A.Lanfranco & Associates Inc.
Environmental Consultants

Prepared for

METRO VANCOUVER

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WASTE-TO-ENERGY FACILITY

Appendices of Emissions Testing Report
November 2025 Survey
Fourth Quarter 2025

Table of Contents

Appendix

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% $\pm$ 10%.

Analysis:

- Trace Metals and Mercury analysis conducted at Element Labs, Surrey, B.C.
- Fluoride (HF/HCl) analysis conducted at Element Labs in Surrey, B.C.
- Nitrous Oxide (N_2O) 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.
- Cr6 analysis conducted at ALS Environmental, Waterloo.
- Chain of Custody protocols followed for all samples.
- Acceptable blank values for all sample types. All samples blank corrected.

Sample Type	**Blank Value**		
Fourth Quarter 2025	**Unit 1**	**Unit 2**	**Unit 3**
Filter	-0.3 mg	-0.2 mg	-0.3 mg
Front Half Washings	-0.3 mg	-0.1 mg	0.3 mg
Mercury Front	<0.025 ug	<0.025 ug	<0.025 ug
Mercury Back	<0.225 ug	<0.131 ug	<0.210 ug
Trace Metals Front *	<59.0 ug	<78.1 ug	<64.6 ug
Trace Metals Back*	<28.8 ug	<34.6 ug	<12.0 ug
Hexavalent Chromium	<0.68 ug	N/A	N/A
Ammonia	14.5 ug	15.2 ug	19.1 ug
Fluoride	<30 ug	<30 ug	<40 ug
Chloride	<50 ug	<50 ug	<60 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 ± 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 Contaminant Concentration Calculations

$$c = \frac{m}{V_{std}} \quad \textbf{Equation 1}$$

$$m_{part} = m_{filter} + m_{pw} \quad \textbf{Equation 2}$$

$$m_i = m_{ana,i} - m_{blank} \quad \textbf{Equation 3}$$

$$V_{std} = \frac{V_{std(imp)}}{35.315} \quad \textbf{Equation 4}$$

$$V_{std(imp)} = \frac{V_{samp} \times y \times P_m \times (T_{std} + 459.67)}{P_{std} \times (T_{m(ave)} + 459.67)} \quad \textbf{Equation 5}$$

$$V_{samp} = V_{final} - V_{init} \quad \textbf{Equation 6}$$

$$P_m = P_B + \frac{\Delta H_{ave}}{13.6} \quad \textbf{Equation 7}$$

$$\Delta H_{ave} = \frac{1}{n}\sum_{i=1}^{n} \Delta H_{i(act)}, where\ n = the\ number\ of\ points \quad \textbf{Equation 8}$$

$$OC = \frac{20.9 - \%O_{2c}}{20.9 - \%O_{2m}} \quad \textbf{Equation 9}$$

$$\%O_{2m} = \frac{1}{n}\sum_{i=1}^{n} \%O_{2i}, where\ n = the\ number\ of\ O_2\ measurements \quad \textbf{Equation 10}$$

$$\%CO_{2m} = \frac{1}{n}\sum_{i=1}^{n} \%CO_{2i}, where\ n = the\ number\ of\ CO_2\ measurements \quad \textbf{Equation 11}$$

Where,

c	= Contaminant concentration
m	= Contaminant mass
m_i	= Net analytical mass (mg, ng, or µg)
$m_{ana,i}$	= Analytical mass (mg, ng, or µg)
m_{blank}	= Blank analytical mass (mg, ng, or µg)
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 (ft^3)
V_{std}	= Sample volume at standard conditions (m^3)
V_{samp}	= Sample volume at actual conditions (ft^3)
V_{final}	= Final gas meter reading (ft^3)
V_{init}	= Initial gas meter reading (ft^3)
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

$$\Delta H_i = \frac{2.62 \times 10^7 \times c_p \times A_n \times (1 - B_{wo}) \times M_D \times (T_m + 459.67) \times \Delta p_i}{k_o \times M_w \times (T_{Stk} + 459.67)}$$ **Equation 12**

$$R_m = 85.49 \times c_p \times \sqrt{\Delta p_i} \times \sqrt{\frac{(T_{stk_i} + 459.67)}{M_w \times P_B}} \times 60 \times A_n \times \frac{(T_{m_i} + 459.67) \times (1 - B_{wo})}{(T_{stk_i} + 459.67) \times y}$$ **Equation 13**

