	2.31	26.1	132.87	50.00	94.21	118.1	27.2	9.0	0.7
2023-11-15	9:18:00	391	81.27	0.35	9.26	45.15	29.7	8.14	2.46	27.7	157.68	50.00	96.16	121.9	30.8	8.6	0.7
2023-11-15	9:19:00	396	82.19	0.35	9.27	45.14	32.8	8.36	2.67	26.6	155.46	47.85	96.16	111.4	27.3	8.8	0.7
2023-11-15	9:20:00	378	88.38	0.35	9.32	45.34	34.9	8.36	2.78	25.4	138.48	47.85	96.16	150.3	38.9	8.4	0.7
2023-11-15	9:21:00	387	89.85	0.35	9.32	45.42	22.6	8.36	2.63	25.4	137.11	49.28	96.16	116.8	24.7	8.9	0.7
2023-11-15	9:22:00	373	93.45	0.35	9.33	45.46	32.7	8.36	2.50	27.1	146.11	49.28	96.16	137.9	34.3	8.5	0.7
2023-11-15	9:23:00	384	94.95	0.35	9.32	45.43	22.8	8.36	2.65	36.3	159.96	49.28	96.16	115.6	24.7	9.2	0.7
2023-11-15	9:24:00	365	96.35	0.35	9.24	45.29	30.0	8.36	2.42	33.1	150.72	49.28	94.55	130.3	29.2	9.0	0.7
2023-11-15	9:25:00	371	96.45	0.35	9.20	45.18	27.2	8.36	2.46	27.3	150.72	49.28	94.55	136.4	30.7	9.3	0.7
2023-11-15	9:26:00	389	104.03	0.35	9.17	45.09	40.6	8.36	2.45	23.8	167.17	49.28	94.55	200.8	45.9	8.6	0.7
2023-11-15	9:27:00	397	112.09	0.35	9.18	45.12	27.8	8.36	2.53	23.8	164.13	49.28	95.58	136.7	33.0	8.9	0.7
2023-11-15	9:28:00	350	121.22	0.35	9.24	45.24	35.7	8.36	2.41	28.2	152.39	49.28	95.58	164.8	36.4	8.7	0.7
2023-11-15	9:29:00	384	124.31	0.35	9.27	45.40	23.5	8.36	2.83	33.0	143.29	49.28	94.28	139.6	37.4	9.2	0.7
2023-11-15	9:30:00	340	124.91	0.35	9.26	45.39	40.0	8.36	2.46	33.0	157.77	49.28	94.28	204.8	40.6	8.8	0.7
2023-11-15	9:31:00	378	124.88	0.35	9.23	45.35	25.2	8.36	2.42	33.0	143.18	49.28	91.54	162.9	36.0	9.9	0.7
2023-11-15	9:32:00	346	125.00	0.35	9.18	45.22	31.9	8.36	2.68	26.8	136.55	49.28	91.54	143.1	29.6	9.1	0.7
2023-11-15	9:33:00	369	124.51	0.35	9.13	45.04	30.7	8.36	2.35	26.8	130.90	49.28	91.54	151.4	33.4	9.6	0.7
2023-11-15	9:34:00	359	123.31	0.35	9.06	44.82	32.6	8.36	2.53	18.0	145.00	47.62	91.54	162.8	33.4	9.0	0.7
2023-11-15	9:35:00	394	123.07	0.35	9.06	44.82	33.9	8.57	2.50	15.4	142.97	48.65	91.54	161.8	36.3	9.0	0.7
2023-11-15	9:36:00	401	123.17	0.35	9.10	44.93	35.6	8.57	2.35	24.5	125.83	50.00	91.54	179.1	33.4	8.8	0.7
2023-11-15	9:37:00	383	124.22	0.35	9.17	45.11	43.4	8.57	2.45	35.7	113.06	50.00	91.54	184.0	47.1	8.9	0.7
2023-11-15	9:38:00	394	129.16	0.35	9.19	45.22	31.0	8.57	2.41	34.4	107.04	50.00	90.49	143.8	29.5	8.8	0.7
2023-11-15	9:39:00	379	129.75	0.35	9.22	45.28	25.1	8.57	2.68	29.5	124.02	50.00	86.41	112.6	27.3	8.6	0.7
2023-11-15	9:40:00	389	117.33	0.35	9.18	45.19	22.5	8.57	2.37	20.6	154.33	47.90	86.41	105.4	23.7	9.3	0.7
2023-11-15	9:41:00	368	102.18	0.35	9.13	45.02	24.5	8.57	2.23	22.1	154.33	43.14	86.41	107.8	26.6	8.9	0.7
2023-11-15	9:42:00	378	93.81	0.35	9.07	44.82	20.3	8.57	2.26	22.1	154.33	45.15	88.83	84.3	20.2	9.3	0.7
2023-11-15	9:43:00	397	86.94	0.35	9.06	44.76	21.8	8.57	2.18	16.9	156.23	45.15	88.83	88.3	22.9	8.9	0.7
2023-11-15	9:44:00	402	79.86	0.35	9.07	44.76	21.1	8.57	2.37	15.2	154.26	45.53	90.85	84.7	19.6	9.3	0.7
2023-11-15	9:45:00	379	74.51	0.35	9.12	44.87	23.3	8.57	2.45	18.4	148.58	48.17	90.85	90.5	23.7	8.7	0.7
2023-11-15	9:46:00	391	70.09	0.35	9.15	44.97	20.1	8.57	2.23	28.3	158.26	44.51	90.85	85.7	20.2	9.3	0.7
2023-11-15	9:47:00	376	68.07	0.35	9.15	45.00	24.6	8.57	2.42	27.2	170.31	40.31	90.85	98.4	24.3	8.7	0.7
2023-11-15	9:48:00	386	67.47	0.35	9.14	44.97	17.7	8.57	2.31	17.9	151.58	42.29	90.85	71.8	18.8	9.4	0.7
2023-11-15	9:49:00	365	66.91	0.35	9.11	44.88	21.2	8.57	2.45	17.9	162.34	41.89	90.85	94.8	21.7	9.0	0.7

November 15/2023		Main Analyzers												Backup Analyzers			
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-15	9:50:00	374	65.32	0.35	9.06	44.72	19.2	8.57	2.27	21.1	162.34	45.59	89.82	79.2	19.9	9.4	0.7
2023-11-15	9:51:00	389	64.98	0.35	9.04	44.62	26.4	8.57	2.48	27.4	173.67	47.83	89.82	110.0	27.8	8.8	0.7
2023-11-15	9:52:00	397	67.53	0.35	9.06	44.66	20.2	8.57	2.68	18.1	156.69	45.76	91.37	84.5	23.2	9.0	0.7
2023-11-15	9:53:00	346	71.51	0.35	9.14	44.81	29.9	8.57	2.07	18.1	136.68	48.88	93.93	98.7	28.4	8.6	0.7
2023-11-15	9:54:00	386	72.96	0.35	9.22	45.02	20.7	8.57	2.46	21.1	136.68	45.84	93.93	93.5	29.2	9.1	0.7
2023-11-15	9:55:00	345	73.08	0.35	9.25	45.13	27.0	8.57	1.88	24.3	162.77	46.94	93.93	107.4	28.2	8.7	0.7
2023-11-15	9:56:00	382	73.08	0.35	9.26	45.21	21.1	8.57	2.18	24.3	157.62	47.12	91.47	73.5	22.1	9.9	0.7
2023-11-15	9:57:00	351	72.65	0.35	9.22	45.10	21.5	8.57	2.27	25.4	164.53	50.00	91.47	81.4	22.5	9.0	0.7
2023-11-15	9:58:00	372	68.92	0.35	9.17	45.00	21.2	8.57	2.41	31.0	164.37	50.00	91.47	87.2	22.8	9.6	0.7
2023-11-15	9:59:00	361	67.24	0.35	9.12	44.79	26.8	8.57	2.06	21.3	161.93	47.74	91.47	108.3	26.3	8.8	0.7
2023-11-15	10:00:00	397	67.24	0.35	9.14	44.84	26.4	8.57	3.03	21.3	163.64	49.10	91.47	96.3	26.1	8.8	0.7
2023-11-15	10:01:00	402	68.21	0.35	9.20	44.97	26.2	8.57	2.30	19.0	175.71	46.20	91.47	90.5	24.1	8.8	0.7
2023-11-15	10:02:00	383	69.00	0.35	9.26	45.14	29.5	8.57	2.50	25.3	161.16	46.20	93.73	98.4	29.6	8.9	0.7
2023-11-15	10:03:00	394	69.24	0.35	9.29	45.20	21.2	8.57	2.48	25.3	160.40	41.62	93.73	77.3	21.4	8.8	0.7
2023-11-15	10:04:00	379	69.24	0.35	9.30	45.27	23.2	8.57	2.42	27.4	153.60	47.53	89.76	88.5	24.4	8.6	0.7
2023-11-15	10:05:00	386	67.53	0.35	9.26	45.19	18.6	8.35	2.41	30.4	162.37	50.00	89.76	74.7	20.0	9.2	0.7
2023-11-15	10:06:00	366	66.88	0.35	9.21	45.08	23.0	8.35	2.60	28.6	158.14	50.00	87.59	100.8	24.3	8.7	0.7
2023-11-15	10:07:00	375	65.27	0.35	9.16	44.93	26.1	8.35	1.61	23.8	141.40	50.00	89.13	97.6	21.7	9.1	0.7
2023-11-15	10:08:00	393	64.40	0.35	9.17	44.94	24.9	8.35	2.45	20.3	161.79	45.40	90.24	87.9	26.9	8.7	0.7
2023-11-15	10:09:00	399	64.40	0.35	9.19	45.04	22.3	8.35	2.45	29.9	183.02	40.22	91.29	79.3	21.6	8.9	0.7
2023-11-15	10:10:00	378	64.81	0.35	9.25	45.21	28.2	8.35	2.46	27.4	165.69	38.74	91.29	96.7	28.7	8.5	0.7
2023-11-15	10:11:00	389	65.46	0.35	9.26	45.28	20.1	8.35	2.41	24.3	67.31	47.11	92.71	77.6	20.7	9.1	0.7
2023-11-15	10:12:00	373	66.48	0.35	9.26	45.29	21.9	8.35	2.61	29.1	138.56	47.11	92.71	84.2	24.0	8.7	0.7
2023-11-15	10:13:00	384	66.15	0.35	9.25	45.28	18.5	8.35	2.68	29.1	66.19	50.00	91.66	63.0	18.7	9.4	0.7
2023-11-15	10:14:00	364	65.83	0.35	9.23	45.12	23.7	8.35	1.92	28.1	167.20	46.16	91.66	89.7	24.6	8.7	0.7
2023-11-15	10:15:00	373	63.51	0.35	9.16	44.99	22.1	8.35	2.27	17.8	157.24	40.35	90.47	72.5	20.6	9.5	0.7
2023-11-15	10:16:00	387	63.40	0.35	9.17	44.97	28.3	8.35	2.31	17.8	145.55	39.06	92.16	98.4	29.2	8.7	0.7
2023-11-15	10:17:00	397	63.64	0.35	9.21	45.03	19.3	8.35	2.35	17.8	142.49	39.06	93.27	67.2	22.9	8.9	0.7
2023-11-15	10:18:00	344	63.81	0.35	9.27	45.18	27.1	8.35	2.22	31.6	139.79	47.78	93.27	76.6	25.8	8.5	0.7
2023-11-15	10:19:00	385	63.98	0.35	9.32	45.34	18.6	8.35	2.42	37.5	157.81	50.00	93.27	75.7	24.9	9.1	0.7
2023-11-15	10:20:00	342	63.84	0.35	9.33	45.37	21.4	8.35	2.07	43.3	170.64	50.00	93.27	75.6	23.2	8.7	0.7
2023-11-15	10:21:00	377	62.29	0.35	9.33	45.35	17.5	8.35	2.27	32.5	169.39	50.00	93.27	81.0	24.9	9.7	0.7
2023-11-15	10:22:00	345	59.05	0.35	9.27	45.21	21.3	8.35	2.37	28.1	159.73	50.00	93.27	77.1	20.6	9.0	0.7
2023-11-15	10:23:00	368	58.17	0.35	9.21	45.05	17.2	8.35	2.35	17.3	164.66	48.13	93.27	68.1	21.9	9.3	0.7
2023-11-15	10:24:00	357	56.29	0.35	9.18	44.95	18.5	8.35	2.45	17.3	146.14	49.89	93.27	69.3	22.0	8.9	0.7
2023-11-15	10:25:00	391	55.59	0.35	9.19	44.99	21.3	8.35	2.35	21.4	146.14	47.86	93.27	79.8	22.4	8.9	0.7
