

WASTE-TO-ENERGY FACILITY

Appendices of Emissions Testing Report

July 2024 Survey

Third Quarter 2024

Table of Contents

<u>Appendix</u>

- A Quality Assurance / Quality Control Results
- B Calculations
- C Laboratory Results
- D Computer Generated Results
- E Field Data Sheets
- F Calibration Sheets and Technician Certificates

APPENDIX - A

QUALITY ASSURANCE / QUALITY CONTROL RESULTS

Quality assurance / quality control (QA/QC) is divided into four categories: administration, preparation, testing, and analysis. The following sections detail results found for the above four categories.

Administration:

- All field, process, and analytical data was reviewed to ensure data integrity and accuracy.
- Duplicate proof of draft and final report, including data entry, conducted.

Preparation:

- All glassware cleaned
- Blank samples of reagents collected.

Testing:

- Stack diameter and absence of cyclonic flow confirmed
- Calibrated magnehelic used for all velocity measurements
- All trains past pre- and post- leak checks.
- Isokinetics all within 100% ± 10%.

Analysis:

- Trace Metals and Mercury analysis conducted at Element Labs, Surrey, B.C.
- Fluoride (HF) analysis conducted at Element Labs in Surrey, B.C.
- Nitrous Oxide (N₂O) analysis conducted at Bureau Veritas in Mississauga, ON.
- Volatile Organic Compounds (VOC) analysis conducted at ALS Environmental in Simi Valley, CA.
- Particulate analysis conducted at A. Lanfranco and Associates Inc., Surrey, BC.
- Chain of Custody protocols followed for all samples.
- Acceptable blank values for all sample types. All samples blank corrected.

Sample Type	Blank Value						
Third Quarter 2024	Unit 1		Unit 2	Unit 3			
Filter	0.4	mg	0.1 mg	0.2 mg			
Front Half Washings	0.5	mg	0.4 mg	0.8 mg			
Mercury Front	<0.025	ug	<0.03 ug	<0.03 ug			
Mercury Back	<0.1	ug	<0.1 ug	<0.11 ug			
Trace Metals Front *	<77.5	ug	<87.7 ug	<92.5 ug			
Trace Metals Back*	<34.8	ug	<45.3 ug	<75.8 ug			
Hexavalent Chromium	N/A		N/A	<0.92 ug			
Ammonia	<6.0	ug	<6.2 ug	<6.4 ug			
Fluoride	<8	ug	<8 ug	<7 ug			

Sum of all reported elements except Hg*

APPENDIX - B CALCULATIONS



The following sections show the equations and define the variables that were used for this survey. The equations are organized in three sections. Equations 1-11 were used to calculate particulate concentration at standard conditions on a dry basis. Equations 12-26 were used to sample within the $100 \pm 10\%$ isokinetic variation and to confirm that sampling meets this isokinetic variation threshold. Equations 27-29 were used to calculate the volumetric flowrate of the stack flue gas.

App B.1

pp B.1	Contaminant Concentration Calculations	
	$c = \frac{m}{V_{std}}$	Equation 1
	$m_{part} = m_{filter} + m_{pw}$	Equation 2
	$m_i = m_{ana,i} - m_{blank}$	Equation 3
	$V_{std} = \frac{V_{std(imp)}}{35.315}$	Equation 4
	$V_{std(imp)} = \frac{V_{samp} \times y \times P_m \times (T_{std} + 459.67)}{P_{std} \times (T_{m(ave)} + 459.67)}$	Equation 5
	$V_{samp} = V_{final} - V_{init}$	Equation 6
	$P_m = P_B + \frac{\Delta H_{ave}}{13.6}$	Equation 7
ΔH_{av}	$h_{pe} = rac{1}{n} \sum_{i=1}^{n} \Delta H_{i(act)}$, where $n=$ the number of points	Equation 8
	$OC = \frac{20.9 - \%O_{2c}}{20.9 - \%O_{2m}}$	Equation 9
$%O_{2m} = \frac{1}{2}$	$\frac{1}{n}\sum_{i=1}^{n}\%O_{2i}$, where $n=$ the number of O_{2} measurements	Equation 10
% <i>CO</i> ₂ =	$= \frac{1}{n} \sum_{i=1}^{n} \%CO_{2i}, where n = the number of CO_{2} measurements$	Equation 11



Where,

c = Contaminant concentration

m = Contaminant mass

 m_i = Net analytical mass (mg, ng, or μ g) $m_{ana,i}$ = Analytical mass (mg, ng, or μ g) m_{blank} = Blank analytical mass (mg, ng, or μ g)

 m_{part} = Total particulate mass (mg)

 m_{filter} = Net particulate gain from filter (mg)

 m_{pw} = Net particulate gain from probe wash (mg) $V_{std(imp)}$ = Sample volume at standard conditions (ft³) V_{samp} = Sample volume at actual conditions (ft³)

 V_{final} = Final gas meter reading (ft³) V_{init} = Initial gas meter reading (ft³) T_{std} = Standard temperature (68 °F) T_m = Gas meter temperature (°F)

 $T_{m(ave)}$ = Average gas meter temperature (°F) P_m = Absolute meter pressure (inches of Hg) P_B = Barometric pressure (inches of Hg)

 ΔH_{ave} = Average of individual point orifice pressures (inches of H_2O) $\Delta H_{i(act)}$ = Individual recorded point orifice pressures (inches of H_2O)

OC = Oxygen correction factor (dimensionless)

 $%O_{2c}$ = Oxygen concentration to correct to (% dry basis)

 $\%O_{2m}$ = Average measured stack gas oxygen concentration (% dry basis) $\%CO_{2m}$ = Average measured stack gas oxygen concentration (% dry basis)

Equation 1 is the general concentration calculation used for all contaminants. The contaminant mass, m, is the net analytic mass for the given contaminant. For particulate, m is the sum of the mass contributed from probe washing and filter particulate.



App B.2 Isokinetic Variation Calculations

$$\Delta H_{l} = \frac{2.62 \times 10^{7} \times c_{p} \times A_{n} \times (1 - B_{wo}) \times M_{D} \times (T_{m} + 459.67) \times \Delta p_{l}}{k_{o} \times M_{w} \times (T_{Stk} + 459.67)} \qquad \text{Equation } 12$$

$$R_{m} = 85.49 \times c_{p} \times \sqrt{\Delta p_{l}} \times \sqrt{\frac{(T_{stk_{l}} + 459.67)}{M_{w} \times P_{B}}} \times 60 \times A_{n} \times \frac{(T_{m_{l}} + 459.67) \times (1 - B_{wo})}{(T_{stk_{l}} + 459.67) \times y} \qquad \text{Equation } 13$$

$$A_{n} = \pi \left(\frac{d_{n}}{24}\right)^{2} \qquad \qquad \text{Equation } 14$$

$$M_{w} = M_{D} \times (1 - B_{wo}) + 18 \times B_{wo} \qquad \qquad \text{Equation } 15$$

$$M_{D} = 0.44 \times \% CO_{2} + 0.32 \times \% O_{2} + 0.28 \times (100 - \% CO_{2} - \% O_{2}) \qquad \qquad \text{Equation } 16$$

$$T_{Stk} = \frac{1}{n} \sum_{l=1}^{n} T_{Stk_{l}}, \text{ where } n = \text{the number of points} \qquad \qquad \text{Equation } 17$$

$$B_{wo} = \frac{V_{cond}}{V_{cond} + V_{std(limp)}} \qquad \qquad \text{Equation } 18$$

$$V_{cond} = 0.04707 \times V_{gain} \qquad \qquad \text{Equation } 19$$

$$Iso = \frac{1}{n} \sum_{l=1}^{n} Iso_{l}, \text{ where } n = \text{the number of points} \qquad \qquad \text{Equation } 20$$

$$Iso_{l} = \frac{v_{nzi}}{v_{l}} \qquad \qquad \text{Equation } 21$$

$$v_{l} = 85.49 \times c_{p} \times \sqrt{\Delta p_{l}} \times \sqrt{\frac{(T_{Stk_{l}} + 459.67)}{(P_{Stk} \times M_{W})}} \qquad \qquad \text{Equation } 22$$

$$v_{nzi} = \frac{(V_{l} - V_{l-1}) \times y \times (T_{Stk_{l}} + 459.67) \times (P_{B} + \frac{\Delta H_{l(act)}}{13.6})}{A_{n} \times t_{l} \times 60 \times (T_{m(l)} + 459.67) \times P_{stk} \times (1 - B_{wo})} \qquad \qquad \text{Equation } 23$$

$$P_{stk} = P_B + \frac{P_g}{13.6}$$
 Equation 24



$$v_{stk} = \frac{1}{n} \sum_{i=1}^{n} v_i$$
 , where $n =$ the number of points

Equation 25

$$v_{nz} = \frac{1}{n} \sum_{i=1}^{n} v_{nzi}$$
, where $n =$ the number of points

Equation 26

Where,

 $A_n = Nozzle area (ft^2)$

 d_n = Diameter of nozzle (inches) c_p = Pitot coefficient (dimensionless)

 Δp_i = Individual point differential pressures (inches of H_2O)

 T_{Stk} = Average flue gas temperature (°F), second subscript i, indicates individual

point measurements

 $\Delta H_{i(act)}$ = Calculated individual point orifice pressures (inches of H₂O)

 P_g = Stack Static pressure (inches of H_2O) P_{stk} = Absolute stack pressure (inches of H_B) M_W = Wet gas molecular weight (g/gmol) M_D = Dry gas molecular weight (g/gmol)

*%CO*₂ = Stack gas carbon dioxide concentration (% dry basis)

 $\%O_2$ = Stack gas oxygen concentration (% dry basis) B_{wo} = Stack gas water vapour, proportion by volume

V_{cond} = Total volume of water vapor collected, corrected to standard conditions

 (ft^3)

 V_{gain} = Condensate gain of impinger contents (mL) P_{std} = Standard pressure (29.92 inches of Hg)

 v_{stk} = Average flue gas velocity (ft/sec)

 v_i = Individual point flue gas velocity (ft/sec)

 v_{nz} = Average velocity at nozzle(ft/sec)

 v_{nzi} = Individual point velocity at nozzle(ft/sec) Iso_i = Individual point isokinetic variation (%)

Iso = Average isokinetic variation (%) R_m = Isokinetic sampling rate (ft^3 /min)



App B.3 Volumetric Flowrate Calculations

$$Q_S = Q_A \times \frac{(T_{Std} + 459.67)}{(T_{Stk} + 459.67)} \times \frac{P_{Stk}}{P_{Std}}$$

$$Q_A = \frac{v_{stk} \times 60 \times A_{stk}}{35.315}$$
Equation 28

$$A_{stk} = \pi \left(\frac{d}{24}\right)^2$$
 Equation 29

Where,

 $Q_A = Actual flowrate (Am^3/min)$

 $Qs = Flowrate (m^3/min)$ at standard conditions on a dry basis

 A_{stk} = Area of stack (ft²)

d = Diameter of stack (inches)

APPENDIX - C LABORATORY RESULTS

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : VA24B8236

Client : A. Lanfranco & Associates Inc.

Contact : Mark Lanfranco

Address : Unit # 101 9488 - 189 St

Surrey BC Canada V4N 4W7

Telephone : 604 881 2582

Project : MV WTE UNIT 3

PO : ----C-O-C number : ----

Sampler : A. Lanfranco

Site : ----

Quote number : Standing Offer

No. of samples received : 4
No. of samples analysed : 4

Page : 1 of 2

Laboratory : ALS Environmental - Vancouver

Account Manager : Brent Mack

Address : 8081 Lougheed Highway

Burnaby BC Canada V5A 1W9

Telephone : 778-370-3279

Date Samples Received : 24-Jul-2024 15:30

Date Analysis Commenced : 26-Jul-2024

Issue Date : 29-Jul-2024 17:05

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories Position Laboratory Department

Nik Perkio Senior Analyst Metals, Waterloo, Ontario

Page : 2 of 2

Work Order : VA24B8236

Client : A. Lanfranco & Associates Inc.

Project: MV WTE UNIT 3



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

μg micrograms
mL millilitres

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: Impinger (Matrix: Air)			Cl	ient sample ID	MV WTE Unit 3 - Cr+6 Blank	MV WTE Unit 3 - Cr+6 Run 1	MV WTE Unit 3 - Cr+6 Run 2	MV WTE Unit 3 - Cr+6 Run 3	
			Client samp	ling date / time	22-Jul-2024 00:00	22-Jul-2024 00:00	23-Jul-2024 00:00	23-Jul-2024 00:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24B8236-001	VA24B8236-002	VA24B8236-003	VA24B8236-004	
					Result	Result	Result	Result	
Sample Preparation									
Volume, impinger	n/a	EP532C/WT	0.1	mL	920	900	1000	985	
Speciated Metals									
Chromium, hexavalent [Cr VI]	18540-29-9	E532C/WT	0.20	μg	<0.92	<0.90	<1.00	<0.98	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA24B8236** Page : 1 of 5

Client : A. Lanfranco & Associates Inc. Laboratory : ALS Environmental - Vancouver

Contact : Mark Lanfranco Account Manager : Brent Mack

Address : Unit # 101 9488 - 189 St Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 604 881 2582
 Telephone
 : 778-370-3279

 Project
 : MV WTE UNIT 3
 Date Samples Received
 : 24-Jul-2024 15:30

 PO
 : --- Issue Date
 : 29-Jul-2024 17:02

Sampler : A. Lanfranco

Site · ____

Quote number : Standing Offer

No. of samples received :4
No. of samples analysed :4

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

C-O-C number

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

Surrey BC Canada V4N 4W7

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

No Reference Material (RM) Sample outliers occur.

Outliers: Analysis Holding Time Compliance (Breaches) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

Page : 3 of 5 Work Order : VA24B8236

Client : A. Lanfranco & Associates Inc.

Project : MV WTE UNIT 3



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and/or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: Air

Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
MV WTE Unit 3 - Cr+6 Run 2	E532C	23-Jul-2024	26-Jul-2024	14 days	3 days	✓	26-Jul-2024	14 days	3 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
MV WTE Unit 3 - Cr+6 Run 3	E532C	23-Jul-2024	26-Jul-2024	14 days	3 days	✓	26-Jul-2024	14 days	3 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
HDPE MV WTE Unit 3 - Cr+6 Blank	E532C	22-Jul-2024	26-Jul-2024	14 days	4 days	✓	26-Jul-2024	14 days	4 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
MV WTE Unit 3 - Cr+6 Run 1	E532C	22-Jul-2024	26-Jul-2024	14 days	4 days	✓	26-Jul-2024	14 days	4 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Page : 4 of 5 Work Order : VA24B8236

Client : A. Lanfranco & Associates Inc.

Project : MV WTE UNIT 3



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: Air	rix: Air Evaluation: x = <i>QC frequency outside specification</i> ; ✓ = <i>QC frequency within specification</i>						
Quality Control Sample Type			Co	ount		Frequency (%))
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	1569198	1	8	12.5	5.0	✓
Laboratory Control Samples (LCS)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	1569198	1	8	12.5	5.0	✓
Method Blanks (MB)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	1569198	1	8	12.5	5.0	✓
Matrix Spikes (MS)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	1569198	1	8	12.5	5.0	1

Page : 5 of 5 Work Order : VA24B8236

Client : A. Lanfranco & Associates Inc.

Project : MV WTE UNIT 3



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	Air	EPA 7199 / EPA 306	Impinger samples are analyzed by ion chromatography with UV/Vis detector using diphenylcarbazide in a sulphuric acid solution.
	ALS Environmental -			
	Waterloo			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation Methods Preparation of Hexavalent Chromium	Method / Lab EP532C	<i>Matrix</i> Air	Method Reference APHA 3500-Cr C (Ion	Method Descriptions pH of a homogenized impinger sample is adjusted to pH 9 by NaOH for Ion
Preparation of Hexavalent Chromium			APHA 3500-Cr C (Ion	pH of a homogenized impinger sample is adjusted to pH 9 by NaOH for lon

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA24B8236

Client ; A. Lanfranco & Associates Inc.

Contact : Mark Lanfranco

Address : Unit # 101 9488 - 189 St

Surrey BC Canada V4N 4W7

Telephone : 604 881 2582

Project : MV WTE UNIT 3

PO : ----C-O-C number : ----

Sampler ; A. Lanfranco

Site :----

Quote number : Standing Offer

No. of samples received : 4
No. of samples analysed : 4

Page : 1 of 3

Laboratory ; ALS Environmental - Vancouver

Account Manager : Brent Mack

Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone : 778-370-3279

Date Samples Received : 24-Jul-2024 15:30

Date Analysis Commenced : 26-Jul-2024

Issue Date : 29-Jul-2024 17:03

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives

- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories Position Laboratory Department

Nik Perkio Senior Analyst Waterloo, Ontario

Page : 2 of 3 Work Order : VA24B8236

Client : A. Lanfranco & Associates Inc.

Project: MV WTE UNIT 3



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key:

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: Air				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Sample Preparation	(QC Lot: 1569198)										
BU2400161-001	Anonymous	Volume, impinger	n/a	EP532C	0.1	mL	595	595		Diff <2x LOR	
Speciated Metals (QC Lot: 1569198)											
BU2400161-001	Anonymous	Chromium, hexavalent [Cr VI]	18540-29-9	E532C	0.60	μg	<0.60	<0.60	0	Diff <2x LOR	

Page : 3 of 3 Work Order : VA24B8236

Client : A. Lanfranco & Associates Inc.

Project: MV WTE UNIT 3

ALS

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Air

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Sample Preparation (QCLot: 156919	8)				
Volume, impinger	n/a EP532C	0.1	mL	200	
Speciated Metals (QCLot: 1569198)					
Chromium, hexavalent [Cr VI]	18540-29-9 E532C	0.2	hã	<0.20	

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Laboratory Control Sample (LCS) Report Sub-Matrix: Air Spike Recovery (%) Recovery Limits (%) CAS Number Method LOR Unit Qualifier Analyte **Target Concentration** LCS Low High Speciated Metals (QCLot: 1569198) Chromium, hexavalent [Cr VI] 18540-29-9 E532C 0.2 10 µg 103 90.0 110 μg

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Air					Matrix Spike (MS) Report					
					Spike Recovery (%)			Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Sample Preparati	on (QCLot: 1569198)									
BU2400161-001	Anonymous	Volume, impinger	n/a	EP532C				0	0	
Speciated Metals	(QCLot: 1569198)									
BU2400161-001	Anonymous	Chromium, hexavalent [Cr VI]	18540-29-9	E532C	24.9 µg	23.8 µg	104	75.0	125	

Chain of Custody / Analytical Request Form Canada Toll Free: 1 800 668 9878

144	14886	Isaloba	Loom

Page <u>1</u> of <u>1</u>

(ALS)	Enviror	nmenta	1		Papart Fo	ormat / Distribut	ion		Service F	Pequested	(Rush for r	outine :	analveie s	ubject to	availai	hility)	٦
Company:	A. Lanfranco and	Associates			Report r	Amat / Distribut				loquesteu	(10031110111	outile (alialysis s	subject to	availai	Zinty)	┨
Contact:	Mark Lanfranco	Associates			_								<u> </u>				-
Address:	Unit 101 9488 189	St			Frankl 4	Standard Other				Regular (Standard Turnaround							
Address.	Surrey BC V4N 4V				Email 1: Email 2:	mark.lan pco	@alantranco.	Excel —	☐ Digital		∏ Fax —	(Priority	(2-4 Bu	ısiness	Days) -	4
Phone:	604-881-2582		604-881-2581		Email 3:	louis.agassiz@	alamiranico.com				Analy	rsis L	द्वास्टर	ency (1-	z Bus.	Days) -	1
Invoice To	Same as Report ?		004 001 2001			roject Information			Please i	ndicate he	low Filtere						
	nvoice with Report?				Job #:	MV WTE UNIT			1 102301	Traicate be	T There	T		action 6	1,545,011		"
Company:	THORSE THE TROPORT				PO / AFE:					 	 	+				\dashv	
Contact:			Yes —		LSD:		.			1 1 '			·				
Address:			Yes	No	100.	·										Į g	2
Phone:		Fax:	. w · · · · · · · · · · · · · · · · · ·	······································	Quote #:									:		į	<u>.</u>
Lab V	Vork Order #				ALS		1							İ		ج ا	į
(lab	use only)				Contact:	Erin Bolster	Sampler:	A. Lanfranco and						İ		Number of Containers	5
Sample		Sample le	dentification			Date	Time	Sample Type	9							£	1
#	(Ti	nis description wi	ll appear on the	report)		(dd-mmm-yy)	(hh:mm)	Sample Type	Cr+6			·		_!	1		:
	MV WTE Unit 3 - (Cr+6 Blank		-		22-Jul-24			Х		Environ Vancou		ai Divi	sion	Ι	1	\Box
	MV WTE Unit 3 - 0	Cr+6 Run 1		,		22-Jul-24			х		Work	Order	Referen	ce	I	1	
-	MV WTE Unit 3 - 0	Cr+6 Run 2				23-Jul-24	,		х	П	VA	24	B82	36	T	1	
	MV WTE Unit 3 - 0	Cr+6 Run 3				23-Jul-24			X	T.		MTW.	J. ዘ ሃሌ 1		I	1	
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	Special Ins	tructions / Regu	lations with wa	ter or land	use (CCM	IE-Freshwater A	quatic Life/BC	CSR - Commerci	al/AB Tier	1 - Natura	al, etc) / H	azard	ous Det	ails			ᅥ
					<u> </u>										-		٦
Account #: 18	3619 Please rep	oort ug/sample ar	nd volumes (ml)	Cr+6 a	analysis acc	cording to EPA S	tack Sampling I	Method 0061									
				•	•	_		Please fill in this									7
								Conditions as pr									ı
	SHIPMENT RELE			S location		MENT RECEPT		container / prese	rvation / I		ne table to IENT VER						4
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	_					-	- 83							CENT	E 20 00	Econt	

Appendix B - Particulate Analysis

Client:Metro VancouverSample Date:16-19 July 2024Source:Units 1, 2, and 3Location:WTE (Burnaby, B.C)

A. Lanfranco & Associates Standard Operating Procedure:

SOP 1.2.1 Gravimetric determination of total particulate matter

 •	
	lection:

Filter Collection: Test #	Initia	al	Final	Net Diference	Blank Adjusted	
	(gram	s)	(grams)	(grams)	(grams)	
Unit 1 Run 1	0.473	8	0.4759	0.0021	0.0017	
Unit 1 Run 2	0.469		0.4717		0.0017	
Unit 1 Run 3	0.474		0.4752		0.0004	
Unit 1 Blank	0.472		0.4726		0.0001	
Unit 2 Run 1	0.459	5	0.4603	0.0008	0.0007	
Unit 2 Run 2	0.476		0.4776		0.0012	
Unit 2 Run 3	0.472		0.4744		0.0018	
Unit 2 Blank	0.475	8	0.4759	0.0001		
Unit 3 Run 1	0.474	8	0.4770	0.0022	0.0020	
Unit 3 Run 2	0.477	7	0.4795	0.0018	0.0016	
Unit 3 Run 3	0.475	2	0.4772	0.0020	0.0018	
Unit 3 Blank	0.480	1	0.4803	0.0002		
Event Helf Weekinger						
Front Half Washings: Test #	Initi	al	Final	Net	Blank	
1631#	mu	a1	i iiiai	Diference	Adjusted	
	(gram	s)	(grams)	(grams)	(grams)	
Unit 1 Run 1	122.254	3	122.2557	0.0014	0.0009	
Unit 1 Run 2	122.243		122.2451	0.0018	0.0013	
Unit 1 Run 3	127.142	2	127.1460	0.0038	0.0033	
Unit 1 Blank	118.929	9	118.9304	0.0005		
Unit 2 Run 1	118.569	8	118.5718	0.0020	0.0016	
Unit 2 Run 2	110.959	6	110.9618	0.0022	0.0018	
Unit 2 Run 3	119.262		119.2647		0.0018	
Unit 2 Blank	96.055	2	96.0556	0.0004		
Unit 3 Run 1	123.757		123.7595		0.0013	
Unit 3 Run 2	84.810		84.8127		0.0012	
Unit 3 Run 3 Unit 3 Blank	118.653 119.330		118.6557 119.3315		0.0011	
Onit 3 Blank	119.000	1	119.0010	0.0000		
Task	Unit	Personnel		Date	Quality Control	Y/N
Fiter Recovery:	Unit 1	J. Ching		18-19-July-24	Adequate PW volume:	Y
	Unit 2	J. Ching		17-18-July-24	No sample leakage:	Y
	Unit 3	J. Ching		16-17-July-24	Filter not compromised:	Y
PW Initial Analysis:	Unit 1	S. Verby		19-Jul-24		
	Unit 2	S. Verby		19-Jul-24		
	Unit 3	S. Verby		19-Jul-24		
PW, FilterFinal Analysis:	Unit 1	S. Verby		23-Jul-24		
	Unit 2	S. Verby		23-Jul-24		
	Unit 3	S. Verby		23-Jul-24		
Data entered to computer:	All	L. Agassiz		24-Jul-24		

Comments:

No problems encountered in sample analysis.



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada T: +1 (604) 514-3322 E: info.vancouver@element.com

W: www.element.com

Report Transmission Cover Page

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: Field Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747993

Control Number:

Date Received: Jul 24, 2024
Date Reported: Aug 16, 2024
Report Number: 3028611
Report Type: Final Report

Contact	Company	Address				
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street				
		Surrey, BC V4N 4W7				
		Phone: (604) 881-2582 Fax: (604) 881-2581				
		Email: mark.lanfranco@alanfranco.com				
Delivery	<u>Format</u>	<u>Deliverables</u>				
Email	PDF	COA / COC				
Email	PDF	COC / Test Report				
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street				
		Surrey, BC V4N 4W7				
		Phone: (604) 881-2582 Fax: (604) 881-2581				
		Email: missy@alanfranco.com				
Delivery	<u>Format</u>	<u>Deliverables</u>				
Email	PDF	Invoice				

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy

Sampled By:

Company:

Project ID: Metro Vancouver WTE

Field Blanks Project Name:

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747993

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 3028611 Report Number: Report Type: Final Report

Reference Number Sample Date Sample Time Sample Location

Sample Description

1747993-1 Jul 18, 2024 NA

Field Blank Unit 1

(MV1 BLK + 4

Bottles) / 22.4 °C

1747993-2 Jul 17, 2024 NA

1747993-3 Jul 17, 2024 NA

Field Blank Unit 2 Field Blank Unit 3 (Unit 2 BLK + 4 (Unit 3 Blank + 4 Bottles) / 22.4 °C Bottles) / 22.4 °C

			Bottles) / 22.4 °C	Bottles) / 22.4 °C	Bottles) / 22.4 °C	,
		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fra	ction 1A					
Aluminum		μg	<5	10	20	5
Antimony		μg	<2	3	<2	2.5
Arsenic		μg	<1	<1	<1	1
Cadmium		μg	<0.3	<0.3	<0.3	0.25
Chromium		μg	0.28	0.36	0.35	0.2
Cobalt		μg	0.5	<0.3	<0.3	0.25
Copper		μg	<0.3	<0.3	<0.3	0.25
Lead		μg	<2	6.9	5.7	1.5
Manganese		μg	0.3	0.4	0.4	0.25
Nickel		μg	<0.5	<0.5	<0.5	0.5
Phosphorus		μg	56	60	56	2.5
Selenium		μg	<2	<2	<2	1.5
Tellurium		μg	9.3	<2	<2	2
Thallium		μg	6.2	<2	<2	1.5
Vanadium		μg	<1	<1	<1	1
Zinc		μg	4.9	7.0	10	0.5
Back Half Metals Fra	ction 2A					
Aluminum		μg	<5	7	20	5
Antimony		μg	<2	<2	3	2.5
Arsenic		μg	<0.9	<0.9	<0.9	1
Cadmium		μg	<0.2	0.2	0.5	0.25
Chromium		μg	0.79	<0.2	0.63	0.2
Cobalt		μg	<0.2	<0.2	<0.2	0.25
Copper		μg	<0.2	0.4	2	0.25
Lead		μg	<1	<1	<1	1.5
Manganese		μg	2	2.8	2.7	0.25
Nickel		μg	<0.5	<0.5	1	0.5
Phosphorus		μg	20	25	26	2.5
Selenium		μg	<1	<1	<1	1.5
Tellurium		μg	<2	<2	<2	2
Thallium		μg	<1	<1	<1	1.5
Vanadium		μg	<0.9	<0.9	<0.9	1
Zinc		μg	12	9.9	20	0.5
Volume	Sample	mL	372	368	357	
Volume	aliquot volume	mL	322	318	307	
Mercury by CVAA						
Mercury	As Tested	μg/L	<0.05	< 0.05	< 0.05	0.05

Element

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: Field Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747993

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 Report Number: 3028611 Report Type: Final Report

1747993-3

Reference Number Sample Date Sample Time

Sample Location **Sample Description**

1747993-1 Jul 18, 2024 NA

Field Blank Unit 1

(MV1 BLK + 4

Bottles) / 22.4 °C

1747993-2 Jul 17, 2024

Jul 17, 2024 NA

NA

Bottles) / 22.4 °C

Field Blank Unit 2 (Unit 2 BLK + 4

Field Blank Unit 3 (Unit 3 Blank + 4 Bottles) / 22.4 °C

		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mercury by CVAA - C	ontinued					
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	250	250	250	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 1B	μg/sample	< 0.02	< 0.02	< 0.02	
Mercury	As Tested	μg/L	< 0.05	< 0.05	0.09	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	372	368	357	
Volume	aliquot volume	mL	5.0	5.0	5.0	
Volume	Final	mL	40	40	40	
Mercury	Fraction 2B	μg/sample	<0.1	<0.1	0.2	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	101	116	112	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	μg/sample	< 0.008	< 0.009	< 0.009	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	500	500	500	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3B	μg/sample	< 0.04	< 0.04	< 0.04	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	200	200	200	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3C	μg/sample	<0.02	<0.02	<0.02	

Approved by:

Max Hewitt

Operations Manager



Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company:

Project ID:

Project Name: Project Location:

LSD: P.O.:

Proj. Acct. code:

Metro Vancouver WTE

Element

#104, 19575-55 A Ave.