$$A_n = \pi \left(\frac{d_n}{24}\right)^2$$ **Equation 14**

$$M_w = M_D \times (1 - B_{wo}) + 18 \times B_{wo}$$ **Equation 15**

$$M_D = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times (100 - \%CO_2 - \%O_2)$$ **Equation 16**

$$T_{Stk} = \frac{1}{n}\sum_{i=1}^{n} T_{Stk_i}, where\ n = the\ number\ of\ points$$ **Equation 17**

$$B_{wo} = \frac{V_{cond}}{V_{cond} + V_{std(imp)}}$$ **Equation 18**

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

$$Iso = \frac{1}{n}\sum_{i=1}^{n} Iso_i, where\ n = the\ number\ of\ points$$ **Equation 20**

$$Iso_i = \frac{v_{nzi}}{v_i}$$ **Equation 21**

$$v_i = 85.49 \times c_p \times \sqrt{\Delta p_i} \times \sqrt{\frac{(T_{Stk_i} + 459.67)}{(P_{Stk} \times M_W)}}$$ **Equation 22**

$$v_{nzi} = \frac{(V_i - V_{i-1}) \times y \times (T_{Stk_i} + 459.67) \times (P_B + \frac{\Delta H_{i(act)}}{13.6})}{A_n \times t_i \times 60 \times (T_{m(i)} + 459.67) \times P_{stk} \times (1 - B_{wo})}$$ **Equation 23**

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

$$v_{stk} = \frac{1}{n}\sum_{i=1}^{n} v_i \text{ , where } n = \text{the number of points}$$ **Equation 25**

$$v_{nz} = \frac{1}{n}\sum_{i=1}^{n} v_{nzi} \text{ , where } n = \text{the number of points}$$ **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 H_2O)*
P_g = *Stack Static pressure (inches of H_2O)*
P_{stk} = *Absolute stack pressure (inches of Hg)*
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

$$Q_S = Q_A \times \frac{(T_{Std} + 459.67)}{(T_{Stk} + 459.67)} \times \frac{P_{Stk}}{P_{Std}}$$ **Equation 27**

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

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

Where,

Q_A = *Actual flowrate (Am³/min)*
Q_S = *Flowrate (m³/min) at standard conditions on a dry basis*
A_{stk} = *Area of stack (ft²)*
d = *Diameter of stack (inches)*

APPENDIX - C

LABORATORY RESULTS

Appendix C - Particulate Analysis

Client:	Metro Vancouver	**Sample Date:**	Nov 17 -20, 2025
Source:	Units 1, 2, and 3	**Location:**	WTE (Burnaby, B.C)

A. Lanfranco & Associates Standard Operating Procedure:

SOP 1.2.1 Gravimetric determination of total particulate matter

Filter Collection:

Test #	Initial (grams)	Final (grams)	Net Diference (grams)	Blank Adjusted (grams)
Unit 1 Blank	0.4451	0.4448	-0.0003	
Unit 1 Run 1	0.4767	0.4763	-0.0004	ND
Unit 1 Run 2	0.4685	0.4690	0.0005	0.0008
Unit 1 Run 3	0.4469	0.4466	-0.0003	ND
Unit 2 Blank	0.4473	0.4471	-0.0002	
Unit 2 Run 1	0.4491	0.4494	0.0003	0.0005
Unit 2 Run 2	0.4466	0.4465	-0.0001	0.0001
Unit 2 Run 3	0.4439	0.4445	0.0006	0.0008
Unit 3 Blank	0.4494	0.4491	-0.0003	
Unit 3 Run 1	0.4502	0.4476	-0.0026	ND
Unit 3 Run 2	0.4479	0.4487	0.0008	0.0011
Unit 3 Run 3	0.4492	0.4491	-0.0001	0.0002

Front Half Washings:

Test #	Initial (grams)	Final (grams)	Net Diference (grams)	Blank Adjusted (grams)
Unit 1 Blank	85.6022	85.6019	-0.0003	
Unit 1 Run 1	84.3667	84.3696	0.0029	0.0032
Unit 1 Run 2	122.2418	122.2431	0.0013	0.0016
Unit 1 Run 3	84.9576	84.9579	0.0003	0.0006
Unit 2 Blank	97.4702	97.4701	-0.0001	
Unit 2 Run 1	118.9946	118.9964	0.0018	0.0019
Unit 2 Run 2	127.1409	127.1409	0.0000	0.0001
Unit 2 Run 3	86.4737	86.4740	0.0003	0.0004
Unit 3 Blank	119.3290	119.3293	0.0003	
Unit 3 Run 1	129.1969	129.1984	0.0015	0.0012
Unit 3 Run 2	126.9769	126.9778	0.0009	0.0006
Unit 3 Run 3	122.9326	122.9337	0.0011	0.0008

Task	Unit	Personnel	Date	Quality Control	Y/N
Filter Recovery:	Unit 1	J. Ching	18-Nov-25	Adequate PW volume:	Y
	Unit 2	J. Ching	19-Nov-25	No sample leakage:	Y
	Unit 3	J. Ching	20-Nov-25	Filter not compromised:	Y
PW Initial Analysis:	Unit 1	J. Ching	21-Nov-25		
	Unit 2	J. Ching	21-Nov-25		
	Unit 3	J. Ching	21-Nov-25		
PW, Filter Final Analysis:	Unit 1	J. Ching	25-Nov-25		
	Unit 2	J. Ching	25-Nov-25		
	Unit 3	J. Ching	25-Nov-25		
Data Entered to Computer:	All	L. Agassiz	04-Dec-25		

Comments:

No problems encountered in sample analysis.

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Report Transmission Cover Page

Bill To: A. Lanfranco & Associates
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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: **1861966**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216463
Report Type: Final Report

Contact	Company	Address
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Delivery	Format	Deliverables
Email	PDF	COA / COC
Email	PDF	COC / Test Report

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Delivery	Format	Deliverables
Email	PDF	Invoice

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Analytical Report

Bill To: A. Lanfranco & Associates
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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: **1861966**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216463
Report Type: Final Report

Reference Number	1861966-1	1861966-2	1861966-3
Sample Date	Nov 17, 2025	Nov 17, 2025	Nov 17, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Reagent Blank Unit 1 Container 1 (filter) / 18.2 °C	Reagent Blank Unit 2 Container 1 (filter) / 18.2 °C	Reagent Blank Unit 3 Container 1 (filter) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	<5	<5	<5	5
Antimony		µg	<2	<2	5	2.5
Arsenic		µg	<1	3.3	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	<0.2	0.48	<0.2	0.2
Cobalt		µg	0.7	0.8	<0.3	0.25
Copper		µg	<0.3	<0.3	<0.3	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	<0.3	<0.3	<0.3	0.25
Nickel		µg	<0.5	<0.5	<0.5	0.5
Phosphorus		µg	43	51	49	2.5
Selenium		µg	26.9	<2	<2	1.5
Tellurium		µg	3.7	<2	<2	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	2	1	2.7	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:

Carol Nam, Dipl. T.
Quality Assurance Coordinator

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Methodology and Notes

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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: **1861966**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216463
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	Dec 12, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 05, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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Report Transmission Cover Page

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Project ID: Metro Vancouver WTE
Project Name: Reagent Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861957**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216451
Report Type: Final Report

Contact	Company	Address
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Delivery	Format	Deliverables
Email	PDF	COA / COC
Email	PDF	COC / Test Report

Contact	Company	Address
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Delivery	Format	Deliverables
Email	PDF	Invoice

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Analytical Report

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Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Reagent Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861957**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216451
Report Type: Final Report

Reference Number	1861957-1	1861957-2	1861957-3
Sample Date	Nov 17, 2025	Nov 17, 2025	Nov 17, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Reagent Blank Unit 1 / 18.2 °C	Reagent Blank Unit 2 / 18.2 °C	Reagent Blank Unit 3 / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	<5	<5	6	5
Antimony		µg	20	10	<2	2.5
Arsenic		µg	<1	<1	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	0.2	<0.2	0.64	0.2
Cobalt		µg	2	0.6	<0.3	0.25
Copper		µg	<0.3	<0.3	<0.3	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	<0.3	<0.3	<0.3	0.25
Nickel		µg	<0.5	<0.5	<0.5	0.5
Phosphorus		µg	4	<2	10	2.5
Selenium		µg	<2	<2	<2	1.5
Tellurium		µg	<2	8.2	8.8	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	2	2	2.8	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	<5	<5	9	5
Antimony		µg	<3	5	<3	2.5
Arsenic		µg	<1	<1	<1	1
Cadmium		µg	0.6	<0.3	0.4	0.25
Chromium		µg	<0.2	0.96	<0.2	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	<2	1.5
Manganese		µg	<0.3	0.8	<0.3	0.25
Nickel		µg	<0.5	0.9	<0.5	0.5
Phosphorus		µg	10	20	10	2.5
Selenium		µg	<2	<2	<2	1.5
Tellurium		µg	14	<2	<2	2
Thallium		µg	3.3	4.0	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	1.0	0.9	1	0.5
Volume	Sample	mL	207	214	210	
Volume	aliquot volume	mL	157	164	160	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05
Dilution Factor	As Tested		1	1	1	