2023-11-15	10:26:00	399	53.98	0.35	9.17	45.08	19.9	8.35	2.71	39.4	159.28	49.67	93.27	82.0	20.6	8.9	0.7
2023-11-15	10:27:00	380	53.97	0.35	9.17	45.16	20.7	8.35	2.62	24.0	162.78	41.00	93.27	76.5	23.2	9.3	0.7
2023-11-15	10:28:00	394	54.71	0.35	9.15	45.18	21.2	8.35	2.42	9.5	169.89	42.07	93.27	83.7	20.3	8.9	0.7
2023-11-15	10:29:00	377	57.47	0.35	9.15	45.19	21.5	8.35	2.52	9.5	182.62	41.47	93.27	92.8	23.5	8.7	0.7
2023-11-15	10:30:00	382	57.78	0.35	9.10	45.08	19.2	8.35	2.76	9.5	171.81	46.55	93.27	97.7	21.5	9.4	0.7
2023-11-15	10:31:00	367	61.40	0.35	9.05	44.96	21.6	8.56	2.22	17.4	172.45	49.76	89.52	90.8	23.4	9.0	0.7
2023-11-15	10:32:00	376	65.72	0.35	9.00	44.82	26.9	8.56	2.50	18.7	167.43	48.31	89.52	110.9	24.3	9.3	0.7
2023-11-15	10:33:00	393	67.82	0.35	9.00	44.82	25.1	8.56	2.35	21.1	163.90	47.15	90.69	96.3	24.1	8.8	0.7
2023-11-15	10:34:00	401	71.44	0.35	9.04	44.91	27.9	8.56	2.11	21.1	146.83	44.04	93.24	119.7	26.4	9.0	0.7
2023-11-15	10:35:00	379	76.67	0.35	9.11	45.05	29.1	8.56	2.50	20.0	149.90	39.77	90.85	126.7	32.5	8.6	0.7
2023-11-15	10:36:00	391	78.63	0.35	9.13	45.23	21.3	8.56	2.45	20.0	149.90	42.29	90.85	98.9	22.3	9.3	0.7
2023-11-15	10:37:00	378	83.21	0.35	9.15	45.26	27.7	8.56	2.52	23.9	147.59	50.00	90.85	119.1	29.5	8.7	0.7
2023-11-15	10:38:00	385	84.24	0.35	9.13	45.21	21.1	8.56	2.38	27.9	138.28	50.00	90.85	82.4	20.6	9.4	0.7
2023-11-15	10:39:00	364	84.24	0.35	9.10	45.13	23.8	8.56	2.31	18.5	139.43	45.47	89.83	99.3	25.8	9.0	0.7
2023-11-15	10:40:00	374	82.91	0.35	9.02	44.91	20.6	8.56	2.57	11.8	137.94	48.66	89.83	89.2	23.4	9.6	0.7
2023-11-15	10:41:00	384	82.27	0.35	9.02	44.85	32.8	8.56	2.35	18.0	138.39	50.00	89.83	153.0	35.0	9.0	0.7
2023-11-15	10:42:00	396	82.27	0.35	9.00	44.87	20.7	8.56	2.16	29.7	149.19	50.00	89.83	95.3	23.2	9.2	0.7
2023-11-15	10:43:00	345	85.37	0.35	9.03	44.94	27.2	8.56	2.15	29.7	149.96	50.00	89.83	114.6	29.0	8.8	0.7
2023-11-15	10:44:00	389	86.01	0.35	9.06	45.08	21.1	8.56	2.33	29.7	148.61	50.00	89.83	121.9	32.7	9.4	0.7
2023-11-15	10:45:00	345	86.12	0.35	9.08	45.08	26.6	8.56	2.23	21.0	146.37	50.00	89.83	118.8	27.5	8.8	0.7
2023-11-15	10:46:00	384	86.23	0.35	9.08	45.11	22.7	8.56	2.41	21.0	171.02	47.84	87.81	99.2	25.7	10.0	0.7
2023-11-15	10:47:00	348	84.61	0.35	9.04	44.97	20.0	8.56	2.31	32.2	180.97	50.00	87.81	103.0	24.9	9.2	0.7
2023-11-15	10:48:00	369	82.92	0.35	9.01	44.81	24.5	8.56	2.33	32.2	165.20	50.00	86.76	106.0	25.5	9.8	0.7
2023-11-15	10:49:00	364	81.23	0.35	8.96	44.62	27.5	8.56	2.22	31.2	139.14	50.00	88.20	114.0	26.3	9.1	0.7
2023-11-15	10:50:00	398	81.23	0.35	8.97	44.60	26.1	8.56	2.26	15.8	139.14	47.92	89.44	105.0	26.9	8.9	0.7

November 15/2023		Main Analyzers										Backup Analyzers						
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-15	10:51:00	402	81.52	0.35	9.03	44.71	27.1	8.56	2.50	18.2	146.37	50.00	90.57	123.7	28.1	8.9	0.7
2023-11-15	10:52:00	384	82.27	0.35	9.10	44.92	28.9	8.56	2.57	18.2	142.47	50.00	90.57	113.7	32.5	9.2	0.7
2023-11-15	10:53:00	394	83.51	0.35	9.11	45.01	24.1	8.56	2.42	19.3	126.04	50.00	90.57	103.6	25.0	9.0	0.7
2023-11-15	10:54:00	379	83.51	0.35	9.11	45.07	29.3	8.56	2.07	24.9	136.70	50.00	88.01	130.4	32.8	8.8	0.7
2023-11-15	10:55:00	388	83.51	0.35	9.10	45.01	22.7	8.56	2.65	20.5	142.30	42.52	88.01	105.4	24.0	9.3	0.7
2023-11-15	10:56:00	369	83.39	0.35	9.06	44.94	26.0	8.56	2.16	20.5	158.26	42.52	88.01	113.8	27.3	9.1	0.7
2023-11-15	10:57:00	379	83.13	0.35	9.00	44.79	23.4	8.56	2.00	25.6	159.39	48.27	88.01	105.1	24.3	9.3	0.7
2023-11-15	10:58:00	392	82.91	0.35	8.97	44.74	28.4	8.56	2.15	25.6	140.49	49.89	88.01	118.7	29.3	8.9	0.7
2023-11-15	10:59:00	400	82.91	0.35	8.96	44.77	22.5	8.56	2.22	25.6	151.72	48.85	88.01	103.3	23.1	9.3	0.7
2023-11-15	11:00:00	380	84.81	0.35	9.01	44.88	27.3	8.56	2.35	25.6	149.73	45.34	89.05	125.1	30.5	8.9	0.7
2023-11-15	11:01:00	391	86.16	0.35	9.02	44.97	20.6	8.56	2.57	25.6	164.38	39.68	88.04	102.2	21.7	9.4	0.7
2023-11-15	11:02:00	375	89.31	0.35	9.00	44.97	24.0	8.56	2.26	18.5	181.27	44.59	88.04	118.3	28.6	9.0	0.7
2023-11-15	11:03:00	385	90.20	0.35	8.94	44.89	19.0	8.56	2.61	22.5	166.66	50.00	86.90	98.0	20.9	9.8	0.7
2023-11-15	11:04:00	366	90.07	0.35	8.88	44.75	28.5	8.56	2.35	28.6	164.65	50.00	86.90	141.1	30.1	9.2	0.7
2023-11-15	11:05:00	375	89.83	0.35	8.84	44.60	23.0	8.56	3.10	28.6	176.09	50.00	86.90	109.1	22.4	9.6	0.7
2023-11-15	11:06:00	389	92.39	0.35	8.85	44.53	28.0	8.77	1.85	28.6	176.09	50.00	86.90	131.8	27.8	9.0	0.7
2023-11-15	11:07:00	401	95.87	0.35	8.86	44.57	21.2	8.77	2.42	28.6	156.25	50.00	86.90	108.0	24.9	9.3	0.7
2023-11-15	11:08:00	350	97.78	0.35	8.90	44.70	33.0	8.77	2.03	21.4	148.06	48.29	88.00	152.6	32.5	9.0	0.7
2023-11-15	11:09:00	390	99.60	0.35	8.95	44.87	25.0	8.77	2.22	13.2	157.95	47.56	88.00	130.1	34.2	9.4	0.7
2023-11-15	11:10:00	347	100.69	0.35	9.02	44.97	26.5	8.77	2.08	24.0	159.58	49.68	89.04	116.0	28.1	8.8	0.7
2023-11-15	11:11:00	383	100.59	0.35	9.04	45.08	22.7	8.77	2.23	24.0	154.86	48.03	88.25	103.3	26.9	9.9	0.7
2023-11-15	11:12:00	349	95.85	0.35	8.98	44.98	24.4	8.77	2.33	25.4	141.34	49.19	88.25	107.4	23.7	9.3	0.7
2023-11-15	11:13:00	371	92.45	0.35	8.93	44.80	26.2	8.77	2.31	22.6	136.64	49.19	84.94	126.2	28.4	9.8	0.7
2023-11-15	11:14:00	360	91.69	0.35	8.90	44.58	26.5	8.77	2.03	19.5	139.96	45.30	87.69	112.4	27.0	9.2	0.7
2023-11-15	11:15:00	393	91.38	0.35	8.93	44.57	26.1	8.77	2.05	22.8	141.69	45.30	87.69	115.1	31.9	8.9	0.7
2023-11-15	11:16:00	403	91.12	0.35	9.00	44.66	30.7	8.77	2.31	36.3	147.82	49.13	89.55	125.3	32.1	8.9	0.7
2023-11-15	11:17:00	384	91.55	0.35	9.08	44.87	30.6	8.77	1.95	37.6	139.30	49.13	89.55	125.9	37.7	9.0	0.7
2023-11-15	11:18:00	393	91.83	0.35	9.12	44.98	25.9	8.77	2.12	34.4	133.12	49.13	88.09	105.1	25.2	8.9	0.7
2023-11-15	11:19:00	377	90.86	0.35	9.15	45.06	24.1	8.57	1.92	29.7	134.04	44.77	86.04	101.4	27.5	8.7	0.7
2023-11-15	11:20:00	387	85.27	0.35	9.12	44.98	24.1	8.57	2.13	29.7	146.37	49.55	86.04	86.4	22.3	9.2	0.7
2023-11-15	11:21:00	369	82.47	0.35	9.08	44.87	26.4	8.57	2.11	29.7	146.80	49.55	86.04	107.8	29.8	9.0	0.7
2023-11-15	11:22:00	377	79.38	0.35	9.02	44.76	22.2	8.57	2.35	24.1	140.12	49.55	86.04	83.4	22.3	9.2	0.7
2023-11-15	11:23:00	397	74.91	0.35	9.04	44.74	27.9	8.57	2.42	21.1	148.04	43.27	87.27	86.7	25.8	8.8	0.7
2023-11-15	11:24:00	404	72.17	0.35	9.06	44.78	22.6	8.57	2.08	21.1	155.24	43.41	89.23	74.8	21.4	9.0	0.7
2023-11-15	11:25:00	380	69.72	0.35	9.13	44.92	27.3	8.57	2.46	21.1	159.17	43.41	89.23	86.2	28.1	8.6	0.7
2023-11-15	11:26:00	392	68.19	0.35	9.18	45.06	20.2	8.57	2.66	21.1	146.77	43.41	89.23	64.1	19.7	9.0	1.8
2023-11-15	11:27:00	373	64.88	0.35	9.23	45.17	24.0	8.57	1.92	24.6	156.73	46.71	89.23	69.9	24.0	8.6	1.8
2023-11-15	11:28:00	385	57.70	0.35	9.24	45.20	19.4	8.57	2.22	21.4	154.12	45.39	87.48	56.7	18.7	9.3	1.8
2023-11-15	11:29:00	365	55.09	0.35	9.21	45.12	21.1	8.57	2.12	28.6	152.32	50.00	87.48	68.8	24.6	8.8	1.8
2023-11-15	11:30:00	374	54.12	0.35	9.17	44.98	21.6	8.57	2.31	37.7	157.58	50.00	87.48	65.0	20.5	9.2	1.8
2023-11-15	11:31:00	384	53.66	0.35	9.18	44.92	20.1	8.57	2.16	39.5	177.84	50.00	88.59	63.2	23.4	8.8	1.8
2023-11-15	11:32:00	399	53.12	0.35	9.18	44.91	18.3	8.57	2.50	39.5	191.81	50.00	89.67	58.5	20.4	9.0	1.8
2023-11-15	11:33:00	347	50.55	0.35	9.20	44.95	24.2	8.57	2.75	39.5	180.47	50.00	90.78	70.9	25.5	8.6	1.8