Surrey, British Columbia

V3S 8P8, Canada

Field Blanks

Lot ID: 1747993

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 3028611 Report Number: Report Type: Final Report

Method of Analysis				
Method Name	Reference	Method	Date Analysis Started	Location
Mercury in Air (VAN) - 1B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	 Metals Emissions from Stationary Sources, 29 	Jul 30, 2024	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	 Metals Emissions from Stationary Sources, 29 	Jul 26, 2024	Element Vancouver
		* Reference Method Modified		

References

EMC Emission Measurement Center of EPA



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Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company:

Project ID: Metro Vancouver WTE

Project Name: Filter Reagent Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747996

Control Number:

Date Received: Jul 24, 2024
Date Reported: Aug 15, 2024
Report Number: 3028623
Report Type: Final Report

Contact	Company	Address				
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street				
		Surrey, BC V4N 4W7				
		Phone: (604) 881-2582 Fax: (604) 881-2581				
		Email: mark.lanfranco@alanfranco.com				
Delivery	<u>Format</u>	<u>Deliverables</u>				
Email	PDF	COA / COC				
Email	PDF	COC / Test Report				
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street				
		Surrey, BC V4N 4W7				
		Phone: (604) 881-2582 Fax: (604) 881-2581				
		Email: missy@alanfranco.com				
Delivery	<u>Format</u>	<u>Deliverables</u>				
Email	PDF	Invoice				

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: Filter Reagent Blanks **Project Location:**

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747996

Control Number:

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W: www.element.com

E: info.vancouver@element.com

Date Received: Jul 24, 2024 Date Reported: Aug 15, 2024 Report Number: 3028623 Report Type: Final Report

Reference Number Sample Date Sample Time

Sample Location

Matrix

1747996-1 Jul 17, 2024 NA

1747996-2 Jul 17, 2024 NA

1747996-3 Jul 17, 2024 NA

Stack Samples

Sample Description Reagent Blank Unit 1 Reagent Blank Unit 2 Reagent Blank Unit 3

Stack Samples

Container 1 (filter) / Container 1 (filter) / 22.4 °C

Container 1 (filter) / 22.4 °C

22.4 °C

Stack Samples

		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Frac	tion 1A					
Aluminum		μg	<5	<5	10	5
Antimony		μg	<2	5	<2	2.5
Arsenic		μg	1	<1	<1	1
Cadmium		μg	<0.3	0.3	<0.3	0.25
Chromium		μg	0.97	<0.2	0.70	0.2
Cobalt		μg	0.4	<0.3	<0.3	0.25
Copper		μg	<0.3	<0.3	<0.3	0.25
Lead		μg	<2	4.2	7.5	1.5
Manganese		μg	0.8	0.6	0.9	0.25
Nickel		μg	<0.5	<0.5	<0.5	0.5
Phosphorus		μg	63	61	67	2.5
Selenium		μg	<2	<2	<2	1.5
Tellurium		μg	<2	<2	<2	2
Thallium		μg	<2	2	<2	1.5
Vanadium		μg	<1	<1	<1	1
Zinc		μg	6.7	4.7	6.3	0.5
Mercury by CVAA						
Mercury	As Tested	μg/L	<0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	250	250	250	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 1B	μg/sample	<0.02	< 0.02	<0.02	

Approved by:

Max Hewitt

Operations Manager



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada

Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE
Project Name: Filter Reagent Blanks

Project Name: Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot

Lot ID: **1747996**

Control Number:

Date Received: Jul 24, 2024
Date Reported: Aug 15, 2024
Report Number: 3028623
Report Type: Final Report

Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Mercury in Air (VAN) - 1B	EMC	* Metals Emissions from Stationary Sources, 29	Aug 14, 2024	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	* Metals Emissions from Stationary Sources, 29	Jul 26, 2024	Element Vancouver

^{*} Reference Method Modified

References

EMC Emission Measurement Center of EPA



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W: www.element.com

Report Transmission Cover Page

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: HF Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747963

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028559
Report Type: Final Report

Contact	Company	Address
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: mark.lanfranco@alanfranco.com
<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>
Email	PDF	COA / COC
Email	PDF	COC / Test Report
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: missy@alanfranco.com
Delivery	<u>Format</u>	<u>Deliverables</u>
Email	PDF	Invoice

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

HF Blanks Project Name:

LSD: P.O.:

Proj. Acct. code:

Project Location:

T: +1 (604) 514-3322

W: www.element.com

E: info.vancouver@element.com

Lot ID: 1747963

Control Number:

Date Received: Jul 24, 2024 Date Reported: Jul 30, 2024 Report Number: 3028559

Report Type: Final Report

Reference Number Sample Date Sample Time

1747963-1 Jul 18, 2024 NA

1747963-2 Jul 17, 2024 NA

1747963-3 Jul 17, 2024 NA

Sample Location **Sample Description**

Unit #1 HF Blank / 22.1 °C

Unit #2 HF Blank / 22.1 °C

Unit #3 HF Blank / 22.1 °C

Stack Samples Stack Samples Stack Samples Matrix

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	280	280	250	
Dilution Factor	fluoride		1.00	1.00	1.00	
Fluoride	As Tested	mg/L	< 0.03	< 0.03	< 0.03	0.03
Fluoride	Water Soluble	μg/sample	<8	<8	<7	
		'				

Approved by:

Max Hewitt

Operations Manager



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada

Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: HF Blanks

Project Location: LSD:

P.O.:

Proj. Acct. code:

Lot ID: 1747963

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028559
Report Type: Final Report

Method of Analysis

Method Name

Reference

Method

Date Analysis
Started

Anions by IEC in air (VAN)

EMC

* Determination of Hydrogen Halide & Halogen Emissions from Stationary

* Determination of Hydrogen Halide & Halogen Emissions from Stationary

Sources (Isokinetic), 26A
*Reference Method Modified

References

EMC Emission Measurement Center of EPA



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W: www.element.com

Report Transmission Cover Page

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: HF Samples

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747962

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028556
Report Type: Final Report

Contact	Company	Address
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: mark.lanfranco@alanfranco.com
Delivery	<u>Format</u>	<u>Deliverables</u>
Email	PDF	COA / COC
Email	PDF	COC / Test Report
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: missy@alanfranco.com
Delivery	<u>Format</u>	<u>Deliverables</u>
Email	PDF	Invoice

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: HF Samples

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747962

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028556
Report Type: Final Report

Reference Number Sample Date Sample Time 1747962-1 Jul 18, 2024 NA 1747962-2 Jul 18, 2024 NA 1747962-3 Jul 19, 2024

A

NA

Sample Location Sample Description

Unit #1 HF Run 1 / 23.1 °C

Unit #1 HF Run 2 / 23.1 °C

Unit #1 HF Run 3 / 23.1 °C

Stack Samples Stack Samples Stack Samples Matrix Nominal Detection Analyte Units Results Results Results Limit Air Quality 400 400 370 Volume Sample mL fluoride Dilution Factor 1.00 1.00 1.00 mg/L Fluoride As Tested 0.04 0.06 < 0.03 0.03 Fluoride Water Soluble µg/sample 20 20 <10





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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: **HF Samples**

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747962

Control Number:

Date Received: Jul 24, 2024 Date Reported: Jul 30, 2024 Report Number: 3028556 Report Type: Final Report

Reference Number 1747962-4 1747962-5 1747962-6 Sample Date Jul 17, 2024 Jul 17, 2024 Jul 18, 2024 Sample Time NA NA NA

Sample Location

Sample Description Unit #2 HF Run 1 / Unit #2 HF Run 2 / Unit #2 HF Run 3 / 23.1 °C 23.1 °C

23.1 °C

Stack Samples Stack Samples Stack Samples Matrix

Nominal Detection Units Results Analyte Results Results Limit Air Quality 310 400 370 Volume Sample mL Dilution Factor fluoride 1.00 1.00 1.00 Fluoride As Tested mg/L < 0.03 < 0.03 < 0.03 0.03 Fluoride Water Soluble µg/sample <9 <10 <10

Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

HF Samples Project Name:

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747962

Control Number:

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Date Received: Jul 24, 2024 Date Reported: Jul 30, 2024 Report Number: 3028556

Report Type: Final Report

Reference Number Sample Date Sample Time

Sample Location **Sample Description**

1747962-7 Jul 17, 2024 NA

23.1 °C

1747962-8 Jul 17, 2024 NA

1747962-9 Jul 17, 2024 NA

Unit #3 HF Run 1 /

Unit #3 HF Run 2 / 23.1 °C Ctook Comples

Unit #3 HF Run 3 / 23.1 °C

		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	470	480	370	
Dilution Factor	fluoride		1.00	1.00	1.00	
Fluoride	As Tested	mg/L	0.03	< 0.03	< 0.03	0.03
Fluoride	Water Soluble	μg/sample	20	<10	<10	

Approved by:

Max Hewitt

Operations Manager



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada

Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company:

Project ID: Metro Vancouver WTE

Project Name: HF Samples Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747962

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028556
Report Type: Final Report

Method of Analysis

Method Name

Reference

Method

Date Analysis Started

Location

Anions by IEC in air (VAN)

EMC

* Determination of Hydrogen Halide & Jul 29, 2024

Halogen Emissions from Stationary

Sources (Isokinetic), 26A
*Reference Method Modified

References

EMC Emission Measurement Center of EPA



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada T: +1 (604) 514-3322 E: info.vancouver@element.com W: www.element.com

Report Transmission Cover Page

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: Metals and Hg Samples

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747974

Control Number:

Date Received: Jul 24, 2024
Date Reported: Aug 16, 2024
Report Number: 3028579
Report Type: Final Report

Contact	Company	Address
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: mark.lanfranco@alanfranco.com
Delivery	<u>Format</u>	<u>Deliverables</u>
Email	PDF	COA / COC
Email	PDF	COC / Test Report
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: missy@alanfranco.com
<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>
Email	PDF	Invoice

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy

Sampled By: Company:

Project ID: Metro Vancouver WTE

Project Name: Metals and Hg Samples

Sample Description Unit 1 Run 1 (Unit 1

LSD: P.O.:

Proj. Acct. code:

Project Location:

Lot ID: 1747974

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 3028579 Report Number: Report Type: Final Report

Reference Number Sample Date Sample Time **Sample Location**

1747974-1 Jul 18, 2024 NA

1747974-2 Jul 18, 2024 NA

1747974-3 Jul 19, 2024 NA

Unit 1 Run 2 (MV

Unit 1 Run 3 (Unit 1 Run 3 + 4 Bottles) / 21.9 °C

Run 1 + 4 Bottles) / 21.9 °C

Unit 1 Run 2 + 4 Bottles) / 21.9 °C

		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fra	ction 1A					
Aluminum		μg	20	20	20	5
Antimony		μg	<2	5	<2	2.5
Arsenic		μg	<1	2	<1	1
Cadmium		μg	0.5	0.9	0.3	0.25
Chromium		μg	4.04	1.0	1.4	0.2
Cobalt		μg	0.3	<0.3	<0.3	0.25
Copper		μg	2	1	0.8	0.25
Lead		μg	5.7	5.5	5.9	1.5
Manganese		μg	2	1	2	0.25
Nickel		μg	3.8	2	4.4	0.5
Phosphorus		μg	60	61	61	2.5
Selenium		μg	<2	<2	<2	1.5
Tellurium		μg	3.8	<2	<2	2
Thallium		μg	<2	5.7	2	1.5
Vanadium		μg	<1	<1	<1	1
Zinc		μg	46.5	43.2	35.5	0.5
Back Half Metals Frac	ction 2A					
Aluminum		μg	10	10	9	5
Antimony		μg	<2	<2	<2	2.5
Arsenic		μg	<0.9	3.4	<0.9	1
Cadmium		μg	0.3	<0.2	<0.2	0.25
Chromium		μg	1.2	0.80	0.54	0.2
Cobalt		μg	<0.2	<0.2	<0.2	0.25
Copper		μg	0.8	0.5	<0.2	0.25
Lead		μg	<1	<1	<1	1.5
Manganese		μg	2	0.7	1	0.25
Nickel		μg	0.9	0.7	2	0.5
Phosphorus		μg	26	30	22	2.5
Selenium		μg	<1	<1	<1	1.5
Tellurium		μg	2.2	<2	<2	2
Thallium		μg	2	<1	4.8	1.5
Vanadium		μg	<0.9	<0.9	<0.9	1
Zinc		μg	6.2	5.5	5.7	0.5
Volume	Sample	mL	683	687	628	
Volume	aliquot volume	mL	633	637	578	
Mercury by CVAA						
Mercury	As Tested	μg/L	< 0.05	< 0.05	0.05	0.05

Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: Metals and Hg Samples

Sample Description Unit 1 Run 1 (Unit 1

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747974

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 3028579 Report Number: Report Type: Final Report

Reference Number Sample Date Sample Time

Sample Location

1747974-1 Jul 18, 2024 NA

Run 1 + 4 Bottles) / 21.9 °C

1747974-2 Jul 18, 2024 NA

1747974-3 Jul 19, 2024 NA

Unit 1 Run 2 (MV Unit 1 Run 3 (Unit 1

Unit 1 Run 2 + 4 Run 3 + 4 Bottles) / Bottles) / 21.9 °C 21.9 °C

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mercury by CVAA - Co	ontinued					
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	250	250	250	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 1B	μg/sample	< 0.02	< 0.02	0.02	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	683	687	628	
Volume	aliquot volume	mL	5.0	5.0	5.0	
Volume	Final	mL	40	40	40	
Mercury	Fraction 2B	μg/sample	<0.3	<0.3	<0.3	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	117	110	103	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	μg/sample	< 0.009	< 0.009	<0.008	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	500	500	500	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3B	µg/sample	<0.04	< 0.04	< 0.04	
Mercury	As Tested	μg/L	< 0.05	< 0.05	0.07	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	200	200	200	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3C	μg/sample	<0.02	<0.02	0.02	

Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy Sampled By:

Company:

Proiect ID: Metro Vancouver WTE

Project Name: Metals and Hg Samples

LSD: P.O.:

Proj. Acct. code:

Project Location:

Lot ID: 1747974

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 Report Number: 3028579 Report Type: Final Report

Reference Number 1747974-4 1747974-5 1747974-6 Sample Date Jul 17, 2024 Jul 17, 2024 Jul 18, 2024 Sample Time NA NA NA

Sample Location

Sample Description Unit 2 Run 1 (Unit 2

Run 1 + 4 Bottles) / 21.9 °C

Unit 2 Run 2 (MV Unit - 2 Run 2 + 4 Bottles) / 21.9 °C

Unit 2 Run 3 (Unit - 2 Run 3 + 4 Bottles) / 21.9 °C

Matrix Stack Samples Stack Samples Stack Samples Nominal Detection Units Results Results Analyte Results Limit Front Half Metals Fraction 1A 20 20 10 Aluminum 5 μg <2 <2 3 2.5 Antimony μg Arsenic <1 <1 <1 μg 1 Cadmium 0.4 0.7 0.7 0.25 μg 6.19 6.73 0.2 Chromium μg 6.77 Cobalt < 0.3 0.4 < 0.3 0.25 μg Copper 2 2 1 0.25 μg Lead 5.5 5.6 7.4 1.5 μg Manganese 2 2 1 0.25 μg 5.9 Nickel 9.9 6.9 0.5 μg Phosphorus 64 62 65 2.5 μg Selenium <2 <2 1.5 <2 μg Tellurium <2 4.8 <2 2 μg Thallium 7.6 6.2 <2 1.5 μg Vanadium <1 <1 <1 1 μg Zinc 41.7 43.4 42.7 0.5 μg **Back Half Metals Fraction 2A** Aluminum 37 29 20 5 μg Antimony <2 <2 <2 2.5 μg Arsenic < 0.9 < 0.9 < 0.9 1 μg 0.25 Cadmium < 0.2 0.3 < 0.2 μg Chromium 1.5 3.13 0.2 1.1 μg Cobalt <0.2 <0.2 < 0.2 0.25 μg 3.0 <0.2 <0.2 0.25 Copper μg 2.3 <1 2.2 Lead μg 1.5 2 Manganese 2 1 0.25 μg Nickel 2 2.2 2.5 0.5 μg Phosphorus 23 27 22 2.5 μg Selenium <1 5.1 <1 1.5 μg Tellurium <2 2.9 5.2 2 μg Thallium μg <1 <1 <1 1.5 Vanadium < 0.9 < 0.9 < 0.9 1 μg Zinc 6.5 31.5 5.2 0.5 μg Volume Sample 719 722 681 mL aliquot volume 669 Volume mL 672 631 Mercury by CVAA Mercury As Tested μg/L < 0.05 < 0.05 < 0.05 0.05

Surrey, British Columbia

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: Metals and Hg Samples

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747974

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 Report Number: 3028579 Report Type: Final Report

Reference Number Sample Date Sample Time

Sample Location

Sample Description

1747974-4 Jul 17, 2024 NA

21.9 °C

1747974-5 Jul 17, 2024

1747974-6 Jul 18, 2024

NA

NA

Unit 2 Run 2 (MV Unit 2 Run 1 (Unit 2 Run 1 + 4 Bottles) /

Unit - 2 Run 2 + 4 Bottles) / 21.9 °C

Unit 2 Run 3 (Unit - 2 Run 3 + 4 Bottles) / 21.9 °C

Matrix Stack Samples Stack Samples Stack Samples Nominal Detection Units Analyte Results Results Results Limit Mercury by CVAA - Continued Dilution Factor As Tested 1 1 1 Volume Sample mL 250 250 250 Volume aliquot volume mL 25 25 25 40 40 Volume Final mL 40 Fraction 1B < 0.02 < 0.02 Mercury µg/sample < 0.02 Mercury As Tested µg/L < 0.05 < 0.05 < 0.05 0.05 **Dilution Factor** As Tested 1 1 1 Volume Sample mL 719 722 681 Volume aliquot volume mL 5.0 5.0 5.0 40 Volume Final mL 40 40 Mercury Fraction 2B µg/sample < 0.3 <0.3 < 0.3 As Tested < 0.05 < 0.05 < 0.05 0.05 Mercury μg/L **Dilution Factor** As Tested 1 1 Volume Sample 134 131 129 mL Volume aliquot volume mL 25 25 25 Volume Final mL 40 40 40 Mercury Fraction 3A µg/sample < 0.01 < 0.01 < 0.01 < 0.05 Mercury As Tested µg/L < 0.05 < 0.05 0.05 **Dilution Factor** As Tested 1 1 1 Volume Sample mL 500 500 500 25 Volume aliquot volume mL 25 25 Volume Final mL 40 40 40 Fraction 3B < 0.04 < 0.04 < 0.04 Mercury µg/sample As Tested < 0.05 < 0.05 0.05 Mercury μg/L < 0.05 **Dilution Factor** As Tested 1 1 1 200 Volume Sample mL 200 200 Volume aliquot volume 25 25 25 mL Volume Final mL 40 40 40 Fraction 3C Mercury µg/sample < 0.02 < 0.02 < 0.02



Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: Metals and Hg Samples

Sample Description Unit 3 Run 1 (Unit 3

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747974

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 3028579 Report Number: Report Type: Final Report

Reference Number Sample Date Sample Time Sample Location

1747974-7 Jul 17, 2024 NA

1747974-8 Jul 17, 2024 NA

1747974-9 Jul 17, 2024 NA

Unit 3 Run 2 (MV

Unit 3 Run 3 (Unit 3 Run 3 + 4 Bottles) /

			21.9 °C	Bottles) / 21.9 °C	Run 3 + 4 Bottles) / 21.9 °C	
		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		μg	20	20	9	5
Antimony		μg	<2	<2	3	2.5
Arsenic		μg	<1	<1	<1	1
Cadmium		μg	0.7	0.5	0.8	0.25
Chromium		μg	6.55	4.56	1.8	0.2
Cobalt		μg	0.8	<0.3	<0.3	0.25
Copper		μg	3.2	2	1	0.25
Lead		μg	14	11	18	1.5
Manganese		μg	2	1	0.8	0.25
Nickel		μg	18	14	3.4	0.5
Phosphorus		μg	63	68	69	2.5
Selenium		μg	<2	<2	<2	1.5
Tellurium		μg	6.0	4.7	<2	2
Thallium		μg	<2	<2	<2	1.5
Vanadium		μg	<1	<1	<1	1
Zinc		μg	71.2	53.7	54.7	0.5
Back Half Metals Fraction 2A						
Aluminum		μg	25	34	22	5
Antimony		μg	<2	<2	<2	2.5
Arsenic		μg	<0.9	<0.9	<0.9	1
Cadmium		μg	<0.2	<0.2	<0.2	0.25
Chromium		μg	5.33	2.68	4.02	0.2
Cobalt		μg	<0.2	<0.2	<0.2	0.25
Copper		μg	<0.2	<0.2	<0.2	0.25
Lead		μg	<1	<1	<1	1.5
Manganese		μg	2.7	1	2	0.25
Nickel		μg	2	1	2	0.5
Phosphorus		μg	22	22	27	2.5
Selenium		μg	<1	<1	<1	1.5
Tellurium		μg	<2	<2	<2	2
Thallium		μg	6.2	<1	2.4	1.5
Vanadium		μg	<0.9	<0.9	<0.9	1
Zinc		μg	4.9	13	10	0.5
Volume S	ample	mL	748	742	702	
Volume a	liquot volume	mL	698	692	652	
Mercury by CVAA						
Mercury A	s Tested	μg/L	<0.05	<0.05	< 0.05	0.05

Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Metals and Hg Samples Project Name:

Project Location: LSD:

P.O.: Proj. Acct. code: Lot ID: 1747974

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 Report Number: 3028579 Report Type: Final Report

Reference Number 1747974-7 Sample Date Sample Time

Jul 17, 2024 NA

1747974-8 Jul 17, 2024 NA

1747974-9 Jul 17, 2024 NA

Sample Location

Sample Description Unit 3 Run 1 (Unit 3

Run 1 + 4 Bottles / 21.9 °C

Unit 3 Run 2 (MV Unit 3 Run 2 + 4 Bottles) / 21.9 °C

Unit 3 Run 3 (Unit 3 Run 3 + 4 Bottles) / 21.9 °C

		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mercury by CVAA - C	ontinued					
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	250	250	250	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 1B	μg/sample	< 0.02	< 0.02	< 0.02	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	748	742	702	
Volume	aliquot volume	mL	5.0	5.0	5.0	
Volume	Final	mL	40	40	40	
Mercury	Fraction 2B	μg/sample	<0.3	<0.3	< 0.3	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	131	133	132	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	μg/sample	<0.01	<0.01	<0.01	
Mercury	As Tested	μg/L	< 0.05	< 0.05	< 0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	500	500	500	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3B	μg/sample	< 0.04	<0.04	<0.04	
Mercury	As Tested	μg/L	< 0.05	0.06	0.11	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	200	200	200	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3C	μg/sample	<0.02	0.02	0.036	

Approved by:

Max Hewitt

Operations Manager





Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company:

Project ID: Metro Vancouver WTE Project Name: Metals and Hg Samples

Element

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747974

Page 7 of 7

Control Number:

Jul 24, 2024 Date Received: Date Reported: Aug 16, 2024 3028579 Report Number: Report Type: Final Report

Method of Analysis	<u> </u>			
Method Name	Reference	Method	Date Analysis Started	Location
Mercury in Air (VAN) - 1B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	 Metals Emissions from Stationary Sources, 29 	Jul 30, 2024	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	 Metals Emissions from Stationary Sources, 29 	Jul 26, 2024	Element Vancouver
		* Reference Method Modified		

^{*} Reference Method Modified

References

EMC Emission Measurement Center of EPA

> Please direct any inquiries regarding this report to our Client Services group. Results relate only to samples as submitted.



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada T: +1 (604) 514-3322 E: info.vancouver@element.com

W: www.element.com

Report Transmission Cover Page

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: NH3 Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747966

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028563
Report Type: Final Report

Contact	Company	Address
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: mark.lanfranco@alanfranco.com
Delivery	<u>Format</u>	<u>Deliverables</u>
Email	PDF	COA / COC
Email	PDF	COC / Test Report
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: missy@alanfranco.com
Delivery	<u>Format</u>	<u>Deliverables</u>
Email	PDF	Invoice

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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: NH3 Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747966

Control Number:

Date Received: Jul 24, 2024 Date Reported: Jul 30, 2024 Report Number: 3028563 Report Type: Final Report

Reference Number Sample Date Sample Time

Jul 18, 2024 NA

1747966-2 Jul 17, 2024

1747966-3 Jul 17, 2024

NA

NA

Sample Location **Sample Description**

Unit #1 NH3 Blk / 22.8 °C

1747966-1

Unit #2 NH3 Blk / 22.8 °C Stack Samples

Unit #3 NH3 Blk / 22.8 °C

		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						_
Ammonium - N	As Tested	μg/L	<25	<25	<25	25
Dilution Factor	As Tested		1.00	1.00	1.00	
Sample Volume	Sample volume	mL	238	248	255	
Ammonium - N		μg/sample	<6.0	<6.2	<6.4	

Approved by:

Benjamin Morris, B.Sc **Operations Manager**



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada

Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: NH3 Blanks

LSD: P.O.:

Proj. Acct. code:

Project Location:

Lot ID: 1747966

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028563
Report Type: Final Report

Method of Analysis

Method Name
Reference
Method
Date Analysis
Started
Location

Ammonium in Impingers (VAN)
APHA
* Automated Phenate Method, 4500-NH3
G

* Automated Phenate Method, 4500-NH3
Roper Road

* Reference Method Modified

References

APHA Standard Methods for the Examination of Water and Wastewater



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada T: +1 (604) 514-3322 E: info.vancouver@element.com W: www.element.com

Report Transmission Cover Page

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: NH3 Samples

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747950

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028538
Report Type: Final Report

Contact	Company	Address
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: mark.lanfranco@alanfranco.com
<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>
Email	PDF	COA / COC
Email	PDF	COC / Test Report
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: missy@alanfranco.com
Delivery	<u>Format</u>	<u>Deliverables</u>
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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: NH3 Samples

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747950

Control Number:

Date Received: Jul 24, 2024 Date Reported: Jul 30, 2024 3028538 Report Number: Report Type: Final Report

Reference Number Sample Date Sample Time

1747950-1 Jul 18, 2024 NA

1747950-2 Jul 18, 2024 NA

1747950-3 Jul 19, 2024

NA

Sample Location **Sample Description**

Unit 1 Run 1 NH3 / 22.8 °C

Unit 1 Run 2 NH3 / 22.8 °C

Unit 1 Run 3 NH3/ 22.8 °C

Matrix Stack Samples Stack Samples Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Ammonium - N	As Tested	μg/L	4200	2320	474	25
Dilution Factor	As Tested		1.00	1.00	1.00	
Sample Volume	Sample volume	mL	414	410	400	
Ammonium - N		μg/sample	1740	952	190	







Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company:

Project ID: Metro Vancouver WTE

Project Name: NH3 Samples

Project Location: LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747950

Control Number:

Date Received: Jul 24, 2024 Jul 30, 2024 Date Reported: 3028538 Report Number: Report Type: Final Report

Reference Number 1747950-4 1747950-5 1747950-6 Sample Date Jul 17, 2024 Jul 17, 2024 Jul 18, 2024 Sample Time NA NA NA

Sample Location

Sample Description Unit 2 Run 1 NH3/ Unit 2 Run 2 NH3 / Unit 2 Run 3 NH3 / 22.8 °C

22.8 °C 22.8 °C

Matrix Stack Samples Stack Samples Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Ammonium - N	As Tested	μg/L	2460	234	997	25
Dilution Factor	As Tested		1.00	1.00	1.00	
Sample Volume	Sample volume	mL	354	415	380	
Ammonium - N		μg/sample	871	97.1	379	

Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: NH3 Samples

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747950

Control Number:

T: +1 (604) 514-3322

W: www.element.com

Date Received: Jul 24, 2024 Date Reported: Jul 30, 2024 Report Number: 3028538 Report Type: Final Report

Reference Number Sample Date Sample Time

1747950-7 Jul 17, 2024 NA

1747950-8 Jul 17, 2024 NA

1747950-9 Jul 17, 2024 NA

Sample Location Sample Description

Unit 3 Run 1 NH3 / 22.8 °C

Unit 3 Run 2 NH3/ 22.8 °C

Unit 3 Run 3 NH3/ 22.8 °C

Stack Samples Stack Samples Matrix Stack Samples Nominal Detection Units Results Analyte Results Results Limit Air Quality Ammonium - N As Tested µg/L 1030 2250 700 25 As Tested Dilution Factor 1.00 1.00 1.00 Sample Volume Sample volume mL 358 355 346 Ammonium - N µg/sample 367 800 242

Approved by:

Benjamin Morris, B.Sc **Operations Manager**



Element #104, 19 Surrey, E V3S 8P8

#104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada

Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID: Metro Vancouver WTE

Project Name: NH3 Samples Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747950

Control Number:

Date Received: Jul 24, 2024
Date Reported: Jul 30, 2024
Report Number: 3028538
Report Type: Final Report

Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Ammonium in Impingers (VAN)	APHA	* Automated Phenate Method, 4500-NH3 G	Jul 30, 2024	Element Edmonton - Roper Road

^{*} Reference Method Modified

References

APHA Standard Methods for the Examination of Water and Wastewater



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada T: +1 (604) 514-3322 E: info.vancouver@element.com

W: www.element.com

Report Transmission Cover Page

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy

Sampled By: Company: Project ID: Metro Vancouver WTE

Project Name: Reagent Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747995

Control Number:

Date Received: Jul 24, 2024
Date Reported: Aug 16, 2024
Report Number: 3028622
Report Type: Final Report

Contact	Company	Address
Mark Lanfranco	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: mark.lanfranco@alanfranco.com
<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>
Email	PDF	COA / COC
Email	PDF	COC / Test Report
Missy	A. Lanfranco & Associates	#101, 9488 - 189 Street
		Surrey, BC V4N 4W7
		Phone: (604) 881-2582 Fax: (604) 881-2581
		Email: missy@alanfranco.com
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Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy

Sampled By: Company:

Project ID: Metro Vancouver WTE

Project Name: Reagent Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747995

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 3028622 Report Number: Report Type: Final Report

Reference Number Sample Date Sample Time

1747995-1 Jul 18, 2024 NA

1747995-2 Jul 17, 2024 NA

1747995-3 Jul 17, 2024 NA

Sample Location

Sample Description Reagent Blank Unit 1 Reagent Blank Unit 2 Reagent Blank Unit 3 / 22.3 °C / 22.3 °C / 22.3 °C

		Matrix	Stack Samples	Stack Samples	Stack Samples	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Frac	ction 1A					
Aluminum		μg	<5	<5	<5	5
Antimony		μg	<2	<2	<2	2.5
Arsenic		μg	2	<1	<1	1
Cadmium		μg	<0.3	0.4	<0.3	0.25
Chromium		μg	0.27	0.55	<0.2	0.2
Cobalt		μg	<0.3	<0.3	0.4	0.25
Copper		μg	<0.3	<0.3	<0.3	0.25
Lead		μg	2.8	4.7	2.6	1.5
Manganese		μg	0.7	0.7	0.5	0.25
Nickel		μg	1.0	1	<0.5	0.5
Phosphorus		μg	<2	5	<2	2.5
Selenium		μg	<2	<2	<2	1.5
Tellurium		μg	3.0	<2	4.8	2
Thallium		μg	<2	<2	<2	1.5
Vanadium		μg	<1	<1	<1	1
Zinc		μg	5.4	5.1	3.2	0.5
Back Half Metals Frac	ction 2A					
Aluminum		μg	<5	<5	68	5
Antimony		μg	<3	<3	5	2.5
Arsenic		μg	<1	<1	<1	1
Cadmium		μg	<0.3	<0.3	0.6	0.25
Chromium		μg	0.28	<0.2	0.55	0.2
Cobalt		μg	<0.3	<0.3	<0.3	0.25
Copper		μg	<0.3	<0.3	<0.3	0.25
Lead		μg	<2	<2	6.5	1.5
Manganese		μg	0.5	2	1	0.25
Nickel		μg	1	<0.5	<0.5	0.5
Phosphorus		μg	29	20	20	2.5
Selenium		μg	11	<2	<2	1.5
Tellurium		μg	<2	<2	<2	2
Thallium		μg	<2	4.4	<2	1.5
Vanadium		μg	<1	<1	<1	1
Zinc		μg	13	15	12	0.5
Volume	Sample	mL	214	213	210	
Volume	aliquot volume	mL	164	163	160	
Mercury by CVAA						
Mercury	As Tested	μg/L	< 0.05	<0.05	<0.05	0.05
Dilution Factor	As Tested		1	1	1	

Analytical Report

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

element

V4N 4W7

Attn: Missy Sampled By:

Company:

Volume

Mercury

Project ID: Metro Vancouver WTE

Project Name: Reagent Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747995

Stack Samples

< 0.02

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 Report Number: 3028622 Report Type: Final Report

1747995-1 1747995-2 **Reference Number** 1747995-3 Sample Date Jul 18, 2024 Jul 17, 2024 Jul 17, 2024 Sample Time NA NA NA

Sample Location

Matrix

Sample Description Reagent Blank Unit 1 Reagent Blank Unit 2 Reagent Blank Unit 3 / 22.3 °C

/ 22.3 °C / 22.3 °C

Stack Samples

Stack Samples

Nominal Detection Units Analyte Results Results Results Limit Mercury by CVAA - Continued Volume Sample mL 250 250 250 aliquot volume mL 25 25 25 Volume Volume Final mL 40 40 40 Mercury Fraction 1B µg/sample < 0.02 < 0.02 < 0.02 As Tested 0.13 0.12 0.11 0.05 Mercury µg/L **Dilution Factor** As Tested 1 1 1 Volume Sample mL 214 213 210 aliquot volume 5.0 Volume mL 5.0 5.0 Volume Final mL 40 40 40 Mercury Fraction 2B µg/sample 0.23 0.20 0.19 As Tested < 0.05 < 0.05 < 0.05 0.05 Mercury μg/L **Dilution Factor** As Tested 99 128 Volume Sample mL 134 Volume aliquot volume mL 25 25 25 40 40 40 Volume Final mL µg/sample < 0.008 < 0.01 < 0.01 Mercury Fraction 3A Mercury As Tested µg/L < 0.05 < 0.05 < 0.05 0.05 **Dilution Factor** As Tested 1 1 1 Volume Sample mL 500 500 500 Volume aliquot volume mL 25 25 25 Volume Final mL 40 40 40 Fraction 3B < 0.04 < 0.04 < 0.04 Mercury µg/sample Mercury As Tested μg/L < 0.05 < 0.05 < 0.05 0.05 **Dilution Factor** As Tested 1 1 1 Volume Sample 200 200 200 mL Volume aliquot volume 25 25 25 mL Final 40 40 40

Approved by:

< 0.02

Max Hewitt

< 0.02

Operations Manager

mL

µg/sample

Fraction 3C



Element #104, 19575-55 A Ave. Surrey, British Columbia V3S 8P8, Canada

Methodology and Notes

Bill To: A. Lanfranco & Associates

#101, 9488 - 189 Street Surrey, BC, Canada

V4N 4W7

Attn: Missy Sampled By:

Company:

Project ID:

Metro Vancouver WTE Project Name: Reagent Blanks

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1747995

Control Number:

Date Received: Jul 24, 2024 Date Reported: Aug 16, 2024 3028622 Report Number: Report Type: Final Report

Method of Analysis	<u> </u>			
Method Name	Reference	Method	Date Analysis Started	Location
Mercury in Air (VAN) - 1B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	 Metals Emissions from Stationary Sources, 29 	Aug 14, 2024	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	 Metals Emissions from Stationary Sources, 29 	Jul 30, 2024	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	 Metals Emissions from Stationary Sources, 29 	Jul 26, 2024	Element Vancouver
		* Reference Method Modified		

Reference Method Modified

References

EMC Emission Measurement Center of EPA

> Please direct any inquiries regarding this report to our Client Services group. Results relate only to samples as submitted.

ALS Environmental

2655 Park Center Dr., Suite A Simi Valley, CA 93065 <u>T</u> +1 805 526 7161



LABORATORY REPORT

August 6, 2024

Mark Lanfranco A. Lanfranco and Associates Inc. Unit 101 - 9488 189 St. Surrey, BC V4N 4W7

RE: Metro Vancouver WTE

Dear Mark:

Enclosed are the results of the samples submitted to our laboratory on July 23, 2024. For your reference, these analyses have been assigned our service request number P2402980.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

ALS | Environmental

By Sue Anderson at 3:13 pm, Aug 06, 2024

Sue Anderson

Project Manager

ALS Environmental

2655 Park Center Dr., Suite A Simi Valley, CA 93065 <u>T</u> +1 805 526 7161



Client: A. Lanfranco and Associates Inc. Service Request No: P2402980

Project: Metro Vancouver WTE

CASE NARRATIVE

The samples were received intact under chain of custody on July 23, 2024 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

C3 through C6 Hydrocarbons, Methane, Ethene and Ethane Analysis

The samples were analyzed per modified EPA Method TO-3 for C3 through >C6 hydrocarbons and methane, ethene and ethane using a gas chromatograph equipped with a flame ionization detector (FID). This procedure is described in laboratory SOP VOA-TO3C1C6. This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not part of the NELAP or AIHA-LAP, LLC accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

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ALS Environmental

2655 Park Center Dr., Suite A Simi Valley, CA 93065 <u>T</u> +1 805 526 7161



CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	https://dec.alaska.gov/spar/csp/lab-approval/list-of-approved-labs	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure- certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	https://internet.deq.louisiana.gov/portal/divisions/lelap/accredited-laboratories	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental- health/dwp/professionals/labCert.shtm	2022028
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	006-999-456
New Jersey DEP (NELAP)	https://dep.nj.gov/dsr/oqa/certified-laboratories/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oklahoma DEQ (NELAP)	labaccreditation.deq.ok.gov/labaccreditation/	2207
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-012
Pennsylvania DEP	hhttp://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory- Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env lab accreditation.html	T104704413- 23-14
Utah DOH (NELAP)	https://uphl.utah.gov/certifications/environmental-laboratory-certification/	CA016272023 -15
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

DETAIL SUMMARY REPORT

Client: A. Lanfranco and Associates Inc.