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Analytical Report

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Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Reagent Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861957**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216451
Report Type: Final Report

Reference Number	1861957-1	1861957-2	1861957-3
Sample Date	Nov 17, 2025	Nov 17, 2025	Nov 17, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Reagent Blank Unit 1 / 18.2 °C	Reagent Blank Unit 2 / 18.2 °C	Reagent Blank Unit 3 / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mercury by CVAA - Continued						
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	0.09	0.10	<0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	207	214	210	
Volume	aliquot volume	mL	5.0	5.0	5.0	
Volume	Final	mL	40	42	42	
Mercury	Fraction 2B	µg/sample	0.2	0.2	<0.09	
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	103	101	100	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	µg/sample	<0.008	<0.008	<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	<0.05	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:

Carol Nam, Dipl. T.
Quality Assurance Coordinator

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Methodology and Notes

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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: **1861957**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216451
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	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 05, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 05, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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Report Transmission Cover Page

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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: **1861962**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216455
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	Format	Deliverables
Email	PDF	COA / COC
Email	PDF	COC / Test Report

Contact	Company	Address
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Delivery	Format	Deliverables
Email	PDF	Invoice

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Analytical Report

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Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Field Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861962**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216455
Report Type: Final Report

Reference Number	1861962-1	1861962-2	1861962-3
Sample Date	Nov 18, 2025	Nov 19, 2025	Nov 20, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Field Blank Unit 1 (MV Unit 1 BLK + 4 Bottles) / 18.2 °C	Field Blank Unit 2 (MV Unit 2 BLK + 4 Bottles) / 18.2 °C	Field Blank Unit 3 (Unit 3 Blank + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	6	20	10	5
Antimony		µg	<2	10	8	2.5
Arsenic		µg	<1	<1	3.6	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	<0.2	<0.2	<0.2	0.2
Cobalt		µg	1	<0.3	<0.3	0.25
Copper		µg	<0.3	<0.3	<0.3	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	<0.3	<0.3	<0.3	0.25
Nickel		µg	1	<0.5	<0.5	0.5
Phosphorus		µg	49	40	41	2.5
Selenium		µg	<2	<2	2	1.5
Tellurium		µg	<2	6.1	<2	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	2	2	3.7	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	<5	9	<5	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<1.0	<0.9	<0.9	1
Cadmium		µg	<0.2	0.3	<0.2	0.25
Chromium		µg	<0.2	<0.2	<0.2	0.2
Cobalt		µg	0.6	0.7	<0.2	0.25
Copper		µg	<0.2	<0.2	<0.2	0.25
Lead		µg	<1	<1	<1	1.5
Manganese		µg	0.4	0.3	<0.2	0.25
Nickel		µg	<0.5	<0.5	<0.5	0.5
Phosphorus		µg	20	20	10	2.5
Selenium		µg	<1	3.3	<1	1.5
Tellurium		µg	<2	<2	<2	2
Thallium		µg	6.8	<1	<1	1.5
Vanadium		µg	<1.0	<0.9	<0.9	1
Zinc		µg	1	1	2	0.5
Volume	Sample	mL	360	367	372	
Volume	aliquot volume	mL	301	317	322	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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Analytical Report

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Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Field Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861962**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216455
Report Type: Final Report

Reference Number	1861962-1	1861962-2	1861962-3
Sample Date	Nov 18, 2025	Nov 19, 2025	Nov 20, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Field Blank Unit 1 (MV Unit 1 BLK + 4 Bottles) / 18.2 °C	Field Blank Unit 2 (MV Unit 2 BLK + 4 Bottles) / 18.2 °C	Field Blank Unit 3 (Unit 3 Blank + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection 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	
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	360	367	372	
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	<0.1	
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	97	101	100	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	µg/sample	<0.008	<0.008	<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	<0.05	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:

Carol Nam, Dipl. T.
Quality Assurance Coordinator

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Methodology and Notes

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Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Field Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861962**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 17, 2025
Report Number: 3216455
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	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 05, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 05, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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Company:

Project ID: Metro Vancouver WTE
Project Name: Metals and Hg Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
Report Type: Final Report

Contact	Company	Address
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Delivery	Format	Deliverables
Email	PDF	COA / COC
Email	PDF	COC / Test Report

Contact	Company	Address
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Delivery	Format	Deliverables
Email	PDF	Invoice

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Analytical Report

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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: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
Report Type: Final Report

Reference Number	1861800-1	1861800-2	1861800-3
Sample Date	Nov 17, 2025	Nov 18, 2025	Nov 18, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 1 Run 1 (MV Unit 1 R1 + 4 Bottles) / 18.2 °C	Unit 1 Run 2 (MV Unit 1 Run 2 + 4 Bottles) / 18.2 °C	Unit 1 Run 3 (MV Unit 1 Run 3 + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	20	10	9	5
Antimony		µg	7	7	20	2.5
Arsenic		µg	<1	<1	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	<0.2	1.4	<0.2	0.2
Cobalt		µg	0.5	<0.3	2	0.25
Copper		µg	0.9	0.5	<0.3	0.25
Lead		µg	3.0	<2	<2	1.5
Manganese		µg	2	2	0.9	0.25
Nickel		µg	0.8	<0.5	<0.5	0.5
Phosphorus		µg	54	61	39	2.5
Selenium		µg	<2	<2	4.8	1.5
Tellurium		µg	6.0	<2	<2	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	34.1	26.9	26.2	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	27	23	10	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	3.9	<0.9	<0.9	1
Cadmium		µg	0.2	<0.2	0.6	0.25
Chromium		µg	<0.2	1.1	0.52	0.2
Cobalt		µg	<0.2	<0.2	<0.2	0.25
Copper		µg	<0.2	<0.2	0.8	0.25
Lead		µg	<1	<1	1	1.5
Manganese		µg	0.4	0.5	1	0.25
Nickel		µg	<0.4	<0.4	<0.4	0.5
Phosphorus		µg	20	20	20	2.5
Selenium		µg	<1	<1	15	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	3.5	2.6	2.4	0.5
Volume	Sample	mL	735	768	722	
Volume	aliquot volume	mL	685	718	672	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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Analytical Report

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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: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
Report Type: Final Report

Reference Number	1861800-1	1861800-2	1861800-3
Sample Date	Nov 17, 2025	Nov 18, 2025	Nov 18, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 1 Run 1 (MV Unit 1 R1 + 4 Bottles) / 18.2 °C	Unit 1 Run 2 (MV Unit 1 Run 2 + 4 Bottles) / 18.2 °C	Unit 1 Run 3 (MV Unit 1 Run 3 + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection 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	
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	735	768	722	
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	0.09	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	97	101	101	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	µg/sample	<0.008	<0.008	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	0.46	0.17	0.48	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	0.15	0.056	0.15	

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Analytical Report

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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: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
Report Type: Final Report

Reference Number	1861800-4	1861800-5	1861800-6
Sample Date	Nov 18, 2025	Nov 19, 2025	Nov 19, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 2 Run 1 (Unit 2 R1 + 4 Bottles) / 18.2 °C	Unit 2 Run 2 (Unit 2 R2 + 4 Bottles) / 18.2 °C	Unit 2 Run 3 (MV Unit 2 Run 3 + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	20	<5	<5	5
Antimony		µg	10	4	<2	2.5
Arsenic		µg	<1	<1	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	11.9	0.29	0.51	0.2
Cobalt		µg	0.3	0.4	2	0.25
Copper		µg	<0.3	<0.3	<0.3	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	6.2	0.4	<0.3	0.25
Nickel		µg	27.8	1	<0.5	0.5
Phosphorus		µg	52	63	51	2.5
Selenium		µg	<2	<2	<2	1.5
Tellurium		µg	<2	7.8	<2	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	18	16	18	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	24	7	7	5
Antimony		µg	<2	<2	2	2.5
Arsenic		µg	<0.9	0.9	<0.9	1
Cadmium		µg	0.7	<0.2	0.5	0.25
Chromium		µg	0.27	0.58	1.5	0.2
Cobalt		µg	1	<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	0.7	0.5	2.3	0.25
Nickel		µg	<0.4	<0.4	<0.4	0.5
Phosphorus		µg	10	23	23	2.5
Selenium		µg	4.8	<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	3.5	2	3.7	0.5
Volume	Sample	mL	691	751	687	
Volume	aliquot volume	mL	641	701	637	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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Analytical Report