2023-11-15	11:34:00	384	49.67	0.35	9.22	45.10	17.4	8.57	2.68	36.3	180.47	50.00	90.78	67.7	26.4	9.1	1.8
2023-11-15	11:35:00	343	48.79	0.35	9.24	45.13	21.5	8.57	2.22	27.7	166.60	46.09	92.13	71.3	22.9	8.7	1.8
2023-11-15	11:36:00	378	48.15	0.35	9.24	45.18	17.1	8.57	2.65	26.2	155.43	47.37	92.13	57.8	21.4	9.8	1.8
2023-11-15	11:37:00	347	47.46	0.35	9.20	45.11	19.1	8.57	2.46	18.1	156.66	42.49	92.13	60.7	21.4	8.9	1.8
2023-11-15	11:38:00	371	45.83	0.35	9.16	45.02	19.5	8.57	2.22	11.3	167.87	44.28	92.13	66.1	21.5	9.4	1.8
2023-11-15	11:39:00	359	45.27	0.35	9.17	44.92	25.3	8.57	2.50	8.8	157.73	48.23	92.13	72.9	22.5	8.7	1.8
2023-11-15	11:40:00	392	45.27	0.35	9.20	44.96	20.7	8.57	2.80	21.8	182.82	48.23	92.13	68.2	25.2	8.5	1.8
2023-11-15	11:41:00	397	45.27	0.35	9.22	45.00	24.4	8.57	2.50	21.8	186.29	49.70	92.13	74.0	25.0	8.6	1.8
2023-11-15	11:42:00	378	46.76	0.35	9.32	45.29	29.7	8.57	2.62	14.8	173.70	39.04	93.64	71.5	29.2	8.7	2.8
2023-11-15	11:43:00	390	49.37	0.35	9.36	45.39	22.3	8.35	2.33	14.8	162.82	39.96	93.64	58.9	20.8	8.6	2.8
2023-11-15	11:44:00	375	49.52	0.35	9.39	45.45	24.2	8.35	2.15	27.0	162.82	43.69	93.64	74.4	27.8	8.4	2.8
2023-11-15	11:45:00	386	48.13	0.35	9.36	45.42	19.8	8.35	2.71	32.4	170.83	44.50	92.45	52.3	18.0	9.0	2.8
2023-11-15	11:46:00	362	46.03	0.35	9.32	45.35	22.4	8.35	2.37	32.4	177.53	44.50	91.19	77.1	25.1	8.6	2.8
2023-11-15	11:47:00	373	45.50	0.35	9.26	45.19	24.5	8.35	2.12	26.0	177.53	46.21	91.19	67.7	22.8	8.9	2.8
2023-11-15	11:48:00	389	45.50	0.35	9.27	45.15	19.5	8.35	2.15	26.0	168.31	43.67	91.19	62.5	24.6	8.5	2.8
2023-11-15	11:49:00	396	45.50	0.35	9.29	45.26	18.7	8.35	2.37	26.0	161.11	44.19	91.19	61.4	20.5	8.9	2.8
2023-11-15	11:50:00	374	45.50	0.35	9.36	45.37	27.6	8.35	2.76	20.5	168.32	50.00	92.61	73.6	26.7	8.3	3.8
2023-11-15	11:51:00	384	45.50	0.35	9.37	45.48	19.7	8.35	2.72	21.6	170.19	50.00	92.61	49.6	18.8	8.8	3.8

November 15/2023		Main Analyzers									Backup Analyzers						
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-15	11:52:00	367	45.64	0.35	9.38	45.53	26.0	8.35	2.57	21.6	153.64	42.93	92.61	70.9	26.7	8.4	3.8
2023-11-15	11:53:00	380	45.64	0.35	9.36	45.53	18.0	8.35	2.77	21.6	163.72	46.14	91.54	53.1	19.4	9.2	3.8
2023-11-15	11:54:00	358	45.52	0.35	9.35	45.46	21.1	8.35	2.53	21.6	166.58	46.14	91.54	61.8	22.3	8.5	3.8
2023-11-15	11:55:00	369	45.05	0.35	9.31	45.35	19.8	8.35	2.51	18.1	166.58	45.51	93.61	47.4	19.4	9.1	3.8
2023-11-15	11:56:00	380	44.04	0.35	9.30	45.27	24.8	8.35	2.35	18.1	159.64	42.76	93.61	73.7	26.6	8.4	3.8
2023-11-15	11:57:00	392	44.04	0.35	9.32	45.31	19.3	8.35	2.68	18.1	149.44	47.19	93.61	53.5	22.5	8.7	3.8
2023-11-15	11:58:00	339	44.23	0.35	9.38	45.51	26.6	8.35	2.31	24.1	146.63	48.41	94.86	67.5	25.2	8.2	3.8
2023-11-15	11:59:00	383	44.35	0.35	9.42	45.66	18.1	8.35	3.02	24.1	150.89	50.00	94.86	58.5	26.4	8.8	3.8
2023-11-15	12:00:00	339	44.35	0.35	9.43	45.69	23.2	8.15	2.05	28.8	153.54	48.36	94.86	57.4	23.1	8.4	3.8
2023-11-15	12:01:00	374	44.35	0.35	9.43	45.69	17.7	8.15	2.95	28.8	166.32	48.33	94.86	52.1	22.8	9.5	3.8
2023-11-15	12:02:00	344	43.92	0.35	9.41	45.48	19.3	8.15	2.46	26.7	178.35	45.11	93.63	52.8	20.0	8.7	3.8
2023-11-15	12:03:00	363	42.72	0.35	9.37	45.40	18.8	8.15	2.55	22.0	189.27	41.85	92.31	46.7	20.2	9.3	3.8
2023-11-15	12:04:00	355	40.79	0.35	9.32	45.26	22.9	8.15	2.72	20.4	186.69	37.06	92.31	63.9	22.9	8.7	3.8
2023-11-15	12:05:00	387	39.69	0.35	9.34	45.28	17.9	8.15	2.65	34.5	158.50	47.37	93.46	61.8	25.5	8.4	3.8
2023-11-15	12:06:00	395	39.92	0.35	9.40	45.41	29.0	8.15	2.37	37.1	158.50	50.00	93.46	66.6	24.5	8.4	3.8
2023-11-15	12:07:00	374	42.67	0.35	9.46	45.62	24.3	8.15	2.76	24.1	152.79	47.35	91.23	72.4	30.6	8.5	3.8
2023-11-15	12:08:00	386	43.88	0.35	9.47	45.72	23.1	8.15	2.76	20.8	167.37	44.50	91.23	66.0	22.6	8.4	3.8
2023-11-15	12:09:00	373	44.70	0.35	9.50	45.78	21.5	8.15	2.61	17.8	167.37	44.55	91.23	53.5	23.1	8.4	3.8
2023-11-15	12:10:00	380	44.70	0.35	9.43	45.68	16.5	8.15	2.72	26.8	161.06	44.55	91.23	45.7	17.3	8.9	3.8
2023-11-15	12:11:00	359	43.80	0.35	9.35	45.53	22.1	8.15	2.65	28.8	155.33	45.78	91.23	65.6	22.8	8.7	3.8
2023-11-15	12:12:00	367	41.63	0.35	9.27	45.31	18.5	8.15	2.57	28.8	165.27	45.49	92.29	48.8	18.9	8.9	3.8
2023-11-15	12:13:00	386	41.48	0.35	9.25	45.24	23.4	8.15	2.61	28.8	174.90	49.77	93.42	65.2	24.1	8.5	3.8
2023-11-15	12:14:00	393	41.48	0.35	9.28	45.29	20.1	8.36	2.57	22.5	166.38	49.77	93.42	53.5	19.4	8.7	3.8
2023-11-15	12:15:00	373	41.78	0.35	9.33	45.47	30.4	8.36	2.61	18.4	145.41	49.77	93.42	83.1	30.5	8.3	3.8
2023-11-15	12:16:00	383	42.68	0.35	9.38	45.66	18.4	8.36	2.27	24.6	147.16	49.77	93.42	53.4	20.2	8.8	3.8
2023-11-15	12:17:00	367	45.04	0.35	9.41	45.76	25.5	8.36	2.68	28.5	164.02	49.77	93.42	68.4	27.8	8.3	3.8
2023-11-15	12:18:00	378	47.30	0.35	9.42	45.78	16.7	8.14	2.80	30.4	178.00	49.77	92.05	45.6	19.1	9.0	3.8
2023-11-15	12:19:00	358	47.15	0.35	9.39	45.68	21.2	8.14	2.55	21.9	179.41	49.77	92.05	57.2	21.7	8.5	3.8
2023-11-15	12:20:00	367	43.14	0.35	9.34	45.53	17.4	8.14	2.48	20.6	177.85	46.15	92.05	49.3	19.5	9.0	3.8
2023-11-15	12:21:00	379	41.27	0.35	9.33	45.43	24.0	8.14	2.85	24.1	163.91	46.15	92.05	63.9	24.3	8.6	3.8
2023-11-15	12:22:00	390	41.47	0.35	9.35	45.45	19.1	8.14	2.30	22.9	148.63	49.49	93.72	55.9	24.9	8.6	3.8
2023-11-15	12:23:00	339	44.19	0.35	9.39	45.57	30.4	8.14	2.15	17.2	166.17	49.49	95.01	92.5	32.2	8.4	3.8
2023-11-15	12:24:00	379	48.70	0.35	9.45	45.74	24.1	8.14	2.65	20.7	161.40	49.49	95.01	72.6	32.5	8.9	3.8
2023-11-15	12:25:00	337	51.13	0.35	9.47	45.78	31.6	8.14	2.62	28.5	157.96	46.84	95.01	87.4	30.1	8.3	3.8
2023-11-15	12:26:00	373	52.37	0.35	9.51	45.86	24.6	8.14	2.41	28.5	153.11	46.84	92.61	83.3	31.5	9.4	3.8
2023-11-15	12:27:00	341	53.55	0.35	9.50	45.82	22.8	8.14	2.68	26.0	154.12	45.67	91.40	61.2	23.7	8.5	3.8
2023-11-15	12:28:00	363	53.55	0.35	9.46	45.76	23.1	8.14	2.46	26.0	172.91	50.00	89.58	61.7	22.8	9.2	3.8
2023-11-15	12:29:00	351	52.64	0.35	9.42	45.62	22.5	8.14	2.92	36.2	172.91	50.00	90.71	61.2	22.6	8.6	3.8
2023-11-15	12:30:00	388	50.51	0.35	9.41	45.60	23.5	8.14	2.75	37.4	172.91	50.00	90.71	62.9	25.4	8.6	3.8
2023-11-15	12:31:00	395	49.51	0.35	9.43	45.66	23.7	8.14	2.57	39.3	170.94	50.00	90.71	66.4	23.1	8.6	3.8
2023-11-15	12:32:00	375	47.63	0.35	9.48	45.82	26.0	8.14	2.27	45.6	162.67	50.00	90.68	73.2	27.5	8.9	3.8
2023-11-15	12:33:00	385	46.99	0.35	9.44	45.85	20.0	8.14	2.70	38.4	159.08	50.00	90.68	65.1	20.5	8.7	3.8
2023-11-15	12:34:00	368	46.99	0.35	9.38	45.84	19.3	8.14	2.65	32.5	168.81	50.00	88.70	66.5	22.6	8.5	3.8
2023-11-15	12:35:00	379	46.65	0.35	9.28	45.71	19.6	8.14	2.70	25.5	184.78	47.30	88.70	57.9	17.7	9.1	3.8
2023-11-15	12:36:00	358	46.40	0.35	9.21	45.53	21.8	8.14	2.80	30.2	188.43	50.00	88.70	84.2	23.1	8.9	3.8
2023-11-15	12:37:00	369	46.18	0.35	9.13	45.30	21.3	8.35	2.50	32.5	184.69	49.40	88.70	75.3	21.7	9.1	3.8
2023-11-15	12:38:00	385	46.71	0.35	9.13	45.27	24.8	8.35	2.80	33.6	149.24	49.40	88.70	73.9	24.6	8.7	3.8
2023-11-15	12:39:00	392	50.43	0.35	9.15	45.30	24.4	8.35	2.67	29.1	149.24	49.40	91.22	75.6	22.0	9.0	3.8
2023-11-15	12:40:00	374	52.23	0.35	9.24	45.50	32.6	8.35	2.73	18.9	168.15	49.40	91.22	100.6	34.2	8.4	3.8
2023-11-15	12:41:00	386	55.08	0.35	9.29	45.66	20.6	8.35	2.83	18.9	185.32	47.76	89.19	61.5	20.8	8.9	3.8