Project ID: Metro Vancouver WTE

Date Received: 7/23/2024 Time Received: 09:30 Service Request: P2402980

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-3 Modified -
Unit 1 Run 1	P2402980-001	Air	7/18/2024	12:18	SC02329	-2.62	4.55	X X
Unit 1 Run 2	P2402980-002	Air	7/18/2024	13:39	SC02305	-4.13	4.62	X X
Unit 1 Run 3	P2402980-003	Air	7/19/2024	09:51	SSC00223	-3.15	4.67	X X
Unit 2 Run 1	P2402980-004	Air	7/17/2024	12:33	SC02000	-4.61	4.88	X X
Unit 2 Run 2	P2402980-005	Air	7/17/2024	13:35	SC00929	-4.55	5.08	X X
Unit 2 Run 3	P2402980-006	Air	7/17/2024	14:40	SC01872	-8.21	4.75	X X
Unit 3 Run 1	P2402980-007	Air	7/17/2024	10:42	SC01487	-4.43	4.70	X X
Unit 3 Run 2	P2402980-008	Air	7/17/2024	12:00	SSC00300	-0.10	4.84	X X
Unit 3 Run 3	P2402980-009	Air	7/17/2024	13:16	SC01588	-1.62	4.94	X X



Air - Chain of Custody Record & Analytical Service Request

Page	of	
i agc		

2655 Park Center Drive, Suite A Simi Valley, California 93065 Phone (805) 526-7161

	Phone (805)	526-7161		Requested Turnard	ound Time in Busir	ess Days (Surc	harges) please	circle		ALS Project N	2980
			EC	1 Day (100%) 2 Day	y (75%) 3 Day (50%	6) 4 Day (35%)	5 Day (25%) 10				30100
Company Name & Address (Reporting I	Information\			Project Name					ALS Contact		
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A. Lantranco É A	500000	too T.	. ^	Project Number	19 yan w	aver w			Anaiysis	Method	
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Project Manager				P.O. # / Billing Inforr	nation						
Project Manager Mark Lantre	anca							1	3		Comments
none	Fax								1		e.g. Actual
604 881 2582									2		Preservative or specific instructions
mail Address for Result Reporting mar K. Jantranca Qal	fin	00 00100		Sampler (Print & Sign)	/	10,-			-		opeoine mendendie
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Client Sample ID	Laboratory	Date	Time	Canister ID (Bar code # -	Flow Controller ID (Bar code # -	Canister Start Pressure	Canister End Pressure	Sample	ER		
Silent Sample 15	ID Number	Collected	Collected	AC, SC, etc.)	FC #)	"Hg	"Hg/psig	Volume	#17		
Unit 1 Run 1		188424	119	502329	0A00250	-16	-7				
Unit 1 Run 2	2	18 July 24		502305	0.401569	-298	-96				
Unit 1 Run 3	3	1951124	0951	55000223	QAQ1569	-28	-6.5		V		
	Seri										
Unit 2 Run 1	4	17541424	11333	502000	QA00027	-30	-12				
Unit 2 Run 2		175uh24	123535	500929	QAQQQ2-1	-3Q	-11				
Unit 2 Run 3	C	H3.174	13461	5001872	0A00027	-30	-19		/		
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Unit 3 Runl	7	1751.14	OWY I	501487	0A00027	-30	-10				
Unit 3 Run 2	8	1751.026	1100	55000300	0401269	-30	-3		/		
11 11 2 0 2	3		1216	0.00000			-4				
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				ļ	 						
Repor Tier I - Results (Default if not specified) Tier II (Results + QC Summaries)	Tier III	- please sele (Results + QC (Data Validation F	& Calibration Su	ummaries) Surcharge	EDD required Ye	s / No Units:_			Custody Seal: BROKEN		Project Requirements (MRLs, QAPP)
Relinquished by: (Signature)			Date: 22 July 24	Time: 0900	Received by: (Signat	ture)	500		Date:	Time:	
Relinquished by: (Signature)	-1-		Date:	Time:	Received by: (Signar	ture)			Date:	Time: 09 3/	Cooler / Blank Temperature°C
	166							15	13:11	1017	TemperatureC

ALS Environmental Sample Acceptance Check Form

	Metro Vanco	and Associates Inc. uver WTE			<u>.</u>	Work order:	P2402980			
Sample(s) received on	: 7/23/24			Date opened:	7/23/24	by:	ADAV	'ID	
Vote: This	form is used for a	ll samples received by ALS	. The use of this f	orm for custody se	eals is strictly me	eant to indicate presen	ce/absence and no	ot as an ir	ndication	of
		Thermal preservation and		-	_	_				
								<u>Yes</u>	<u>No</u>	<u>N/A</u>
1	_	containers properly		ient sample ID	?			X		
2	Did sample c	ontainers arrive in go	od condition?					X		
3	Were chain-o	of-custody papers used	d and filled out	?				X		
4	Did sample c	ontainer labels and/o	r tags agree wi	th custody pap	ers?			X		
5	Was sample	volume received adeq	uate for analys	is?				X		
6	Are samples v	within specified holding	ng times?					X		
7	Was proper to	emperature (thermal	preservation) o	f cooler at rece	eipt adhered t	o?				X
								_	_	_
8	Were custody	y seals on outside of c		tainer?					$\overline{\times}$	
		Location of seal(s)?					Sealing Lid?			X
	•	re and date included?								X
	Were seals in									X
9		ers have appropriate p		_		Client specified in	nformation?			X
		ent indication that the	-		eserved?					X
		vials checked for prese								$\overline{\mathbf{X}}$
		nt/method/SOP require	•		mple pH and	if necessary alter	it?			$\overline{\mathbf{X}}$
10	Tubes:	Are the tubes cap	-							X
11	Badges:	Are the badges p	roperly capped	and intact?						X
		Are dual bed bad				intact?				X
12	Lab Notificat	•			-					X
13	Client Notific	cation: Client has been n	otified regarding	g HT exceedance	es and/or other	CoC discrepancies	?			X
Lab	Sample ID	Container	Required	Received	Adjusted	VOA Headspace	Receir	ot / Pres	ervatior	
	<u>*</u>	Description	pH *	pН	pН	(Presence/Absence)		Comme		
P2402980	0-001.01	6.0 L Source Can								
P2402980	0-002.01	6.0 L Source Can								
P2402980		6.0 L Silonite Can								
P2402980		6.0 L Source Can								
P2402980 P2402980		6.0 L Source Can								
P2402980		6.0 L Source Can 6.0 L Source Can								
P2402980		6.0 L Silonite Can								
P2402980		6.0 L Source Can								
Emale:	n any disame	piografinaluda lab san1-	ID numbara).		<u> </u>	<u> </u>				
Explai	n any discrepand	cies: (include lab sample	in inumbers):							

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 1 Run 1 ALS Project ID: P2402980 Client Project ID: Metro Vancouver WTE ALS Sample ID: P2402980-001

Test Code: EPA TO-3 Modified Date Collected: 7/18/24 Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24 Analyst: Stephanie Reynoso Date Analyzed: 8/2/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: $1.0 \, \text{ml(s)}$

Test Notes:

Container ID: SC02329

> Initial Pressure (psig): -2.62 Final Pressure (psig): 4.55

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.80	
C ₄ as n-Butane	ND	0.80	
C ₅ as n-Pentane	2.1	0.80	
C ₆ as n-Hexane	ND	0.80	
C ₆ + as n-Hexane	2.8	1.6	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 1 Run 2

Client Project ID: Metro Vancouver WTE

ALS Project ID: P2402980

ALS Sample ID: P2402980-002

Test Code: EPA TO-3 Modified Date Collected: 7/18/24
Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 8/2/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SC02305

Initial Pressure (psig): -4.13 Final Pressure (psig): 4.62

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.92	
C ₄ as n-Butane	ND	0.92	
C ₅ as n-Pentane	ND	0.92	
C ₆ as n-Hexane	ND	0.92	
C ₆ + as n-Hexane	4.4	1.8	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 1 Run 3

Client Project ID: P2402980

ALS Project ID: P2402980-003

ALS Sample ID: P2402980-003

Test Code: EPA TO-3 Modified Date Collected: 7/19/24
Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 8/2/24

Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SSC00223

Initial Pressure (psig): -3.15 Final Pressure (psig): 4.67

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.84	
C ₄ as n-Butane	ND	0.84	
C ₅ as n-Pentane	ND	0.84	
C ₆ as n-Hexane	ND	0.84	
C ₆ + as n-Hexane	2.5	1.7	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 2 Run 1 ALS Project ID: P2402980
Client Project ID: Metro Vancouver WTE ALS Sample ID: P2402980-004

Test Code: EPA TO-3 Modified Date Collected: 7/17/24
Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 8/2/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SC02000

Initial Pressure (psig): -4.61 Final Pressure (psig): 4.88

Compound	Result	MRL ppmV	Data	
	ppmV		Qualifier	
C ₃ as Propane	ND	0.97		
C ₄ as n-Butane	ND	0.97		
C ₅ as n-Pentane	ND	0.97		
C ₆ as n-Hexane	ND	0.97		
C ₆ + as n-Hexane	3.7	1.9	В	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 2 Run 2

Client Project ID: P2402980

ALS Project ID: P2402980-005

ALS Sample ID: P2402980-005

Test Code: EPA TO-3 Modified Date Collected: 7/17/24 Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24 Analyst: Stephanie Reynoso Date Analyzed: 8/2/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SC00929

Initial Pressure (psig): -4.55 Final Pressure (psig): 5.08

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.98	_
C ₄ as n-Butane	ND	0.98	
C ₅ as n-Pentane	ND	0.98	
C ₆ as n-Hexane	ND	0.98	
C ₆ + as n-Hexane	8.3	2.0	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 2 Run 3

Client Project ID: Metro Vancouver WTE

ALS Project ID: P2402980

ALS Sample ID: P2402980-006

Test Code: EPA TO-3 Modified Date Collected: 7/17/24
Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 8/2/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SC01872

Initial Pressure (psig): -8.21 Final Pressure (psig): 4.75

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	1.5	
C ₄ as n-Butane	ND	1.5	
C ₅ as n-Pentane	ND	1.5	
C ₆ as n-Hexane	ND	1.5	
C ₆ + as n-Hexane	6.0	3.0	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 3 Run 1 ALS Project ID: P2402980
Client Project ID: Metro Vancouver WTE ALS Sample ID: P2402980-007

Test Code: EPA TO-3 Modified Date Collected: 7/17/24 Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24 Analyst: Stephanie Reynoso Date Analyzed: 8/6/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SC01487

Initial Pressure (psig): -4.43 Final Pressure (psig): 4.70

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.95	_
C ₄ as n-Butane	ND	0.95	
C ₅ as n-Pentane	ND	0.95	
C ₆ as n-Hexane	ND	0.95	
C ₆ + as n-Hexane	2.7	1.9	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 3 Run 2

Client Project ID: Metro Vancouver WTE

ALS Project ID: P2402980

ALS Sample ID: P2402980-008

Test Code: EPA TO-3 Modified Date Collected: 7/17/24
Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 8/6/24

Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SSC00300

Initial Pressure (psig): -0.10 Final Pressure (psig): 4.84

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.67	_
C ₄ as n-Butane	ND	0.67	
C ₅ as n-Pentane	ND	0.67	
C ₆ as n-Hexane	ND	0.67	
C ₆ + as n-Hexane	2.1	1.3	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 3 Run 3

Client Project ID: Metro Vancouver WTE

ALS Project ID: P2402980

ALS Sample ID: P2402980-009

Test Code: EPA TO-3 Modified Date Collected: 7/17/24
Instrument ID: HP5890 II/GC8/FID Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 8/6/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Test Notes:

Container ID: SC01588

Initial Pressure (psig): -1.62 Final Pressure (psig): 4.94

Container Dilution Factor: 1.50

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.75	_
C ₄ as n-Butane	0.77	0.75	
C ₅ as n-Pentane	ND	0.75	
C ₆ as n-Hexane	ND	0.75	
C ₆ + as n-Hexane	2.6	1.5	В

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method. B = Analyte detected in both the sample and associated method blank.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Method Blank
Client Project ID: Metro Vancouver WTE
ALS Project ID: P2402980
ALS Sample ID: P240802-MB

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 8/02/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.50	
C ₄ as n-Butane	ND	0.50	
C ₅ as n-Pentane	ND	0.50	
C ₆ as n-Hexane	ND	0.50	
C ₆ + as n-Hexane	1.5	1.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Method Blank
Client Project ID: Metro Vancouver WTE
ALS Project ID: P2402980
ALS Sample ID: P240806-MB

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 8/06/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)

Compound	Result	MRL	Data
	ppmV	ppmV	Qualifier
C ₃ as Propane	ND	0.50	
C ₄ as n-Butane	ND	0.50	
C ₅ as n-Pentane	ND	0.50	
C ₆ as n-Hexane	ND	0.50	
C ₆ + as n-Hexane	1.6	1.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID:Duplicate Lab Control SampleALS Project ID: P2402980Client Project ID:Metro Vancouver WTEALS Sample ID: P240802-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 8/02/24
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA ml(s)

	Spike Amount	Re	sult			ALS			
Compound	LCS / DLCS	LCS	DLCS	% Re	covery	Acceptance	RPD	RPD	Data
	ppmV	ppmV	ppmV	LCS	DLCS	Limits		Limit	Qualifier
Propane	984	1,080	1,080	110	110	92-120	0	6	
n-Butane	1,000	1,080	1,080	108	108	91-121	0	6	
n-Pentane	1,000	1,050	1,050	105	105	89-118	0	6	
n-Hexane	1,000	1,090	1,080	109	108	92-125	0.9	6	

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID:Duplicate Lab Control SampleALS Project ID: P2402980Client Project ID:Metro Vancouver WTEALS Sample ID: P240806-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 8/06/24
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA ml(s)

	Spike Amount	Re	sult			ALS			
Compound	LCS / DLCS	LCS	DLCS	% Re	covery	Acceptance	RPD	RPD	Data
	ppmV	ppmV	ppmV	LCS	DLCS	Limits		Limit	Qualifier
Propane	984	1,090	1,090	111	111	92-120	0	6	
n-Butane	1,000	1,100	1,090	110	109	91-121	0.9	6	
n-Pentane	1,000	1,070	1,060	107	106	89-118	0.9	6	
n-Hexane	1,000	1,120	1,110	112	111	92-125	0.9	6	

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 1 Run 1

ALS Project ID: P2402980

Client Project ID: Metro Vancouver WTE

ALS Sample ID: P2402980-001

Test Code:EPA TO-3 ModifiedDate Collected: 7/18/24Instrument ID:HP5890A/GC10/FID/TCDDate Received: 7/23/24Analyst:Stephanie ReynosoDate Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SC02329

Initial Pressure (psig): -2.62 Final Pressure (psig): 4.55

Container Dilution Factor: 1.59

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	2.2	2.1	3.3	3.2	
74-85-1	Ethene	ND	1.1	ND	0.95	
74-84-0	Ethane	ND	1.2	ND	0.95	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 1 Run 2

Client Project ID: Metro Vancouver WTE

ALS Project ID: P2402980

ALS Sample ID: P2402980-002

Test Code: EPA TO-3 Modified Date Collected: 7/18/24
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SC02305

Initial Pressure (psig): -4.13 Final Pressure (psig): 4.62

Container Dilution Factor: 1.83

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	ND	2.4	ND	3.7	
74-85-1	Ethene	ND	1.3	ND	1.1	
74-84-0	Ethane	ND	1.3	ND	1.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 1 Run 3

Client Project ID: P2402980

ALS Project ID: P2402980-003

ALS Sample ID: P2402980-003

Test Code: EPA TO-3 Modified Date Collected: 7/19/24
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SSC00223

Initial Pressure (psig): -3.15 Final Pressure (psig): 4.67

Container Dilution Factor: 1.68

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	ND	2.2	ND	3.4	_
74-85-1	Ethene	ND	1.2	ND	1.0	
74-84-0	Ethane	ND	1.2	ND	1.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 2 Run 1

Client Project ID: P2402980

ALS Project ID: P2402980-004

ALS Sample ID: P2402980-004

Test Code: EPA TO-3 Modified Date Collected: 7/17/24
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24
Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SC02000

Initial Pressure (psig): -4.61 Final Pressure (psig): 4.88

Container Dilution Factor: 1.94

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	ND	2.5	ND	3.9	
74-85-1	Ethene	ND	1.3	ND	1.2	
74-84-0	Ethane	ND	1.4	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 2 Run 2

Client Project ID: P2402980

ALS Project ID: P2402980-005

ALS Sample ID: P2402980-005

Test Code: EPA TO-3 Modified Date Collected: 7/17/24

Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24

Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SC00929

Initial Pressure (psig): -4.55 Final Pressure (psig): 5.08

Container Dilution Factor: 1.95

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	ND	2.6	ND	3.9	
74-85-1	Ethene	ND	1.3	ND	1.2	
74-84-0	Ethane	ND	1.4	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 2 Run 3

Client Project ID: P2402980

ALS Project ID: P2402980-006

Test Code: EPA TO-3 Modified Date Collected: 7/17/24

Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24

Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SC01872

Initial Pressure (psig): -8.21 Final Pressure (psig): 4.75

Container Dilution Factor: 3.00

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	5.0	3.9	7.7	6.0	
74-85-1	Ethene	ND	2.1	ND	1.8	
74-84-0	Ethane	ND	2.2	ND	1.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 3 Run 1 ALS Project ID: P2402980
Client Project ID: Metro Vancouver WTE ALS Sample ID: P2402980-007

Test Code: EPA TO-3 Modified Date Collected: 7/17/24

Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24

Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SC01487

Initial Pressure (psig): -4.43 Final Pressure (psig): 4.70

Container Dilution Factor: 1.89

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	ND	2.5	ND	3.8	
74-85-1	Ethene	ND	1.3	ND	1.1	
74-84-0	Ethane	ND	1.4	ND	1.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 3 Run 2

Client Project ID: Metro Vancouver WTE

ALS Project ID: P2402980

ALS Sample ID: P2402980-008

Test Code: EPA TO-3 Modified Date Collected: 7/17/24

Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24

Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SSC00300

Initial Pressure (psig): -0.10 Final Pressure (psig): 4.84

Container Dilution Factor: 1.34

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	2.2	1.8	3.3	2.7	
74-85-1	Ethene	ND	0.92	ND	0.80	
74-84-0	Ethane	ND	0.99	ND	0.80	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Unit 3 Run 3

Client Project ID: P2402980

ALS Project ID: P2402980-009

ALS Sample ID: P2402980-009

Test Code: EPA TO-3 Modified Date Collected: 7/17/24

Instrument ID: HP5890A/GC10/FID/TCD Date Received: 7/23/24

Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

Test Notes:

Container ID: SC01588

Initial Pressure (psig): -1.62 Final Pressure (psig): 4.94

Container Dilution Factor: 1.50

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m^3	ppmV	ppmV	Qualifier
74-82-8	Methane	ND	2.0	ND	3.0	_
74-85-1	Ethene	ND	1.0	ND	0.90	
74-84-0	Ethane	ND	1.1	ND	0.90	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

RESULTS OF ANALYSIS Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID: Method Blank
Client Project ID: Metro Vancouver WTE
ALS Project ID: P2402980
ALS Sample ID: P240731-MB

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890A/GC10/FID/TCD Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 7/31/24

Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)

CAS#	Compound	Result	MRL	Result	MRL	Data
		mg/m³	mg/m³	ppmV	ppmV	Qualifier
74-82-8	Methane	ND	1.3	ND	2.0	
74-85-1	Ethene	ND	0.69	ND	0.60	
74-84-0	Ethane	ND	0.74	ND	0.60	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY Page 1 of 1

Client: A. Lanfranco and Associates Inc.

Client Sample ID:Duplicate Lab Control SampleALS Project ID: P2402980Client Project ID:Metro Vancouver WTEALS Sample ID: P240731-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890A/GC10/FID/TCD Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 7/31/24
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA ml(s)

CAS#	Compound	Spike Amount LCS / DLCS	Re LCS	Result LCS DLCS % R		ALS Recovery Acceptance		RPD	RPD	Data
	•	ppmV	ppmV	ppmV	LCS	DLCS	Limits		Limit	Qualifier
74-82-8	Methane	7.60	6.97	7.49	92	99	70-130	7	15	
74-85-1	Ethene	7.53	7.07	7.46	94	99	70-130	5	15	
74-84-0	Ethane	7.49	7.17	7.65	96	102	70-130	6	15	



Your Project #: MVWTE Site#: BURNABY, BC Site Location: C457289

Your C.O.C. #: c4577289-ONTV-01-01

Attention: Rany El-Roz

Bureau Veritas 4606 Canada Way Burnaby, BC CANADA V5G 1K5

Report Date: 2024/08/02

Report #: R8261601 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4N2671 Received: 2024/07/30, 08:40

Sample Matrix: Tedlar Bag # Samples Received: 9

	Date	Date	
Analyses	Quantity Extracted	Analyzed Laboratory Method	Analytical Method
Nitrous Oxide	9 N/A	2024/07/30 CAM SOP-00203	GC/ECD

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, EPA, APHA or the Quebec Ministry of Environment.

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.

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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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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.



Your Project #: MVWTE Site#: BURNABY, BC Site Location: C457289

Your C.O.C. #: c4577289-ONTV-01-01

Attention: Rany El-Roz

Bureau Veritas 4606 Canada Way Burnaby, BC CANADA V5G 1K5

Report Date: 2024/08/02

Report #: R8261601

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4N2671

Received: 2024/07/30, 08:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Julian Tong, Project Manager Assistant Email: Julian.Tong@bureauveritas.com

Phone# (905) 817-5700

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Bureau Veritas Client Project #: MVWTE Site Location: C457289

COMPRESSED GAS PARAMETERS (TEDLAR BAG)

Bureau Veritas ID		ZWB752		ZWB753	ZWB754		
Carrellina Data		2024/07/26		2024/07/26	2024/07/26		
Sampling Date COC Number Gas		10:30		11:31	12:31		
COC Number		c4577289-ONTV-01-01		c4577289-ONTV-01-01	c4577289-ONTV-01-01		
	LIAUTC	CSF920-UNIT 1 RUN	RDL	CSF921-UNIT 1 RUN	CSF922-UNIT 1 RUN	RDL	QC Batch
	UNITS	1	KDL	2	3	NOL	QC Daten
Gas				0			
Nitrous Oxide	ppmv	5.5	0.25	6.6	5.0	0.5	9551534
RDL = Reportable Detect	tion Limit						
QC Batch = Quality Cont	rol Batch						

Bureau Veritas ID		ZWB755	ZWB755	ZWB756	ZWB757		
Sampling Date		2024/07/25	2024/07/25	2024/07/25	2024/07/25		
Sampling Date		09:42	09:42	10:44	11:46		
COC Number		c4577289-ONTV-01-01	c4577289-ONTV-01-01	c4577289-ONTV-01-01	c4577289-ONTV-01-01		
		CSF923-UNIT 2 RUN	CSF923-UNIT 2 RUN	CSF924-UNIT 2 RUN	CSF925-UNIT 2 RUN		
	UNITS	CSF923-UNIT 2 RUN	1	2	2	RDL	QC Batch
		<u> </u>	Lab-Dup	2	, , , , , , , , , , , , , , , , , , ,		
Gas							
Nitrous Oxide	ppmv	4.0	3.8	1.7	4.0	0.5	9551534

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Bureau Veritas ID		ZWB758	ZWB759	ZWB760		
Samulina Data		2024/07/25	2024/07/25	2024/07/25		
ampling Date OC Number as		09:30	10:32	11:34		
COC Number		c4577289-ONTV-01-01	c4577289-ONTV-01-01	c4577289-ONTV-01-01		
	UNITS	CSF926-UNIT 3 RUN	CSF927-UNIT 3 RUN	CSF928-UNIT 3 RUN	PD!	QC Batch
	UNITS	1	2	3	KDL	QC Date
Gas						
Nitrous Oxide	ppmv	6.0	4.3	4.0	0.5	9551534
RDL = Reportable Detec	tion Limit					
QC Batch = Quality Cont	trol Batch					



Client Project #: MVWTE Site Location: C457289

TEST SUMMARY

Bureau Veritas ID: ZWB752

CSF920-UNIT 1 RUN 1 Sample ID:

Matrix: **Tedlar Bag** Collected: 2024/07/26

Shipped: Received:

2024/07/30

Date Analyzed Extracted Analyst **Test Description** Instrumentation Batch 9551534 N/A 2024/07/30 Cathy Li Nitrous Oxide GC/ECD

Bureau Veritas ID: ZWB753

CSF921-UNIT 1 RUN 2 Sample ID:

Matrix: Tedlar Bag Collected: Shipped:

2024/07/26

Received: 2024/07/30

Instrumentation **Batch Extracted** Date Analyzed Analyst **Test Description** GC/ECD 9551534 N/A 2024/07/30 Cathy Li Nitrous Oxide

Bureau Veritas ID: ZWB754

CSF922-UNIT 1 RUN 3 Sample ID:

Collected: Shipped:

2024/07/26

Received: 2024/07/30 Matrix: **Tedlar Bag**

Extracted Date Analyzed Analyst **Test Description** Instrumentation Batch GC/ECD 9551534 N/A 2024/07/30 Cathy Li Nitrous Oxide

ZWB755 **Bureau Veritas ID:**

Sample ID: CSF923-UNIT 2 RUN 1

Matrix: Tedlar Bag Collected: 2024/07/25

Shipped:

2024/07/30 Received:

Extracted Date Analyzed Analyst Instrumentation Batch **Test Description** 2024/07/30 Cathy Li GC/ECD 9551534 N/A Nitrous Oxide

Bureau Veritas ID: ZWB755 Dup

Sample ID: CSF923-UNIT 2 RUN 1

Matrix: **Tedlar Bag** Collected:

2024/07/25

Shipped: 2024/07/30 Received:

Date Analyzed Analyst Extracted **Test Description** Instrumentation Batch 2024/07/30 Cathy Li GC/ECD 9551534 N/A Nitrous Oxide

ZWB756 Bureau Veritas ID:

Sample ID: CSF924-UNIT 2 RUN 2

Tedlar Bag Matrix:

Collected: Shipped:

2024/07/25

2024/07/30 Received:

Instrumentation Batch Extracted **Date Analyzed Analyst Test Description** 2024/07/30 Cathy Li GC/ECD 9551534 N/A Nitrous Oxide

Bureau Veritas ID: ZWB757 Matrix:

CSF925-UNIT 2 RUN 3 Sample ID: Tediar Bag

Collected: Shipped:

2024/07/25

2024/07/30 Received:

Extracted **Date Analyzed Analyst** Instrumentation Batch **Test Description** 2024/07/30 Cathy Li 9551534 Nitrous Oxide GC/ECD N/A



Client Project #: MVWTE

Site Location: C457289

TEST SUMMARY

Bureau Veritas ID: ZWB758

Sample ID: CSF926-UNIT 3 RUN 1

Matrix: Tedlar Bag

Collected: 2024/07/25

Shipped:

2024/07/30 Received:

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9551534	N/A	2024/07/30	Cathy Li

Bureau Veritas ID: ZWB759 Sample ID:

CSF927-UNIT 3 RUN 2

Matrix: Tedlar Bag

Collected: 2024/07/25

Shipped:

2024/07/30 Received:

Test Description Instrumentation Batch **Extracted Date Analyzed Analyst** 2024/07/30 Cathy Li GC/ECD 9551534 N/A Nitrous Oxide

Bureau Veritas ID: ZWB760

CSF928-UNIT 3 RUN 3 Sample ID:

Collected: Shipped:

2024/07/25

Matrix: Tedlar Bag

Received: 2024/07/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9551534	N/A	2024/07/30	Cathy Li



Client Project #: MVWTE Site Location: C457289

GENERAL COMMENTS

Sample ZWB752 [CSF920-UNIT 1 RUN 1]: The sample was analysed 4 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB753 [CSF921-UNIT 1 RUN 2]: The sample was analysed 4 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB754 [CSF922-UNIT 1 RUN 3]: The sample was analysed 4 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB755 [CSF923-UNIT 2 RUN 1]: The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB756 [CSF924-UNIT 2 RUN 2]: The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB757 [CSF925-UNIT 2 RUN 3]: The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB758 [CSF926-UNIT 3 RUN 1]: The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB759 [CSF927-UNIT 3 RUN 1]: The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB759 [CSF928-UNIT 3 RUN 2]: The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days. Sample ZWB760 [CSF928-UNIT 3 RUN 3]: The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days. Results relate only to the items tested.



QUALITY ASSURANCE REPORT

Bureau Veritas Client Project #: MVWTE

Site Location: C457289

			Method Blank		RP	D
QC Batch	Parameter	Date	Value	UNITS	Value (%)	QC Limits
9551534	Nitrous Oxide	2024/07/30	<0.1	ppmv	NC	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



Client Project #: MVWTE Site Location: C457289

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Tom Mitchell, B.Sc, Supervisor, Compressed Gases

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APPENDIX - D COMPUTER GENERATED RESULTS

Client: Metro Vancouver Date: 18-Jul-24

Jobsite: WTE (Burnaby, BC) Run: 1 - Particulate / Metals

Source: Unit 1 **Run Time:** 08:31 - 10:34

Concentrations:

Particulate 1.03 mg/dscm 0.00045 gr/dscf

0.60 mg/Acm 0.00026 gr/Acf

Emission Rates:

Particulate 0.082 kg/hr 0.181 lb/hr

Flue Gas Characteristics:

Flow 1323 dscm/min 46708 dscf/min

22.04 dscm/sec 778 dscf/sec 2278 Acm/min 80454 Acf/min

Velocity 14.907 m/sec 48.91 f/sec

Temperature 150.7 oC 303.2 oF

Moisture 12.6 %

Gas Analysis 10.9 % O2

9.8 % CO2

29.995 Mol. Wt (g/gmole) Dry 28.479 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.5181 dscm 88.926 dscf

Sample Time 120.0 minutes Isokineticity 100.4 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Imperial: 68 deg F, 29.92 in.Hg

Client:Metro VancouverDate:18-Jul-24

Jobsite: WTE (Burnaby, BC) Run: 1 - Particulate / Metals

 Source:
 Unit 1
 Run Time:
 08:31 - 10:34

Control Unit (Y)	0.9822	Collection:		Gas Analys	is (Vol. %):	Condensate Collection:	
Nozzle Diameter (in.)	0.2818	Filter (grams) 0.00170		CO2	O2	Impinger 1	179.0
Pitot Factor	0.8493	Washings (grams) 0.00090	Traverse 1	10.00	10.70	Impinger 2	62.0
Baro. Press. (in. Hg)	30.02		Traverse 2	9.50	11.07	Impinger 3	12.0
Static Press. (in. H20)	-17.30	Total (grams) 0.00260				Impinger 4	5.0
Stack Height (ft)	30					Impinger 5	2.0
Stack Diameter (in.)	70.90					Impinger 6	1.0
Stack Area (sq.ft.)	27.417			9.75	10.88	Gel	12.5
Minutes Per Reading	5.0						
Minutes Per Point	5.0					Gain (grame)	273 5

					Dry Gas Temperature		Stack	Wall		
Traverse /	Time	Dry Gas Meter	Pitot ^P	Orifice ^H	Inlet	Outlet	Vacuum	Temp.	Dist.	Isokin.
Point	(min.)	(ft3)	(in. H2O)	(in. H2O)	(oF)	(oF)	(in. Hg.)	(oF)	(in.)	(%)
Traverse 1	0.0	830.852								
1	5.0	834.440	0.42	1.58	85	85	6	304	1.5	100.4
2	10.0	838.080	0.43	1.63	86	86	6	303	4.7	100.4
3	15.0	841.760	0.44	1.67	86	86	6	302	8.4	100.3
4	20.0	845.420	0.44	1.65	86	86	6	301	12.5	100.3
5	25.0	849.660	0.58	2.21	87	87	8	300	17.7	100.5
6	30.0	854.050	0.62	2.37	88	88	8	299	25.2	100.4
7	35.0	858.380	0.60	2.29	90	90	8	302	45.6	100.5
8	40.0	862.340	0.50	1.91	91	91	8	302	53.2	100.4
9	45.0	866.270	0.49	1.88	92	92	8	301	58.3	100.4
10	50.0	870.040	0.45	1.73	92	92	8	301	62.5	100.5
11	55.0	873.640	0.41	1.57	93	93	7	302	66.1	100.4
12	60.0	877.200	0.40	1.54	93	93	7	301	69.4	100.4
T	0.0	877.200	I							
Fraverse 2	0.0			4.40						100.0
1	5.0	880.630	0.37	1.43	94	94	6	300	1.5	100.3
2	10.0	884.100	0.38	1.46	94	94	6	301	4.7	100.2
3	15.0	887.390	0.34	1.31	95	95	6	304	8.4	100.4
4	20.0	890.820	0.37	1.42	96	96	6	305	12.5	100.3
5	25.0	894.340	0.39	1.50	96	96	7	304	17.7	100.2
6	30.0	897.910	0.40	1.54	96	96	,	306	25.2	100.5
7	35.0	902.130	0.56	2.15	96	96	8	307	45.6	100.6
	40.0	906.500	0.60	2.30	96	96	8	306	53.2	100.6
8								306	58.3	100.5
9	45.0	911.050	0.65	2.50	97	97	9			
9	45.0 50.0	915.600	0.65	2.50	97	97	9	307	62.5	100.6
9 10 11	45.0 50.0 55.0	915.600 920.260	0.65 0.68	2.50 2.62	97 97	97 97	9	307 306	62.5 66.1	100.6 100.7
9	45.0 50.0	915.600	0.65	2.50	97	97	9	307	62.5	100.6

Client: Metro Vancouver Date: 18-Jul-24

Jobsite: WTE (Burnaby, B.C) Run: 2 - Particulate / Metals

Source: Unit 1 **Run Time:** 11:14 - 13:16

Concentrations:

Particulate1.15 mg/dscm0.00050 gr/dscf

0.66 mg/Acm 0.00029 gr/Acf

1.17 mg/dscm (@ 11% O2) 0.00051 gr/dscf (@ 11% O2)

Emission Rates:

Particulate 0.091 kg/hr 0.201 lb/hr

Flue Gas Characteristics:

Flow 1326 dscm/min 46814 dscf/min

22.09 dscm/sec 780 dscf/sec 2310 Acm/min 81561 Acf/min

Velocity 15.112 m/sec 49.58 f/sec

Temperature 152.8 oC 307.1 oF

Moisture 13.2 %

Gas Analysis 11.2 % O2

9.7 % CO2

30.001 Mol. Wt (g/gmole) Dry 28.418 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.6135 dscm 92.295 dscf

Sample Time 120.0 minutes Isokineticity 104.0 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Imperial: 68 deg F, 29.92 in.Hg