Bill To: A. Lanfranco & Associates
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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: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
Report Type: Final Report

Reference Number	1861800-4	1861800-5	1861800-6
Sample Date	Nov 18, 2025	Nov 19, 2025	Nov 19, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 2 Run 1 (Unit 2 R1 + 4 Bottles) / 18.2 °C	Unit 2 Run 2 (Unit 2 R2 + 4 Bottles) / 18.2 °C	Unit 2 Run 3 (MV Unit 2 Run 3 + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection 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	
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	691	751	687	
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	0.68	<0.05	<0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	100	99	99	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	µg/sample	0.11	<0.008	<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	0.42	<0.05	0.12	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	0.13	<0.02	0.040	

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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: Metals and Hg Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
Report Type: Final Report

Reference Number	1861800-7	1861800-8	1861800-9
Sample Date	Nov 19, 2025	Nov 20, 2025	Nov 20, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 3 Run 1 (MV U3 R-1 + 4 Bottles / 18.2 °C	Unit 3 Run 2 (Unit 3 Run 2 + 4 Bottles) / 18.2 °C	Unit 3 Run 3 (MV Unit 3 R-3 + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	8	20	9	5
Antimony		µg	3	20	6	2.5
Arsenic		µg	3.9	<1	<1	1
Cadmium		µg	<0.3	<0.3	0.5	0.25
Chromium		µg	5.86	0.86	0.26	0.2
Cobalt		µg	<0.3	<0.3	2	0.25
Copper		µg	<0.3	0.7	1.0	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	1	0.6	0.6	0.25
Nickel		µg	3.0	<0.5	1	0.5
Phosphorus		µg	42	37	42	2.5
Selenium		µg	<2	<2	<2	1.5
Tellurium		µg	<2	5.8	<2	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	7.1	2.9	4.0	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	<4	6	10	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	0.29	0.57	3.01	0.2
Cobalt		µg	<0.2	<0.2	<0.2	0.25
Copper		µg	<0.2	<0.2	<0.2	0.25
Lead		µg	5.0	<1	<1	1.5
Manganese		µg	0.3	0.3	2	0.25
Nickel		µg	<0.4	0.9	1	0.5
Phosphorus		µg	20	20	26	2.5
Selenium		µg	<1	<1	<1	1.5
Tellurium		µg	<2	10	<2	2
Thallium		µg	<1	14	9.5	1.5
Vanadium		µg	<0.9	<0.9	<0.9	1
Zinc		µg	2	2.3	4.1	0.5
Volume	Sample	mL	680	657	730	
Volume	aliquot volume	mL	630	607	680	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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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: Metals and Hg Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
Report Type: Final Report

Reference Number	1861800-7	1861800-8	1861800-9
Sample Date	Nov 19, 2025	Nov 20, 2025	Nov 20, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 3 Run 1 (MV U3 R-1 + 4 Bottles / 18.2 °C	Unit 3 Run 2 (Unit 3 Run 2 + 4 Bottles) / 18.2 °C	Unit 3 Run 3 (MV Unit 3 R-3 + 4 Bottles) / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection 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	
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	680	657	730	
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	99	99	103	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	µg/sample	<0.008	<0.008	<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	0.10	0.22	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	0.03	0.070	

Approved by:

Rachel Eden , B. Sc.
Operations Manager

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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
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861800**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 16, 2025
Report Number: 3216199
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	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 10, 2025	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 05, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Dec 05, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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Report Transmission Cover Page

Bill To: A. Lanfranco & Associates
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Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Gas Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861899**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 2, 2025
Report Number: 3216309
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	Format	Deliverables
Email	PDF	COA / COC
Email	PDF	COC / Test Report

Contact	Company	Address
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	Format	Deliverables
Email	PDF	Invoice

Notes To Clients:

- Sample 1861899-2; 10336494: Reduction of analytical volume was necessary for anion analysis due to matrix effects in lot 1861899. Detection limits are adjusted accordingly.