2023-11-15	12:42:00	370	55.90	0.35	9.33	45.74	23.9	8.35	2.41	15.4	185.32	48.07	89.19	78.5	25.8	8.5	3.8
2023-11-15	12:43:00	381	55.90	0.35	9.30	45.71	17.5	8.35	2.52	15.4	163.09	50.00	87.08	56.9	19.0	9.3	3.8
2023-11-15	12:44:00	360	55.13	0.35	9.27	45.56	21.7	8.35	2.61	27.0	157.69	50.00	87.08	67.1	21.3	8.9	3.8
2023-11-15	12:45:00	369	54.02	0.35	9.18	45.34	20.1	8.35	2.41	28.3	150.61	50.00	88.58	74.4	21.0	9.3	3.8
2023-11-15	12:46:00	381	52.92	0.35	9.15	45.24	29.4	8.35	2.41	28.3	154.85	46.96	88.58	107.2	30.1	8.6	3.8
2023-11-15	12:47:00	394	53.25	0.35	9.17	45.27	19.2	8.35	2.35	20.3	153.58	44.34	88.58	69.8	25.7	8.9	2.7
2023-11-15	12:48:00	343	58.94	0.35	9.23	45.37	36.8	8.35	2.26	23.0	155.27	50.00	89.60	119.2	34.5	8.5	2.7
2023-11-15	12:49:00	378	64.17	0.35	9.28	45.61	20.5	8.35	2.65	24.6	161.41	50.00	89.60	85.7	33.3	8.9	2.7
2023-11-15	12:50:00	339	67.64	0.35	9.29	45.66	28.2	8.35	2.42	22.2	167.15	48.63	89.60	93.0	28.1	8.5	2.7
2023-11-15	12:51:00	375	68.11	0.35	9.30	45.68	18.5	8.35	2.57	22.2	177.16	49.82	86.98	84.2	28.1	9.6	2.7
2023-11-15	12:52:00	341	67.21	0.35	9.26	45.53	24.1	8.35	2.68	23.6	174.78	49.82	86.98	75.6	22.0	9.0	2.7

November 15/2023		Main Analyzers												Backup Analyzers			
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-15	12:53:00	365	64.39	0.35	9.17	45.35	21.3	8.35	2.53	28.8	159.91	49.82	86.98	84.1	24.1	9.6	2.7
2023-11-15	12:54:00	355	63.37	0.35	9.10	45.20	27.7	8.35	2.75	25.8	158.55	42.75	86.98	108.9	28.3	8.9	2.7
2023-11-15	12:55:00	389	63.57	0.35	9.07	45.16	23.9	8.35	2.91	23.1	158.55	39.42	86.98	101.5	28.7	9.0	2.7
2023-11-15	12:56:00	397	65.30	0.35	9.11	45.19	32.3	8.56	2.15	23.1	152.95	50.00	86.98	126.6	33.3	8.8	2.7
2023-11-15	12:57:00	376	73.24	0.35	9.19	45.41	34.5	8.56	2.53	23.1	139.15	50.00	86.98	115.0	36.0	8.7	2.7
2023-11-15	12:58:00	388	78.84	0.35	9.21	45.47	26.6	8.56	2.45	10.1	157.91	47.56	86.98	93.1	26.9	8.8	2.7
2023-11-15	12:59:00	371	79.32	0.35	9.24	45.56	25.7	8.56	2.55	7.5	161.74	44.09	86.98	98.8	29.8	8.5	2.7
2023-11-15	13:00:00	382	77.26	0.35	9.21	45.53	24.0	8.56	2.45	9.6	171.55	49.04	85.98	78.9	20.7	9.2	2.7
2023-11-15	13:01:00	362	71.54	0.35	9.15	45.43	25.3	8.56	2.52	21.4	193.80	49.04	85.98	100.1	27.8	8.7	2.7
2023-11-15	13:02:00	370	69.36	0.35	9.10	45.27	23.4	8.56	2.50	27.4	177.06	49.04	85.98	101.1	25.4	9.1	2.7
2023-11-15	13:03:00	389	69.21	0.35	9.09	45.20	33.9	8.56	2.08	27.4	153.10	49.04	85.98	123.3	33.4	8.7	2.7
2023-11-15	13:04:00	397	73.01	0.35	9.11	45.25	30.1	8.56	2.26	27.4	145.33	49.04	85.98	116.3	27.3	9.1	2.7
2023-11-15	13:05:00	375	77.50	0.35	9.17	45.47	32.3	8.56	2.38	24.9	152.76	49.04	85.98	118.5	34.8	8.5	2.7
2023-11-15	13:06:00	385	80.49	0.35	9.18	45.54	22.2	8.56	2.57	24.9	159.31	49.04	85.98	76.7	21.7	9.2	2.7
2023-11-15	13:07:00	371	80.49	0.35	9.18	45.58	26.2	8.56	2.35	26.2	161.14	49.04	85.98	99.6	27.5	8.8	2.7
2023-11-15	13:08:00	379	75.90	0.35	9.14	45.53	21.8	8.56	2.72	25.0	142.09	43.35	85.98	80.2	21.1	9.5	2.7
2023-11-15	13:09:00	360	74.38	0.35	9.11	45.34	24.6	8.56	2.46	26.3	157.67	47.71	85.98	102.6	28.1	8.9	2.7
2023-11-15	13:10:00	368	73.94	0.35	9.03	45.25	24.7	8.56	2.61	26.3	165.21	47.71	85.98	87.0	23.7	9.6	2.7
2023-11-15	13:11:00	381	74.05	0.35	9.01	45.15	31.3	8.56	2.31	23.1	165.75	50.00	85.98	133.2	33.9	8.7	2.7
2023-11-15	13:12:00	392	77.47	0.35	9.04	45.20	25.8	8.56	2.00	13.6	152.53	50.00	85.98	101.6	27.8	9.1	2.7
2023-11-15	13:13:00	341	83.69	0.35	9.09	45.35	29.2	8.56	2.38	12.6	159.50	43.84	85.98	139.8	35.7	8.7	2.7
2023-11-15	13:14:00	383	87.03	0.35	9.10	45.47	23.6	8.56	2.27	12.6	169.07	46.77	85.98	89.0	28.1	9.4	2.7
2023-11-15	13:15:00	340	87.55	0.35	9.11	45.47	27.1	8.56	2.48	33.0	160.47	50.00	85.98	111.0	26.4	8.8	2.7
2023-11-15	13:16:00	376	87.33	0.35	9.09	45.45	27.2	8.56	2.35	33.0	160.47	50.00	84.86	105.2	27.3	10.0	2.7
2023-11-15	13:17:00	347	84.33	0.35	9.04	45.29	25.1	8.56	2.52	31.6	152.27	50.00	84.86	112.7	25.2	9.1	2.7
2023-11-15	13:18:00	365	82.49	0.35	9.00	45.07	21.6	8.56	2.30	22.6	140.00	50.00	83.83	103.7	26.8	9.6	2.7
2023-11-15	13:19:00	356	82.49	0.35	8.98	45.00	31.1	8.56	2.40	22.6	137.79	47.55	83.83	130.2	30.1	8.9	2.7
2023-11-15	13:20:00	390	86.09	0.35	9.01	45.02	28.7	8.56	2.57	29.5	146.61	50.00	82.60	142.1	37.2	8.7	2.7
2023-11-15	13:21:00	396	88.20	0.35	9.05	45.11	34.8	8.56	2.37	29.5	142.54	50.00	82.60	134.6	33.7	8.8	2.7
2023-11-15	13:22:00	379	91.25	0.35	9.16	45.36	28.8	8.56	2.37	19.1	134.32	44.59	82.60	129.0	38.9	8.8	2.7
2023-11-15	13:23:00	390	93.12	0.35	9.19	45.48	24.1	8.56	2.31	18.0	167.38	40.20	82.60	94.4	24.3	8.9	2.7
2023-11-15	13:24:00	374	93.12	0.35	9.18	45.51	28.1	8.56	2.72	26.9	181.27	44.57	80.15	109.7	29.6	8.7	2.7
2023-11-15	13:25:00	383	86.31	0.35	9.11	45.40	26.6	8.56	2.38	28.9	171.82	48.83	80.15	116.0	26.1	9.2	2.7
2023-11-15	13:26:00	364	85.26	0.35	9.08	45.26	28.7	8.56	2.46	19.3	171.55	45.62	80.15	112.1	28.3	9.0	2.7
2023-11-15	13:27:00	372	84.52	0.35	9.04	45.09	25.7	8.56	1.96	12.0	152.06	45.62	80.15	118.2	27.3	9.0	2.7
2023-11-15	13:28:00	388	83.74	0.35	9.05	45.06	32.7	8.56	2.46	22.7	155.07	49.60	81.70	131.0	35.4	8.6	2.7
2023-11-15	13:29:00	397	83.87	0.35	9.08	45.14	24.1	8.56	2.68	33.0	163.51	49.60	81.70	86.8	25.2	9.0	2.7
2023-11-15	13:30:00	375	84.24	0.35	9.16	45.34	35.9	8.56	2.51	33.0	160.91	49.60	82.90	119.8	38.1	8.6	2.7
2023-11-15	13:31:00	387	84.34	0.35	9.21	45.50	20.7	8.56	2.00	31.6	157.38	49.60	82.90	72.3	21.5	9.1	2.7
2023-11-15	13:32:00	370	82.74	0.35	9.24	45.54	30.6	8.56	2.45	26.2	163.97	46.55	82.90	114.5	30.6	8.7	2.7

November 15/2023	Main Analyzers												Backup Analyzers			
	Baghouse	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
Test 2	PDT-622	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
Units	mmH2O	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
Max	404	129.75	0.35	9.52	45.86	47.3	8.77	3.10	45.6	195.15	50.00	101.89	204.8	58.8	10.0	3.8
Min	337	39.69	0.35	8.84	44.53	16.5	8.14	1.61	7.5	66.19	37.06	80.15	45.6	17.3	8.1	0.7
Average	376	71.66	0.35	9.20	45.23	25.0	8.44	2.43	24.9	157.75	47.47	90.61	95.3	26.7	8.9	1.8
Variance	258	421.68	0.00	0.02	0.10	26.9	0.03	0.05	43.7	267.15	8.86	14.87	837.9	32.8	0.1	1.6

November 16/2023		Main Analyzers												Backup Analyzers			
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-16	9:11:00	389	116.75	1.02	8.86	43.33	40.9	9.08	2.38	38.8	123.82	39.59	97.18	189.8	41.9	9.1	16.3
2023-11-16	9:12:00	401	129.36	1.02	8.91	43.51	23.4	9.08	2.42	38.8	128.46	43.66	97.18	109.7	33.1	9.3	16.3
2023-11-16	9:13:00	350	132.47	1.02	9.00	44.00	44.0	9.08	2.53	40.0	142.06	42.58	97.18	199.6	41.2	8.9	15.2
2023-11-16	9:14:00	387	135.32	1.02	9.07	44.30	32.9	8.84	2.42	48.6	140.17	39.08	94.94	150.8	43.8	9.4	16.2
2023-11-16	9:15:00	346	135.61	1.02	9.08	44.41	33.6	8.84	2.18	48.6	126.06	42.71	93.89	146.4	31.8	9.0	14.1
2023-11-16	9:16:00	375	128.01	1.02	9.09	44.52	28.8	8.84	2.35	44.7	122.09	42.72	92.15	133.6	34.8	10.0	13.0
2023-11-16	9:17:00	345	120.33	1.02	9.08	44.44	29.3	8.64	3.11	47.1	131.14	42.90	92.15	131.1	29.5	9.0	11.9
2023-11-16	9:18:00	364	114.79	1.02	9.08	44.39	29.8	8.64	2.56	45.4	119.32	40.84	94.20	123.5	31.9	9.5	11.9
2023-11-16	9:19:00	354	106.80	1.02	9.07	44.32	36.3	8.64	2.72	41.5	132.45	39.62	95.67	142.8	34.7	8.9	11.9