Client: Metro Vancouver Date: 18-Jul-24 2 - Particulate / Metals Jobsite: WTE (Burnaby, B.C) Run: 11:14 - 13:16 Source: Unit 1 Run Time: Control Unit (Y) 0.9822 Collection: Gas Analysis (Vol. %): Condensate Collection: 0.2818 Filter (grams) 0.00170 201.0 Nozzle Diameter (in.) 9.73 02 Impinger 1 Pitot Factor 0.8493 Washings (grams) 0.00130 Impinger 2 Baro. Press. (in. Hg) 30.02 Traverse 2 9.67 11.33 Impinger 3 18.0 Total (grams) 0.00300 Static Press. (in. H20) -17.30 Impinger 4 5.0 Stack Height (ft) 30 1.0 Impinger 5 Stack Diameter (in.) 70.90 Impinger 6 0.0 Stack Area (sq.ft.) 27.417 Gel 13.0 9.70 11 22 Gain (grams) 298.0 Minutes Per Reading 5.0 **Minutes Per Point** 5.0 Dry Gas Temperature Stack Wall Dry Gas Meter Pitot ^P Orifice ^H Isokin. Traverse / Time Inlet Outlet Vacuum Temp. Dist. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 103.8 0.38 1.53 90 90 308 1.5 5.0 928.890 10.0 0.38 1.53 91 91 309 103.9 932.430 3 15.0 935.830 0.35 1.41 91 91 308 8.4 103.9 20.0 25.0 0.37 0.35 307 307 4 939.330 1.49 92 92 93 12.5 103.8 6 30.0 946.250 0.37 1.50 94 307 25.2 103.7 35.0 950.880 0.64 2.60 95 95 307 45.6 104.1 40.0 955.560 0.65 2.64 307 53.2 104.2 9 45.0 960.350 0.68 2.77 306 58.3 104.1 10 50.0 55.0 965.200 0.70 2.84 97 97 310 62.5 104.1 2.76 970.000 0.68 310 66.1 104.5 12 60.0 974.710 0.66 2.68 97 97 310 69.4 104.1 0.0 5.0 974.710 Traverse 2 978.470 0.42 1.71 97 97 309 1.5 103.9 308 307 10.0 982.280 0.43 1.75 97 97 4.7 104.0 1.79 15.0 0.44 986.130 8.4 103.8 3 20.0 990.030).45 1.83 104.0 5 25.0 994.380 0.56 2.28 97 97 307 17.7 104.1 6 30.0 998.820 0.58 2.37 98 98 306 25.2 104.1 1003.220 1007.540 35.0 0.57 2.33 45.6 104.0 305 305 40.0 98 98 104.0 45.0 1011.670 99 104.0 9 0.50 2.05 99 305 58.3 10 50.0 1015.670 0.47 1.93 305 103.9 55.0 1019.590 0.45 1.84 100 100 306 66.1 103.9 60.0 12 1023.510 0.45 1.85 100 100 305 69.4 103.8 Average: 0.503 2.048 96.1 96.1 6.4 307.1 104.0

Client: Metro Vancouver Date: 19-Jul-24

Jobsite: WTE (Burnaby, B.C) Run: 3 - Particulate / Metals

Source: Unit 1 **Run Time:** 08:45 - 10:49

Concentrations:

Particulate 1.6 mg/dscm 0.0007 gr/dscf

0.9 mg/Acm 0.0004 gr/Acf

1.5 mg/dscm (@ 11% O2) 0.0006 gr/dscf (@ 11% O2)

Emission Rates:

Particulate 0.117 kg/hr 0.257 lb/hr

Flue Gas Characteristics:

Flow 1212 dscm/min 42815 dscf/min

 20.21 dscm/sec
 714 dscf/sec

 2105 Acm/min
 74329 Acf/min

Velocity 13.772 m/sec 45.18 f/sec

Temperature 153.5 oC 308.3 oF

Moisture 13.0 %

Gas Analysis 10.0 % O2

8.9 % CO2

29.817 Mol. Wt (g/gmole) Dry 28.283 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.3047 dscm 81.391 dscf

Sample Time 120.0 minutes Isokineticity 100.5 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Imperial: 68 deg F, 29.92 in.Hg

Client: Metro Vancouver Date: 19-Jul-24 3 - Particulate / Metals Jobsite: WTE (Burnaby, B.C) Run: Source: Unit 1 Run Time: 08:45 - 10:49 Control Unit (Y) 0 9822 Collection: Gas Analysis (Vol. %): Condensate Collection: Nozzle Diameter (in.) 0.2815 Filter (grams) 0.00040 CO2 Impinger 1 186.0 Pitot Factor 0.8493 Washings (grams) 0.00330 Impinger 2 51.0 Baro. Press. (in. Hg) 30.11 Traverse 2 8.70 9.65 Impinger 3 7.0 -17.50 Total (grams) 0.00370 Static Press. (in. H20) Impinger 4 0.0 1.0 Stack Height (ft) 30 Impinger 5 Stack Diameter (in.) 70.90 Impinger 6 0.0 Stack Area (sq.ft.) 27.417 Gel 13.0 8.85 10.03 Gain (grams) 258.0 Minutes Per Reading 5.0 Minutes Per Point 5.0 Dry Gas Temperature Stack Wall Dry Gas Meter Pitot ^P Time Orifice ^H Traverse / Inlet Outlet Vacuum Temp. Dist. Isokin. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse ' 0.0 58.873 100.4 0.42 1.57 88 88 311 1.5 5.0 62,450 311 10.0 66.070 0.43 1.61 88 88 100.5 3 15.0 69.860 0.47 1.76 88 88 4 311 1.5 100.6 20.0 25.0 73.730 77.720 311 311 4 0.49 1.83 88 89 88 4.7 100.7 0.52 17.7 6 30.0 81.720 0.52 1.95 90 90 311 25.2 100.7 35.0 85.530 0.47 1.77 91 4.5 311 311 45.6 100.6 40.0 89.730 0.57 2.15 92 4.5 53.2 100.6 45.0 93.580 0.46 1.73 92 4.5 311 58.3 102.6 10 50.0 97.160 0.43 1.62 93 93 4.5 311 62.5 98.5 311 55.0 100.770 0.42 1.59 93 66.1 100.4 11 12 60.0 104.300 0.40 1.51 93 93 4 311 69.4 100.6 104.300 Traverse 2 0.0 107.210 0.27 1.13 95 95 308 1.5 100.3 95 95 10.0 110.020 0.25 0.96 95 95 305 4.7 100.4 112.880 8.4 15.0 0.26 0.99 305 100.2 20.0 115.800 0.27 1.03 100.5 5 25.0 118,101 0.25 0.96 96 96 306 17.7 82.1 6 30.0 121.480 0.26 0.99 96 96 3 306 25.2 118.3 0.44 125.210 45.6 35.0 1.68 100.5 40.0 129.070 1.80 96 96 3.5 306 53.2 100.7 97 133.010 58.3 45.0 0.49 1.88 4.5 306 100.5 10 50.0 137.040 0.51 4.5 100.7 11 55.0 140.960 0.48 1.85 98 98 4.5 304 66.1 100.7

98

93.3

98

93.3

4.5

3.9

304

308.3

69.4

100.5

100.5

144.830

0.47

0.418

1.81

1.587

12

Average:

60.0

Client: Metro Vancouver Jobsite: WTE (Burnaby,B.C)

Source: Unit 1

Sample Type: Parameter HF

Parameter	ПГ	Test 1	Test 2	Test 3
Test Date Test Time		18-Jul-24 11:18 - 12:18	18-Jul-24 13:39 - 13:39	19-Jul-24 09:01 - 10:01
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	30.01	30.01	30.11
DGM Factor	(Y)	1.0218	1.0218	1.0218
Initial Reading	(m ³)	138.517	138.967	139.506
Final Reading	(m ³)	138.963	139.407	139.960
Temp. Outlet	(Avg. oF)	83.0	86.5	81.5
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm ³)	0.45	0.44	0.46
HF	(mg)	0.021	0.021	0.005
Oxygen	(Vol. %)	10.9	11.2	10.0
HF	(mg/Sm³)	0.047	0.048	0.012
HF	(mg/Sm ³ @ 11% O2)	0.047	0.049	0.011
Moisture	(Vol. %)	13.2	13.2	13.0

Tstd. (oF) 68 Pstd. (in. Hg) 29.92

Client: Metro Vancouver Jobsite: WTE (Burnaby,B.C)

Source: Unit 1

Sample Type: NΗ

	Test 1	Test 2	Test 3
(min.)	18-Jul-24 11:18 - 12:18 60	18-Jul-24 12:39 - 13:39 60	19-Jul-24 09:01 - 10:01 60
			30.11
(III. Fig) (Y)	1.0207	1.0207	1.0207
(m ³)	186.316	186.914	187.633
(m ³)	186.911	187.507	188.453
(Avg. oF)	94.5	105.5	92.5
(∆H in.H2O)	0.50	0.50	0.50
(Sm ³)	0.58	0.57	0.81
(mg)	2.1	1.2	0.2
(Vol. %)	10.9	11.2	10.0
(mg/Sm³)	3.64	2.04	0.29
(mg/Sm ³ @ 11% O2)	3.60	2.09	0.26
(Vol. %)	13.2	13.2	13.0
	(m³) (m³) (Avg. oF) (ΔH in.H2O) (Sm³) (mg) (Vol. %) (mg/Sm³) (mg/Sm³ @ 11% O2)	18-Jul-24 11:18 - 12:18 60 60 (in. Hg) 30.01 (Y) 1.0207 (m³) 186.316 (m³) 186.911 (Avg. oF) 94.5 (ΔH in.H2O) 0.50 (Sm³) 0.58 (mg) 2.1 (Vol. %) 10.9 (mg/Sm³) 3.64 (mg/Sm³) @ 11% O2) 3.60 3.60 (mg/Sm³) @ 11% O2) 3.60 (mg/Sm³) 3.64 (mg/Sm³) @ 11% O2) 3.60 (mg/Sm³) 3.64 (mg/Sm³) @ 11% O2) 3.60 (mg/Sm³) (mg/Sm³) 3.64 (mg/Sm³) @ 11% O2) 3.60 (mg/Sm³) (mg/Sm³) @ 11% O2) (mg/Sm³) 3.64 (mg/Sm³) @ 11% O2) (mg/Sm³) 3.60 (mg/Sm³) (mg	18-Jul-24 18-Jul-24 12:39 - 13:39 60 60 60 60 60 60 60 6

Tstd. (oF) 68 Pstd. (in. Hg) 29.92 Client: Metro Vancouver Date: 17-Jul-24

Jobsite: WTE (Burnaby, B.C) Run: 1 - Particulate / Metals

Source: Unit 2 **Run Time:** 11:24 - 13:26

Concentrations:

Particulate 0.9 mg/dscm 0.0004 gr/dscf

0.5 mg/Acm 0.0002 gr/Acf

Emission Rates:

Particulate 0.060 Kg/hr 0.132 lb/hr

Flue Gas Characteristics:

Flow 1170 dscm/min 41322 dscf/min

 19.50 dscm/sec
 689 dscf/sec

 2055 Acm/min
 72577 Acf/min

Velocity 13.448 m/sec 44.12 f/sec

Temperature 150.1 oC 302.3 oF

Moisture 13.6 %

Gas Analysis 10.8 % O2

8.9 % CO2

29.852 Mol. Wt (g/gmole) Dry 28.235 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.6867 dscm 94.882 dscf

Sample Time 120.0 minutes Isokineticity 100.5 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Imperial: 68 deg F, 29.92 in.Hg

Client: Metro Vancouver Date: 17-Jul-24 1 - Particulate / Metals Jobsite: WTE (Burnaby, B.C) Run: 11:24 - 13:26 Source: Unit 2 Run Time: Control Unit (Y) 0.9793 Collection: Gas Analysis (Vol. %): Condensate Collection: 0.3092 Filter (grams) 0.00070 146.0 Nozzle Diameter (in.) 9.10 Impinger 1 02 Pitot Factor 0.8483 Washings (grams) 0.00160 Traverse 1 Impinger 2 112.0 Baro. Press. (in. Hg) 29.88 Traverse 2 8.65 10.55 Impinger 3 24.0 Total (grams) 0.00230 15.0 Static Press. (in. H20) -19.00 Impinger 4 Stack Height (ft) 4.0 30 Impinger 5 Stack Diameter (in.) 70.90 2.0 Impinger 6 Stack Area (sq.ft.) 27.417 Gel 15.5 Minutes Per Reading 8.88 10.80 Gain (grams) 318 5 5.0 Minutes Per Point 5.0 Wall Dry Gas Temperature Stack Dry Gas Meter Pitot ^P Orifice ^H Vacuum Traverse / Time Inlet Outlet Temp. Dist. Isokin. Point (min.) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 628.007 281 100.7 0.43 2.50 86 1.5 5.0 632,430 86 10.0 636.720 0.42 2.36 86 307 100.5 3 15.0 640.750 0.37 2.08 86 307 8.4 100.5 0.38 0.35 2.15 1.98 12.5 17.7 20.0 644.850 88 306 100.5 6 30.0 652.850 0.37 2.10 89 89 306 25.2 100.6 35.0 657.020 0.39 2.22 2.06 89 89 6 304 45.6 100.6 40.0 661.040 0.36 90 300 100.4 45.0 665.060 0.36 2.05 91 6.5 304 58.3 100.5 10 50.0 669.240 0.39 2.22 91 91 6.5 304 62.5 100.4 673.160 6.5 55.0 0.34 1.95 92 303 66.1 100.6 12 60.0 676.900 0.31 1.77 92 92 6.5 304 69.4 100.5 Traverse 2 0.0 676.900 5.0 680.700 0.32 1.83 93 5.5 304 100.3 5.5 5.5 2 10.0 684.450 0.31 1.78 93 93 302 4.7 100.5 688.010 307 15.0 0.28 1.60 3 94 8.4 100.4 20.0 691.500 1.54 306 100.4 5 25.0 695.060 0.28 1.60 93 93 5.5 305 17 7 100.5 6 30.0 698.860 0.32 1.83 94 5.5 307 25.2 100.4 0.49 703.560 45.6 35.0 2.80 6.5 308 100.6 308 40.0 708.540 3.14 6.5 100.7 45.0 713.700 0.58 3.35 3.34 95 299 58.3 9 100.9 50.0 718.840 0.57 290 100.8 11 55.0 723.890 0.55 3.21 95 95 9.5 292 66.1 100.9 12 60.0 728.790 95 0.52 3.03 95 9.5 294 69.4 100.8 0.396 Average: 2.270 91.5 91.5 6.5 302.3 100.5

Client: Metro Vancouver Date: 17-Jul-24

Jobsite: WTE (Burnaby, B.C) Run: 2 - Particulate / Metals

Source: Unit 2 **Run Time:** 13:48 - 15:49

Concentrations:

Particulate 1.11 mg/dscm 0.00049 gr/dscf

0.62 mg/Acm 0.00027 gr/Acf

1.17 mg/dscm (@ 11% O2) 0.00051 gr/dscf (@ 11% O2)

Emission Rates:

Particulate 0.081 Kg/hr 0.178 lb/hr

Flue Gas Characteristics:

Flow 1210 dscm/min 42733 dscf/min

 20.17 dscm/sec
 712 dscf/sec

 2166 Acm/min
 76477 Acf/min

Velocity 14.170 m/sec 46.49 f/sec

Temperature 151.3 oC 304.3 oF

Moisture 15.0 %

Gas Analysis 11.5 % O2

9.4 % CO2

29.955 Mol. Wt (g/gmole) Dry 28.159 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.6980 dscm 95.279 dscf

Sample Time 120.0 minutes Isokineticity 102.1 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Imperial: 68 deg F, 29.92 in.Hg

Client: Metro Vancouver Date: 17-Jul-24 2 - Particulate / Metals Jobsite: WTE (Burnaby, B.C) Run: Source: Unit 2 Run Time: 13:48 - 15:49 Control Unit (Y) 0 9792 Collection: Gas Analysis (Vol. %): Condensate Collection: Nozzle Diameter (in.) 0.3092 Filter (grams) 0.00120 232.0 9.45 Impinger 1 Pitot Factor 0.8483 Washings (grams) 0.00180 Traverse 1 11.45 Impinger 2 83.0 Baro. Press. (in. Hg) 29.88 Traverse 2 9.25 11.50 Impinger 3 26.0 Total (grams) 0.00300 Static Press. (in. H20) -19.00 Impinger 4 0.0 Stack Height (ft) 29.88 2.0 Impinger 5 Stack Diameter (in.) 70.90 Impinger 6 0.0 27.417 Gel Stack Area (sq.ft.) 15.0 9.35 11 48 Gain (grams) 358.0 Minutes Per Reading 5.0 Minutes Per Point 5.0 Dry Gas Temperature Stack Wall Traverse / Dry Gas Meter Pitot ^P Orifice ^H Isokin. Time Inlet Outlet Vacuum Temp. Dist. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 729.024 732.530 1.55 101.9 0.27 94 94 303 1.5 5.0 93 93 10.0 736.020 1.54 101.8 0.27 305 3 15.0 739.380 0.25 1.43 93 93 305 8.4 101.8 0.25 0.28 305 305 20.0 742.740 1.43 93 93 93 93 101.8 1.60 6 30.0 750.040 0.31 1.77 93 93 305 25.2 101.9 35.0 755.470 0.65 3.73 94 94 304 45.6 102.4 40.0 760.960 0.67 3.81 310 53.2 102.4 9 45.0 766.470 0.67 3.84 94 94 305 58.3 102.4 10 50.0 771.820 0.62 3.61 94 94 95 292 62.5 102.4 95 11 55.0 776.210 0.42 2.43 300 66.1 102.2 12 60.0 780.540 0.41 2.36 96 96 3 304 69.4 102.1 780.540 Traverse 2 0.0 5.0 785.180 0.47 2.71 97 97 304 1.5 102.1 97 98 97 98 10.0 790.200 0.55 3.17 3 4 304 4.7 102.2 304 15.0 795.140 0.53 3.06 8.4 102.2 20.0 799.790 0.47 2.71 304 102.1 5 25.0 804,400 0.46 2 66 99 99 304 17.7 102 1 6 30.0 808.960 0.45 2.60 99 99 304 25.2 102.1 45.6 53.2 813.630 0.47 100 100 102.2 35.0 2.72 40.0 307 8 818.090 0.43 2.48 100 100 102.2 45.0 822.750 2.71 0.47 100 100 307 58.3 102.2 50.0 827.270 0.44 2.55 101 101 307 102.2 11 55.0 831.530 0.39 2.26 101 101 305 66.1 102.1 835.730 101 101 12 60.0 0.38 2.20 305 69.4 102.0 Average: 0.441 2.539 96.5 96.5 4.2 304.3 102.1

Client: Metro Vancouver Date: 18-Jul-24

Jobsite: WTE (Burnaby, B.C) Run: 3 - Particulate / Metals

Source: Unit 2 **Run Time:** 09:25 - 11:27

Concentrations:

Particulate1.3 mg/dscm0.0006 gr/dscf

0.8 mg/Acm 0.0003 gr/Acf

Emission Rates:

Particulate 0.09 Kg/hr 0.208 lb/hr

Flue Gas Characteristics:

Flow 1176 dscm/min 41546 dscf/min

 19.61 dscm/sec
 692 dscf/sec

 2058 Acm/min
 72661 Acf/min

Velocity 13.463 m/sec 44.17 f/sec

Temperature 151.4 oC 304.5 oF

Moisture 13.0 %

Gas Analysis 11.1 % O2

9.1 % CO2

29.900 Mol. Wt (g/gmole) Dry 28.350 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.6878 dscm 94.920 dscf

Sample Time 120.0 minutes Isokineticity 100.1 %

* **Standard Conditions:** Metric: 20 deg C, 101.325 kPa

Client: Metro Vancouver Date: 18-Jul-24 3 - Particulate / Metals Jobsite: WTE (Burnaby, B.C) Run: Unit 2 Run Time: 09:25 - 11:27 Source: Control Unit (Y) 0 9792 Collection: Gas Analysis (Vol. %): Condensate Collection: Nozzle Diameter (in.) Filter (grams) 0.00180 196.0 0.3092 CO2 Impinger 1 Pitot Factor 0.8483 Washings (grams) 0.00180 Traverse 1 Impinger 2 Baro. Press. (in. Hg) 29.88 Traverse 2 9.05 11.09 Impinger 3 19.0 Total (grams) 0.0036 Static Press. (in. H20) -19.00 Impinger 4 5.0 Stack Height (ft) 30 1.0 Impinger 5 Stack Diameter (in.) 70.90 Impinger 6 0.0 27.417 Stack Area (sq.ft.) Gel Minutes Per Reading 9.10 11.10 Gain (grams) 302.0 5.0 **Minutes Per Point** 5.0 Dry Gas Temperature Stack Wall Dry Gas Meter Pitot ^P Orifice ^H Isokin. Traverse / Time Inlet Outlet Vacuum Temp. Dist. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 836.469 75 99.9 840,430 0.37 2.05 75 302 1.5 5.0 10.0 844.450 0.38 2.11 75 75 302 100.1 3 15.0 848.470 0.38 2.11 75 75 320 8.4 101.3 20.0 25.0 12.5 17.7 852.430 0.37 2.05 76 77 76 77 304 99.9 305 6 30.0 859.990 0.33 1.83 77 77 305 25.2 100.0 35.0 863.760 0.35 1.95 78 78 305 45.6 97.4 40.0 868.110 0.42 80 80 305 53.2 102.3 45.0 872.480 0.44 2.47 82 82 305 58.3 100.1 10 50.0 876.960 0.46 2.59 82 82 300 62.5 100.1 2.19 301 55.0 881.080 0.39 81 81 66.1 100.1 12 60.0 885.160 0.38 2.14 83 83 4 301 69.4 100.0 Traverse 2 0.0 885.160 5.0 888.720 0.29 1.69 84 3.5 303 99.8 1.75 1.58 85 85 85 85 10.0 892.410 0.31 3.5 303 4.7 99.8 303 895.920 0.28 3.5 3 15.0 8.4 99.9 20.0 899.240 0.25 1.41 3.5 305 99.9 5 25.0 902.620 0.26 1.47 86 86 305 17.7 99.7 6 30.0 906.070 0.27 1.52 86 86 3 305 25.2 99.9 35.0 910.720 45.6 0.49 2.77 306 100.1 87 306 40.0 915.910 0.61 3.45 87 4.5 53.2 100.3 45.0 921.150 88 5.5 5.5 0.62 3.51 88 306 58.3 100.3 50.0 926.280 0.59 303 100.3 11 55.0 931.000 0.50 2.85 89 89 303 66.1 100.1 12 60.0 935.670 0.49 2.78 89 89 5 304 69.4 100.1 82.6 Average: 0.399 2.244 82.6 3.0 304.5 100.1

Client: Metro Vancouver Jobsite: WTE (Burnaby,B.C)

Source: Unit 2

Sample Type: HF

Parameter		Test 1	Test 2	Test 3
Test Date		17-Jul-24	17-Jul-24	18-Jul-24
Test Time		14:16 - 15:16	15:29 - 16:29	08:48 - 09:48
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.88	29.88	30.01
DGM Factor	(Y)	1.0218	1.0218	1.0218
Initial Reading	(m ³)	137.266	137.641	138.071
Final Reading	(m ³)	137.635	138.069	138.512
Temp. Outlet	(Avg. oF)	87.5	89.5	77.5
Orifice Press.	(∆H in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm ³)	0.36357	0.41997	0.44452
HF	(mg)	0.005	0.005	0.01
Oxygen	(Vol. %)	10.8	11.5	11.1
HF	(mg/Sm³)	0.013	0.013	0.012
HF	(mg/Sm ³ @ 11% O2)	0.013	0.013	0.012
Moisture (isokinetic)	(Vol. %)	13.6	15.0	13.0

*Wet Basis Calculated on moisture from isokinetic tests Tstd. (oF) 68

Client: Metro Vancouver Jobsite: WTE (Burnaby,B.C)

Source: Unit 2

 NH_3 Sample Type:

Parameter		Test 1	Test 2	Test 3
Test Date	(min.)	17-Jul-24	17-Jul-24	18-Jul-24
Test Time		14:16 - 15:16	15:29 - 16:29	08:48 - 09:48
Test Duration		60	60	60
Baro. Press.	(in. Hg)	29.88	29.88	30.01
DGM Factor	(Y)	1.0207	1.0207	1.0207
Initial Reading Final Reading	(m ³)	184.233	184.933	185.636
	(m ³)	184.924	185.633	186.312
Temp. Outlet	(Avg. oF)	97.5	110.5	87.0
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm³)	0.66808	0.66173	0.66913
NH ₃	(mg)	1.1	0.1	0.5
Oxygen	(Vol. %)	10.8	11.5	11.1
NH ₃	(mg/Sm ³)	1.59	0.18	0.69
	(mg/Sm ³ @ 11% O2)	1.55	0.19	0.70
Moisture (isokinetic)	(Vol. %)	13.6	15.0	13.0

*Wet Basis Calculated on moisture from isokinetic tests

Tstd. (oF)

Pstd. (in. Hg)

29.92

Client: Metro Vancouver Date: 16-Jul-24

Jobsite: WTE (Burnaby, B.C) Run: 1 - Particulate / Metals

Source: Unit 3 **Run Time:** 09:22 - 11:25

Concentrations:

Particulate 1.30 mg/dscm 0.00057 gr/dscf

0.71 mg/Acm 0.00031 gr/Acf

Emission Rates:

Particulate 0.085 Kg/hr 0.187 lb/hr

Flue Gas Characteristics:

Flow 1088 dscm/min 38409 dscf/min

 18.13 dscm/sec
 640 dscf/sec

 1975 Acm/min
 69731 Acf/min

Velocity 12.920 m/sec 42.39 f/sec

Temperature 158.6 oC 317.5 oF

Moisture 15.7 %

Gas Analysis 10.1 % O2

10.4 % CO2

30.069 Mol. Wt (g/gmole) Dry 28.175 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.5442 dscm 89.849 dscf

Sample Time 120.0 minutes Isokineticity 102.5 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Client: Metro Vancouver Date: 16-Jul-24 1 - Particulate / Metals Jobsite: WTE (Burnaby, B.C) Run: Source: Unit 3 **Run Time:** 09:22 - 11:25 Control Unit (Y) 0 9899 Collection: Gas Analysis (Vol. %): Condensate Collection: Nozzle Diameter (in.) 0.3092 Filter (grams) 0.00200 238.0 CO2 10.23 Impinger 1 Pitot Factor 0.8493 Washings (grams) 0.00130 Impinger 2 86.0 Baro. Press. (in. Hg) 30.05 Traverse 2 10.57 9.97 Impinger 3 18.0 Total (grams) 0.00330 Static Press. (in. H20) -17.10 Impinger 4 0.0 1.0 Stack Height (ft) 30 Impinger 5 Stack Diameter (in.) 70.90 Impinger 6 0.0 Stack Area (sq.ft.) 27.417 Gel 10.40 10 13 Gain (grams) 355.5 Minutes Per Reading 5.0 Minutes Per Point 5.0 Wall Dry Gas Temperature Stack Traverse / Dry Gas Meter Pitot ^P Time Orifice ^H Inlet Outlet Vacuum Temp. Dist. Isokin. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 586.564 102.4 0.28 1.53 78 78 314 1.5 5.0 589.960 10.0 593.400 78 78 319 0.29 102.3 3 15.0 596.840 0.29 1.57 78 78 319 8.4 102.3 0.28 0.28 318 318 12.5 17.7 20.0 600.200 1.49 79 79 102.3 25.0 6 30.0 607.210 0.32 1.74 80 80 317 25.2 102.6 35.0 611.670 0.48 2.62 81 81 318 317 45.6 102.7 40.0 616.090 0.47 2.57 82 53.2 102.6 45.0 0.51 2.79 83 83 317 58.3 102.8 10 50.0 625.290 0.50 2.74 84 84 317 62.5 102.7 317 55.0 629.590 0.44 2.42 85 85 66.1 102.5 11 12 60.0 633.950 0.45 2.48 86 86 317 69.4 102.6 0.0 Traverse 2 633.950 638.190 0.43 2.35 86 86 315 1.5 102.5 642.500 647.000 86 87 86 87 10.0 0.44 2.42 7.5 318 4.7 102.7 0.48 318 8.4 15.0 2.62 103.0 20.0 651.560 0.49 2.70 102.6 5 25.0 656.040 0.47 2.60 89 89 318 17.7 102.7

89

91

91

92

92 93

85.3

89

91

91

92

92

93

85.3

319

319

319

318

317

316

317.5

7.0

25.2

45.6

53.2

58.3

66.1

69.4

102.7

102.4

102.5

102.2

102.3

102.3

102.4

102.5

6

10

11

12

Average:

30.0

35.0

40.0

45.0

50.0

60.0

660.610

664.130

667,410

670.550

673.560

676.500

679.450

0.49

0.29

0.25

0.23

0.21

0.20

0.20

0.365

2.71

1.60

1 39

1.28

1.12

2.004

Client: Metro Vancouver Date: 17-Jul-24

Jobsite: WTE (Burnaby, B.C) Run: 2 - Particulate / Metals

Source: Unit 3 **Run Time:** 09:00 - 11:02

Concentrations:

Particulate1.26 mg/dscm0.00055 gr/dscf

0.68 mg/Acm 0.00030 gr/Acf

Emission Rates:

Particulate 0.086 Kg/hr 0.190 lb/hr

Flue Gas Characteristics:

Flow 1140 dscm/min 40273 dscf/min

 19.01 dscm/sec
 671 dscf/sec

 2100 Acm/min
 74146 Acf/min

Velocity 13.738 m/sec 45.07 f/sec

Temperature 158.7 oC 317.7 oF

Moisture 16.1 %

Gas Analysis 9.5 % O2

10.9 % CO2

30.129 Mol. Wt (g/gmole) Dry 28.171 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.2285 dscm 78.700 dscf

Sample Time 120.0 minutes Isokineticity 103.1 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Client: Metro Vancouver Date: 17-Jul-24 2 - Particulate / Metals Jobsite: WTE (Burnaby, B.C) Run: 09:00 - 11:02 Source: Unit 3 Run Time: Control Unit (Y) 0 9899 Collection: Gas Analysis (Vol. %): Condensate Collection: 0.2818 Filter (grams) 0.00160 CO2 10.93 Nozzle Diameter (in.) 226.0 02 Impinger 1 Pitot Factor 0.8493 Washings (grams) 0.00120 Impinger 2 71.0 Baro. Press. (in. Hg) 29.91 Traverse 2 10.93 9.57 Impinger 3 13.0 Total (grams) 0.00280 Static Press. (in. H20) -18.50 Impinger 4 0.0 Stack Height (ft) 30 0.0 Impinger 5 Stack Diameter (in.) 70.90 0.0 Impinger 6 Stack Area (sq.ft.) 27.417 Gel 10.93 9 50 Gain (grams) 322 0 Minutes Per Reading 5.0 Minutes Per Point 5.0 Dry Gas Temperature Stack Wall Dry Gas Meter Pitot ^P Orifice ^H Vacuum Isokin. Traverse / Time Inlet Outlet Temp. Dist. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 680.205 1.5 103.3 0.54 2.02 319 5.0 684,140 81 81 10.0 4.7 688.110 0.55 2.06 319 103.2 3 15.0 692.050 0.54 2.02 82 82 319 8.4 103.2 20.0 25.0 103.1 103.2 4 695.810 0.49 1.84 83 83 318 12.5 0.50 84 6 30.0 0.52 1.96 84 318 25.2 103.4 35.0 706.650 0.34 1.28 84 84 317 45.6 102.9 40.0 709.700 0.32 1.21 319 53.2 103.0 9 45.0 712.610 0.29 1.09 318 58.3 103.1 10 50.0 715.420 0.27 1.02 86 86 317 62.5 102.9 55.0 718.000 0.23 0.87 86 86 318 66.1 102.4 12 60.0 720.600 0.23 0.87 87 87 317 69.4 103.0 0.0 5.0 Traverse 2 720.600 723.650 0.32 1.20 88 88 316 1.5 103.0 0.32 10.0 726.730 1.22 89 89 317 4.7 103.1 15.0 1.26 318 8.4 729.860 91 102.9 3 20.0 733.090 0.35 1.34 319 103.0 5 25.0 736,180 0.32 1.22 93 93 320 17.7 102.9 6 30.0 739.330 0.33 1.26 93 93 318 25.2 103.2 0.47 35.0 743.090 45.6 103.2 1.80 318 317 8 40.0 747.270 2.23 94 94 53.2 103.3 45.0 751.310 0.54 94 9 2.08 315 58.3 103.3 10 50.0 755.160 0.49 1.88 62.5 103.2 11 55.0 758.850 0.45 1.73 95 95 316 66.1 103.1 60.0 96 317 12 762.500 0.44 1.69 96 69.4 103.0

88.4

88.4

5.0

317.7

103.1

1.543

0.406

Average:

Client: Metro Vancouver Date: 17-Jul-24

Jobsite: WTE(Burnaby,B.C) Run: 3 - Particulate / Metals

Source: Unit 3 **Run Time:** 11:38 - 13:40

Concentrations:

Particulate 1.43 mg/dscm 0.00062 gr/dscf

0.78 mg/Acm 0.00034 gr/Acf

Emission Rates:

Particulate 0.094 Kg/hr 0.207 lb/hr

Flue Gas Characteristics:

Flow 1098 dscm/min 38772 dscf/min

 18.30 dscm/sec
 646 dscf/sec

 1997 Acm/min
 70516 Acf/min

Velocity 13.066 m/sec 42.87 f/sec

Temperature 158.4 oC 317.1 oF

Moisture 15.3 %

Gas Analysis 9.4 % O2

11.1 % CO2

30.145 Mol. Wt (g/gmole) Dry 28.281 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.0320 dscm 71.759 dscf

Sample Time 120.0 minutes Isokineticity 102.4 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Client: Metro Vancouver Date: 17-Jul-24 Jobsite: WTE(Burnaby,B.C) Run: 3 - Particulate / Metals Source: Unit 3 **Run Time:** 11:38 - 13:40 Control Unit (Y) 0 9899 Collection: Gas Analysis (Vol. %): Condensate Collection: Nozzle Diameter (in.) 0.2818 Filter (grams) 0.00180 196.0 Impinger 1 02 Pitot Factor 0.8493 Washings (grams) 0.00110 Impinger 2 66.0 Baro. Press. (in. Hg) 29.97 Traverse 2 10.97 9.43 Impinger 3 2.0 Total (grams) 0.00290 Static Press. (in. H20) -18.50 Impinger 4 0.0 Stack Height (ft) 30 0.0 Impinger 5 Stack Diameter (in.) 70.90 Impinger 6 0.0 27.417 Gel Stack Area (sq.ft.) 11.07 9 35 Gain (grams) 276.5 Minutes Per Reading 5.0 **Minutes Per Point** 5.0 Dry Gas Temperature Stack Wall Dry Gas Meter Pitot ^P Orifice ^H Isokin. Traverse / Time Inlet Outlet Vacuum Temp. Dist. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 763.175 102.3 0.30 1.15 94 94 317 1.5 5.0 766.180 94 94 10.0 769.230 0.31 319 102.3 1.19 3 15.0 772.380 0.33 1.26 94 94 320 8.4 102.5 0.31 12.5 17.7 20.0 775.430 1.19 94 94 319 102.3 25.2 6 30.0 781.530 0.32 1.22 94 94 319 102.3 35.0 785.210 0.45 1.73 94 94 317 45.6 102.4 40.0 788.980 0.47 1.81 95 95 317 53.2 102.5 45.0 792.670 0.45 1.73 95 315 58.3 102.4 10 50.0 796,490 0.48 1.85 96 96 315 62.5 102.5 315 11 55.0 800.110 0.43 96 96 66.1 102.5 1.66 12 60.0 803.650 0.41 1.58 97 97 8 316 69.4 102.6 803.650 Traverse 2 0.0 5.0 807.350 0.45 1.74 96 96 315 1.5 102.5 96 97 10.0 810.960 0.43 1.66 96 317 4.7 102.4 97 318 15.0 0.48 102.5 814.780 1.85 8.4 818.560 0.47 1.81 319 12.5 102.5 5 25.0 822 260 0.45 1.73 97 97 319 17.7 102.6 6 30.0 826.040 0.47 1.81 97 97 9 318 25.2 102.5 45.6 53.2 102.3 829.060 0.30 1.16 318 8 40.0 831.980 0.28 1.08 97 97 317 102.3 45.0 97 316 58.3 102.3 834.850 0.27 1.04 97 837.620 0.25 0.97 315 62.5 102.4 11 55.0 840.270 0.23 0.89 98 98 316 66.1 102.1

98

95.9

7.6

315

317.1

69.4

102.4

102.4

98

95.9

0.21

0.369

0.81

1.420

842.810

12

Average:

60.0

Client: Metro Vancouver Jobsite: WTE (Burnaby,B.C)

Source: Unit 3

Sample Type: HF

Parameter		Test 1	Test 2	Test 3
Test Date		17-Jul-24	17-Jul-24	17-Jul-24
Test Time		09:42 - 10:42	11:00 - 12:00	12:16 - 13:16
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.92	29.92	29.92
DGM Factor	(Y)	1.0218	1.0218	1.0218
Initial Reading	(m ³)	136.026	136.418	136.841
Final Reading	(m^3)	136.414	136.8361	137.260
Temp. Outlet	(Avg. oF)	86.4	93.4	93.3
Orifice Press.	(∆H in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm ³)	0.38397	0.40803	0.40905
HF	(mg)	0.0206	0.0051	0.005
Oxygen	(Vol. %)	10.1	9.5	9.4
HF	(mg/Sm³)	0.054	0.013	0.013
HF	(mg/Sm ³ @ 11% O2)	0.049	0.011	0.011
Moisture (isokinetic)	(Vol. %)	15.7	16.1	15.3

*Wet Basis Calculated on moisture from isokinetic tests
Tstd. (oF) 68

Pstd. (in. Hg) 29.92

Client: Metro Vancouver Jobsite: WTE (Burnaby,B.C)

Source: Unit 3

Sample Type: NH_3

Parameter		Test 1	Test 2	Test 3
Test Date Test Time		17-Jul-24 09:42 - 10:42	17-Jul-24 11:00 - 12:00	17-Jul-24 12:16 - 13:16
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.92	29.92	29.92
DGM Factor	(Y)	1.0207	1.0207	1.0207
Initial Reading	(m ³)	183.701	184.063	184.387
Final Reading	(m³)	184.060	184.384	184.730
Temp. Outlet	(Avg. oF)	99.7	115.0	114.0
Orifice Press.	(∆H in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm ³)	0.34611	0.30169	0.32242
NH ₃	(mg)	0.45	0.97	0.29
Oxygen	(Vol. %)	10.1	9.5	9.4
NH ₃	(mg/Sm³)	1.29	3.22	0.91
NH ₃	(mg/Sm ³ @ 11% O2)	1.19	2.80	0.78
Moisture (isokinetic)	(Vol. %)	15.7	16.1	15.3

*Wet Basis Calculated on moisture from isokinetic tests

Tstd. (oF)

Client:Metro VancouverDate:22-Jul-24Jobsite:WTE (Burnaby, B.C)Run: $1 - Cr^{+6}$ Source:Unit 3Run Time:14:08 - 16:09

Concentrations:

Hexavalent Chromium 0.0 mg/dscm 0.0000 gr/dscf

0.0 mg/Acm 0.0000 gr/Acf

Emission Rates:

Particulate 0.00 Kg/hr 0.000 lb/hr

Flue Gas Characteristics:

Flow 1150 dscm/min 40627 dscf/min

 19.17 dscm/sec
 677 dscf/sec

 2054 Acm/min
 72523 Acf/min

Velocity 13.438 m/sec 44.09 f/sec

Temperature 156.5 oC 313.7 oF

Moisture 14.1 %

Gas Analysis 10.0 % O2

9.8 % CO2

29.975 Mol. Wt (g/gmole) Dry 28.291 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.2089 dscm 78.008 dscf

Sample Time 120.0 minutes Isokineticity 102.6 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Client: 22-Jul-24 Metro Vancouver Date: Jobsite: WTE (Burnaby, B.C) Run: 1 - Cr+6 Unit 3 Run Time: 14:08 - 16:09 Source: Control Unit (Y) 0.9899 Collection: Gas Analysis (Vol. %): Condensate Collection: CO2 10.00 Nozzle Diameter (in.) 0.2800 Cr+6 (grams) 0.00000045 Impinger 1 -42.0 Pitot Factor 0.8483 Traverse 1 9.83 Impinger 2 283.0 Baro. Press. (in. Hg) 30.02 9.67 10.26 Impinger 3 9.0 Traverse 2 Static Press. (in. H20) -19.50 Total (grams) 0.0000005 Impinger 4 Stack Height (ft) 30 Stack Diameter (in.) 70.90 20.3 Stack Area (sq.ft.) 27.417 9.83 Minutes Per Reading 5.0 10.05 Gain (grams) 271.3 Minutes Per Point 5.0 Dry Gas Temperature Stack Wall Traverse / Time Dry Gas Meter Pitot ^P Orifice ^H Inlet Outlet Vacuum Temp. Dist. Isokin. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 886 133 1.5 102.0 0.53 1.96 79 316 5.0 890.000 10.0 0.55 2.04 102.4 80 80 8.4 12.5 15.0 897,720 0.50 1.85 80 317 102.3 901.580 1.93 80 317 0.52 20.0 102.7 25.0 905.400 0.51 1.90 316 17.7 102.4 30.0 909.120 0.48 1.80 81 311 25.2 102.4 35.0 1.01 102.1 40.0 914.590 0.25 0.94 82 82 310 53.2 102.1 0.23 0.23 9 45.0 917.180 0.87 82 83 82 308 58.3 102.4 50.0 55.0 0.87 102.0 0.22 83 83 922,330 0.84 302 66.1 102.9 12 0.20 0.76 83 83 299 101.8 60.0 924.750 69.4 Traverse 2 0.0 5.0 924.750 0.32 1.19 318 102.2 927.790 10.0 931.020 0.36 1.34 84 84 319 4.7 102.5 15.0 934.200 0.35 1.31 1.24 316 316 8.4 12.5 102.1 20.0 937.300 0.33 102.3 25.0 940.490 0.35 1.31 85 85 317 17.7 102.3 25.2 45.6 6 30.0 943.720 0.38 1.35 85 317 99.5 2.06 40.0 951.980 0.62 2.33 86 86 315 53.2 102.6 45.0 956.330 0.65 2.44 317 58.3 102.5 9 86 86 2.44 55.0 963.750 0.32 1.20 87 87 316 66.1 105.9 12 60.0 966.660 0.29 1.10 87 87 69.4 101.7 310

0.398

1.503

83.3

83.3

313.7

Average:

102.6

 Client:
 Metro Vancouver
 Date:
 23-Jul-24

 Jobsite:
 WTE (Burnaby, B.C)
 Run:
 2 - Cr⁺⁶

 Source:
 Unit 1
 Run Time:
 09:34 - 11:36

Concentrations:

Hexavalent Chromium 0.0 mg/dscm 0.0000 gr/dscf

0.0 mg/Acm 0.0000 gr/Acf

Emission Rates:

Particulate 0.00 Kg/hr 0.000 lb/hr

Flue Gas Characteristics:

 Flow
 1139 dscm/min
 40237 dscf/min

 18.99 dscm/sec
 671 dscf/sec

2048 Acm/min 72311 Acf/min

Velocity 13.398 m/sec 43.96 f/sec

Temperature 151.9 oC 305.3 oF

Moisture 15.9 %

Gas Analysis 9.6 % O2

10.3 % CO2

30.023 Mol. Wt (g/gmole) Dry 28.106 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.2261 dscm 78.615 dscf

Sample Time 120.0 minutes **Isokineticity** 104.5 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Client: 23-Jul-24 Metro Vancouver Date: Jobsite: WTE (Burnaby, B.C) Run: 2 - Cr+6 Unit 1 Run Time: 09:34 - 11:36 Source: Control Unit (Y) 0.9899 Collection: Gas Analysis (Vol. %): Condensate Collection: CO2 10.00 Nozzle Diameter (in.) 0.2800 Cr+6 (grams) 0.00000050 Impinger 1 -20.0 Pitot Factor 0.8483 Traverse 1 9.77 Impinger 2 271.0 Baro. Press. (in. Hg) 30.15 10.50 9.40 43.0 Impinger 3 Traverse 2 Static Press. (in. H20) -19.50 Total (grams) 0.0000005 Impinger 4 Stack Height (ft) 30 Stack Diameter (in.) 70.90 19.9 Stack Area (sq.ft.) 27.417 Gel Minutes Per Reading 5.0 10.25 9.58 Gain (grams) 316.9 Minutes Per Point 5.0 Dry Gas Temperature Stack Wall Traverse / Time Dry Gas Meter Pitot ^P Orifice ^H Inlet Outlet Vacuum Temp. Dist. Isokin. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 967,200 104.5 971.020 0.53 1.95 67 305 1.5 5.0 10.0 308 105.0 8.4 12.5 15.0 978,540 0.50 1 84 69 69 69 308 104.6 1.87 69 982.290 0.51 309 104.5 20.0 25.0 985.980 0.49 1.80 309 17.7 104.8 30.0 989.430 0.43 1.58 70 308 25.2 104.3 35.0 0.31 1.15 307 40.0 995,280 0.30 1.11 72 308 53.2 104.5 997.990 0.26 0.25 9 45.0 0.97 73 73 302 58.3 104.2 50.0 0.94 73 74 1003.390 0.26 0.98 296 66.1 104.4 12 0.24 0.91 74 294 104.5 60.0 1006.020 74 69.4 Traverse 2 0.0 5.0 1006.020 1008.990 0.31 1.16 302 104.3 10.0 1012.100 0.34 1.27 76 76 306 4.7 104.4 15.0 1015.250 0.35 1.30 308 8.4 12.5 104.3 20.0 1018.260 0.32 308 104.2 25.0 1021.380 0.34 1.27 305 17.7 104.4 25.2 45.6 6 30.0 1024.500 0.34 1.27 78 78 307 104.4 40.0 1032,730 0.61 2.28 79 79 308 53.2 105.3 45.0 1036.980 2.36 80 80 58.3 104.5 9 0.63 309 55.0 1043,880 0.31 1.17 81 81 305 66.1 104.7 12 60.0 1046.690 0.27 1.02 81 81 301 69.4 104.4 104.5

0.397

1.476

74.5

74.5

305.3

Average:

Client:Metro VancouverDate:23-Jul-24Jobsite:WTE(Burnaby,B.C)Run: $3 - Cr^{+6}$ Source:Unit 1Run Time:12:17 - 14:14

Concentrations:

Hexavalent Chromium 0.0 mg/dscm 0.0000 gr/dscf

0.0 mg/Acm 0.0000 gr/Acf

Emission Rates:

Particulate 0.00 Kg/hr 0.000 lb/hr

Flue Gas Characteristics:

 Flow
 1137 dscm/min
 40136 dscf/min

 18.94 dscm/sec
 669 dscf/sec

2041 Acm/min 72080 Acf/min

Velocity 13.356 m/sec 43.82 f/sec

Temperature 153.9 oC 309.0 oF

Moisture 15.5 %

Gas Analysis 9.4 % O2

10.6 % CO2

30.068 Mol. Wt (g/gmole) Dry 28.200 Mol. Wt (g/gmole) Wet

Sample Parameters:

Sample Volume 2.2073 dscm 77.952 dscf

Sample Time 120.0 minutes Isokineticity 103.8 %

* Standard Conditions: Metric: 20 deg C, 101.325 kPa

Client: Metro Vancouver Date: 23-Jul-24 Jobsite: WTE(Burnaby, B.C) Run: 3 - Cr+6 Source: Unit 1 **Run Time:** 12:17 - 14:14 Control Unit (Y) 0 9899 Collection: Gas Analysis (Vol. %): Condensate Collection: Nozzle Diameter (in.) 0.2800 Cr+6 (grams) 0.00000049 -45.0 10.83 Impinger 1 Pitot Factor 0.8483 Impinger 2 279.0 Baro. Press. (in. Hg) 30.15 Traverse 2 10.33 9.58 Impinger 3 48.0 Static Press. (in. H20) Total (grams) 0.0000005 -19.50 Impinger 4 1.0 Stack Height (ft) 30 Stack Diameter (in.) 70.90 Stack Area (sq.ft.) 27.417 20.5 Minutes Per Reading 10.58 9 38 Gain (grams) 303.5 5.0 **Minutes Per Point** 5.0 Wall Dry Gas Temperature Stack Traverse / Pitot ^P Orifice ^H Isokin. Time Dry Gas Meter Temp. Inlet Outlet Vacuum Dist. Point (min.) (ft3) (in. H2O) (in. H2O) (oF) (oF) (in. Hg.) (oF) (in.) (%) Traverse 1 0.0 47.218 303 104.0 0.52 1.96 79 79 1.5 5.0 51.090 10.0 54.870 0.50 1.88 80 80 307 103.6 3 15.0 58,680 0.51 1.91 80 80 310 8.4 103.6 311 311 12.5 17.7 20.0 62.480 0.50 1.87 81 81 104.3 80 80 6 30.0 69,440 0.39 1.46 80 311 25.2 103.9 35.0 72.460 0.35 1.20 80 81 80 310 45.6 99.0 40.0 75.300 0.28 1.05 81 305 53.2 103.5 9 45.0 78.050 0.26 0.98 81 309 58.3 104.3 10 50.0 80.740 0.25 0.94 82 82 310 62.5 103.9 0.87 11 55.0 0.23 82 82 66.1 104.0 83.330 306 12 60.0 85.880 0.22 0.84 82 82 299 69.4 104.2 Traverse 2 0.0 85.880 5.0 88.910 0.32 1.20 82 82 311 1.5 103.6 82 82 82 82 10.0 92.090 0.35 1.31 311 4.7 104.0 15.0 0.34 1.27 312 8.4 103.9 95.220 20.0 98.350 1.27 312 103.9 5 25.0 101.540 0.35 1.31 82 82 311 17.7 104.3 6 30.0 104.820 0.37 1.39 83 83 312 25.2 104.2 108.950 45.6 104.0 35.0 0.58 301 8 2 34 40.0 113.200 0.62 310 53.2 104.2 45.0 117.520 0.64 2.41 84 84 312 104.4 58.3 10 50.0 121.420 0.52 1.95 11 55.0 124.380 0.30 1.12 85 85 316 66.1 104.2 127.150 85 85 12 60.0 0.26 0.99 302 69.4 103.8 0.394 309.0 Average: 1.478 82.0 82.0 4.6 103.8

Client: Metro Vancouver

Jobsite: WTE (Burnaby,B.C)

Parameter: N₂O

Molecular Weight: 44.00 grams/mol Reportable Detection

Lab Detection Limit: 0.5 ppm Limit: 0.92 mg/Sm³

Sample ID	Date	Time	N₂O ppm	N₂O mg/Sm³	N₂O mg/Sm³ @ 11% O₂
Unit 1 - Run 1 Unit 1 - Run 2 Unit 1 - Run 3 Average	July 26, 2024 July 26, 2024 July 26, 2024	1030-1130 1131-1231 1231-1331	5.50 6.60 5.00	10.07 12.08 9.15	9.96 12.36 8.34 10.22
Unit 2 - Run 1 Unit 2 - Run 2 Unit 2 - Run 3 Average	July 25, 2024 July 25, 2024 July 25, 2024	0942-1042 1044-1144 1146-1246	4.00 1.70 4.00	7.32 3.11 7.32	7.19 3.27 7.40 5.95
Unit 3 - Run 1 Unit 3 - Run 2 Unit 3 - Run 3 Average	July 25, 2024 July 25, 2024 July 25, 2024	0930-1030 1032-1132 1134-1234	6.00 4.30 4.00	10.98 7.87 7.32	10.11 6.84 6.28 7.74

Methane (ppmv) 3.30 ND ND ND ND 7.7 ND 3.30 ND Ethane (ppmv) ND	Date:	18-Jul-24		19-Jul-24	17-Jul-24			17-Jul-24			
Test Times:			5 0	D 0			5 0			5 .	
Methane (ppmv) 3.30 ND		Run 1	Run 2	Run 3	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3	
Ethane (ppmy)	Test Times:	11:18 - 12:18	12:39 - 13:39	08:51 - 09:51	11:33 - 12:33	12:35 - 13:35	13:40 - 14:40	09:42 - 10:42	11:00 - 12:00	12:16 - 13:16	
Ethene (ppmy)	Methane (ppmv)	3.30	ND	ND	ND	ND	7.7	ND	3.30	ND	
C3 as Propane (ppmw) ND ND<	Ethane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
C4 as n-Butane (pomy) DD ND C6 3a 26 26 as Pertaine 4 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ethene (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
C5 as n-Pentane (ppmwy) 2.1 ND C6 Cas n-Pentane 0.95 0.67 0.8 0.95 0.67 0.8 0.62 0.8 0.99 0.99 1.50 0.95 0.67 0.8 0.8 C6 as n-Hexane 0.80	C3 as Propane (ppmv)						ND				
C6 as n-Hexane (ppmy) ND AD AD C26 as n-Pentane 0.95 0.67 0.8 0.67 0.8 0.67 0.8 0.67 0.8 0.67 0.8 0.67 0.8 0.67 0.8 0.67 0.8 0.67 0.8 0.67 0.8 0.67											
Detection Limits:											
Methane											
Methane	C6+ as n-Hexane (ppmv)	2.8	4.4	2.5	3.7	8.3	6.0	2.7	2.1	2.6	
Ethane	Detection Limits:										
Ethene											
G3 as Propane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C4 as n-Butane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C6 as n-Hexane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C6 as n-Hexane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C6 as n-Hexane 1.6 1.8 1.7 1.9 2 3 1.9 1.3 1.5 Using 1/2 DL Convention Sample Date: 18-Jul-24 17-Jul-24 17-Ju											
C4 as n-Butane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C5 as n-Pentane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C6 as n-Hexane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C6 as n-Hexane 1.6 1.8 1.7 1.9 2 3 1.9 1.3 1.5 Using 1/2 DL Convention Sample Date: 18-Jul-24 19-Jul-24 17-Jul-24											
C5 as n-Pentane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C6 as n-Hexane 0.80 0.92 0.84 0.97 0.98 1.50 0.95 0.67 0.8 C6+ 1.6 1.8 1.7 1.9 2 3 1.9 1.3 1.5 Using 1/2 DL Convention Tas Jul-24											
C6 as n-Hexane C6+ 0.80 1.6 0.92 1.8 0.84 1.7 0.97 1.9 0.98 2 1.50 3 0.95 1.9 0.67 1.3 0.8 1.5 Using 1/2 DL Convention Sample Date: IB-Jul-24 IP-Jul-24 IT-Jul-24											
C6+ 1.6 1.8 1.7 1.9 2 3 1.9 1.3 1.5 Using 1/2 DL Convention Sample Date: 18-Jul-24 19-Jul-24 17-Jul-24 17-Jul-24 Unit 1 Run 1 Run 2 Run 3 Run 1 Run 2 Run 3 Run 3 <th co<="" th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	<th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>										
No. Part P											
Note Part	C6+	1.6	1.8	1.7	1.9	2	3	1.9	1.3	1.5	
Vinit 1 Run 2 Run 3 Run 4 Run 4 Run 2 Run 3 Run 4 Run 4 Run 2 Run 3 Run 4 Run 4 Run 4 Run 2 Run 3 Run 4 R											
Test Times: Run 1 Run 2 Run 3 Run 1 Run 2 Run 3 Run 1 Run 2 Run 3 Methane (ppm) 3.30 1.85 1.70 1.95 1.95 7.70 1.90 3.30 1.50 Ethane (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 Ethane (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 C3 as Propane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C4 as n-Butane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.77 C5 as n-Pentane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6+ a	Sample Date:	18-Jul-24		19-Jul-24	17-Jul-24			17-Jul-24			
Test Times: 11:18 - 12:18 12:39 - 13:39 08:51 - 09:51 11:33 - 12:33 12:35 - 13:35 13:40 - 14:40 09:42 - 10:42 11:00 - 12:00 12:16 - 13 Methane (ppm) 3.30 1.85 1.70 1.95 1.95 7.70 1.90 3.30 1.50 Ethane (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 Ethene (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 C3 as Propane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C4 as n-Butane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C5 as n-Pentane (ppm) 2.10 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6 as n-Hexane (ppm) 2.20 1.23 1.13 1.30 1.30 5.14 1.27 <td< th=""><th></th><th>Unit 1</th><th></th><th></th><th>Unit 2</th><th></th><th></th><th>Unit 3</th><th></th><th></th></td<>		Unit 1			Unit 2			Unit 3			
Methane (ppm) 3.30 1.85 1.70 1.95 1.95 7.70 1.90 3.30 1.50 Ethane (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 Ethene (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 C3 as Propane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C4 as n-Butane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C5 as n-Pentane (ppm) 2.10 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.34 0.33 C6 as n-Hexane (ppm) 2.10 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6+ as n-Hexane (ppm) 2.80 4.40 2.50 3.70 8.30 6.00 2.70 2.10 2.60											
Ethane (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 Ethene (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 C3 as Propane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C4 as n-Butane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.77 C5 as n-Pentane (ppm) 2.10 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.77 C5 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6 as n-Hexane (ppm) 2.80 4.40 2.50 3.70 8.30 6.00 2.70 2.10 2.60 Methane (mg/m³ as CH ₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30		Run 1									
Ethene (ppm) 0.48 0.55 0.50 0.60 0.60 0.90 0.55 0.40 0.45 C3 as Propane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C4 as n-Butane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.77 C5 as n-Pentane (ppm) 0.10 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.34 0.38 C6 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6+ as n-Hexane (ppm) 2.80 4.40 2.50 3.70 8.30 6.00 2.70 2.10 2.60 Methane (mg/m³ as CH ₄) 2.20 1.23 1.13 1.30 1.30 5.14 1.27 2.20 1.00<	Test Times:	Run 1								Run 3 12:16 - 13:16	
C3 as Propane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C4 as n-Butane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.77 C5 as n-Pentane (ppm) 2.10 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6+ as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6+ as n-Hexane (ppm) 2.80 4.40 2.50 3.70 8.30 6.00 2.70 2.10 2.60 Methane (mg/m³ as CH ₄) 2.20 1.23 1.13 1.30 1.30 5.14 1.27 2.20 1.00 <th></th> <th>Run 1 11:18 - 12:18</th> <th>12:39 - 13:39</th> <th>08:51 - 09:51</th> <th>11:33 - 12:33</th> <th>12:35 - 13:35</th> <th>13:40 - 14:40</th> <th>09:42 - 10:42</th> <th>11:00 - 12:00</th> <th>12:16 - 13:16</th>		Run 1 11:18 - 12:18	12:39 - 13:39	08:51 - 09:51	11:33 - 12:33	12:35 - 13:35	13:40 - 14:40	09:42 - 10:42	11:00 - 12:00	12:16 - 13:16	
C4 as n-Butane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.77 C5 as n-Pentane (ppm) 2.10 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6+ as n-Hexane (ppm) 2.80 4.40 2.50 3.70 8.30 6.00 2.70 2.10 2.60 Methane (mg/m³ as CH ₄) 2.20 1.23 1.13 1.30 1.30 5.14 1.27 2.20 1.00 Ethane (mg/m³ as CH ₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 Ethene (mg/m³ as CH ₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 C3 as Propane (mg/m³ as CH ₄) 0.27 0.31 0.28 0.32 0.33 0.50 <t< th=""><th>Methane (ppm)</th><th>Run 1 11:18 - 12:18 3.30</th><th>12:39 - 13:39 1.85</th><th>08:51 - 09:51 1.70</th><th>11:33 - 12:33 1.95</th><th>12:35 - 13:35 1.95</th><th>13:40 - 14:40 7.70</th><th>09:42 - 10:42 1.90</th><th>11:00 - 12:00 3.30</th><th>12:16 - 13:16 1.50</th></t<>	Methane (ppm)	Run 1 11:18 - 12:18 3.30	12:39 - 13:39 1.85	08:51 - 09:51 1.70	11:33 - 12:33 1.95	12:35 - 13:35 1.95	13:40 - 14:40 7.70	09:42 - 10:42 1.90	11:00 - 12:00 3.30	12:16 - 13:16 1.50	
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C6 as n-Hexane (ppm) 0.40 0.46 0.42 0.49 0.49 0.75 0.48 0.34 0.38 C6+ as n-Hexane (ppm) 2.80 4.40 2.50 3.70 8.30 6.00 2.70 2.10 2.60 Methane (mg/m³ as CH₄) 2.20 1.23 1.13 1.30 1.30 5.14 1.27 2.20 1.00 Ethane (mg/m³ as CH₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 Ethene (mg/m³ as CH₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 C3 as Propane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C4 as n-Butane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.51 C5 as n-Pentane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 <th>Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm)</th> <th>Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40</th> <th>12:39 - 13:39 1.85 0.55 0.55 0.46</th> <th>08:51 - 09:51 1.70 0.50 0.50 0.42</th> <th>11:33 - 12:33 1.95 0.60 0.60 0.49</th> <th>12:35 - 13:35 1.95 0.60 0.60 0.49</th> <th>7.70 0.90 0.90 0.75</th> <th>09:42 - 10:42 1.90 0.55 0.55 0.48</th> <th>11:00 - 12:00 3.30 0.40 0.40 0.34</th> <th>12:16 - 13:16 1.50 0.45 0.45 0.38</th>	Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40	12:39 - 13:39 1.85 0.55 0.55 0.46	08:51 - 09:51 1.70 0.50 0.50 0.42	11:33 - 12:33 1.95 0.60 0.60 0.49	12:35 - 13:35 1.95 0.60 0.60 0.49	7.70 0.90 0.90 0.75	09:42 - 10:42 1.90 0.55 0.55 0.48	11:00 - 12:00 3.30 0.40 0.40 0.34	12:16 - 13:16 1.50 0.45 0.45 0.38	
Methane (mg/m³ as CH₄) 2.20 1.23 1.13 1.30 1.30 5.14 1.27 2.20 1.00 Ethane (mg/m³ as CH₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 Ethene (mg/m³ as CH₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 C3 as Propane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C4 as n-Butane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.51 C5 as n-Pentane (mg/m³ as CH₄) 1.40 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C6 as n-Hexane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25	Methane (ppm) Ethane (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40	12:39 - 13:39 1.85 0.55 0.55 0.46 0.46	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49	12:35 - 13:35 1.95 0.60 0.60 0.49 0.49	7.70 0.90 0.90 0.75 0.75	09:42 - 10:42 1.90 0.55 0.55 0.48 0.48	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34	12:16 - 13:16 1.50 0.45 0.45 0.38 0.77	
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Ethane (mg/m³ as CH₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 Ethene (mg/m³ as CH₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 C3 as Propane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C4 as n-Butane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.51 C5 as n-Pentane (mg/m³ as CH₄) 1.40 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C6 as n-Hexane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25	Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6 as n-Hexane (ppm)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40	12:39 - 13:39 1.85 0.55 0.46 0.46 0.46 0.46	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 0.42	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49	1.95 0.60 0.60 0.49 0.49 0.49 0.49	7.70 0.90 0.75 0.75 0.75 0.75	09:42 - 10:42 1.90 0.55 0.55 0.48 0.48 0.48 0.48	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 0.34	1.50 0.45 0.45 0.38 0.77 0.38 0.38	
Ethene (mg/m³ as CH₄) 0.32 0.37 0.33 0.40 0.40 0.60 0.37 0.27 0.30 C3 as Propane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C4 as n-Butane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.51 C5 as n-Pentane (mg/m³ as CH₄) 1.40 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C6 as n-Hexane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25	Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6 as n-Hexane (ppm)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40 2.80	12:39 - 13:39 1.85 0.55 0.46 0.46 0.46 0.46 4.40	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 0.42 0.42 0.50	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 0.49	1.95 0.60 0.60 0.49 0.49 0.49 0.49 0.49	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 0.75 6.00	09:42 - 10:42 1.90 0.55 0.48 0.48 0.48 0.48 2.70	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 0.34 2.10	1.50 0.45 0.45 0.38 0.77 0.38 0.38 0.38	
C3 as Propane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C4 as n-Butane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.51 C5 as n-Pentane (mg/m³ as CH₄) 1.40 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C6 as n-Hexane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25	Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6 as n-Hexane (ppm) C6+ as n-Hexane (ppm)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40 2.80	12:39 - 13:39 1.85 0.55 0.46 0.46 0.46 0.46 4.40	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 0.42 0.42 1.13	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70	1.95 0.60 0.60 0.49 0.49 0.49 0.49 0.49 1.30	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 0.75 6.00	09:42 - 10:42 1.90 0.55 0.48 0.48 0.48 0.48 2.70	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 0.34 2.10	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60	
C4 as n-Butane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.51 C5 as n-Pentane (mg/m³ as CH₄) 1.40 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C6 as n-Hexane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25	Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6 as n-Hexane (ppm) C6+ as n-Hexane (ppm) Methane (mg/m³ as CH ₄) Ethane (mg/m³ as CH ₄)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40 2.80	1.85 0.55 0.55 0.46 0.46 0.46 0.46 4.40	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 0.42 1.13 0.33	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70 1.30 0.40	1.95 0.60 0.60 0.49 0.49 0.49 0.49 0.49 1.30	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 0.75 6.00	09:42 - 10:42 1.90 0.55 0.48 0.48 0.48 0.48 2.70 1.27 0.37	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 2.10	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60	
C5 as n-Pentane (mg/m³ as CH₄) 1.40 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25 C6 as n-Hexane (mg/m³ as CH₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25	Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6 as n-Hexane (ppm) C6+ as n-Hexane (ppm) Methane (mg/m³ as CH ₄) Ethane (mg/m³ as CH ₄) Ethene (mg/m³ as CH ₄)	Run 1 11:18 - 12:18 3.30 0.48 0.49 0.40 0.40 2.10 0.40 2.80 2.20 0.32 0.32	1.85 0.55 0.55 0.46 0.46 0.46 0.46 4.40 1.23 0.37	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 0.42 1.13 0.33 0.33	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70 1.30 0.40 0.40	1.95 0.60 0.60 0.49 0.49 0.49 0.49 0.49 1.30 0.40	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 0.75 6.00 5.14 0.60 0.60	09:42 - 10:42 1.90 0.55 0.48 0.48 0.48 0.48 2.70 1.27 0.37 0.37	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 2.10 2.20 0.27 0.27	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60	
C6 as n-Hexane (mg/m³ as CH ₄) 0.27 0.31 0.28 0.32 0.33 0.50 0.32 0.22 0.25	Methane (ppm) Ethane (ppm) Ethane (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6 as n-Hexane (ppm) C6+ as n-Hexane (ppm) Methane (mg/m³ as CH₄) Ethane (mg/m³ as CH₄) Ethene (mg/m³ as CH₄) C3 as Propane (mg/m³ as CH₄)	Run 1 11:18 - 12:18 3.30 0.48 0.49 0.40 0.40 2.10 0.40 2.80 2.20 0.32 0.32 0.27	1.85 0.55 0.55 0.46 0.46 0.46 0.46 4.40 1.23 0.37 0.37	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 0.42 2.50 1.13 0.33 0.33 0.28	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70 1.30 0.40 0.40 0.32	1.95 - 13:35 1.95 0.60 0.60 0.49 0.49 0.49 0.49 8.30 1.30 0.40 0.40 0.33	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 0.75 6.00 5.14 0.60 0.60 0.50	09:42 - 10:42 1.90 0.55 0.48 0.48 0.48 0.48 2.70 1.27 0.37 0.37	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 2.10 2.20 0.27 0.27 0.22	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60 1.00 0.30 0.30 0.25	
· • • • • • • • • • • • • • • • • • • •	Methane (ppm) Ethane (ppm) Ethane (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6 as n-Hexane (ppm) C6+ as n-Hexane (ppm) Methane (mg/m³ as CH ₄) Ethane (mg/m³ as CH ₄) C3 as Propane (mg/m³ as CH ₄) C4 as n-Butane (mg/m³ as CH ₄)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40 2.80 2.20 0.32 0.32 0.27 0.27	1.85 0.55 0.55 0.46 0.46 0.46 0.46 4.40 1.23 0.37 0.37 0.31	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 0.42 2.50 1.13 0.33 0.33 0.28 0.28	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70 1.30 0.40 0.40 0.32 0.32	1.35 - 13:35 1.95 0.60 0.60 0.49 0.49 0.49 0.49 8.30 1.30 0.40 0.40 0.33 0.33	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 6.00 5.14 0.60 0.60 0.50 0.50	09:42 - 10:42 1.90 0.55 0.55 0.48 0.48 0.48 2.70 1.27 0.37 0.37 0.32 0.32	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 2.10 2.20 0.27 0.27 0.22 0.22	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60 1.00 0.30 0.30 0.25 0.51	
C6+ as n-Hexane (mg/m³ as CH ₄) 1.87 2.94 1.67 2.47 5.54 4.00 1.80 1.40 1.73	Methane (ppm) Ethane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C5 as n-Butane (ppm) C6 as n-Hexane (ppm) C6+ as n-Hexane (ppm) Methane (mg/m³ as CH ₄) Ethane (mg/m³ as CH ₄) Ethene (mg/m³ as CH ₄) C3 as Propane (mg/m³ as CH ₄) C4 as n-Butane (mg/m³ as CH ₄) C5 as n-Pentane (mg/m³ as CH ₄)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40 2.80 2.20 0.32 0.32 0.27 0.27 1.40	1.85 0.55 0.55 0.46 0.46 0.46 0.46 4.40 1.23 0.37 0.37 0.31 0.31	08:51 - 09:51 1.70 0.50 0.42 0.42 0.42 0.42 2.50 1.13 0.33 0.33 0.28 0.28 0.28	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70 1.30 0.40 0.40 0.32 0.32 0.32	1.35 - 13:35 1.95 0.60 0.60 0.49 0.49 0.49 0.49 8.30 1.30 0.40 0.40 0.33 0.33 0.33	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 6.00 5.14 0.60 0.60 0.50 0.50	09:42 - 10:42 1.90 0.55 0.55 0.48 0.48 0.48 2.70 1.27 0.37 0.37 0.32 0.32 0.32	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 2.10 2.20 0.27 0.27 0.22 0.22 0.22	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60 1.00 0.30 0.30 0.25 0.51 0.25	
	Methane (ppm) Ethane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C5 as n-Butane (ppm) C6 as n-Hexane (ppm) C6+ as n-Hexane (ppm) Methane (mg/m³ as CH ₄) Ethane (mg/m³ as CH ₄) Ethene (mg/m³ as CH ₄) C3 as Propane (mg/m³ as CH ₄) C4 as n-Butane (mg/m³ as CH ₄) C5 as n-Pentane (mg/m³ as CH ₄) C6 as n-Hexane (mg/m³ as CH ₄)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40 2.80 2.20 0.32 0.32 0.27 0.27 1.40	1.85 0.55 0.55 0.46 0.46 0.46 0.46 4.40 1.23 0.37 0.37 0.31 0.31	08:51 - 09:51 1.70 0.50 0.42 0.42 0.42 0.42 2.50 1.13 0.33 0.33 0.28 0.28 0.28	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70 1.30 0.40 0.40 0.32 0.32 0.32	1.35 - 13:35 1.95 0.60 0.60 0.49 0.49 0.49 0.49 8.30 1.30 0.40 0.40 0.33 0.33 0.33	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 6.00 5.14 0.60 0.60 0.50 0.50	09:42 - 10:42 1.90 0.55 0.55 0.48 0.48 0.48 2.70 1.27 0.37 0.37 0.32 0.32 0.32	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 2.10 2.20 0.27 0.27 0.22 0.22 0.22	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60 1.00 0.30 0.30 0.25 0.51 0.25	
Total mg/Sm³ @11% O₂ as CH₄ 4.66 4.49 3.36 3.99 5.68 8.15 3.31 3.87 3.58	Methane (ppm) Ethane (ppm) Ethene (ppm) C3 as Propane (ppm) C4 as n-Butane (ppm) C5 as n-Pentane (ppm) C6+ as n-Hexane (ppm) C6+ as n-Hexane (ppm) Methane (mg/m³ as CH ₄) Ethane (mg/m³ as CH ₄) Ethene (mg/m³ as CH ₄) C3 as Propane (mg/m³ as CH ₄) C4 as n-Butane (mg/m³ as CH ₄) C5 as n-Pentane (mg/m³ as CH ₄) C6 as n-Hexane (mg/m³ as CH ₄)	Run 1 11:18 - 12:18 3.30 0.48 0.48 0.40 0.40 2.10 0.40 2.80 2.20 0.32 0.32 0.27 0.27 1.40 0.27	1.85 0.55 0.46 0.46 0.46 0.46 4.40 1.23 0.37 0.37 0.31 0.31 0.31	08:51 - 09:51 1.70 0.50 0.50 0.42 0.42 0.42 2.50 1.13 0.33 0.33 0.28 0.28 0.28 0.28	11:33 - 12:33 1.95 0.60 0.60 0.49 0.49 0.49 0.49 3.70 1.30 0.40 0.40 0.32 0.32 0.32 0.32	1.35 - 13:35 1.95 0.60 0.60 0.49 0.49 0.49 0.49 8.30 1.30 0.40 0.40 0.33 0.33 0.33 0.33	13:40 - 14:40 7.70 0.90 0.90 0.75 0.75 0.75 6.00 5.14 0.60 0.60 0.50 0.50 0.50	09:42 - 10:42 1.90 0.55 0.48 0.48 0.48 0.48 2.70 1.27 0.37 0.37 0.32 0.32 0.32 0.32	11:00 - 12:00 3.30 0.40 0.40 0.34 0.34 0.34 2.10 2.20 0.27 0.27 0.22 0.22 0.22 0.22	1.50 0.45 0.45 0.38 0.77 0.38 0.38 2.60 1.00 0.30 0.30 0.25 0.51 0.25 0.25	