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Analytical Report

Bill To: A. Lanfranco & Associates
#101, 9488 - 189 Street
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V4N 4W7
Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Gas Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861899**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 2, 2025
Report Number: 3216309
Report Type: Final Report

Reference Number	1861899-1	1861899-2	1861899-3
Sample Date	Nov 18, 2025	Nov 19, 2025	Nov 20, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit #1 Gas Blank / 18.2 °C	Unit #2 Gas Blank / 18.2 °C	Unit #3 Gas Blank / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	93.0	92.0	119	
Dilution Factor	chloride		10.00	10.00	10.00	
Chloride	As Tested	mg/L	<0.5	<0.5	<0.5	0.05
Chloride	Water Soluble	µg/sample	<50	<50	<60	
Dilution Factor	fluoride		10.00	10.00	10.00	
Fluoride	As Tested	mg/L	<0.3	<0.3	<0.3	0.03
Fluoride	Water Soluble	µg/sample	<30	<30	<40	
Ammonium - N	As Tested	µg/L	241	237	208	25
Dilution Factor	As Tested		1.00	1.00	1.00	
Sample Volume	Sample volume	mL	60.0	64.0	92.0	
Ammonium - N		µg/sample	14.5	15.2	19.1	

Approved by:

Reena Sharma
Operations Chemist

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Methodology and Notes

Bill To:	A. Lanfranco & Associates #101, 9488 - 189 Street Surrey, BC, Canada V4N 4W7	Project ID:	Metro Vancouver WTE	Lot ID:	**1861899**
Attn:	Missy	Project Name:	Gas Blanks	Control Number:	
Sampled By:		Project Location:		Date Received:	Nov 25, 2025
Company:		LSD:		Date Reported:	Dec 2, 2025
		P.O.:		Report Number:	3216309
		Proj. Acct. code:		Report Type:	Final Report

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Ammonium in Impingers	APHA	*	Automated Phenate Method, 4500-NH3 G	Dec 02, 2025	Element Edmonton - Roper Road
Anions by IEC in air (VAN)	EMC	*	Determination of Hydrogen Halide & Halogen Emissions from Stationary Sources (Isokinetic), 26A	Nov 26, 2025	Element Vancouver

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EMC	Emission Measurement Center of EPA

Comments:

- Sample 1861899-2; 10336494: Reduction of analytical volume was necessary for anion analysis due to matrix effects in lot 1861899. Detection limits are adjusted accordingly.

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Report Transmission Cover Page

Bill To: A. Lanfranco & Associates
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V4N 4W7
Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Gas Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861942**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 2, 2025
Report Number: 3216435
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	Format	Deliverables
Email	PDF	COA / COC
Email	PDF	COC / Test Report

Contact	Company	Address
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	Format	Deliverables
Email	PDF	Invoice

Notes To Clients:

- Reduction of analytical volume was necessary for anion analysis due to matrix effects in lot 1861942. Detection limits are adjusted accordingly.

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Analytical Report

Bill To: A. Lanfranco & Associates
#101, 9488 - 189 Street
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V4N 4W7
Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Gas Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861942**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 2, 2025
Report Number: 3216435
Report Type: Final Report

Reference Number	1861942-1	1861942-2	1861942-3
Sample Date	Nov 18, 2025	Nov 18, 2025	Nov 18, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit # 1 Gas Run 1 / 18.2 °C	Unit # 1 Gas Run 2 / 18.2 °C	Unit # 1 Gas Run 3 / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	107	113	130	
Dilution Factor	chloride		10.00	10.00	10.00	
Chloride	As Tested	mg/L	7.7	46.0	90.1	0.05
Chloride	Water Soluble	µg/sample	820	5200	11700	
Dilution Factor	fluoride		10.00	10.00	10.00	
Fluoride	As Tested	mg/L	<0.3	<0.3	<0.3	0.03
Fluoride	Water Soluble	µg/sample	<30	<30	<40	
Ammonium - N	As Tested	µg/L	1400	8950	13300	25
Dilution Factor	As Tested		1.00	1.00	10.0	
Sample Volume	Sample volume	mL	80.0	85.0	98.0	
Ammonium - N		µg/sample	112	761	1300	