2023-11-16	9:20:00	391	105.24	1.02	9.12	44.43	39.8	8.64	2.42	41.0	136.04	41.08	96.78	147.0	41.3	8.9	12.9
2023-11-16	9:21:00	399	104.98	1.02	9.19	44.58	50.0	8.64	2.61	43.6	139.94	47.44	98.15	175.9	44.3	8.4	12.9
2023-11-16	9:22:00	378	110.34	1.02	9.29	44.89	57.0	8.64	2.68	47.8	111.03	46.82	98.15	200.5	72.1	8.7	14.9
2023-11-16	9:23:00	385	116.97	1.02	9.36	45.10	29.1	8.44	2.67	60.1	118.04	46.28	95.84	92.3	25.8	8.8	12.8
2023-11-16	9:24:00	371	118.99	1.02	9.40	45.20	31.7	8.44	1.77	61.2	118.04	44.47	93.41	121.9	36.3	8.6	9.6
2023-11-16	9:25:00	380	101.82	1.02	9.33	45.10	23.0	8.44	2.83	61.2	115.61	40.20	93.41	71.2	21.9	9.1	8.6
2023-11-16	9:26:00	360	87.67	1.02	9.28	44.94	27.2	8.44	2.53	57.8	123.38	43.09	93.41	93.4	30.6	8.7	8.6
2023-11-16	9:27:00	367	76.31	1.02	9.23	44.76	25.0	8.44	2.18	61.7	113.33	48.71	95.96	80.2	22.6	9.0	11.7
2023-11-16	9:28:00	390	70.93	1.02	9.23	44.77	31.7	8.44	2.61	59.0	124.65	46.52	97.62	99.0	31.6	8.6	15.2
2023-11-16	9:29:00	398	68.95	1.02	9.26	44.83	25.8	8.44	2.65	45.2	142.73	44.59	100.01	78.0	21.6	9.0	18.4
2023-11-16	9:30:00	375	68.95	1.02	9.30	44.98	35.7	8.44	2.26	45.2	141.39	44.59	100.01	118.2	36.7	8.6	18.4
2023-11-16	9:31:00	386	68.95	1.02	9.31	45.03	21.6	8.44	2.68	46.4	165.35	42.07	100.01	65.1	22.6	9.1	20.4
2023-11-16	9:32:00	370	68.84	1.02	9.33	45.02	26.9	8.44	2.30	46.4	165.35	42.07	101.06	91.0	30.2	8.6	21.4
2023-11-16	9:33:00	379	63.63	1.02	9.32	45.01	17.5	8.44	2.38	47.6	157.83	44.07	99.67	58.1	20.6	9.4	19.1
2023-11-16	9:34:00	360	60.20	1.02	9.27	44.85	22.6	8.44	2.53	56.3	153.27	49.35	99.67	78.1	23.2	9.0	20.3
2023-11-16	9:35:00	370	57.38	1.02	9.19	44.72	20.4	8.44	2.37	56.3	148.94	48.07	101.55	62.3	22.3	9.4	19.2
2023-11-16	9:36:00	383	56.47	1.02	9.17	44.55	26.1	8.44	2.76	56.3	150.57	45.31	101.55	89.1	26.9	8.8	19.2
2023-11-16	9:37:00	395	55.52	1.02	9.19	44.58	21.5	8.44	2.47	48.9	158.76	42.86	102.59	68.8	30.7	9.0	19.2
2023-11-16	9:38:00	346	56.57	1.02	9.28	44.80	45.3	8.44	2.38	48.9	144.31	46.84	105.29	132.4	44.5	8.4	20.3
2023-11-16	9:39:00	382	67.61	1.02	9.38	45.00	25.2	8.44	2.58	48.9	126.34	50.00	105.29	104.7	46.0	9.2	25.8
2023-11-16	9:40:00	340	74.19	1.02	9.43	45.20	31.0	8.44	2.53	50.0	137.34	50.00	105.29	84.4	28.0	8.5	25.8
2023-11-16	9:41:00	376	74.53	1.02	9.43	45.36	20.4	8.44	2.68	50.0	157.00	50.00	102.51	82.8	33.1	9.6	25.8
2023-11-16	9:42:00	345	70.44	1.02	9.40	45.29	26.8	8.44	2.76	56.3	156.50	42.45	102.51	76.0	25.1	8.7	24.7
2023-11-16	9:43:00	365	64.42	1.02	9.35	45.13	25.7	8.44	2.45	44.4	133.37	35.43	99.85	74.3	28.1	9.4	23.7
2023-11-16	9:44:00	353	61.74	1.02	9.30	44.99	26.9	8.44	2.87	40.4	126.49	41.43	101.58	76.2	24.9	8.8	22.7
2023-11-16	9:45:00	391	59.08	1.02	9.26	44.88	25.4	8.44	2.75	34.2	147.81	46.95	105.34	84.2	28.9	8.8	23.8
2023-11-16	9:46:00	395	58.10	1.02	9.30	44.86	35.4	8.44	2.80	40.0	164.59	46.79	105.34	94.9	31.0	8.6	24.8
2023-11-16	9:47:00	375	59.69	1.02	9.38	45.05	43.4	8.44	2.53	53.9	164.59	43.97	106.36	122.3	42.2	8.8	27.9
2023-11-16	9:48:00	386	74.05	1.02	9.41	45.11	78.5	8.44	2.45	58.9	130.05	47.83	106.36	249.1	25.1	8.8	29.0
2023-11-16	9:49:00	371	101.74	1.02	9.42	45.21	37.3	8.44	2.57	61.3	124.68	47.83	104.95	188.6	50.2	8.6	27.9
2023-11-16	9:50:00	380	126.71	1.02	9.35	45.15	27.8	8.44	2.85	65.0	142.23	50.00	104.95	118.1	27.2	9.2	22.7
2023-11-16	9:51:00	361	127.29	1.02	9.32	44.98	32.0	8.44	2.53	65.0	148.19	50.00	103.19	127.8	33.3	8.8	19.7
2023-11-16	9:52:00	369	118.32	1.02	9.25	44.77	27.8	8.44	2.71	59.6	133.98	50.00	101.93	121.8	28.4	9.0	19.7
2023-11-16	9:53:00	390	108.03	1.02	9.26	44.73	35.1	8.44	2.80	59.6	131.03	45.24	104.54	140.7	40.9	8.6	19.7
2023-11-16	9:54:00	395	105.08	1.02	9.31	44.84	37.5	8.44	2.71	59.6	143.78	44.19	104.54	116.1	27.3	8.8	20.8
2023-11-16	9:55:00	371	104.82	1.02	9.40	45.01	47.5	8.44	2.83	65.0	153.58	50.00	105.75	170.7	45.7	8.4	20.8
2023-11-16	9:56:00	382	104.93	1.02	9.41	45.17	26.8	8.44	3.11	65.0	141.54	50.00	107.07	84.4	28.0	9.1	21.8
2023-11-16	9:57:00	366	104.93	1.02	9.42	45.22	34.3	8.44	2.65	55.0	150.79	42.95	107.07	121.1	33.9	8.5	21.8
2023-11-16	9:58:00	375	94.84	1.02	9.39	45.20	21.7	8.44	2.50	45.6	166.80	44.62	107.07	75.7	26.9	9.3	20.7
2023-11-16	9:59:00	357	88.26	1.02	9.33	45.09	28.8	8.44	2.30	40.5	155.61	46.64	107.07	106.6	27.7	8.9	20.7
2023-11-16	10:00:00	364	82.16	1.02	9.25	44.88	24.8	8.44	2.76	46.5	155.59	43.63	104.16	78.6	27.6	9.4	19.7
2023-11-16	10:01:00	379	79.48	1.02	9.23	44.67	33.9	8.44	2.72	46.5	144.25	44.78	106.85	131.1	33.4	8.7	19.7
2023-11-16	10:02:00	392	79.48	1.02	9.25	44.64	25.3	8.44	2.87	49.8	132.56	48.15	108.98	94.1	31.0	8.9	17.7
2023-11-16	10:03:00	344	83.12	1.02	9.29	44.73	40.9	8.44	2.57	51.3	143.93	46.12	108.98	161.0	36.7	8.5	17.8
2023-11-16	10:04:00	380	90.39	1.02	9.32	44.90	23.3	8.44	2.33	61.7	141.70	47.54	108.98	122.7	39.6	9.2	21.9
2023-11-16	10:05:00	339	96.88	1.02	9.33	44.90	34.0	8.44	2.57	56.8	154.61	45.22	108.98	121.5	31.0	8.7	21.9
2023-11-16	10:06:00	374	98.34	1.02	9.31	44.92	23.8	8.44	2.27	50.1	142.48	41.08	108.98	129.3	34.3	9.8	21.9
2023-11-16	10:07:00	342	98.34	1.02	9.30	44.84	35.0	8.44	2.66	48.3	125.00	43.37	108.98	127.5	31.5	8.7	21.9

November 16/2023		Main Analyzers									Backup Analyzers							
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-16	10:08:00	363	98.16	1.02	9.31	44.79	26.6	8.44	2.88	46.8	127.42	43.37	108.98	129.6	36.6	9.3	21.9
2023-11-16	10:09:00	352	97.98	1.02	9.34	44.75	41.1	8.44	2.88	45.6	130.90	42.25	108.98	136.7	37.5	8.4	22.9
2023-11-16	10:10:00	386	98.13	1.02	9.41	44.86	30.0	8.44	2.56	46.6	135.15	45.46	110.09	141.6	48.0	8.4	24.9
2023-11-16	10:11:00	396	98.73	1.02	9.51	45.01	56.3	8.44	2.62	53.5	137.23	43.92	111.16	146.7	42.2	8.2	26.9
2023-11-16	10:12:00	374	103.38	1.02	9.61	45.27	37.9	8.23	2.61	62.8	149.97	50.00	111.16	156.9	61.7	8.6	27.9
2023-11-16	10:13:00	383	104.12	1.02	9.66	45.42	35.3	8.23	2.56	65.7	149.97	50.00	110.08	91.6	28.3	8.5	27.8
2023-11-16	10:14:00	366	93.83	1.02	9.68	45.48	37.6	8.00	2.58	65.7	151.47	50.00	108.56	109.2	39.8	8.1	23.7
2023-11-16	10:15:00	376	85.97	1.02	9.64	45.38	28.5	8.00	2.05	65.7	159.77	42.49	108.56	77.5	23.7	8.7	23.7
2023-11-16	10:16:00	357	80.73	1.02	9.62	45.22	31.0	8.00	2.80	64.6	168.30	40.96	109.63	95.7	31.0	8.3	23.7
2023-11-16	10:17:00	364	73.69	1.02	9.55	45.03	24.9	8.00	2.87	59.9	158.44	43.79	110.63	80.0	25.8	8.4	24.8
2023-11-16	10:18:00	384	70.08	1.02	9.56	45.00	31.2	8.00	3.30	59.9	150.95	46.52	113.39	109.2	39.8	8.2	27.8
2023-11-16	10:19:00	389	69.96	1.02	9.61	45.12	28.4	8.00	2.65	59.9	144.73	46.52	113.39	73.9	27.0	8.5	29.9
2023-11-16	10:20:00	368	70.53	1.02	9.74	45.34	50.4	8.00	3.03	66.3	143.36	50.00	114.56	152.2	47.7	7.9	30.9
2023-11-16	10:21:00	378	74.62	1.02	9.77	45.50	24.6	8.00	3.13	73.6	131.16	50.00	113.45	64.4	30.6	8.4	33.4
2023-11-16	10:22:00	364	79.11	1.02	9.82	45.57	47.3	8.00	2.83	73.6	131.16	50.00	113.45	122.4	42.8	7.9	32.4
2023-11-16	10:23:00	374	82.26	1.02	9.82	45.60	22.4	8.00	2.61	73.6	137.74	50.00	109.30	58.0	31.0	8.8	29.2
2023-11-16	10:24:00	354	75.05	1.02	9.79	45.55	27.6	8.00	3.00	74.7	137.74	50.00	109.30	71.1	27.7	8.4	29.2
2023-11-16	10:25:00	362	62.96	1.02	9.72	45.39	20.8	8.00	2.87	74.7	149.57	50.00	111.09	55.3	26.3	9.0	28.2
2023-11-16	10:26:00	378	57.18	1.02	9.67	45.30	30.8	8.00	2.95	53.4	144.12	50.00	113.41	85.2	30.7	8.2	25.2