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

APPENDIX - E FIELD DATA SHEETS

A. Lanfranco and Associates Inc.

			-			C-280		- 1	0.7800					
2	TRO VA	METRO VANCOLIVER WTF.	- RIPNARY	C C	NOZZLE	1 3K	DIAMETER, IN	ER. IN. 0.	3800	IMPINGER,	INITIAL	FINAL	TOTAL GAIN	
				i	PROBE	7 XX G	W&C CP	0848	~	VOLUMES	(mL)	(mL)	(mF)	
SOURCE //w:+	UN:+	3						0:		lmp. #1	520	108		
PARAMETE	ER / RUN'N	1 Cr6 /	K-1		PORT LENG	Ŧ				Imp. #2	K	3XX		
DATE	Jul	M. 22 7274	,		STATIC PRE	STATIC PRESSURE, IN. H2O	150 -	7.5 "		lmp. #3	45	48		
OPERATOR:	8.V.	, CS +	,		STACK DIAN	NETER	16 at			Imp. #4	C			
CONTROL UNIT	UNIT #	EIX	1860	39	STACK HEIGHT	HT.	30.0			lmp. #5	100			
			AH@ / 8x	5						lmp. #6	}	_		7
BAROMETH	RIC PRESS	BAROMETRIC PRESSURE, IN. Hg 30 07	20	,	INITIAL LEAI	_	2000	0/5"		lmp. #7				184
ASSUMED MOISTURE, Bw	MOISTURE	/8			FINAL LEAK	LEAK TEST	0.003	P 15"		lmp. #8		7		
											7057D	5 = 9	8	16
	Clock Time	Dry Gas Meter ft	Pitot AP	Orifice AH			Temperature °F			Pump Vac.		Fyrites		400
Point	WOX	886.133	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Вох	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %		12:
-		X90.00	253	761	65	3/8	11/19	8/10	59	M	56	10 23		· promi
2	10	893.95	0.55	2004	62	317	1 1					1		Tome
3		74.48	0.50	7.85	80	3/7	_		60	4				
4	20 。	901.58	D.S.2	1.73	08	317				,				
2		905.40	0.8/	1.90	8	3/8			17	6				pozici,
9	30	909.17	0.50	180	/8	3/1			,		001	0.01		po n
7		911 90	0.27	101	18	31/2			60	3			1/2	
00	40	9/459	0 25	0.94	82	3/0	A	A						
6	i.	8/7/8	0.23	089	82	308			29	3				-
10	20	419.44	0.23	087	× ×	306								
11		922.36	0 22	0.84	XX	30%			6/	M	10.00	27%		
77	90	324 48	010	240		274								
,						0	1	1	200	-				— 7
- 1		427.43	032	1.19	200	5/8	1180	250	22	^			-	7
7	10	431.02	036	134	84	319					N	10.23		
m ·	0	734.20	0.35	1.37	22	3/6			09	3				
4 1	707	737.30	033	1024	N N	13/15								1/4
2	C	240.44	033	1.3	2	M		1	2	M				
0 1	30	124.27	0.28	1350	A	MIT		1	0			4		_
\ 0	C.	1447	000	1.03	N/	177	P	*	24	7	00	001		
xo (o	40	XX, 3X	062	2.33	Q X	365				V		_		
6	i i	956.33	0.65	2.44	No.	317			B	Ŋ				
10	20	960.68	089	244	87	317								
11		963.75	037	1,20	83	2/6			S	K				""
12	103	986.66	029	011	T X	22					2.5	(0.N		
				8.					S	1				V V
														0.0
							2							-

								0,4%	7	13.6								2.1			1					1/2									4	-	19		
TOTAL GAIN (mL)																																						i i	
FINAL (mL)	/30	34%	8//	٢,					23	Fyrites	O ₂ Vol. %		526				9 73			- 1	8.8				Į.	43			- 1	9.5				26					
2 -	051	35	K	0	1000	5			1881	Fyr	CO ₂ Vol. %		100	1/4			00				10.0					10.0				10.5				9//					
IMPINGER!	Imp. #1	lmp. #2	lmp. #3	lmp. #4	mpc #5	Imp. #6	lmp. #7	lmp. #8		Pump Vac.	IN. Hg	6		٥	~	2		M		~		M			M		M		M	,	7		6	,	4	/			
3300											Impinger Exit	SS		25		SZ	,	83		2		9			N N		NA NA		33		29		60		29				
177			25	-			1,510	510)		Box	N/K							1	•					V (A		1						*						
DIAMETER, IN.			6/- 0	16 02	0.0		2.004	100 3	8 1	Temperature °F	Probe	W/K							_	>					NA							٠							
C-280		_	PRESSURE, IN. H2O	ER.	Ler		`		•		Stack	305	308	308		300	308	307	308	305	299	295	294		302	305	308	308	202	307	308	303	307	308	305	108			\top
NOZZLE (PROBE		PORT LENGTH		STACK DIAMETER	STACK HEIGHT		INITIAL LEAK TEST	FINAL LEAK TEST	+		Dry Gas Outlet	67	68	69	60	00	9	12	35	43	23	47	37		KY W	MO.	7.6	140	17	78	75	43	20	81	18	18			
B.C.		A.	S	S	8	1	스	F		Orifice AH	N. H ₂ O	561	161	68%	187	20	8	7.5	1	2.97	2.99	2-9×	0.9		16	14	130	177	11	137	2/3	228	2,36	661	11	70%			
- BURNABY B		12			6860	18 185 AND	S		3		IN. H ₂ O	0.53	0.52	050	0.5/	0 49 /	0431	0.3/1	0.30	026	0 25 0	0.26 (0 27		0 3/.	037	0 3%	0.37	0 24	0.37	0.57	06/	0.63	0.53	0.3/	0.27	,		
UVER WTE	43	(2 Cr 6 /	23 2024	1 50	18		E, IN. Hg 36./	12		Dry Gas Meter ft'	967.200	971.02	974.82	778.54	732.27	985.98	989 43	482.38	995.28	994.99	mon 66	003.39	1008.02		Jans. 37	0/2/0	1015.25	10/8.76	1021. SX	1024.50	028.53	1032 73	1036.98	Co 40.87	1043 88	1048, 69			
METRO VANC	E Muit	PARAMETER / RUN No	Julia	TOR: D.K.	CONTROL UNIT		BAROMETRIC PRESSURE, IN. Hg	ASSUMED MOISTURE, BW		Clock Time	0934	H	10		07		30		40	4	20 05	7	09			OT		07		30	1	40		20		1136			
	SOURCE	PARAM	DATE	OPERATOR:	CONTR		BAROM	ASSUM			Point	1	2	3	4	2	9		00	5	10	7	77	*	1	7 0	n	4 1	n	9		∞	6	10	11	12			

SOURCE PARAMETER / RUN NO DATE OPERATOR:				100	1	20 111	-		VOLUMEN			(IIII)	
ARAMETER / RUN	># / # Z								lmp. #1	1.50	184		
ATOR	1 9 0 ON 1	8-3		PORT LENG	PORT LENGTH				lmp. #2	SE	47.5		
PERATOR:	W 23 2024			STATIC PRE	SSURE, IN. I		954		lmp. #3	25	123		
9	1 CO - 3			STACK DIAN	ER ,	70 g			Imp. #4	(P)	1		
CONTROL UNIT	FE 18	V D 989	6.	STACK HEIGHT		30.0%			LEGGE ST	7000	-		
		DH@ / 82	65		ľ				Imp. #6)	_		
BAROMETRIC PRESSURE, IN. Hg	SSURE, IN. Hg $\Rightarrow D$,	, (2)		INITIAL LEAK TEST	Ì	700.0	150 d		lmp. #7		-9-		
ASSUMED MOISTURE, BW	IRE, BW /5 %			FINAL LEAK	,	700	4 () e		lmp. #8		. 77		
										195/2	5 2		
Clock Time	Dry Gas Meter ft	Pitot AP	Orifice AH			Temperature °F			Pump Vac.	Fyr	Fyrites		
Point 12:17	47218	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe /	Box	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %		F
1	8/09	182	76/	65	302	8/8	NA	75	V.				*
2 10	2,8 8,3	0.50	188	CA.	502	1				10.5	5%		1
		150	1.97	200	3/0			58	9				77
4 20	٧]	0.50	187	8	118								}
	7	0.48	1.32	8	3/1			5.5	M				
9 30	69 44	0.39	25%	200	37/								
	72.48		12	S	3/0			27	3	0.0	20		
8 40	25.30		106	No.	SOS	_							
	78.05		0 48	12	309	_		55	2				
10 50	5 ± 08	o K	0.90	82	3/0	4		1					
17	83333	0.23	100	22	304			Z	7	0	7.0		
	82.88	77.0	680	87	72.1								
+	1000	6	172	0	1	1/1	*	1	1				
2 10	٦,	444	34	100	2//2	N/N	X	26	_				
	95.27		44	00	1/2/2		-	×	2	101	2		
4 20	1.	2000	461	87	2/2			000	,)	1		
	1	0.35	1.3/	32	3//			29	6				
9 30	10%82	037	139	XX	3/7				,				e i
	108.95	0 58	222	34	301			29	И	0.0	00/	A	
8 40	113.20	067	234	87	310								
	1777	0.69	150	200	3/2	•	*	N N	h				
10 50	131.91	0.57	195	22	3/1/2								
11	124.38	0.30	1.1	X	15/25			\$	N	10 5	2		\
17 /2 //	127.15	0.76	097	88	302								11 8
													4.0

H

					ָ עַ עַ					NEW COL		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	(w)
	1/ W //	7			PROBE)	7	5 00 00 00 00 00 00 00 00 00 00 00 00 00	ç	VOLUMES		(mr)	(11112)
SOURCE	SOURCE Mact	+								Imp. #1	0	621	821
PARAMET	ER / RUN N	10 Metals	Rinn		PORT LENGTH	тн				Imp. #2	100	187	83
DATE		18 TW , 2024	•		STATIC PRE	STATIC PRESSURE, IN. H2O	-	7.3		lmp. #3	100	112	7
OPERATOR:		. 4			STACK DIAMETER	METER				Imp. #4	0	ır	\s
CONTROL UNIT	- UNIT CAE	E 6105	0,	9872	STACK HEIGHT	3HT				lmp. #5	100	162	X
			H@	787						lmp. #6	001	101	1
3AROME	TRIC PRESS	IN. Hg	7		INITIAL LEAK TEST	K TEST	0-0016	@151		Upstream Diameters	iameters	*	
ASSUMEE	ASSUMED MOISTURE, Bw		500		FINAL LEAK TEST	TEST	0.002	303015		Downstream Diameters	n Diameters		
	Ė	Day Goo Motor A	44 7 7.44	## W. C						:	,	festo	400
_	Clock Time	DIY GAS INICIEL II	Pitot AP	Ornince AH	5		lemperature 'F			Fump Vac.	Fy Fy	Fyrites	
Point 6	9831	830,952	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Вох	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %	
		834,44	6-3	1.88	88	304	250	222	24	9			
~		838.08	0.4.3	1.63	99	203					0	10,5	
w		841,76	0.44	1.67	86	303	250	25	55	9			
4		845,43	0.435	1.63	86	30							
10		99.648	0.58	4	22	300	250	250	25	8			
ø		865.05	0.63	3.37	88	249					0	201	
-		228 320	09.8	300	90	287	250	750	2	æ			
200		2000	90.00	200	25	200	. 60	2770	1	ð			
73			200	201	10	82	157	747	2	0	1/1	10 11	
5 -			3	1.57	63	20%	25	75	RA	1	1	0.00	
17		877,20	0,40	124	43	300							
					-	,	.1			9			
_		880.63	0.37	643	44	300	250	246	20	9			
C		2	039	1.46	94	30				, (9.5	11.2	
w		- 1	9	1,3	9	304	850 0	251	27	9	ò	10	
3		*	O	7.27	9.9	308							=
N		*	96,39	1:50	96	304	250	250	5	7	- 1		
9		5	0,40	187	96	306					2	0.11	
2		404 13	0.86	9,15	90	307	250	250	23	20			
80		900 50	0.60	0000	96	900				4			
9		911.05	0.63	2.50	97	306	かいつ	727	7	5			
91		9 5, 60	0.65	2000	97	307	,		- 1		4.5	0,71	
		*	94.0	8,63	22	396	200	252	10	2			
4	400	924.85	995	2027	6	307	90 Majori	*					
													1
$\frac{1}{1}$													

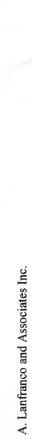
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CLIENT MV W	The state of the s		,-	NOZZLE PROBE	0231 7C	DIAMETER, IN.	E C	2818 23	IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
SOURCE (An.									lmp. #1	0	201	108
METER /	Metals	2 m2		PORT LENGTH	盰				lmb. #2	901	160	0.9
DATE 187	10 2 2 Cl 3 V			STATIC PRE	STATIC PRESSURE, IN. H2O	150	6		lmp. #3	100	8	89
OPERATOR: L	, A			STACK DIAMETER	AETER				lmp. #4	G	10	ĸ
CONTROL UNIT	CAE GIOT	× 0 000	4	STACK HEIGHT					lmp. #5	000	100	_
BAROMETRIC PRESSURE, IN. Hg				INITIAL LEAK TEST	K TEST /	JAN IND IST	1/		Upstream Diameters	iameters	2	9
ASSUMED MOISTURE, BW		135/0		FINAL LEAK TEST	TEST	THE REAL PROPERTY.			Downstream	Downstream Diameters		
	-	}									Testo	7
Clock Time	Dry Gas Meler It	Pitot AP	Orifice AH	Day Gos	Ctool	Temperature °F	Down	Immino	Pump Vac.	Fy	Fyrites	
11.4	925,356	IIN. FI2O	IN. H2O	Outlet	Stack	rione	POX	impinger Exit	IN. Hg	Vol. %	Vol. %	
_«	63886	0.36	83	0 5	308	251	3448	19	R			
te	70	222	50	20	2000	020	20	7	V	10	10.8	
3	939 93	14.0	- 40	20	202	3	0.0	3				
N	1	025	7	63	307	230	280	5.50	24			
9	946,35	0.37	20		307					4.7	11.0	
-	- 24	とゆう	99	20	307	38	250	28	1	8	.0	
Des	973,00	200	26.67	97	400	ついと	25.	4	1			,
9	965 20	01.0	284	07	200					5	2	
7	970-00	0.63	2.76	2.6	210	231	251	28	1			
6	974.71	99.0	3.68	26	240							
	478.47	(4)	121	47	209	230	230	4	7			-
C.	987 38	0 40	1,75	26	30%			}		9	2	
હ	9	0 44	1,79	25	201	252	281	2	7			
41	٦	0 75	1.83	250	2007		1	. 1	7			
2	2000000	0000	240	200	200	124	727	2	1	V 5	* !	
Qr-	5	2000	440	50	300	200	727	7 2	1		2	
· &		200	4.0.0	200	200	5	0					
4	11.67	0,50	205	99	305	280	120	12	1			
U	15.67	C47	1,93	dd	305					00	0 11	
\mathbb{H}	19, 59	0.45	184	100	306	250	252	しか	7			
13.16	23.8	0 45	1.63	00	305							



The colon Colon			,			NOZZLE (1,52	DIAMETER, IN.	ER. IN.	2	IMPINGER.	NTIAL	FINAL	TOTAL GAIN
STATIC PRESSURE IN H	CLEN	25	1			1	7	0	1282	93	VOLUMES	1	(mL)	(mL)
Close	SOUR	CE UN: F	14.			9					lmp. #1	2	186	
Color Time Dry Gas Moser if Dry Gas Strack Height Dry Gas	PARAI	METER / RUN I	1	123		PORT LENG	ТН				lmp. #2	100	182	
Name Name	DATE	1 +	,			STATIC PRE	SSURE, IN. 1		17.		lmp. #3	00)	1/0/1	
N. Hg	OPER.	1	+(.6			STACK DIAN	1ETER		70 20	2	Imp. #4	0	0	
N. Hg 2-0	CONT	0	C GIOS	1	22	STACK HEIG	SHT			,	lmp. #5	(00)	10/	
Ni Hg				"	787						lmp. #6	900)	100	
	BARO	METRIC PRES	IN. Hg	.)]		INITIAL LEAI			3.0		Upstream Di	ameters		
Clock Time Dry Gas Meter if Pints AP Orditics AH Front AP Pinmy Vac. Pinmy Vac. Pinmy Vac. Pinmy Vac. Pints AP	ASSU	MED MOISTUR	E, Bw	\ I		FINAL LEAK	,		ا و د		Downstream	Diameters		
9/45		Clock Time	Dry Gas Meter ft	Pitot AP	Orifice AH			lemperature °F			Pump Vac.	F	тites	
10	Point		28,873	IN. H_2O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Вох	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %	
10 (4) 67 (4) 64 (4) (4) (4) (4) 64 (\vdash		62,45	ith	1.57	28	211		252	55	40			
10	4	0)	(ob, 67	543	1,01	58	311					- 6	10.3	
10	m	40	109, 50	3	1.76	200	118	057			400	4		
\$0 \$\\\ \frac{8}{5}\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	10	3	Ż	1/2	200		3/1	000	1 570	00				
10 10 10 10 10 10 10 10 10 10 10 10 10 1	e	30	イカーと	18/20	(6)		3/1		2					
\$ \(\text{to} \) \(\text{to}	1		1.	也为"	1.77	16	311	252	252		N			
5.0 (10) 7.1	8	No	7	4	2,15	26	118							
100777 12 120 120 257 250 47.0 100721 121 121 122 123 123 125 125 125 125 125 125 125 125 125 125	- 5	0		16	133	250	31/	222	700	22	\vee		10,5	
10 (107.1) 124 (1.63 95 326 257 35 3.0 10 (10.32) 125 396 305 257 35 3.0 10 (10.32) 125 396 306 325 257 37 3.0 10 (10.32) 12 (10.32) 396 306 306 357 5.0 10 (10.32) 12 (10.32) 396 306 306 357 5.0 10 (10.32) 12 (10.32) 396 396 350 57 5.0 10 (10.32) 12 (10.32)	2 =	0.5	九	22	2027	98	200		367	7				
10 107.11 127 138 15 308 150 257 37.0 10 107.11 125 136 35 308 150 257 37 3.0 10 107.11 128 136 36 306 257 27 37 5.0 30 121.48 126 126 306 254 25 59 5.0 30 121.48 126 126 306 254 25 59 5.0 30 121.48 126 126 306 254 25 59 5.0 30 121.48 126 126 306 254 55 4/5 8/8 9 30 121.48 126 126 126 254 55 4/5 8/8 9 30 121.48 126 126 304 150 351 55 4/5 30 121.48 126 126 126 126 126 126 126 126 126 126	2	100	104,70		1.51	93	311							
10 110 12 12 12 12 12 12 12 12 12 12 12 12 12	-		104.01	th	211	W-	264	~	1,00		- 1111			
10:40 10:50	7	01	16.01	20	16	36	180		3		١.			
20 (13,80) 23, 25, 250, 250, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25	3		58,711	921	,99	95	305	282	752	57	١,			
30 (21, 48, 326, 326, 326, 326, 455, 53, 33, 45, 45, 45, 45, 45, 45, 45, 45, 45, 45	2	R	08'511	£2°	1603	95	306				1	8.6	4.4	
24 125, 25 125 25 26 200 25 25 25 25 25 25 25 25 25 25 25 25 25	V	6	١.	25	96	V-	306	254	22	3	- J			
54 133, 146, 148, 148, 148, 148, 120, 120, 120, 130, 148, 148, 148, 148, 148, 148, 148, 148	36	30	1.	275	23	20		200	7.80	60	4			
54 (33, 67, 1,98 97 506 220 251 55 4/5 818 9 19.46, 98, 99, 126, 88, 304, 200 351 55 4/5 10.46, 126, 126, 126, 126, 126, 126, 126, 12	10	0/7	1	1/2	28/	5	July Comments	000	3	,				
300 135 900 155 168 83 300 150 150 150 150 150 150 150 150 150 1	8		3	6/11	1,89	20	2000	220	254	65	10	8,8		
25 100 027 hos 36 37 this 25 hos 300 100 100 100 100 100 100 100 100 100	0	24	4	15	1,96	4.5	204		2				,	
10.49 END test 11.8	- 5		d	22	1.25	25	2001	450	100	25	27			
	7	111111111111111111111111111111111111111	1	41.1	1001	25	200							
		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3											

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	FINELL		1			NOZZLE (3	2508-6	DIAMETER, IN.	ER, IN.	2603	IMPINGER,	INITIAL	FINAL	TOTAL GAIN	7
The properties of the proper		MO	10) (4)			PROBE A	D	J	12° 9	83	VOLUMES	(mF)	(m[)	(mL)	
NOTICE PRESSURE, IN HEO	SOURC	ほんかいけ	4								lmp. #1	0	140		
STATIC PIERESURE, IN, HOO	PARAN	IETER / RUN		12		PORT LENG	TH				lmp. #2	007	2,2		
STACK HEIGHT TOO STACK H	DATE		. 57			STATIC PRE	ESSURE, IN.	H20	19		lmp. #3	100	124		П
Alice Alic	OPER4		1-1-			STACK DIA	METER	1	000		lmp. #4	0	1		
MITAL LEAK TEST	CONT	OF UNIT S	CA62	かせる、人	2	STACK HEI	SHT	V '	00		1mp. #5	100	hol		
Minist Leaf Test Col				7	7						lmp. #6	081	201		
	BARON	METRIC PRES		1.85		INITIAL LEA	K TEST	100/00	11/1		Upstream Di	ameters			
Cock Time	ASSUL	IED MOISTUF	RE, Bw	0/00		FINAL LEAK	TEST	coldi	12.4		Downstream	Diameters			T
			21								+CS T.	五			
		Clock Time	Dry Gas Meter ft	Pitot AP	Orifice AH			Temperature %			Pump Vac.	Fy			
10 10 10 10 10 10 10 10	Point	W. 24	190,829	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Вох	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %		
13.116 13.12 14.	-	z	632,43		2,50	46	788	25%	251	205	6.0				Ī
15 15 15 15 15 15 15 15	2	03	156 Tr	142	236	2,8	207								
10 (2011) 12 (2012) 134 (2012) 135 (2012) 13	3	Ş	54,029	13.7	2.08	98	367	250	W I	55	0		11.12		
25 646 24 34 136 34 120 257 55 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2	01,	S	,34	2,15	X	200								
25 654 65 134 2.22 50 304 7.50 257 59 6.0 26 664 66 35 7.05 30 4 750 7.57 59 6.0 26 664 66 35 7.05 30 4 750 7.57 50 55 5.7 4.5 10 10 10 10 10 10 10 10 10 10 10 10 10	~	250	DS.		7.98	SA.	300	250	257	22	9				П
25	0	30	Z	4000	0111	23	500								٦
13. 13. 13. 13. 13. 13. 13. 13. 13. 13.	ct	25.	4		202	S.	7505	250	7.52		0				I
20	×	2	4	200	2000	20	280		(-				T
10 10 10 10 10 10 10 10 10 10 10 10 10 1	2	7	1	136	147	5	700	650	757	28	3,2				
10 (20, 12) 137 137 139 39 39 400 30 30 400 30 50 50 50 50 50 50 50 50 50 50 50 50 50	3	0/2	2 500	137	1000	20	202		(1			T
10 (45) (10	2	3	de	127	17.	20	35	1.0	08		(27)	3/10	0111		T
13. 11. 13. 11. 12. 12. 12. 12. 13. 14. 14. 14. 15. 12. 12. 13. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14						3	3								T
134 174 93 334 170 257 55 5.5 4.5 10 35.5 15.5 15.5 15.5 15.5 15.5 15.5 15.5	n		890°TB	132	1.83	93	304	200	280	55	5.5				Τ
124 129 34 305 250 245 55 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.	10	Q.	10%4" 1/8	12'	1.78	25	202					8.8			
201 59 124 93 326 250 24.8 59 8.5 201 58 56 14.9 30 30 30 30 50 50 50 50 50 50 50 50 50 50 50 50 50	7		1088. DI	:28	291%	20	307	000	257	53	5,5				
200 200 200 200 200 200 200 200 200 200	7	2,0	V	127	1,54	93	300								
315, 56 144 245 344 365 257 552 6.5 315, 70 155 334 345 346 750 251 59 9.5 315, 70 155 334 345 345 345 346 750 251 59 9.5 315, 70 155 334 345 345 345 345 346 750 351 59 9.5 315, 70 15, 70	O		-	28	(de)	23.	305		245	20	2,8				П
715. 20 155 2.34 94 3.05 15.0 2.5 3.5 4.5 3.5	36	変の	1	13%	193	3	30.7			-	1				T
715. 24 155 234 95 706 7.50 251 59 9.0 715. 24 155 3.01 95 244 25 38 9.0 715. 24 155 3.03 95 244 20 051 58 9.0		6)	1	125	1×10	20	Car	5	12 12	7	9				T
718 84 15 3.34 94 792 450 150 450 538 9.57 745 745 745 745 745 745 745 745 745 7		2	T	27	12	1	JOK.	000	130	50	Ι,	0	107		T
712 57 32 35 35 35 35 35 35 35 35 35 35 35 35 35	-	60	P	4	2000	2	100	100	100	7	1	0	12		T
728 74 152 3.63 GS 74 1W3	=	2	12 00	1	121	0	120	5	500	20	20				T
CNII FSX	2		78	14,	70.7	20	2017		3	8					T
		17.76	CAT TAX	1		,									Π
															Γ