2023-11-16	10:27:00	387	56.06	1.02	9.66	45.39	24.2	8.00	2.80	51.7	124.51	46.12	114.83	68.6	36.1	8.4	22.2
2023-11-16	10:28:00	342	56.29	1.02	9.69	45.62	47.4	8.00	2.83	59.5	130.77	46.12	116.06	127.8	45.1	7.9	26.3
2023-11-16	10:29:00	376	63.16	1.02	9.78	45.91	32.6	8.00	2.98	64.2	135.67	43.95	116.06	106.9	52.0	8.5	34.8
2023-11-16	10:30:00	334	69.50	1.02	9.81	46.01	35.6	8.00	2.95	65.6	125.33	40.87	114.69	91.8	32.8	8.1	31.5
2023-11-16	10:31:00	369	71.42	1.02	9.81	46.08	28.8	8.00	3.00	70.6	130.20	47.62	111.79	77.2	34.0	9.3	31.5
2023-11-16	10:32:00	338	68.00	1.02	9.77	45.95	22.8	7.78	3.02	70.6	142.83	44.15	111.79	57.7	23.1	8.4	28.2
2023-11-16	10:33:00	360	59.93	1.02	9.69	45.79	25.3	7.78	3.02	56.8	153.90	47.39	111.79	63.3	26.9	8.9	25.2
2023-11-16	10:34:00	349	50.30	1.02	9.62	45.57	28.0	7.78	3.21	54.2	146.09	47.31	111.79	69.3	25.7	8.3	25.2
2023-11-16	10:35:00	384	47.28	1.02	9.62	45.49	29.7	8.00	3.17	53.1	143.76	45.19	113.03	75.5	30.7	8.3	28.3
2023-11-16	10:36:00	392	45.60	1.02	9.64	45.54	37.6	8.00	2.20	55.7	143.76	46.30	114.18	99.6	31.1	8.1	29.3
2023-11-16	10:37:00	372	48.90	1.02	9.71	45.74	47.0	8.00	3.22	60.8	154.94	45.10	115.41	130.5	47.3	8.4	35.7
2023-11-16	10:38:00	380	60.69	1.02	9.74	45.87	27.2	8.00	2.88	72.6	154.94	46.71	115.41	69.7	26.6	8.1	35.4
2023-11-16	10:39:00	368	65.67	1.02	9.78	45.99	41.0	8.00	3.07	72.6	166.26	50.00	111.96	106.7	40.9	7.9	34.3
2023-11-16	10:40:00	377	66.04	1.02	9.77	46.00	26.6	8.00	2.98	72.6	170.38	48.86	111.96	61.6	25.4	8.2	35.2
2023-11-16	10:41:00	359	65.79	1.02	9.77	45.99	33.0	7.79	2.85	73.8	185.18	46.59	111.96	84.8	35.1	8.0	33.2
2023-11-16	10:42:00	368	62.71	1.02	9.75	45.88	24.1	7.79	2.93	72.2	166.78	46.00	111.96	56.4	23.5	8.5	33.2
2023-11-16	10:43:00	385	58.44	1.02	9.76	45.82	34.5	7.79	2.57	70.1	179.28	49.86	113.30	85.2	31.9	8.1	30.2
2023-11-16	10:44:00	392	56.07	1.02	9.76	45.80	29.4	7.79	3.15	60.3	161.23	47.52	113.30	65.5	23.4	8.3	31.4
2023-11-16	10:45:00	368	55.30	1.02	9.80	45.88	43.6	7.79	2.76	60.3	157.85	45.90	114.43	113.9	44.1	7.9	31.4
2023-11-16	10:46:00	380	59.42	1.02	9.81	45.96	21.4	7.79	3.02	60.3	163.68	42.80	114.43	57.2	26.1	8.6	33.5
2023-11-16	10:47:00	362	63.23	1.02	9.82	46.01	32.3	7.79	2.80	61.7	172.59	40.56	114.43	76.8	29.6	8.0	30.2
2023-11-16	10:48:00	372	63.52	1.02	9.78	45.97	19.0	7.79	2.87	71.6	171.32	45.96	111.52	50.0	25.1	8.8	25.1
2023-11-16	10:49:00	352	60.87	1.02	9.74	45.88	29.0	7.79	2.61	64.7	179.24	49.28	111.52	71.7	26.6	8.2	24.1
2023-11-16	10:50:00	363	56.17	1.02	9.68	45.81	20.0	7.79	3.56	56.7	181.28	49.28	111.52	52.9	27.8	8.9	26.3
2023-11-16	10:51:00	376	51.76	1.02	9.67	45.71	37.6	7.79	2.75	56.7	175.32	46.23	112.85	104.9	35.8	8.1	28.4
2023-11-16	10:52:00	388	51.61	1.02	9.69	45.76	22.9	7.99	2.42	55.3	172.71	42.86	112.85	67.0	37.2	8.3	31.6
2023-11-16	10:53:00	340	55.12	1.02	9.76	45.93	42.7	7.99	2.41	61.9	146.59	46.59	112.85	119.1	41.0	7.9	31.6
2023-11-16	10:54:00	378	63.78	1.02	9.81	46.07	26.0	7.99	2.85	63.0	130.11	48.63	113.91	84.0	38.7	8.8	34.8
2023-11-16	10:55:00	336	65.52	1.02	9.79	46.10	26.5	7.99	2.91	71.6	137.20	46.83	113.91	68.2	24.1	8.2	30.7
2023-11-16	10:56:00	372	62.89	1.02	9.75	46.10	23.5	7.99	2.83	71.6	144.68	49.38	110.83	68.8	28.7	9.2	28.3
2023-11-16	10:57:00	341	56.70	1.02	9.68	45.97	26.8	7.99	2.98	63.6	156.14	49.38	110.83	66.1	23.7	8.4	27.2
2023-11-16	10:58:00	362	54.32	1.02	9.62	45.82	25.2	7.99	3.11	63.6	156.14	49.38	110.83	71.5	27.5	9.0	26.2
2023-11-16	10:59:00	351	50.75	1.02	9.60	45.76	30.0	7.99	2.83	55.1	158.99	49.38	113.09	80.0	29.2	8.2	26.2
2023-11-16	11:00:00	387	50.37	1.02	9.63	45.84	27.1	7.99	3.07	50.3	158.99	40.76	114.62	84.3	35.1	8.4	29.3
2023-11-16	11:01:00	396	51.25	1.02	9.66	45.91	34.2	7.99	3.02	58.8	158.99	43.73	116.01	81.9	28.3	8.2	29.2
2023-11-16	11:02:00	373	55.71	1.02	9.71	46.10	37.4	7.99	2.92	58.8	157.97	50.00	116.01	106.8	40.9	8.7	30.3
2023-11-16	11:03:00	384	59.21	1.02	9.72	46.09	23.9	7.99	2.76	59.0	135.58	50.00	116.01	58.8	22.0	8.4	30.2
2023-11-16	11:04:00	365	59.33	1.02	9.69	46.03	26.3	7.99	2.62	59.0	148.31	50.00	112.92	73.8	29.5	8.2	27.2

November 16/2023		Main Analyzers												Backup Analyzers			
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-16	11:05:00	374	55.44	1.02	9.61	45.90	21.8	7.99	2.87	57.5	149.55	50.00	112.92	55.9	19.4	8.7	26.2
2023-11-16	11:06:00	356	51.85	1.02	9.54	45.71	22.6	7.99	2.82	50.2	145.44	48.74	112.92	65.2	24.2	8.4	24.2
2023-11-16	11:07:00	364	49.33	1.02	9.48	45.51	25.2	7.99	2.81	50.2	137.30	49.99	113.96	62.1	21.2	8.8	23.2
2023-11-16	11:08:00	381	47.02	1.02	9.48	45.43	32.6	7.99	3.35	50.2	159.02	49.99	115.64	79.4	32.4	8.1	22.2
2023-11-16	11:09:00	390	47.02	1.02	9.52	45.49	30.4	8.19	3.02	57.1	141.64	47.96	116.90	75.9	26.0	8.6	23.3
2023-11-16	11:10:00	371	47.98	1.02	9.62	45.73	36.4	8.19	2.63	60.7	126.22	50.00	118.26	97.2	38.1	8.1	24.3
2023-11-16	11:11:00	381	51.87	1.02	9.66	45.99	20.6	8.19	2.37	61.8	130.43	50.00	116.61	50.4	20.9	8.8	26.3
2023-11-16	11:12:00	367	52.15	1.02	9.67	46.04	26.0	7.97	2.92	64.7	143.33	50.00	115.22	64.9	26.7	8.3	20.2
2023-11-16	11:13:00	376	51.68	1.02	9.61	45.97	17.9	7.97	2.68	54.5	163.26	50.00	112.78	48.7	20.3	9.1	20.2
2023-11-16	11:14:00	356	48.51	1.02	9.53	45.78	21.4	7.97	2.87	44.5	151.10	45.87	112.78	54.7	21.4	8.7	19.2
2023-11-16	11:15:00	366	44.76	2.02	9.44	45.58	21.0	7.97	2.57	39.4	129.01	43.56	110.63	49.1	20.8	9.0	19.2
2023-11-16	11:16:00	378	42.91	2.02	9.42	45.45	28.8	7.97	2.87	41.1	129.01	47.48	111.72	78.3	29.2	8.4	19.2
2023-11-16	11:17:00	391	42.70	2.02	9.45	45.51	25.1	8.20	2.53	50.8	149.37	44.92	114.22	70.4	29.5	8.6	22.3
2023-11-16	11:18:00	344	47.61	2.02	9.55	45.68	38.0	8.20	2.65	56.4	162.57	42.45	116.26	106.8	36.0	8.2	23.3
2023-11-16	11:19:00	378	53.24	2.02	9.60	45.96	20.2	8.20	3.02	57.7	141.49	47.98	115.23	77.5	36.9	8.8	26.4
2023-11-16	11:20:00	337	55.02	2.02	9.62	46.06	26.7	8.20	2.57	51.8	133.81	50.00	112.50	75.5	26.3	8.4	25.3
2023-11-16	11:21:00	371	55.35	2.02	9.60	46.07	25.3	7.99	2.91	51.8	146.80	50.00	112.50	72.9	26.9	9.5	23.2
2023-11-16	11:22:00	340	54.73	2.02	9.48	45.87	24.6	7.99	2.76	53.4	145.76	50.00	112.50	68.3	21.7	8.8	22.2
2023-11-16	11:23:00	360	51.80	2.02	9.41	45.66	19.1	7.99	2.11	42.5	145.27	44.29	112.50	65.5	24.7	9.3	21.2
2023-11-16	11:24:00	351	50.50	2.02	9.36	45.44	30.8	8.20	2.50	39.5	162.49	42.20	113.54	76.1	25.5	8.7	20.2
2023-11-16	11:25:00	387	50.50	2.02	9.36	45.39	23.7	8.20	2.45	39.5	158.68	44.94	113.54	89.1	34.0	8.5	21.3
2023-11-16	11:26:00	393	51.65	2.02	9.41	45.47	46.8	8.20	2.96	30.4	140.56	38.99	114.62	104.3	34.5	8.3	22.3
2023-11-16	11:27:00	374	59.91	2.02	9.52	45.75	40.0	8.20	2.95	35.6	132.04	38.99	114.62	113.3	47.7	8.5	27.4
2023-11-16	11:28:00	384	67.27	2.02	9.56	45.96	29.6	8.20	2.38	51.0	125.75	42.12	114.62	91.0	27.2	8.3	27.3
2023-11-16	11:29:00	370	73.63	2.02	9.61	46.09	30.1	8.20	2.42	61.5	137.66	50.00	112.28	94.6	34.1	8.3	25.2
2023-11-16	11:30:00	379	73.63	2.02	9.57	46.02	22.0	7.97	2.50	61.5	157.65	50.00	112.28	69.8	22.3	8.7	24.1
2023-11-16	11:31:00	360	67.69	2.02	9.48	45.87	28.7	7.97	2.00	65.1	168.72	50.00	109.90	88.7	27.8	8.5	21.1
2023-11-16	11:32:00	367	64.14	2.02	9.44	45.65	32.8	7.97	2.61	56.1	156.63	50.00	111.72	85.8	25.7	8.8	20.1
2023-11-16	11:33:00	387	63.98	2.02	9.45	45.59	35.5	8.17	2.57	46.6	134.95	48.81	111.72	105.7	39.3	8.4	20.1