CHENT		War I			NOZZLE (2 504	Z DIAMETER, IN.	13	2/69/2	IMPINGER, INITIAL	INITIAL	FINAL	TOTAL GAIN
		1			PROBE #	1 Comune	2 0	Cp 1848	M	VOLUMES	(mF)	(ml.)	(mL)
SOURCE	Cont	-1								Imp. #1	0	234	233
PARAME	PARAMETER / RUN No	No Motals //	22		PORT LENGTH	ЭТН				lmp. #2	100	18,7	83
DATE	ナイナ	177			STATIC PR	STATIC PRESSURE, IN. H20	H20	19		lmp. #3	S	126	36
OPERATOR:	OR: AC	116			STACK DIAMETER	METER	11	200		Imp. #4	0	3	0
CONTROL UNIT	LUNIT	こりをい	hth.	N	STACK HEIGHT	GHT	5	000		lmp. #5	100	1673	a
			DH@ /cs	128						lmp. #6	100	200	0
BAROME	TRIC PRES	IN. Hg	. 88		INITIAL LEAK TEST	K TEST	1001	10		Upstream Diameters	ameters	2000)
ASSUME	ASSUMED MOISTURE, BW				FINAL LEAK TEST	(TEST	100/00	407		Downstream Diameters	Diameters		
	Clock Time	Dry Gas Meter ft	Pitot AP	Orifice AH			Temperature °F	[7		Pump Vac.	Fyr	Fyrites	
Point	13.58	721.624	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Вох	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %	
H		732,55	±2'	551	7/2	303	186	353	89	11.5			
10	0	Wann	1,	150	20	300	120	17,0	- 87 8	17	17 10		+
4	20	ながれ	135	4.90	100	N. Carrier		0	1	4	4		
is	2	746,30	32	7,60	92	205	751	153	38	0,2			
e	30	78,02F	13	1.37	93	305							
+0	110	がたなが	Ž,	1257	2 6	120	227	187	200	0			
00	20	17.00	167	200	200	No.	00	2710	30	0		Ţ	
2	Sp	ナナーのプ	701	20	90	787		22			56	11.01	
17		12. OKE	2/2	2143	1350	200	55	223	38				
C	4	120 07	14	120 M	2/0	202							
\		18 J. 18	1/11	1202	46	has	252	252	35	3,4	(
9	Q	0	19	4	9	1205					26	511	
~		150 July		3000	5	386	260	285	25	37			
20	2	ACT TO	100	1,4	000	350	126	186	88	5 %			
10	30	11	196	2,60	00	1755							
ch)	97.	1	25	4.3	100		250	200	35	11.5	2		
73	48	A STATE OF THE PARTY OF THE PAR	2	交交	00/	77	SHE	anc	33	V	2	((/)	
5	9	47.13	773	75	160	サジン		2	7				-9-
	25	421.51	2	1.15	101	202	96	して	2	2,0			
N		438,22	. 38	200	101	SOF			1				
	15:00	CALDES		-	1				1				
	8												
						н							
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PROBE	C IEN.	T Ame ()				NOZZLE (%	2012	DIAMETER, IN	ER, IN.	260	IMPINGER!	INITIAL	FINAL '	TOTAL GAIN
Cook Time Prince At Prin		5	2			PROBE A	1. (3 VKO	5	1 Kg 1 0	5.3	VOLUMES	(mL)	(ml.)	(mL)
The color of the	SOUR	CE / WIT	77								lmp. #1	O	196	222
STATIC PRESSURE. IN H20	PARA	METER / RUN I	11/10	13		PORT LENG	E				lmp. #2	(00)	991	99
STACK HEIGHT	DATE	7 62	29			STATIC PRE	SSURE, IN. F	420	14		lmp. #3	007	169	100
No. 10 100 1	OPER,	ATOR:	2466			STACK DIAN	METER		1000		Imp. #4	0	5	Ŋ
First Firs	LOS	ROL UNIT,	1	7 67 Y	32	STACK HEIC	洪	Č	2000		lmp. #5	001	101	7
Winth Lear Test				S-/ @HV	25			ľ			lmb. #6	100	292	3
	BARO	METRIC PRES	SURE, IN. Hg	188		INITIAL LEA	أً	0	1,4		Upstream Di	ameters		
Clock Time	ASSU	MED MOISTUR	E, Bw	10		FINAL LEAK	1	0			Downstream	Diameters		
Q ₁ (25 SZC, J ₁ (g) N. H ₂ (s) N. H		Clock Time	Dry Gas Meter ft	Pitot AP	Orifice AH			remperature °F			Pump Vac.	Fyr	ites	
10 844 47 17 200 34 200 350 350 350 350 350 350 350 350 350 3	Point		836,419	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Вох	Impinger Exit	IN. Hg	CO ₂	O ₂ Vol. %	
\$5 \$60 90 \$7.0 \$7.0 \$7.0 \$7.0 \$7.0 \$7.0 \$7.0 \$7.	-		840' 43"	137	2005	45	705	286	132	80	5,0			
10. 25. 12. 12. 12. 12. 12. 12. 12. 12. 12. 12	710	Q	27.00	138	772	Y	302	1101		,	9	600	126	
\$50 \$\frac{45}{500} \frac{1}{500} \frac{1}{5	12	ć	Serving Mit	124	20.00	4	1797	200	2	8	s C	21/3	A3 //	
40 \$100	1	3	956,24	200	1000	4.47	Sus	255	182		5			
40 \$100 64	4	30	8CD1, 901	:53	1.83	tt	705							
40 \$40.00	1		E	135	567	3	3	252	252					
40 \$740,94 44 215 \$7 30 25 155 55 45 45 45 45 45 45 45 45 45 45 45 4	245	CLA	840, 11	175	という	200	18/		1000	d.		71 80	6	
10 \$45,000	3	90	10 01	177	1,00	000	100		-	7	4	2	100	l
10 888.72 128 22.5 25.5 25.5 25.7 25.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	11		51.0	36	219	de la	301	25%	257	58	1			
211 36 25 25 25 25 25 25 25 25 25 25 25 25 25	12	98)	91:538	32	61.0	83	501			2				
10 \$405.41 12 124 545 250 250 250 250 250 250 250 250 250 25	-		Ct. 500	79	11.4	175	20.2	7.7	250	00	1			1
20	1	07		121	15.1	20	500		1		27.2			
30 Part 12 305 23 25 25 25 25 25 25 25 25 25 25 25 25 25	5		13	,28	1.58	35	200	F257	252	50	345	9		
30 900 03 123 123 205 23 205 130 03 100 03 1	×	20	12 1668	125	14.41	200	30%			•		LV	11.20	
20 9 20 20 20 20 20 20 20 20 20 20 20 20 20	7	. (000,000	26	17.1	200	1365	250	52	N.	20			
40 03 03 03 03 03 03 03 03 03 03 03 03 03	Y	000	100000	107	ナップ	36	300	4	1 20	60	20			
20 976 155 355 350 155 355 350 05 05 05 05 05 05 05 05 05 05 05 05 0	10	Q.M	011	17.	245	4	300	25	cz	1	11/1	3		
50 976 94 150 336 503 303 300 05 30 300 05 300 05 300 05 300 300	6		97 5	0.0	3.5	4	195	186	8/16	50	5	200	1001	
11.27 93 150 150 150 150 150 150 150 150 150 150	10	20	97,070	150	33%	Sa	303					- 17		
11.24 255 Pest 12.17 2.18			221.00	ř.	250	\$	303	X	125	n	λç			
4	7	4	57.7	147	12.18	25	2007			8				
		1010												
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CHENT N.	-	1 /1			NOZZLE (F 0.3092	DIAME	ER, IN. 0.309	37	IMPINGER,	=	FINAL	TOTAL GAIN
	o to	Man MIL	·		PROBE	76	පි	000493		VOLUMES	(m)	(mL)	(mL)
SOURCE	(An)	3								lmp. #1	00	238	238
PARAMETER / RUN No	R / RUN I	Metals	Kun		PORT LENGTH					lmp. #2	901	186	98
DATE	16.7	10/1 2024			STATIC PRE	STATIC PRESSURE, IN. H2O	420 - 17			lmp. #3	1001	18	20
OPERATOR:	4	, A	5		STACK DIAMETER	AETER				lmp. #4	0	a	0
CONTROL UNIT	LIND	100	3	6866	STACK HEIGHT	봈				lmp. #5	100	101	
			AH@ 1 25	*						lmp. #6	00	00	0
BAROMETI	RIC PRES	N. Hg	30.05		INITIAL LEAK TEST	K TEST	0.000	1151		Upstream Diameters	ameters	20	
ASSUMED MOISTURE, Bw	MOISTUR		069		FINAL LEAK TEST	TEST	0.001@15	1151		Downstream Diameters	Diameters	1	
ō	i.	Day Goo Motor 65	41.00	3. (:	1	C5 FB	
_	Clock Time	DIY GAS MEIET II	Pitot AP	Oritice AH			1emperature 7F			Pump Vac.	£	Fyrites	
Point go	29:22	586,564	IN. H_2O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Вох	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %	
-		589,96	028	153	78	314	252	255	28	S			
~		343, 40	600	157	178	213	17)	10,1	10.4	
en		\$ 36.84	0 29	1.87	28	516	232	251	20	30			ri (
3		-	0.275	140	29	20		3		,			
S		603, 57	9,275	1.50	80	318	72	253	29	vQ.			
٩		1,8.709	033	174	30	217					19.5	10,1	
7		611.67	0 49	8.63	98	3(8	751	230	B	100		-	
80		66.09	0.47	12	83	317							
6		620.71	0,80	2.79	89	217	200	547	20	8		- 1	
9		4	080	7	84	201	-				100	4,0	
73		649.59	2	64.0	282	201	780	057	20	p			
4		6 22 7 2	0 42	d. 70	90	716							
-		628 19	0 47.5	226	9%	315	2 40	からの	03	7 50			
ત		02.547	そだっ	つまか	28	20					0.01	0000	
ನ		- 9	0,412	263	81	2000	920	222	57	8			
4		651,56	0,49	2,70	88	318							
55		656.04	140	2.60	89	318	350	250	40	8			
9		180.099	0.49	271	89	319				>	10 7	103	
1		664.13	0,29	1.60	90	318	252	28/	55	7			
8		120,799	0.25	1.39	2			>	2				
)Cer		670,55	0.93	1,78	9	3/8	232	281	57	7			
c		612.56	0	111	9	367)	-		,	10.5	10,1	
-	k	676.50	0.20		93.	317	251	250	20	9	15 15 15 15 15 15 15 15 15 15 15 15 15 1	0	
4	20	6/9 72	02.0	6	S.	216							
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C IENT	3 7	-	(4.4)		NOZZLE &	5-0.30%	DIAMETER, IN.	ER, IN.	43042	IMPINGER!	INITIAL	FINAL	TOTAL GAIN
2	10000	Van WIT	. (PROBE	75	Cb	a	193	VOLUMES	(mL)	(mr)	(mL)
SOURCE	Chor(+	9								lmp. #1	0	326	226
PARAMETER / RUN No	R/RUNN	Metoda	Rund		PORT LENGTH	этн				lmp. #2	100	171	7
DATE	175				STATIC PRI	STATIC PRESSURE, IN. H2O	H20 - 18	2,2		lmp. #3	00)	5:1	<u>_</u>
OPERATOR:	11	-			STACK DIAMETER	METER				Imp. #4	0	0	
CONTROL UNIT	UNIT F	80	Y 0.989	2999	STACK HEIGHT	GHT				lmb. #5	100	180	
			8'1 @H∇	15%						lmp. #6	1961	106	
ROMETR	RIC PRESS	BAROMETRIC PRESSURE, IN. Hg	29.91	8	INITIAL LEAK TEST	AK TEST	0000	2		Upstream Diameters	ameters		
SSUMED	ASSUMED MOISTURE, BW	; Bw	of 91		FINAL LEAK TEST	(TEST	5000 B	15		Downstream Diameters	Diameters	Charle	600
Ğ	Clock Time	Dry Gas Meter ft	Pitot AP	Orifice AH			Temperature °F			Pump Vac.	F	Fyrites	
Point OF	0010	680,205	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %	
		41 7489	480	202	200	319	280	253	63	N			
8		7	0 55	906	80	319					11.0	9,5	
2		693.05	9 25	202	80		80 80	252	9	is			
42		6955.99	70	200	583	200	V2 0	100	0/	٨			
2		4	200	667	700	1	600	402	20	Ω	'	1	
4		10000	300	200	i t	2/2	420	253	80	b	1100	5	
8		4	ec	7	85	319	1000			1			
9		712 61	0.29	1,09	82	3.6	25	253	79	Ŋ			
99		715.47	0 27	103	98	317					8 01	9.7	
		718 00	CE	4.87	99	318	750	467	ls o	IJ			
4		720.60	0,23	0.81	199	1/2			ė:				
		723 65	0,315	1.20	88	316	251	282	58	150			
3		726.73	0.32	1.32	89						11,0	9,5	
50		729 86	0.33	196	60	318	231	989	28	2			
2 8		4	2000	1.00	80		027	020	000	e			
97		129, 20	0.22	26.		20.00	000	\$00	0	2	0	0	
-		J	イガン	035	20	2018	250	126	OX	2	*	4	
20],	0.59	200	40	21.2	200	10.0					
a		121.21	ナック	208	70	n'i	25/	125	かなか	17			
97		1	22	1,6%	2	1/2)	8/14	6,7	
Z		758 83	0,50	1,73	200	3.6	250	250	万四	1			
17 110	60	762. 50		597	95	211				B			
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Continued Cont	CLIENT	N		e (NOZZLE	281	DIAMET	R. N.	2818	IMPINGER	=	FINAL	TOTAL GAIN
Clock Time Color Clock Time Clock Ti	201108	3 = 4	200	4		PROBE	1	5	CHARLS A		VOLUMES Imn #1		(mr)	(mr)
Color Time Dr. Cas Month Dr. Cas Month Dr. Cas	PARAN	ETER / RUN !	2			PORT LENG				000	Imp. #2	000	130	135
Continue Continue	DATE	17	12	Muse		STATIC PRE	SSURE, IN. I	2	01		Imp. #3	100	701	30
Continue of Continue of	OPER4		k			STACK DIAN	AETER		9		Imp. #4	0	0	0
1, 45	CONT	OL UNIT		V	66	STACK HEIC	3HT				lmp. #5	100	100	0
Fig. INITIAL LEAK TEST 0.000 Continuences				-	24					53	lmp. #6	100	00	G
16% Pinot AP Pin	BARO	METRIC PRES				INITIAL LEA	K TEST	1000	S		Upstream Di	ameters		
CHOA Time Dry Gas Meter II IN Hyo Dry Gas Stack Probe Box Inspired IN Hig Vol. 19, 1941 1138 763, 175 1138 763, 175 1138 733 754 115 114 43 43 114 115 470 15 15 15 15 15 15 15 15 15 15 15 15 15	ASSUN	MED MOISTUR	Œ, Bw	16%		FINAL LEAK	TEST		181		Downstream	Diameters		- 1
126 126 127 128 129 128			4						01 01					- 1
175 75 175 1840 1840 1850		Clock Time	Dry Gas Meter II	Pitot AP	Orifice AH			Temperature °F			Pump Vac.		- 1	
776 18	Point	1138	763,175	IN. H ₂ O	IN. H ₂ O	Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	IN. Hg	CO ₂ Vol. %	O ₂ Vol. %	
76, 23	~		7	0.30	1,15	46	317	150	954	9	9			
772, 38	~			031	1.19	46	319					11.0	46	
775, 43 18, 43 18, 43 18, 43 18, 43 18, 43 18, 44 18, 4	60		d	- 3	1.26	80%	. 4	254	283	0.9	9			
78 43 6 44 6 115 94 75 75 75 75 75 75 75 75 75 75 75 75 75	ક			0,31	6	44	319				,			
765, 32 4.23 1.33 94 317 751 755 60 8 11.0 9 798, 45 1.43 1.45 95 315 751 753 60 8 798, 45 1.43 1.45 96 315 751 253 60 8 798, 45 1.45 1.45 96 315 250 250 59 8 807, 25 0.45 1.75 96 315 250 250 59 8 807, 25 0.45 1.75 96 315 250 250 50 8 808, 25 0.45 1.75 97 97 350 50 8 808, 25 0.45 1.75 97 97 350 50 8 808, 25 0.45 1.75 97 97 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 350 350 50 8 808, 25 0.45 1.75 97 97 97 97 97 97 97 97 97 97 97 97 97	151		4	2.30	(S)	25	-	457	453	20	9		- 1	
765.34 (45 1.75 94 3.77 851 853 60 8 798.34 70 0.45 1.75 94 3.15 850 253 60 8 798.44 0.45 1.85 96 315 850 253 60 8 801.35 0.45 1.66 96 315 850 250 59 8 801.35 0.45 1.85 96 315 850 50 8 801.35 0.45 1.86 96 315 850 50 8 801.35 0.45 1.87 97 97 316 851 50 99 801.35 0.45 1.87 97 97 316 851 50 99 801.35 0.35 0.95 0.97 97 316 23.2 250 50 8 801.35 0.35 0.97 97 316 23.2 250 50 8 801.35 0.35 0.97 97 316 23.2 250 50 8 801.35 0.35 0.97 97 316 23.2 250 50 8 801.35 0.35 0.97 97 316 23.2 250 50 8 801.35 0.35 0.97 97 316 23.2 250 50 8 801.35 0.35 0.97 97 316 23.2 250 50 8 801.35 0.35 0.35 0.35 0.35 0.35 0.35 0.35 0	9		N	9.33	(,22	46	-				y	0		
738, 45 0.47 1.33 45 25 450 8 11.5 436, 46 0.43 1.65 46 215 250 250 250 59 8 11.5 456, 46 0.43 1.65 46 215 250 250 250 59 8 11.5 456, 46 0.45 1.74 46 215 250 250 250 59 8 10,49 10,49 1.45 1.45 1.45 1.45 1.45 1.45 1.45 1.45	1		_1	5.50	1.73	30	2/1/2	みな	253	0.9	ø			
298, 69 208, 69 208, 65 208, 65 208, 65 208, 65 208, 74 208,	90			147	1,8	2	37		(
\$60. 17 0. 43 1.66 90 315 250 250 59 8 11.5 9 \$60. 43 1.66 90 315 250 250 59 8 11.5 9 \$60. 45 0.45 1.77 9.19 251 250 59 8 10.4 1 \$60. 45 0.45 1.77 9.19 251 250 50 8 \$60. 45 0.45 1.77 9.19 251 250 60 9 \$60. 45 0.45 1.77 9.19 251 250 60 9 \$60. 45 0.45 1.77 9.19 251 250 60 9 \$60. 45 0.45 1.77 9.15 251 250 60 9 \$60. 45 0.45 1.77 9.15 251 250 60 9 \$60. 45 0.45 1.77 9.15 251 250 60 9 \$60. 45 0.45 1.77 9.15 251 250 60 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 60 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 251 250 50 9 \$60. 45 0.45 1.77 9.15 9.15 9.15 9.15 9.15 9.15 9.15 9.15	0		-	のよい	1,73	20	3	から	253	90	X			
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807, 35 9, 45 174 96 315 450 250 59 8 10,4 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	1		0	6,43	166	90	50	820	283	00	30			4
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1340 35 645 1.66 95 318 250 250 59 8 10.4 1 1.3 1 240 250 50 50 11.3 1 240 251 251 250 50 50 11.3 1 240 251 251 251 250 50 50 50 11.3 1 240 251 251 250 50 50 50 50 11.3 1 240 251 251 250 50 50 50 50 50 50 50 50 50 50 50 50 5	-		9	9 11	11/2	10	1	1	0	100	10			
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836.04 0.47 137 97 318 251 250 60 9 11.5 8. 82. 82. 82. 82. 82. 82. 82. 82. 82.	80		<u>al</u> ;	2 23	99	200		7	0.00	000	0		16.0	
836.36 9.45 .77 9.7 3.8 451 60 9 11.5 8. 836.36.04 9.51 851 60 9 11.5 8. 836.36.04 9.3 1.5 9.4 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5	7		7	07.70	123	000		ina+	707	0	0			
\$36.04 6.47 6.81 87 318 252 250 60 8 11.5 8. 831.85 6.08 6.08 87 316 252 250 60 8 11.0 9. 831.85 6.08 87 316 252 250 60 8 11.0 9. 831.85 6.08 87 316 252 250 59 6 11.0 9. 831.85 6.08 87 316 251 250 59 6 11.0 9. 831.85 6.08 87 316 251 250 59 6 11.0 9.	v		de	なせら	22	01	200	750	951	60	0			
931.98 931.98	1		476.04	イカツ	181	97	あらな					33	1 3	
831,98 534,55 534,55 637,63	1	4		0810	1.16	07	318	252	450	09	Se Se			
1340 841 87 6.37 1.94 97 316 231 250 60 8 11.0 9 837.63 0.35 0.97 98 316 251 250 59 5 1340 841 87 6.31 9.81 316 251 250 59 6	20	0.7	831.98	0.38	1.08	100	216		5		9			
837.62 0.75 0.97 98 315 251 250 59 8 11.0 9. 8 21.0 3. 8 315 251 250 59 8 11.0 9. 8 315 251 250 59 8 11.0 9. 8 315 251 250 59 8 11.0 9.	o		834 85	0.27	1.04	6.6	-	1237	750	70	8			
549 37 6.23 9.89 49 316 251 260 59 543 87 6.31 9.89 49 315 251	9		-	0,75	260	99	215)	3			0.11		
843 38 8-3 0-8 946 313				A. 23	0,89	63	-	1251	250	50	K)	
	4	1340		600	0 8	956	zin			-	0			
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A. Lanfranco and Associates Inc.

18 0 + 1 20 + 1	e UNIT I	30.0
D.0001 O.0001 O	Date 18/07/2014 Operator	LF + 30
D.0001 O.0001 O	Leak Check Run 1	2
0:0001 0.0001 0 0 0 0 0 0 0 0 0	Initial	1000.0
B6.3162 Temperature (°F) Imp. Oct (ml.) R1 B6.3162 79	Final 0.0001 0.000	00000
186.3162 79 Stack (mL) R1 186.3162 79 Stack (mL) R1 186.4112 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 Stack (mL) R1 Stack (mL) R1 110 	dml dv	
186.3162 79 186.9112 110 186.9141 98 187.5120 98 187.5120 98 187.5120 98	No. (hhmm) (cu ft) / (m³) DGM Stack	Vol. (mL) P.1 P.2
186.9112 186.9111 187.5030 187.5328	1118 138.5170	+
186.4112 186.4111 187.5120 187.5120		
186.4112 186.4111 187.5120 187.5120	-	
184.5030	1218 138.9631 86	
187.5070	12 39 138 . 96 70 84	
187.5070	2	
187.5120	1839 139,4072 89	
183.6328	124.4132 86	
188.4532	0901 139. 5062	
	100) 124. 951% 86.	
haC.		
	19/07/24	

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F

A. Lanfranco and Associates Inc.

Paran Date Leak	Check	324	54	Pbar 29.88 Operator LF/	10 P	Parameter Date Leak Chec	neter	HF 2024		Pbar 29 Operator L Run 2	29.88 LF/3	0.21	Run 3
Initial Final		0.000)	-	0.0001	0.0001	Final		0.0001		0,000	100	o ć	0.000
No.	(hhmm)	DGM Volume (cu ft) / (m³)	Tempera DGM Outlet	Temperature (°F) Imp. DGM Stack (mL) SYS SIO	AP IN. H ₂ O R1 R2 R3	No. No.	Time (hhmm)	DGM Volume (cu ft) / (m³)	Temperature (°F) DGM Stack Outlet S4 510	Stack	Imp. (mL)	ΔP II	ΔP IN. H ₂ O R2 R3
. 0	9151	501 525b, 481	03	312		. .	1516	529 137.6410	16	312			
	8480	85.633 85.6360	311	30		·	8480	01£0.881	90	310			
က	8460	186.3123	8	3/0		m	8460	138.512	82	3/6			

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Date Leak Check Initial			Cp Pbar 21.	92	Static	21.92 Static	Source	neter			Pbar		Static	ış:	
Leak Check Initial Final	H2/10/11		Operator	VS+ Q	>		Date				Operator				
nitial Final	Run 1		Run 2		Ru	Run 3	Leak	Leak Check	Run 1		Run 2	2	_	Run 3	
Final	1000.0		0.000 /		0,0001	16	Initial	_							
	1000.0	ie i	1 000 0		0.0001		Final								
-	- And Mod	Temperature (°F)		فِ	O'H NI dV	C	F	-	-	Temper	Temperature (°F)	-dm	_ <	N dv	Ι.
No. (hhmm)	(cu ft) / (m³)	DGM Outlet	Stack (m	Vol.	2 2	P3	No.	(hhmm)	(cu ft) / (m³)	DGM	Stack	(mL)	2	2	2
2400	7520'9C1	78.5			H								Z	2	ا ا
9101	124 7428	8					_								
				+	+		_								\perp
24:01	ohih 981 24:01	63		+											
1100	136.4181	41.2		+			L								
				+	-										
7							7	7							
1200	136.8361	95.5													
1216	136-8410	9.76													
m							က								
121	760076 LZI	34													
900	<u>.</u>														
					1										
							_								

Source	, s	M(+#5)		රි	E P				Source				පි					5
Parameter Date	neter	1-501-24	7	Pbar Operator	22.73	Static	lgic		Parameter Date	eter			Pbar Operator	0		Static		
Diameter	eter			Down		<u>ಕ</u>			Diameter	Б			Down			3		
Leak (Initial	Leak Check Initial Final	6,0001		Run 2 O. OOOTO	77	000	Run 3 0-0201		Leak Check Initial Final	heck	Run 1	1 u	α	Run 2		Run	8	
Test No.	Time (hhmm)	DGM Volume (cu ft) / (m³)	Tempera DGM Outlet	Temperature (°F) DGM Stack Outlet	imp.	A FR	ΔP IN. H ₂ O R2	R3	Test No.	Time (hhmm)	DGM Volume (cu ft) / (m³)		Temperature (°F) DGM Stack Outlet	Imp. Vol.	. (C	ΔΡ IN. Η ₂ Ο	20 R3	
_	8):01	0126.291	901						_									-
	25:51	0090.48	115															
~	11700	1290 hg	2						~									
1	00:2	hh82'h81 u	118						1									
	91:71	184,3969	211															
က	h8) 91'.S1	184,7299	911						က									
					•													
																-		_

APPENDIX – F CALIBRATION SHEETS and TECHNICIAN CERTIFICATES

	BAROMETER CALIBRATION FORM									
		Pbar E	nv Canada	Device (inc	hes of Hg)	Difference				
					Elevation					
Device	Cal Date	(kPa)	(inches of Hg)	Reading	Corrected	(Env Can - Elv Corr)				
LA	15-Jul-24	99.8	29.46	29.37	29.44	0.02				
DS	15-Jul-24	99.8	29.46	29.36	29.43	0.03				
CL	15-Jul-24	99.8	29.46	29.37	29.44	0.02				
JC	15-Jul-24	99.8	29.46	29.34	29.41	0.05				
LF	15-Jul-24	99.8	29.46	29.36	29.43	0.03				
SH	15-Jul-24	99.8	29.46	29.35	29.42	0.04				
CDO	15-Jul-24	99.8	29.46	29.34	29.41	0.05				
JG	15-Jul-24	99.8	29.46	29.32	29.39	0.07				
ML	15-Jul-24	99.8	29.46	29.34	29.41	0.05				
BL	15-Jul-24	99.8	29.46	29.36	29.43	0.03				

Calibrated by: Louis Agassiz Signature: Date: 15-Jul-24

Performance Specification is

Device Corrected for Elevation must be +/- 0.1 " Hg of ENV CANADA SEA-LEVEL Pbar

Enter Environment canada Pressure from their website for Vancouver (link below) and the reading from your barometer on the ground floor of the office.

https://weather.gc.ca/city/pages/bc-74_metric_e.html

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EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: CAE G10J Date: 21-Jun-24

 Serial #:
 0028-1X1310-1
 Barometric Pressure:
 29.85
 (in. Hg)

 Theoretical Critical Vacuum:
 14.08
 (in. Hg)

!!!!!!!!!

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)/3*(deg R)/0.5/((in.Hg)*(min)).

			DRY GA	S METER READII	NGS	-				-CF	RITICAL ORIF	ICE READING	38-	
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial To Inlet (deg F)	omps. Outlet (deg F)	Final Inlet (deg F)	Temps. Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Am Initial (deg F)	bient Temperat Final (deg F)	ure Average (deg F)
3.65	23.00	670.004	695.054	25.050	75.0	75.0	83.0	83.0	73	0.8185	16.0	77.0	84.0	80.5
1.90	16.00	695.054	707.770	12.716	83.0	83.0	84.0	84.0	63	0.5956	19.0	84.0	86.0	85.0
1.15	18.00	707.770	718.930	11.160	83.0	83.0	85.0	85.0	55	0.4606	20.5	83.0	87.0	85.0
0.64	15.00	718.930	726.038	7.108	82.0	82.0	85.0	85.0	48	0.3560	21.0	86.0	85.0	85.5
0.32	15.00	726.038	730.910	4.872	85.0	85.0	86.0	86.0	40	0.2408	23.0	85.0	89.0	87.0
			******	******	*******	***** RES	ULTS *****	******	******	******	***			
DRY GA	S METER			ORIFICE			DRY GAS	S METER				ORIFICE		
VOLUME	VOLUME CORRECTED		VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL		CALIBRATIO	ON FACTOR Y		CAL	IBRATION FA	CTOR		
CORRECTED	\/(-4-4)		Vcr(std)	Vcr(std)	Vcr		Value	Variation		Value (in H2O)	Value	Variation (in H2O)		Ko
Vm(std)	Vm(std)										(mm H2O)			
Vm(std) (cu ft)	(liters)		(cu ft)	(liters)	(cu ft)		(number)	(number)			,			(value
Vm(std) (cu ft) 24.692	(liters) 699.3		24.171	684.5	24.811		0.979	-0.003		1.817	46.15	0.030		0.712
Vm(std) (cu ft) 24.692 12.377	(liters) 699.3 350.5		24.171 12.185	684.5 345.1	24.811 12.612		0.979 0.984	-0.003 0.002		1.817 1.786	46.15 45.36	0.030 -0.001		0.712 0.716
Vm(std) (cu ft) 24.692 12.377 10.833	(liters) 699.3 350.5 306.8		24.171 12.185 10.601	684.5 345.1 300.2	24.811 12.612 10.972		0.979 0.984 0.979	-0.003 0.002 -0.004		1.817 1.786 1.806	46.15 45.36 45.87	0.030 -0.001 0.019		0.712 0.716 0.717
Vm(std) (cu ft) 24.692 12.377 10.833 6.897	(liters) 699.3 350.5 306.8 195.3		24.171 12.185 10.601 6.825	684.5 345.1 300.2 193.3	24.811 12.612 10.972 7.070		0.979 0.984 0.979 0.989	-0.003 0.002 -0.004 0.007		1.817 1.786 1.806 1.685	46.15 45.36 45.87 42.81	0.030 -0.001 0.019 -0.101		0.712 0.716 0.717 0.734
Vm(std) (cu ft) 24.692 12.377 10.833	(liters) 699.3 350.5 306.8		24.171 12.185 10.601	684.5 345.1 300.2	24.811 12.612 10.972		0.979 0.984 0.979	-0.003 0.002 -0.004		1.817 1.786 1.806	46.15 45.36 45.87	0.030 -0.001 0.019		0.712 0.716 0.717

TEMPERATURE CALIBRATION									
ard>	Omega Model	CL23A S/N:T-2		nperature Devic	e Reading				
Sta	ıck	Hot	Box	Pro	be	Imp	Out	A	ux
(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)
33	0.20%	33	0.20%	34	0.41%	33	0.20%	33	0.20%
101	0.18%	101	0.18%	100	0.00%	100	0.00%	100	0.00%
301	0.13%	300	0.00%	301	0.13%	301	0.13%	301	0.13%
501	0.10%	501	0.10%	501	0.10%	501	0.10%	501	0.10%
1000	0.00%	1000	0.00%	1000	0.00%	1001	0.07%	1000	0.00%
	Sta (deg F) 33 101 301 501	Stack (deg F) (% diff) 33 0.20% 101 0.18% 301 0.13% 501 0.10%	Stack Hot (deg F) (% diff) (deg F) 33 0.20% 33 33 101 0.18% 101 301 300 501	Ard> Omega Model CL23A S/N:T-218768 Stack	Ard> Omega Model CL23A S/N:T-218768 Temperature Devic Stack Hot Box Pro (deg F) (% diff) (deg F) 33 0.20% 33 0.20% 34 101 0.18% 100 0.18% 100 301 0.13% 300 0.00% 301 501 0.10% 501	Ard> Omega Model CL23A S/N:T-218768 Temperature Device Reading Probe Stack Hot Box Probe	Ard> Omega Model CL23A S/N:T-218768 Temperature Device Reading Imp Imp	Ard> Omega Model CL23A S/N:T-218768 Temperature Device Reading Probe Imp Out	Ard> Omega Model CL23A S/N:T-218768 Temperature Device Reading Imp Out Arc

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orlifice Calibration Factor drt (@), the orlifice differential pressure in inches of H20 that equates to 0.75 dm of air at 88 F and 59.29; inches of Hg, acceptable tolerance of individual values from the average is +-0.2.
For Temperature Devices, the reading must be within 1.5% to certified calibration standard (absolute temperature) to be acceptable.

Calibrated by: Liam Forrer

Signature: Date: June 21, 2024

A.Lanfranco & Associates inc.

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: FE 18 05-Jul-24

Serial #: 0028-020118-1 Barometric Pressure: 30.05 (in. Hg) Theoretical Critical Vacuum: 14.17 (in. Hg)

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IMPORTANT IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units, (ft)\^3*(deg R)\^0.5/((in.Hg)*(min)).

	DRY GAS METER READINGS									-CR	ITICAL ORIF	ICE READING	GS-	
dH	Time	Volume Initial	Volume Final	Volume Total	Initial 1	emps.	Final Inlet	Temps. Outlet	Orifice Serial#	K' Orifice Coefficient	Actual Vacuum	Am Initial	bient Tempera Final	ature Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
3.50	17.00	495.355	514.226	18.871	79.0	79.0	79.0	79.0	73	0.8185	14.0	80.0	80.0	80.0
2.00	15.00	516.055	528.580	12.525	80.0	80.0	80.0	80.0	63	0.5956	17.0	80.0	80.0	80.0
1.20	17.00	528.580	538.799	10.219	81.0	81.0	82.0	82.0	55	0.4606	18.5	80.0	80.0	80.0
0.70	15.00	538.799	545.714	6.915	81.0	81.0	82.0	82.0	48	0.3560	19.5	81.0	81.0	81.0
0.35	15.00	545.714	550.356	4.642	82.0	82.0	82.0	82.0	40	0.2408	21.0	81.0	82.0	81.5

DRY GAS	S METER		ORIFICE		DRY GA	S METER			ORIFICE	
VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL		ON FACTOR Y		LIBRATION FA dH@		
Vm(std) (cu ft)	Vm(std) (liters)	Vcr(std) (cu ft)	Vcr(std) (liters)	Vcr (cu ft)	Value (number)	Variation (number)	Value (in H2O)	Value (mm H2O)	Variation (in H2O)	Ko (value)
18.718	530.1	17.993	509.6	18.330	0.961	-0.029	1.729	43.91	-0.125	0.749
12.355	349.9	11.553	327.2	11.769	0.935	-0.055	1.862	47.30	0.008	0.744
10.033	284.1	10.126	286.8	10.315	1.009	0.019	1.863	47.33	0.009	0.690
6.781	192.0	6.899	195.4	7.041	1.017	0.028	1.823	46.30	-0.031	0.692
4.544	128.7	4.664	132.1	4.765	1.027	0.037	1.992	50.60	0.138	0.656
				Average Y>	0.9899	Average dH@>	1.854	47.1	Average Ko>	0.706

				TEMPERATU	RE CALIBRA	TION				
Calibration Stand			CL23A S/N:T-21	Ten	nperature Devic					
Set-Point		ack		Box	Pro			Out		ux
(deg F)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)
32	32	0.00%	31	-0.20%	35	0.61%	31	-0.20%	32	0.00%
100	99	-0.18%	99	-0.18%	100	0.00%	99	-0.18%	99	-0.18%
300	299	-0.13%	299	-0.13%	301	0.13%	299	-0.13%	299	-0.13%
500	498	-0.21%	499	-0.10%	500	0.00%	499	-0.10%	499	-0.10%
1000	998	-0.14%	1000	0.00%	1008	0.55%	1000	0.00%	998	-0.14%

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

For Temperature Devicee, the reading must be within 1.5% of certified calibration standard (absolute temperature) to be acceptable.

Signature: Calibrated by: Ben Lester Date: July 5, 2024

A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

GLASS NOZZLE DIAMETER CALIBRATION FORM

Calibrated by: Christian De La O Date: 08-Jul-24

Signature:

Nozzle I.D.	d1	d2	d3	difference	average dia.	average area
	(inch)	(inch)	(inch)	(inch)	(inch)	(ft ²)
A	0.1270	0.1270	0.1255	0.0015	0.1265	0.0000873
G-165	0.1650	0.1660	0.1645	0.0015	0.1652	0.0001488
G-170	0.1700	0.1710	0.1695	0.0015	0.1702	0.0001579
G-178	0.1760	0.1770	0.1790	0.0030	0.1773	0.0001715
.J	0.1890	0.1889	0.1891	0.0002	0.1890	0.0001948
Ē	0.1950	0.1930	0.1960	0.0030	0.1947	0.0002067
Q	0.2030	0.2040	0.2050	0.0020	0.2040	0.0002270
ĩ	0.2100	0.2070	0.2090	0.0030	0.2087	0.0002375
P-2240	0.2160	0.2155	0.2170	0.0015	0.2162	0.0002549
P-224	0.2160	0.2170	0.2150	0.0020	0.2160	0.0002545
G-221	0.2160	0.2185	0.2190	0.0030	0.2178	0.0002588
G-225	0.2190	0.2175	0.2180	0.0015	0.2182	0.0002596
G-218	0.2180	0.2200	0.2210	0.0030	0.2197	0.0002632
G-2232	0.2210	0.2200	0.2215	0.0015	0.2208	0.0002660
P-223	0.2297	0.2296	0.2298	0.0002	0.2297	0.0002878
P-250	0.2500	0.2495	0.2505	0.0010	0.2500	0.0003409
C-250	0.2500	0.2500	0.2500	0.0000	0.2500	0.0003409
P-251	0.2545	0.2530	0.2540	0.0015	0.2538	0.0003409
P-254	0.2343	0.2489	0.2482	0.0013	0.2485	0.0003314
P-256	0.2540	0.2550	0.2560	0.0007	0.2550	0.0003508
P-280	0.2810	0.2805	0.2815	0.0010	0.2810	0.0003347
C-280	0.2800	0.2800	0.2800	0.0000	0.2800	0.0004307
G-282	0.2820	0.2800	0.2825	0.0005	0.2815	0.0004270
P-281	0.2820	0.2820	0.2815	0.0025	0.2818	0.0004322
G-304	0.3030	0.3040	0.3050	0.0020	0.3040	0.0004332
G-3121	0.3055	0.3063	0.3070	0.0020	0.3063	0.0005116
G-3085	0.3085	0.3080	0.3070	0.0013	0.3085	0.0005110
G-3085	0.3045	0.3065	0.3065	0.0010	0.3058	0.0005191
G-3092	0.3100	0.3085	0.3090	0.0020	0.3092	0.0005101
P-311	0.3115	0.3120	0.3120	0.0015	0.3118	0.0005215
P-312	0.3120	0.3110	0.3105	0.0015	0.3112	0.0005281
P-343	0.3420	0.3430	0.3440	0.0020	0.3430	0.0006417
P-313	0.3140	0.3130	0.3130	0.0010	0.3133	0.0005355
P-314	0.3135	0.3135	0.3140	0.0005	0.3137	0.0005366
P-315	0.3145	0.3145	0.3145	0.0000	0.3145	0.0005305
V-06	0.3220	0.3215	0.3200	0.0020	0.3212	0.0005626
G-345	0.3470	0.3475	0.3475	0.0020	0.3212	0.0005020
P-346	0.3457	0.3456	0.3458	0.0002	0.3457	0.0006518
G-349	0.3490	0.3490	0.3490	0.0000	0.3490	0.0006643
P27	0.3490	0.3480	0.3500	0.0020	0.3490	0.0006643
G-367	0.3680	0.3660	0.3658	0.0020	0.3666	0.0007330
G-372	0.3669	0.3700	0.3668	0.0032	0.3679	0.0007382
P-374	0.3740	0.3720	0.3730	0.0020	0.3730	0.0007588
C-375	0.3730	0.3750	0.3745	0.0020	0.3742	0.0007636
P-375	0.3705	0.3710	0.3709	0.0020	0.3742	0.0007499
P-401	0.3980	0.3990	0.4000	0.0020	0.3990	0.0008683
G-433	0.4360	0.4360	0.4355	0.0025	0.4358	0.0010360
P-29	0.4681	0.4683	0.4685	0.0004	0.4683	0.0011961
G-437	0.4690	0.4690	0.4700	0.0010	0.4693	0.0011901
G-468	0.4700	0.4685	0.4700	0.0035	0.4702	0.0012017
P-7	0.4965	0.4945	0.4720	0.0030	0.4962	0.0012037
В	0.4981	0.4984	0.4989	0.0030	0.4985	0.0013552
G-540	0.5400	0.5410	0.4303	0.0010	0.5403	0.0015924
l	5.5700	5.5-10	0.0400	0.0010	0.0700	0.0010024
	1			l	l	

Where:

(a) D1, D2, D3 = three different nozzle diameters; each diameter must be measured to within (0.025mm) 0.001 in.

(b) Difference = maximum difference between any two diameters; must be less than or equal to (0.1mm) 0.004 in.

(c) Average = average of D1, D2 and D3

Pitot Tube Calibration

Date: 02-Jul-24 Temp (R): 539 Pbar (in.Hg): 29.88 Dn (in.): 0.25

Ditot	ID.	7Δ-1	

FILOLID.	/ A-1			
Reference	S-Type	Air	Pitot	Deviation
Pitot	Pitot	Velocity	Coeff.	(absolute)
(in H2O)	(in H2O)	(ft/s)	Ср	
0.240	0.330	32.7	0.8443	0.0007
0.360	0.495	40.1	0.8443	0.0007
0.440	0.610	44.3	0.8408	0.0028
0.560	0.770	50.0	0.8443	0.0007
0.640	0.880	53.4	0.8443	0.0007
	·	Average:	0.8436	0.0011

Pitot ID: ST 8A

Reference	S-Type	Air	Pitot	Deviation
Pitot	Pitot	Velocity	Coeff.	(absolute)
(in H2O)	(in H2O)	(ft/s)	Ср	
0.220	0.300	31.3	0.8478	0.0020
0.335	0.455	38.7	0.8495	0.0003
0.420	0.570	43.3	0.8498	0.0001
0.530	0.720	48.6	0.8494	0.0004
0.630	0.850	53.0	0.8523	0.0026
-		Average:	0.8498	0.0010

Pitot ID: 7B

T ROLLID.	70			
Reference	S-Type	Air	Pitot	Deviation
Pitot	Pitot	Velocity	Coeff.	(absolute)
(in H2O)	(in H2O)	(ft/s)	Ср	
0.230	0.320	32.0	0.8393	0.0045
0.370	0.510	40.6	0.8432	0.0006
0.450	0.620	44.8	0.8434	0.0004
0.540	0.740	49.1	0.8457	0.0019
0.630	0.860	53.0	0.8473	0.0035
		Average:	0.8438	0.0022

Pitot ID: ST 8B

	T HOLID.	0100			
Reference		S-Type	Air	Pitot	Deviation
Pitot		Pitot	Velocity	Coeff.	(absolute)
	(in H2O)	(in H2O)	(ft/s)	Ср	
	0.230	0.310	32.0	0.8527	0.0013
	0.340	0.460	39.0	0.8511	0.0003
	0.440	0.600	44.3	0.8478	0.0036
	0.525	0.710	48.4	0.8513	0.0001
	0.640	0.860	53.4	0.8540	0.0026
			Average:	0.8514	0.0016

Pitot ID: 7 AL GVRD-1

Reference	S-Type	Air	Pitot	Deviation
Pitot	Pitot	Velocity	Coeff.	(absolute)
(in H2O)	(in H2O)	(ft/s)	Ср	
0.220	0.300	16.3	0.8478	0.0006
0.340	0.460	19.9	0.8511	0.0028
0.430	0.590	25.3	0.8452	0.0032
0.560	0.760	35.8	0.8498	0.0015
0.660	0.900	48.4	0.8478	0.0006
		Average:	0.8483	0.0017

Pitot ID: ST 8C

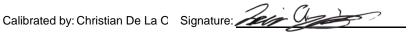
Reference	S-Type	Air	Pitot	Deviation
Pitot	Pitot	Velocity	Coeff.	(absolute)
(in H2O)	(in H2O)	(ft/s)	Ср	
0.210	0.290	14.9	0.8425	0.0061
0.350	0.490	19.4	0.8367	0.0004
0.475	0.660	29.0	0.8399	0.0036
0.590	0.835	43.1	0.8322	0.0041
0.700	0.995	52.8	0.8304	0.0059
		Average:	0.8363	0.0040

Pitot ID: 7C

Reference	S-Type	Air	Pitot	Deviation
Pitot	Pitot	Velocity	Coeff.	(absolute)
(in H2O)	(in H2O)	(ft/s)	Ср	, ,
0.240	0.330	32.7	0.8443	0.0050
0.340	0.460	16.3	0.8511	0.0019
0.430	0.590	43.8	0.8452	0.0041
0.550	0.740	30.5	0.8535	0.0042
0.630	0.850	47.0	0.8523	0.0030
	<u> </u>	Average:	0.8493	0.0036

Pitot ID:

Reference	S-Type	Air	Pitot	Deviation
Pitot	Pitot	Velocity	Coeff.	(absolute)
(in H2O)	(in H2O)	(ft/s)	Ср	
	_	Average:		



Date:

July 2, 2024

^{*} Average absolute deviation must not exceed 0.01.

A.Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: ST CAE2 Date: 02-Jul-24

 Serial #:
 0028-072911-1
 Barometric Pressure:
 29.92
 (in. Hg)

 Theoretical Critical Vacuum:
 14.11
 (in. Hg)

!!!!!!!!!

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)\^3*(deg R)\^0.5/((in.Hg)*(min)).

			DRY GA	S METER READI	NGS	-			-CRITICAL ORIFICE READINGS-					
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Final Total Inlet			Temps. Final Temps. Outlet Inlet Outlet (deg F) (deg F) (deg F)			Orifice K' Orifice Serial# Coefficient (number) (see above)		Actual Vacuum (in Hg)	Ami Initial (deg F)	bient Temperati Final (deg F)	ure Average (deg F)
3.85	17.00	318,200	336.620	18.420	67.0	67.0	68.0	68.0	73	0.8185	16.0	70.0	75.0	72.5
2.00	15.00	336.620	348.420	11.800	68.0	68.0	68.0	68.0	63	0.5956	18.5	76.0	78.0	77.0
1.20	15.00	348,420	357.575	9.155	70.0	70.0	70.0	70.0	55	0.4606	20.0	83.0	72.0	77.5
0.70	15.00	361.855	368.815	6.960	70.0	70.0	70.0	70.0	48	0.3560	21.0	67.0	67.0	67.0
0.33	15.00	368.815	373.670	4.855	70.0	70.0	71.0	71.0	40	0.2408	22.0	66.0	64.0	65.0
				******		******** RES			******	******				
DRY GA	S METER			ORIFICE	DRY GAS METER							ORIFICE		
VOLUME CORRECTED	VOLUME CORRECTED		VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL				CALIBRATION FA dH@			CTOR		
Vm(std) (cu ft)	Vm(std) (liters)		Vcr(std) (cu ft)	Vcr(std) (liters)	Vcr (cu ft)		Value (number)	Variation (number)		Value (in H2O)	Value (mm H2O)	Variation (in H2O)		Ko (value)
18.604	526.9		18.041	510.9	18.202		0.970	-0.009		1.925	48.89	0.040		0.696
11.853	335.7		11.535	326.7	11.736		0.973	-0.006		1.902	48.32	0.018		0.699
	258.9		8.916	252.5	9.080		0.975	-0.004		1.903	48.34	0.019		0.699
9.144			6.960	197.1	6.949		1.002	0.023		1.822	46.28	-0.062		0.695
9.144 6.943	196.6						0.976	-0.004		1.869	47.46	-0.016		0.705
	196.6 136.9		4.717	133.6	4.692		0.976	-0.004		1.009	47.46	-0.016		0.705

				TEMPERATU	RE CALIBRA	TION				
Calibration Stand	lard>	Omega Model	CL23A S/N:T-21		nperature Devic	e Reading				
Set-Point	Sta	ck	Hot	Box	Pro	be	Imp	Out	A	ux
(deg F)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)
32	33	0.20%	33	0.20%	31	-0.20%	33	0.20%	33	0.20%
100	101	0.18%	101	0.18%	100	0.00%	101	0.18%	101	0.18%
300	301	0.13%	302	0.26%	300	0.00%	301	0.13%	301	0.13%
500	500	0.00%	500	0.00%	500	0.00%	501	0.10%	501	0.10%
1000	1000	0.00%	1000	0.00%	1000	0.00%	1000	0.00%	1000	0.00%

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orlifice Calibration Factor drt (@), the orlifice differential pressure in inches of H20 that equates to 0.75 dm of air at 88 F and 59.29; inches of Hg, acceptable tolerance of individual values from the average is +-0.2.
For Temperature Devices, the reading must be within 1.5% to certified calibration standard (absolute temperature) to be acceptable.

Calibrated by: Ben Lester Signature: Date: July 2, 2024

A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

TEMPERATURE CALIBRATION FORM

Calibrated by: Louis Agassiz
Date: 12-Jul-24

Signature:

TEMPERATURE DEVICE CALIBRATIONS

Reference Device								Temp	erature Set	tings (degre	es F)					
Model CL23A Calib	rator		3	2	10	00	2	200		00	50	00	8	00	1700	
Device	ALA#	Serial #	Reading	Variation	Reading	Variation	Reading	Variation	Reading	Variation	Reading	Variation	Reading	Variation	Reading	Variation
Omega HH11A	3	300132	32	0.00%	99	-0.18%	201	0.15%	301	0.13%	500	0.00%	800	0.00%	1699	-0.05%
Omega HH11A	4	200167	32	0.00%	99	-0.18%	200	0.00%	303	0.39%	499	-0.10%	799	-0.08%	1697	-0.14%
Omega HH11A	6	600059	33	0.20%	100	0.00%	201	0.15%	300	0.00%	499.2	-0.08%	798	-0.16%	1696	-0.19%
TPI 341K	7	2.0315E+10	31	-0.20%	99.6	-0.07%	199	-0.15%	301	0.13%	499.1	-0.09%	799.1	-0.07%	1695	-0.23%
TPI 341K	8	2.0313E+10	32	0.00%	99.7	-0.05%	200.4	0.06%	301	0.13%	498.5	-0.16%	799.2	-0.06%	1696	-0.19%
Cont Cmpny	10	102008464	31	-0.20%	99.2	-0.14%	199.5	-0.08%	299	-0.13%	499	-0.10%	799.1	-0.07%	1699	-0.05%
Omega HH11	14	409426	32.5	0.10%	99.1	-0.16%	199	-0.15%	298	-0.26%	501	0.10%	799.1	-0.07%	1698	-0.09%
TPI 341K	16	400120029	31	-0.20%	100	0.00%	199.2	-0.12%	299.3	-0.09%	501	0.10%	799.1	-0.07%	1700	0.00%
TPI 341K	18	2.0329E+10	31	-0.20%	99.8	-0.04%	199.2	-0.12%	299.8	-0.03%	500	0.00%	799.5	-0.04%	1701	0.05%
TPI 341K	20	2.0329E+10	31	-0.20%	99.2	-0.14%	199.1	-0.14%	299	-0.13%	499.2	-0.08%	799.2	-0.06%	1699	-0.05%
TPI 341K	22	2.0329E+10	32	0.00%	99.6	-0.07%	199.2	-0.12%	298.4	-0.21%	499.1	-0.09%	798.5	-0.12%	1698	-0.09%

Reference device is a NIST certified digital thermocouple calibrator

Variation expressed as a percentage of the absolute temperature must be within 1.5 %

Calibration Certificate

 Date:
 04-Sep-24
 Insrtument Calibrated:
 Testo 3 (340)

 Calibrated by:
 Liam Forrer
 Serial #:
 64057016

 Authorizing Signature:
 Customer:
 ALA

Ambient Conditions: Temperature: 18 °C Barometric Pressure: 102 kPa Relative Humidity: 80%

A. Lanfranco and Associates Inc. certifies that the described instrument has been inspected and tested following calibration procedures in the Environment Canada Report EPS 1/PG/7 (Revised 2005). Below are the observed readings after calibrations are complete. Calibration checks should be completed at least every 6 months.

O ₂		Initial Evalu	ation			After Calibra	ation		
Gas	Instrument Reading (vol %)	Calibration Error	Pass/Fail	Notes	Instrument Reading (vol %)	g Calibration Error	Pass/Fail	Notes	Certified Value (vol %)
Zero	0.23	0.23	Pass		0.23	0.23	Pass		0
O ₂ Ambient	11.43 20.95	0.43 0.01	Pass Pass		11.43 20.95	0.43 0.01	Pass Pass		11.00 20.96

Performance Specification: +/- 1% O₂ (absolute diff)

СО		Initial Evalua	ation		After Calibration						
Gas	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Instrument Read (ppm)	ing % Calibration Error	Pass/Fail	Notes	Certified Value (ppm)		
	<u> </u>										
Zero	0	0.0%	Pass		0	0.0%	Pass		0		
1 Gas	253	0.2%	Pass		253	0.2%	Pass		254		
2 Gas	513	1.7%	Pass		513	1.7%	Pass		504		
3 Gas	948	0.5%	Pass		948	0.5%	Pass		953		

Performance Specification: +/- 5% of Certified Gas Value

NO		Initial Evalua	ation			After Calibra	tion		
	Instrument				Instrument Read	•			Certified Value
Gas	Reading (ppm)	% Calibration Error	Pass/Fail	Notes	(ppm)	% Calibration Error	Pass/Fail	Notes	(ppm)
Zero	0	0.0%	Pass		0	0.0%	Pass		0
1 Gas	43	4.1%	Pass		43	4.1%	Pass		44.8
2 Gas	87	4.6%	Pass		87	4.6%	Pass		91.2
3 Gas	256	2.6%	Pass		256	2.6%	Pass		249.6

Performance Specification: +/- 5% of Certified Gas Value

NIST Traceable Calibration Gases:

Cylinder	Cylinder ID Number	Certification Date	Expiration Date	Cylinder Pressure (PSI)	NO (ppm)	O ₂ (Vol. %)	CO (ppm)
						,	
Zero Gas (N ₂)	075			1100	0	0	0
1 Gas	030	2023-12-19	2031-12-20	1500	44.84	0	253.6
2 Gas	5AE	2024-04-15	2032-04-15	1800	91.24	0	504.4
3 Gas	K2H	2024-05-22	2032-05-22	1900	249.6	0	952.9
O ₂ /CO ₂	742	2023-05-07	2031-06-07	650	0	11.00	0

Note: National Institute of Standards and Technology traceable certificates are available upon request.

A. Lanfranco & Associates Inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: LMU-C 21-Jun-24 Date:

Wizit 4615 Serial #: Barometric Pressure: 29.85 (in. Hg)

> Theoretical Critical Vacuum: 14.08 (in. Hg)

!!!!!!!!!!

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)\(^3\)*(deg R)\(^0.5\)/((in.Hg)\(^*(min)).

!!!!!!!!!!

			DRY GA	S METER READIN	IGS				-CRITICAL ORIFICE READINGS-					
	_	Volume	Volume	Volume	Initial To			Temps.	Orifice	K' Orifice	Actual		bient Tempera	
dH (in H2O)	Time (min)	Initial (m³)	Final (m³)	Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.00	15.00	134.914	135.108	6.858	77.0	77.0	79.0	79.0	48	0.3560	20.0	79.0	81.0	80.0
0.00	20.00	135.108	135.368	9.182	79.0	79.0	83.0	83.0	48	0.3560	20.0	81.0	83.0	82.0
0.00	15.00	135.368	135.563	6.893	82.0	82.0	84.0	84.0	48	0.3560	20.0	83.0	86.0	84.5
			******	******	******	******** RES	ULTS *****	******	*****	******	***			
DRY GAS	S METER			ORIFICE			DRY GAS	S METER				ORIFICE		
VOLUME CORRECTED	VOLUME CORRECTED		VOLUME VOLUME VOLUME CORRECTED CORRECTED NOMINAL			CALIBRATION FACTOR Y			CAL	IBRATION FA	CTOR			
Vm(std) (cu ft)	Vm(std) (liters)		Vcr(std) (cu ft)	Vcr(std) (liters)	Vcr (cu ft)		Value (number)	Variation (number)		Value (in H2O)	Value (mm H2O)	Variation (in H2O)		
6.712	190.1		6.859	194.3	7.035		1.022	0.000		0.000	0.00	0.000		
8.937	253.1		9.129	258.5	9.397		1.022	0.000		0.000	0.00	0.000		
6.685	189.3		6.831	193.5	7.064		1.022	0.000		0.000	0.00	0.000		

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

For Temperature Devicee, the reading must be within 1.5% of certified calibration standard (absolute temperature) to be acceptable

Calibrated by: Liam Forrer Date: June 21, 2024

A. Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: LMU-D Date: 24-Jun-24

Serial #: **Wizit 4618** Barometric Pressure: 29.98 (in. Hg)

> Theoretical Critical Vacuum: 14.14 (in. Hg)

!!!!!!!!!!

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. **IMPORTANT**

The Critical Orifice Coefficient, K', must be entered in English units, (ft)/3*(deg R)/0.5/((in.Hg)*(min)).

!!!!!!!!!!

DRY GAS METER READINGS							-CRITICAL ORIFICE READINGS-							
dH (in H2O)	Time (min)	Volume Initial (m³)	Volume Final (m³)	Volume Total (cu ft)	Initial T Inlet (deg F)	emps. Outlet (deg F)	Final Inlet (deg F)	Temps. Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Am Initial (deg F)	bient Tempera Final (deg F)	ture Average (deg F)
0.00	18.00	180.418	180.649	8.158	71.0	71.0	72.0	72.0	48	0.3560	20.0	72.0	72.0	72.0
0.00	16.00	180.649	180.856	7.310	71.0	71.0	74.0	74.0	48	0.3560	20.0	72.0	75.0	73.5
0.00	15.00	180.856	181.050	6.851	72.0	72.0	72.0	72.0	48	0.3560	20.0	73.0	74.0	73.5
VOLUME CORRECTED	VOLUME CORRECTED		VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL		CALIBRATIO	ON FACTOR		CAL	LIBRATION FA	CTOR		
	S METER		VOLUME	5111110E			DRY GAS			CAL		ORIFICE		
Vm(std) (cu ft)	Vm(std) (liters)		Vcr(std) (cu ft)	Vcr(std) (liters)	Vcr (cu ft)		Value (number)	Variation (number)		Value (in H2O)	Value (mm H2O)	Variation (in H2O)		
	000.0		8.329	235.9	8.379		1.026	0.005		0.000	0.00	0.000		
8.117	229.9		0.023	200.0										
8.117 7.260	229.9		7.393	209.4	7.458		1.018	-0.002		0.000	0.00	0.000		
					7.458 6.992		1.018 1.018	-0.002 -0.003		0.000 0.000	0.00	0.000 0.000		

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

For Temperature Devicee, the reading must be within 1.5% of certified calibration standard (absolute temperature) to be acceptable.

Signature: Calibrated by: Liam Forrer Date: June 24, 2024



Faculty of Continuing Education and Extension

Daryl Sampson

has successfully completed

The program of studies and is awarded the certificate in

STACK SAMPLING

May 2005

Date

Dean

Faculty of Continuing Education and Extension



Conflict of Interest Disclosure Statement

A qualified professional ¹ providing services to either the Ministry of Environment and Climate Change Strategy ("ministry"), or to a regulated person for the purpose of obtaining an authorization from the ministry, or pursuant to a requirement imposed under the *Environmental Management Act*, the *Integrated Pest Management Act* or the *Park Act* has a real or perceived conflict of interest when the qualified professional, or their relatives, close associates or personal friends have a financial or other interest in the outcome of the work being performed.

A real or perceived conflict of interest occurs when a qualified professional has

- a) an ownership interest in the regulated person's business;
- b) an opportunity to influence a decision that leads to financial benefits from the regulated person or their business other than a standard fee for service (e.g. bonuses, stock options, other profit sharing arrangements);
- c) a personal or professional interest in a specific outcome;
- d) the promise of a long term or ongoing business relationship with the regulated person, that is contingent upon a specific outcome of work;
- e) a spouse or other family member who will benefit from a specific outcome; or
- f) any other interest that could be perceived as a threat to the independence or objectivity of the qualified professional in performing a duty or function.

Qualified professionals who work under ministry legislation must take care in the conduct of their work that potential conflicts of interest within their control are avoided or mitigated. Precise rules in conflict of interest are not possible and professionals must rely on guidance of their professional associations, their common sense, conscience and sense of personal integrity.

Declaration I Daryl Sampson , as a member of Air and Waste Management Association declare Select one of the following: Absence from conflict of interest Other than the standard fee I will receive for my professional services, I have no financial or other interest in the outcome of this project . I further declare that should a conflict of interest arise in the future during the course of this work, I will fully disclose the circumstances in writing and without delay to Mr. Sajid Barlas , erring on the side of caution.



\square Real or perceived conflict of interest	i.
Description and nature of conflict(s)	:
I will maintain my objectivity, condu and standards of practice.	cting my work in accordance with my Code of Ethics
In addition, I will take the following shave disclosed, to ensure the public	steps to mitigate the real or perceived conflict(s) I interest remains paramount:
•	closure may be interpreted as a threat to my decision maker accordingly.
Information and Protection of Privacy Act transparency and ensuring professional et statement you consent to its publication a valid from the date submitted and cannot	ent is collected under section 26(c) of the <i>Freedom of</i> for the purposes of increasing government thics and accountability. By signing and submitting this and its disclosure outside of Canada. This consent is be revoked. If you have any questions about the nal information please contact the Ministry of y Headquarters Office at 1-800-663-7867.
Signature:	Witnessed by:
X Daryl Sampson	Mark Lanfranco
Print name: Daryl Sampson	Print name:
Date: Dec.18, 2020	

¹Qualified Professional, in relation to a duty or function under ministry legislation, means an individual who

a) is registered in British Columbia with a professional association, is acting under that organization's code of ethics, and is subject to disciplinary action by that association, and

b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function.



Declaration of Competency

The Ministry of Environment and Climate Change Strategy relies on the work, advice, recommendations and in some cases decision making of qualified professionals¹, under government's professional reliance regime. With this comes an assumption that professionals who undertake work in relation to ministry legislation, regulations and codes of practice have the knowledge, experience and objectivity necessary to fulfill this role.

1.	Name of Qualified Professional <u>Daryl</u>	Sampson			
	Title <u>Senio</u>	Environmental Technician/Project Manager			
2.	Are you a registered member of a profes	ssional association in B.C.?			
	Name of Association:	Registration #			
3. Brief description of professional services:					
	Environmental consulting, specializing in air and atmospheric sciences				
pro pu cai pe	ofessional ethics and accountability. By sign blication and its disclosure outside of Can nnot be revoked. If you have any question	increasing government transparency and ensuring gning and submitting this statement you consent to its ada. This consent is valid from the date submitted and as about the collection, use or disclosure of your histry of Environment and Climate Change Strategy			
	<u>1</u>	<u>Declaration</u>			
	I am a qualified professional with the knowledge, skills and experience to provide expert information, advice and/or recommendations in relation to the specific work described above.				
Sig	gnature:	Witnessed by:			
ΧŽ	Daryl Sampson	x Ten Com			
Pri	Daryl Sampson int Name: <u>Daryl Sampson</u>	Print Name: Louis Agassiz			
Da	te signed: November 23, 2020				

 $^{^{1}}$ Qualified Professional, in relation to a duty or function under ministry legislation, means an individual who

a) is registered in British Columbia with a professional association, is acting under that organization's code of ethics, and is subject to disciplinary action by that association, and

b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function.



Declaration of Competency

The Ministry of Environment and Climate Change Strategy relies on the work, advice, recommendations and in some cases decision making of qualified professionals¹, under government's professional reliance regime. With this comes an assumption that professionals who undertake work in relation to ministry legislation, regulations and codes of practice have the knowledge, experience and objectivity necessary to fulfill this role.

1.	Name of Qualified Professional	Liam Forrer				
	Title	Environmental Technician				
2.	Are you a registered member of a	professional association in B.C.? ☐ Yes ☒ No				
	Name of Association:	Registration #				
3.	3. Brief description of professional services:					
	Environmental consulting, spe	cializing in air and atmospheric sciences				
pro pul car pe	This declaration of competency is collected under section 26(c) of the <i>Freedom of Information and Protection of Privacy Act</i> for the purposes of increasing government transparency and ensuring professional ethics and accountability. By signing and submitting this statement you consent to its publication and its disclosure outside of Canada. This consent is valid from the date submitted and cannot be revoked. If you have any questions about the collection, use or disclosure of your personal information please contact the Ministry of Environment and Climate Change Strategy Headquarters Office at 1-800-663-7867.					
		<u>Declaration</u>				
	, ,	knowledge, skills and experience to provide expert ndations in relation to the specific work described above.				
Sig	nature:	Witnessed by:				
<u>X</u>	Liam Forrer	x Daryl Sampson				
Pri	Liam Forrer nt Name: Liam Forrer	x Daryl Sampson Print Name: Daryl Sampson				
Da	te signed: July 12, 2023					

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1.	Name of Qualified Professional Louis A	gassiz			
	Title Senior Env	ironmental Technicia	an/Project Manager		
2.	Are you a registered member of a professional	association in B.C.?	☐ Yes ☑ No		
	Name of Association:	Registration	#		
3.	Brief description of professional services: Environmental consulting, specializing in air and atmospheric sciences				
pro pul car per	This declaration of competency is collected under section 26(c) of the <i>Freedom of Information and Protection of Privacy Act</i> for the purposes of increasing government transparency and ensuring professional ethics and accountability. By signing and submitting this statement you consent to its publication and its disclosure outside of Canada. This consent is valid from the date submitted and cannot be revoked. If you have any questions about the collection, use or disclosure of your personal information please contact the Ministry of Environment and Climate Change Strategy Headquarters Office at 1-800-663-7867.				
	<u>Declar</u>	ation_			
	m a qualified professional with the knowledge, soformation, advice and/or recommendations in re	·	•		
Sig	gnature:	Witnessed by:			
<u>X</u>	The Comment	xDaryl Sam	pson		
Pri	int Name: Louis Agassiz	Print Name: <u>Daryl Sa</u>	ampson		
Da	ate signed: November 23, 2020				

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Liam Forrer

has successfully completed

Stack Sampling

The Faculty of Continuing Education

Mount Royal University

30 hours | May 26, 2023

Dimitra Fotopoulos, Vice Dean Professional and Continuing Education



Conflict of Interest Disclosure Statement

A qualified professional ¹ providing services to either the Ministry of Environment and Climate Change Strategy ("ministry"), or to a regulated person for the purpose of obtaining an authorization from the ministry, or pursuant to a requirement imposed under the *Environmental Management Act*, the *Integrated Pest Management Act* or the *Park Act* has a real or perceived conflict of interest when the qualified professional, or their relatives, close associates or personal friends have a financial or other interest in the outcome of the work being performed.

A real or perceived conflict of interest occurs when a qualified professional has

- a) an ownership interest in the regulated person's business;
- b) an opportunity to influence a decision that leads to financial benefits from the regulated person or their business other than a standard fee for service (e.g. bonuses, stock options, other profit sharing arrangements);
- c) a personal or professional interest in a specific outcome;
- d) the promise of a long term or ongoing business relationship with the regulated person, that is contingent upon a specific outcome of work;
- e) a spouse or other family member who will benefit from a specific outcome; or
- f) any other interest that could be perceived as a threat to the independence or objectivity of the qualified professional in performing a duty or function.

Qualified professionals who work under ministry legislation must take care in the conduct of their work that potential conflicts of interest within their control are avoided or mitigated. Precise rules in conflict of interest are not possible and professionals must rely on guidance of their professional associations, their common sense, conscience and sense of personal integrity.



☐ Real or perceived conflict of interes	→ Real or perceived conflict of interest — Real or perceived confl						
Description and nature of conflict(s):							
I will maintain my objectivity, condu	ucting my work in accordance with my Code of Ethics						
In addition, I will take the following have disclosed, to ensure the public	steps to mitigate the real or perceived conflict(s) I interest remains paramount:						
•	closure may be interpreted as a threat to my						
This conflict of interest disclosure statem Information and Protection of Privacy Act transparency and ensuring professional e statement you consent to its publication valid from the date submitted and cannot collection, use or disclosure of your personal experience.	ent is collected under section 26(c) of the <i>Freedom of</i> for the purposes of increasing government which and accountability. By signing and submitting this and its disclosure outside of Canada. This consent is to be revoked. If you have any questions about the onal information please contact the Ministry of the Headquarters Office at 1-800-663-7867.						
Signature:	Witnessed by:						
X Liam Forrer	<u>X</u>						
Print name: Liam Forrer	Mark Lanfranco Print name:						
Date: July 12, 2023							

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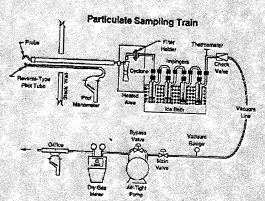
Walter Smith & Associates, Inc.

is hereby granted to:

Louis Agassiz

to certify that they have completed to satisfaction

Source Sampling & CEMS Workshop



Granted: March 11, 2011

Walte & thath

Walter S, Smith, PE, DEE 3.5 CEU



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\square Real or perceived conflict of interest	
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In addition, I will take the following s have disclosed, to ensure the public i	teps to mitigate the real or perceived conflict(s) I interest remains paramount:
•	osure may be interpreted as a threat to my by the statutory decision maker accordingly.
Information and Protection of Privacy Act for transparency and ensuring professional eth statement you consent to its publication as valid from the date submitted and cannot be submitted.	nics and accountability. By signing and submitting this and its disclosure outside of Canada. This consent is be revoked. If you have any questions about the hal information please contact the Ministry of
Signature:	Witnessed by:
x Zein Chang	X A call to a face a co
Print name: Louis Agassiz	Mark Lanfranco Print name:
Date: Jan. 4, 2021	

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Canadian Association for Laboratory Accreditation Inc.



Certificate of Accreditation

A. Lanfranco and Associates Inc. 101 - 9488 - 189th Street Surrey, British Columbia

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Accreditation No.: 1004232 Issued On: 4/11/2023 Accreditation Date: 2/5/2021 Expiry Date: 10/11/2025





President and CEO

This certificate is the property of the Canadian Association for Laboratory Accreditation Inc. and must be returned on request; reproduction must follow policy in place at date of issue. For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.