2023-11-16	11:34:00	394	67.17	2.02	9.51	45.66	42.5	8.17	2.11	55.8	125.04	50.00	112.94	101.1	26.3	8.6	20.1
2023-11-16	11:35:00	371	79.33	2.02	9.59	45.84	50.8	8.17	2.58	65.9	141.41	50.00	111.34	165.6	54.4	8.2	19.1
2023-11-16	11:36:00	381	87.10	2.02	9.61	46.00	34.8	8.17	2.98	56.3	142.54	46.10	109.75	82.9	30.9	8.7	21.3
2023-11-16	11:37:00	364	92.19	2.02	9.63	46.10	40.8	8.17	3.18	55.0	133.47	46.10	109.75	113.4	40.9	8.1	21.3
2023-11-16	11:38:00	374	90.52	2.02	9.63	46.14	25.9	7.97	2.88	50.2	162.48	43.13	108.65	69.8	36.6	8.9	21.3
2023-11-16	11:39:00	356	82.02	2.02	9.60	46.07	31.0	7.97	2.80	50.2	176.97	41.72	107.20	85.8	30.1	8.5	19.2
2023-11-16	11:40:00	363	74.03	2.02	9.56	45.91	22.4	7.97	2.51	47.8	162.84	42.96	107.20	63.6	28.4	9.0	19.2
2023-11-16	11:41:00	379	66.81	2.02	9.51	45.80	35.3	7.97	3.06	46.1	157.23	44.92	107.20	97.6	33.6	8.3	19.2
2023-11-16	11:42:00	390	65.78	2.02	9.52	45.80	26.2	7.97	3.25	42.4	145.24	44.92	108.72	75.3	34.6	8.5	20.3
2023-11-16	11:43:00	340	66.18	2.02	9.59	45.89	51.4	7.97	2.65	42.4	148.07	47.25	112.00	150.8	52.1	8.1	22.3
2023-11-16	11:44:00	378	75.70	2.02	9.66	46.10	40.0	7.97	2.88	52.8	153.61	50.00	112.00	139.4	62.7	8.6	25.3
2023-11-16	11:45:00	336	84.47	2.02	9.68	46.19	40.1	7.97	2.91	53.4	142.52	50.00	109.95	99.4	36.1	8.0	21.2
2023-11-16	11:46:00	373	86.35	2.02	9.70	46.30	39.1	7.97	2.95	50.8	133.36	45.30	107.07	106.4	44.8	9.3	20.2
2023-11-16	11:47:00	342	84.36	2.02	9.71	46.24	30.5	7.97	2.91	62.0	134.86	43.29	107.07	87.8	31.0	8.4	20.2
2023-11-16	11:48:00	361	76.88	2.02	9.66	46.18	30.0	7.97	2.53	60.2	139.25	44.82	107.07	81.7	33.3	9.0	18.2
2023-11-16	11:49:00	351	67.54	2.02	9.60	45.98	34.6	7.97	3.18	57.4	144.08	47.23	107.07	93.5	31.5	8.4	18.2
2023-11-16	11:50:00	386	65.74	2.02	9.58	45.96	38.3	7.97	2.68	46.0	142.54	40.12	107.07	106.0	39.2	8.4	19.3
2023-11-16	11:51:00	394	65.20	2.02	9.61	45.98	28.3	7.97	2.87	46.0	147.64	41.36	108.54	95.6	33.5	8.2	20.3
2023-11-16	11:52:00	372	67.97	2.02	9.69	46.14	45.1	7.97	2.50	47.4	163.45	43.24	109.92	150.0	60.1	8.6	23.3
2023-11-16	11:53:00	381	76.51	2.02	9.70	46.23	31.0	7.97	2.53	63.2	159.73	47.80	108.74	80.4	30.4	8.3	22.2
2023-11-16	11:54:00	366	79.37	2.02	9.73	46.31	39.0	7.97	3.15	63.2	159.73	47.04	106.25	107.8	44.2	7.9	20.2
2023-11-16	11:55:00	375	79.02	2.02	9.71	46.27	28.6	7.97	3.61	60.4	135.69	45.77	106.25	72.7	28.3	8.5	19.2
2023-11-16	11:56:00	359	71.58	2.02	9.70	46.20	30.7	7.97	2.76	56.5	146.13	49.25	106.25	79.1	31.6	8.3	18.2
2023-11-16	11:57:00	366	63.31	2.02	9.65	46.02	25.5	7.97	3.10	55.1	154.63	49.25	106.25	65.1	23.9	8.6	18.2
2023-11-16	11:58:00	384	59.58	2.02	9.62	45.94	36.2	7.97	2.83	57.0	143.76	49.25	106.25	102.1	34.2	8.4	19.3
2023-11-16	11:59:00	393	59.58	2.02	9.61	45.90	32.9	7.97	2.91	61.3	155.04	47.73	109.02	87.5	26.7	8.6	20.3
2023-11-16	12:00:00	372	63.97	2.02	9.65	46.01	47.7	7.97	2.35	61.3	151.84	48.39	110.42	135.8	50.5	8.0	21.3
2023-11-16	12:01:00	382	72.29	2.02	9.68	46.12	25.2	7.97	2.87	55.6	136.98	42.54	110.42	62.2	32.7	8.6	23.3

November 16/2023		Main Analyzers												Backup Analyzers			
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-16	12:02:00	366	74.12	2.02	9.71	46.14	36.4	7.97	3.45	45.1	146.78	42.54	108.05	95.2	36.1	8.1	22.1
2023-11-16	12:03:00	376	73.21	2.02	9.68	46.17	21.6	7.97	3.02	37.7	153.48	43.45	105.71	58.5	30.3	8.9	21.1
2023-11-16	12:04:00	354	64.83	2.02	9.64	46.07	30.2	7.97	2.80	37.7	153.48	47.47	105.71	72.7	28.9	8.4	16.8
2023-11-16	12:05:00	363	60.35	2.02	9.57	45.99	21.2	7.97	2.58	36.7	137.57	48.29	107.06	54.9	27.7	9.1	16.8
2023-11-16	12:06:00	377	57.62	2.02	9.55	45.84	33.5	7.97	2.48	44.5	128.55	43.86	107.06	85.9	33.0	8.5	18.8
2023-11-16	12:07:00	388	55.68	2.02	9.53	45.88	22.1	7.97	2.46	54.3	138.49	41.48	108.38	61.3	29.8	8.7	20.8
2023-11-16	12:08:00	343	55.36	2.02	9.55	45.99	36.7	7.97	2.66	41.5	152.72	43.42	109.93	107.1	38.7	8.2	20.8
2023-11-16	12:09:00	377	56.37	2.02	9.58	46.14	23.4	7.97	2.65	29.6	154.17	46.03	109.93	88.3	37.4	9.1	20.8
2023-11-16	12:10:00	336	58.93	2.02	9.57	46.11	29.6	7.97	2.61	35.3	140.98	50.00	109.93	94.4	26.4	8.5	20.8
2023-11-16	12:11:00	370	60.14	2.02	9.51	46.10	23.5	7.97	2.88	42.5	139.43	50.00	108.34	88.2	31.9	9.7	19.7
2023-11-16	12:12:00	341	60.14	2.02	9.42	45.91	27.8	8.17	2.57	51.3	146.34	47.71	108.34	85.8	27.2	8.8	18.7
2023-11-16	12:13:00	362	59.88	2.02	9.35	45.82	27.5	8.17	2.91	47.1	132.56	45.13	107.24	88.0	32.4	9.3	17.7
2023-11-16	12:14:00	351	60.03	2.02	9.33	45.66	31.4	8.17	2.70	39.4	121.25	45.13	107.24	104.2	32.9	8.7	17.7
2023-11-16	12:15:00	386	61.26	2.02	9.34	45.66	29.1	8.17	2.73	29.4	101.44	45.66	108.45	98.7	35.7	8.5	17.7
2023-11-16	12:16:00	394	63.49	2.02	9.40	45.70	34.3	8.17	2.56	31.0	107.36	41.70	109.59	111.0	33.4	8.5	17.7
2023-11-16	12:17:00	374	70.24	2.02	9.45	45.84	39.9	8.17	2.68	42.1	137.65	44.64	109.59	128.8	45.7	8.9	18.8
2023-11-16	12:18:00	384	73.65	2.02	9.46	45.90	29.2	8.17	2.61	51.7	153.16	50.00	109.59	97.3	26.4	8.6	19.8
2023-11-16	12:19:00	368	74.46	2.02	9.51	45.92	36.9	8.17	2.35	39.4	134.93	50.00	107.45	137.3	39.3	8.4	18.7
2023-11-16	12:20:00	376	74.58	2.02	9.45	45.84	27.4	8.17	2.72	37.9	131.06	46.59	107.45	83.4	25.2	8.8	16.7
2023-11-16	12:21:00	357	75.37	2.02	9.41	45.72	34.1	8.17	2.50	37.9	131.06	46.51	104.99	115.6	35.7	8.6	15.7
2023-11-16	12:22:00	365	76.08	2.02	9.36	45.56	42.9	8.17	2.87	35.1	134.46	46.51	106.49	125.9	31.5	8.6	15.7
2023-11-16	12:23:00	383	81.24	2.02	9.42	45.54	48.5	8.17	2.53	35.1	149.19	50.00	106.49	155.2	50.8	8.2	16.7
2023-11-16	12:24:00	392	87.83	2.02	9.52	45.67	44.3	8.17	2.80	44.5	144.93	50.00	107.56	109.1	32.5	8.6	18.8
2023-11-16	12:25:00	371	92.49	2.02	9.59	45.90	56.0	8.17	2.62	54.4	157.82	46.53	107.56	162.7	53.8	8.2	18.8
2023-11-16	12:26:00	383	95.44	2.02	9.64	46.10	28.7	8.17	2.95	56.4	146.29	50.00	104.84	75.4	36.3	8.7	19.8
2023-11-16	12:27:00	365	95.87	2.02	9.66	46.13	37.7	8.17	2.81	53.2	139.27	50.00	104.84	114.2	41.8	8.3	18.7
2023-11-16	12:28:00	375	89.64	2.02	9.63	46.08	24.1	7.97	2.27	40.9	137.44	45.02	103.21	65.1	30.9	8.9	17.7
2023-11-16	12:29:00	357	79.21	2.02	9.59	45.94	34.0	7.97	2.57	46.5	143.80	44.59	103.21	91.2	33.7	8.5	16.7
2023-11-16	12:30:00	363	73.12	2.02	9.55	45.82	27.9	7.97	2.53	50.7	145.73	41.95	103.21	87.4	35.4	9.0	15.7
2023-11-16	12:31:00	376	72.85	2.02	9.57	45.75	52.7	8.17	2.57	56.1	161.01	47.91	104.45	141.1	48.8	8.1	16.7
2023-11-16	12:32:00	388	79.77	2.02	9.62	45.85	27.2	8.17	2.35	55.1	159.75	49.05	105.46	77.0	43.9	8.4	19.8
2023-11-16	12:33:00	342	83.50	2.02	9.67	46.03	48.5	8.17	2.65	55.1	174.63	45.51	105.46	134.5	49.5	8.1	20.8
2023-11-16	12:34:00	378	87.62	2.02	9.74	46.27	26.1	8.17	2.75	55.1	174.63	47.68	105.46	121.0	59.5	8.6	20.8
2023-11-16	12:35:00	337	89.02	2.02	9.73	46.31	34.9	7.96	2.70	55.1	166.19	49.58	105.46	91.2	36.3	8.2	17.6
2023-11-16	12:36:00	369	87.47	2.02	9.71	46.32	22.7	7.96	3.07	52.0	143.47	49.58	104.38	84.3	36.6	9.3	14.6
2023-11-16	12:37:00	338	75.50	2.02	9.66	46.18	31.3	7.96	2.65	47.1	142.65	49.58	104.38	78.3	28.9	8.5	14.6
2023-11-16	12:38:00	361	66.99	2.02	9.60	46.01	25.6	7.96	2.87	51.7	150.67	49.58	105.41	77.7	33.9	9.1	13.6
2023-11-16	12:39:00	347	63.95	2.02	9.59	45.84	45.9	7.96	2.98	64.6	141.32	49.58	106.68	109.2	35.8	8.2	15.8
2023-11-16	12:40:00	387	64.08	2.02	9.62	45.88	41.3	7.96	2.68	64.6	136.83	49.58	106.68	148.3	61.3	8.0	19.9
2023-11-16	12:41:00	393	76.27	2.02	9.69	46.04	73.6	7.96	2.81	57.2	127.56	49.58	108.01	157.2	46.0	8.0	20.9
2023-11-16	12:42:00	373	99.52	2.02	9.78	46.32	58.5	7.96	2.77	55.8	129.21	50.00	108.01	216.3	91.1	8.3	20.9
2023-11-16	12:43:00	384	110.73	2.02	9.79	46.48	33.6	7.96	2.80	55.8	116.53	48.43	103.58	76.6	29.6	8.2	17.6
2023-11-16	12:44:00	368	108.71	2.02	9.81	46.53	36.5	7.76	2.65	64.9	127.88	50.00	103.58	98.9	40.6	8.0	12.2
2023-11-16	12:45:00	377	89.29	2.02	9.77	46.38	24.5	7.76	2.66	66.4	135.93	48.98	103.58	64.4	23.7	8.6	9.1
2023-11-16	12:46:00	358	75.43	2.02	9.72	46.18	34.1	7.76	3.17	56.7	149.96	45.56	103.58	87.4	33.6	8.4	10.2
2023-11-16	12:47:00	366	64.54	2.02	9.64	45.97	33.7	7.76	2.61	53.7	124.88	50.00	105.89	74.3	28.4	8.5	14.2
2023-11-16	12:48:00	383	63.67	2.02	9.64	45.91	48.2	7.98	2.86	53.7	124.88	50.00	106.92	126.7	49.7	8.1	18.3
2023-11-16	12:49:00	391	68.96	2.02	9.70	45.97	56.1	7.98	2.65	57.3	169.79	50.00	106.92	98.2	32.2	8.3	21.3
2023-11-16	12:50:00	371	86.09	2.02	9.79	46.09	69.8	7.98	2.88	65.5	185.64	50.00	106.07	229.1	82.0	7.9	22.4
2023-11-16	12:51:00	380	99.25	2.02	9.83	46.41	29.4	7.98	2.77	65.5	167.33	46.65	106.07	67.1	37.0	8.4	19.2
2023-11-16	12:52:00	364	105.47	2.02	9.87	46.52	40.9	7.98	2.83	59.1	162.24	47.72	106.07	99.0	41.5	7.9	16.0
2023-11-16	12:53:00	374	90.88	2.02	9.83	46.54	26.0	7.77	2.95	47.3	169.34	42.17	102.98	54.5	30.3	8.9	13.8
2023-11-16	12:54:00	354	74.51	2.02	9.77	46.40	34.4	7.77	2.83	34.3	155.85	38.49	101.91	80.0	32.4	8.2	13.8
2023-11-16	12:55:00	363	69.23	2.02	9.73	46.20	24.5	7.77	2.98	37.6	166.61	38.49	101.91	61.2	32.5	8.7	13.8
2023-11-16	12:56:00	379	64.35	2.02	9.68	46.08	43.6	7.77	2.91	42.4	165.23	41.58	104.95	116.5	43.6	8.1	15.9
2023-11-16	12:57:00	389	64.39	2.02	9.70	46.13	40.0	7.99	3.07	63.5	169.24	45.48	108.34	81.6	44.3	8.3	19.3
2023-11-16	12:58:00	349	72.57	2.02	9.76	46.30	72.5	7.99	2.76	66.3	159.01	49.22	108.34	203.7	63.0	7.7	20.3

November 16/2023		Main Analyzers									Backup Analyzers						
		BH dP	CO	HCl	CO2	H2O	THC	O2	Opacity	SO2	NO	NO2	HF	CO	THC	O2	SO2
		mmH2O	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
$Date	$Time	PDT-622	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
2023-11-16	12:59:00	377	108.65	2.02	9.8S	46.57	28.9	7.99	2.92	73.7	142.05	49.22	108.34	164.3	87.9	8.4	20.3
2023-11-16	13:00:00	336	11S.73	2.02	9.89	46.66	40.0	7.76	2.50	68.5	130.65	49.22	104.89	88.2	36.6	8.0	15.1
2023-11-16	13:01:00	372	115.56	2.02	9.89	46.71	37.9	7.76	2.76	52.9	125.78	49.22	102.25	98.0	42.6	9.2	11.1
2023-11-16	13:02:00	338	92.65	2.02	9.82	46.53	28.2	7.76	2.73	62.6	122.97	49.22	102.25	66.2	28.1	8.4	8.1
2023-11-16	13:03:00	360	77.60	2.02	9.76	46.31	33.1	7.76	2.80	63.6	129.37	49.22	103.30	79.2	33.4	8.8	8.1
2023-11-16	13:04:00	347	64.58	2.02	9.70	46.10	35.5	7.76	2.71	67.4	138.85	49.22	105.32	89.0	32.2	8.2	8.1
2023-11-16	13:05:00	386	62.80	2.02	9.69	46.07	50.3	7.76	2.72	64.6	140.08	49.22	106.52	138.4	50.2	8.2	12.2
2023-11-16	13:06:00	395	63.29	2.02	9.73	46.14	62.2	7.97	2.85	55.6	127.10	47.22	110.71	149.5	47.1	8.0	15.2
2023-11-16	13:07:00	374	83.90	2.02	9.81	46.36	76.9	7.97	2.73	55.6	129.02	49.46	111.77	228.6	84.0	8.3	16.2
2023-11-16	13:08:00	382	102.44	2.02	9.84	46.52	35.8	7.97	2.87	69.9	120.79	49.46	108.18	80.6	33.4	8.0	15.2
2023-11-16	13:09:00	367	107.67	2.02	9.89	46.64	56.6	7.75	2.71	79.0	119.77	49.46	104.47	142.2	55.0	7.8	12.1
2023-11-16	13:10:00	377	99.57	2.02	9.87	46.61	25.8	7.75	2.87	65.6	150.29	49.46	104.47	62.5	26.4	8.5	9.1
2023-11-16	13:11:00	359	85.53	2.02	9.82	46.50	34.1	7.75	3.00	65.6	163.85	41.67	104.47	81.5	35.1	8.1	10.2
2023-11-16	13:12:00	366	74.41	2.02	9.75	46.29	30.8	7.75	2.48	55.6	149.65	43.82	104.47	74.9	27.5	8.5	12.2
2023-11-16	13:13:00	383	68.81	2.02	9.74	46.21	42.8	7.75	3.03	57.2	159.36	47.79	104.47	103.0	43.6	8.1	14.2
2023-11-16	13:14:00	391	68.56	2.02	9.74	46.23	38.4	7.75	2.61	66.8	141.85	47.76	107.38	95.2	30.1	8.3	16.2
2023-11-16	13:15:00	369	75.77	2.02	9.81	46.38	85.0	7.75	2.55	62.8	125.71	38.70	108.62	231.2	76.2	7.9	18.3
2023-11-16	13:16:00	377	92.77	2.02	9.85	46.54	28.4	7.75	2.91	62.8	131.96	41.13	108.62	71.4	43.5	8.5	19.3
2023-11-16	13:17:00	362	101.05	2.02	9.89	46.67	45.6	7.75	2.31	62.8	129.29	46.21	106.33	112.9	45.4	7.9	15.2
2023-11-16	13:18:00	372	92.95	2.02	9.88	46.71	23.8	7.75	3.30	58.0	148.71	49.48	103.41	56.7	36.7	8.8	11.1
2023-11-16	13:19:00	353	79.21	2.02	9.82	46.59	30.8	7.75	2.71	49.8	167.54	49.48	102.33	70.6	29.6	8.4	9.1
2023-11-16	13:20:00	361	68.42	2.02	9.72	46.36	24.0	7.75	2.57	60.3	171.25	49.48	102.33	57.1	32.1	8.9	8.1
2023-11-16	13:21:00	376	63.07	2.02	9.70	46.21	44.6	7.75	2.62	60.3	151.68	50.00	105.85	114.2	43.5	8.2	9.2
2023-11-16	13:22:00	387	62.70	2.02	9.71	46.23	27.7	7.96	2.77	60.3	139.50	47.09	109.13	77.9	47.1	8.4	11.2
2023-11-16	13:23:00	350	74.22	2.02	9.77	46.37	93.1	7.96	2.68	60.3	131.41	42.12	112.14	252.8	74.4	7.8	14.2
2023-11-16	13:24:00	377	97.40	2.02	9.83	46.55	35.0	7.96	2.68	59.1	126.45	49.24	110.60	150.3	77.1	8.6	15.2
2023-11-16	13:25:00	335	118.47	2.02	9.86	46.72	45.9	7.96	2.92	66.6	126.45	50.00	106.34	112.7	42.5	8.0	11.8
2023-11-16	13:26:00	370	117.01	2.02	9.85	46.77	31.5	7.74	2.41	69.1	120.46	46.59	103.17	100.9	46.2	9.1	9.8
2023-11-16	13:27:00	339	94.03	2.02	9.80	46.62	30.0	7.74	2.83	69.1	115.91	46.59	103.17	77.0	30.3	8.4	6.8
2023-11-16	13:28:00	360	80.75	2.02	9.71	46.50	29.4	7.74	2.81	57.4	120.10	44.29	101.69	83.7	33.1	9.0	5.8
2023-11-16	13:29:00	347	69.13	2.02	9.63	46.21	33.2	7.74	2.87	40.6	134.48	44.07	104.74	79.1	29.0	8.4	5.8
2023-11-16	13:30:00	384	65.16	2.02	9.58	46.13	31.2	7.94	2.88	53.2	147.71	49.07	107.80	89.7	34.5	8.6	5.8
2023-11-16	13:31:00	392	64.25	2.02	9.58	46.12	45.2	7.94	2.87	53.2	147.71	46.31	108.92	119.0	33.8	8.3	6.9
2023-11-16	13:32:00	370	67.67	2.02	9.62	46.27	51.5	7.94	3.17	54.3	149.26	49.26	108.92	136.4	56.4	8.8	11.2
2023-11-16	13:33:00	381	75.88	2.02	9.63	46.30	34.8	7.94	2.85	54.3	149.26	48.29	109.98	94.4	29.5	8.4	13.2
2023-11-16	13:34:00	366	79.06	2.02	9.64	46.40	40.0	7.94	2.45	54.3	150.28	48.29	106.60	123.9	43.8	8.2	14.2
2023-11-16	13:35:00	375	79.16	2.02	9.61	46.36	28.7	7.94	3.00	48.4	153.59	50.00	106.60	79.2	26.3	8.8	14.2
2023-11-16	13:36:00	356	78.34	2.02	9.58	46.21	31.7	7.94	2.95	49.7	156.39	50.00	106.60	85.7	34.0	8.5	13.1
2023-11-16	13:37:00	364	70.66	2.02	9.52	46.09	27.9	7.94	3.11	49.7	154.71	45.39	106.60	69.3	24.4	8.8	13.1
2023-11-16	13:38:00	382	63.61	2.02	9.50	45.98	34.9	8.16	2.63	42.8	139.18	47.84	106.60	86.8	34.6	8.4	14.2

November 16/2023	Main Analyzers									Backup Analyzers						
	Baghouse	CO	HCl	CO2	H2O	THC	O2	Opacity	5O2	NO	NO2	HF	CO	THC	O2	SO2
Test 3	PDT-622	PPM	PPM	%	%	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
Units	mmH2O	AT-205-1NEW	AT-213A-1NEW	AT-213B-1NEW	AT-213CB	AT-259-1NEW	AT-261A-1NEW	AT-263	AT-264-1NEW	AT-NO	AT-NO2	AT-HF	AT-205-2NEW	AT-259-2NEW	AT-261A-2NEW	AT-264-2NEW
Max	401	135.61	2.02	9.89	46.77	93.1	9.08	3.61	79.0	185.64	50.00	118.26	252.8	91.1	10.0	35.7
Min	334	42.70	1.02	8.86	43.33	17.5	7.74	1.77	29.4	101.44	35.43	92.15	48.7	19.4	7.7	5.8
Average	370	75.64	1.56	9.57	45.72	33.8	8.09	2.74	54.7	144.83	46.51	107.65	100.1	35.6	8.6	20.3
Variance	250	405.71	0.25	0.04	0.37	130.3	0.07	0.07	100.0	239.14	10.44	26.71	1382.6	139.7	0.2	41.2