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Analytical Report

Bill To: A. Lanfranco & Associates
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V4N 4W7
Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Gas Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861942**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 2, 2025
Report Number: 3216435
Report Type: Final Report

Reference Number	1861942-4	1861942-5	1861942-6
Sample Date	Nov 19, 2025	Nov 19, 2025	Nov 19, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit # 2 Gas Run 1 / 18.2 °C	Unit # 2 Gas Run 2 / 18.2 °C	Unit # 2 Gas Run 3 / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	113	111	110	
Dilution Factor	chloride		10.00	10.00	10.00	
Chloride	As Tested	mg/L	46.8	48.0	61.5	0.05
Chloride	Water Soluble	µg/sample	5280	5330	6770	
Dilution Factor	fluoride		10.00	10.00	10.00	
Fluoride	As Tested	mg/L	<0.3	<0.3	<0.3	0.03
Fluoride	Water Soluble	µg/sample	<30	<30	<30	
Ammonium - N	As Tested	µg/L	10200	8030	7060	25
Dilution Factor	As Tested		10.0	1.00	1.00	
Sample Volume	Sample volume	mL	86.0	84.0	85.0	
Ammonium - N		µg/sample	876	675	600	

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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: Gas Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861942**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 2, 2025
Report Number: 3216435
Report Type: Final Report

Reference Number	1861942-7	1861942-8	1861942-9
Sample Date	Nov 20, 2025	Nov 20, 2025	Nov 20, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit # 3 Gas Run 1 / 18.2 °C	Unit # 3 Gas Run 2 / 18.2 °C	Unit # 3 Gas Run 3 / 18.2 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	106	106	93.0	
Dilution Factor	chloride		10.00	10.00	10.00	
Chloride	As Tested	mg/L	26.6	109	196	0.05
Chloride	Water Soluble	µg/sample	2820	11600	18200	
Dilution Factor	fluoride		10.00	10.00	10.00	
Fluoride	As Tested	mg/L	<0.3	<0.3	<0.3	0.03
Fluoride	Water Soluble	µg/sample	<30	<30	<30	
Ammonium - N	As Tested	µg/L	8310	9460	6410	25
Dilution Factor	As Tested		1.00	1.00	1.00	
Sample Volume	Sample volume	mL	80.0	76.0	66.0	
Ammonium - N		µg/sample	665	719	423	

Approved by:

Reena Sharma
Operations Chemist

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Methodology and Notes

Bill To: A. Lanfranco & Associates
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Attn: Missy
Sampled By:
Company:

Project ID: Metro Vancouver WTE
Project Name: Gas Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1861942**
Control Number:
Date Received: Nov 25, 2025
Date Reported: Dec 2, 2025
Report Number: 3216435
Report Type: Final Report

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Ammonium in Impingers	APHA	*	Automated Phenate Method, 4500-NH3 G	Dec 02, 2025	Element Edmonton - Roper Road
Anions by IEC in air (VAN)	EMC	*	Determination of Hydrogen Halide & Halogen Emissions from Stationary Sources (Isokinetic), 26A	Nov 26, 2025	Element Vancouver

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EMC	Emission Measurement Center of EPA

Comments:

- Reduction of analytical volume was necessary for anion analysis due to matrix effects in lot 1861942. Detection limits are adjusted accordingly.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25D1544**			
Client	:	**A. Lanfranco & Associates Inc.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Mark Lanfranco	Account Manager	:	Brent Mack
Address	:	Unit # 101 9488 - 189 St Surrey British Columbia Canada V4N 4W7	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	604 881 2582	E-mail	:	Brent.Mack@ALSGlobal.com
Project	:	MV WTE UNIT 1	Telephone	:	778-370-3279
PO	:	----	Date Samples Received	:	25-Nov-2025 15:45
C-O-C number	:	----	Date Analysis Commenced	:	02-Dec-2025
Sampler	:	----	Issue Date	:	03-Dec-2025 11:49
Site	:	----			
Quote number	:	Standing Offer			
No. of samples received	:	4			
No. of samples analysed	:	4			

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

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).

Unit	*Description*
mL	millilitres
µg	micrograms

<: 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)

					Client sample ID	MV WTE Unit 1 - Cr+6 Blank ----	MV WTE Unit 1 - Cr+6 Run 1 ----	MV WTE Unit 1 - Cr+6 Run 2 ----	MV WTE Unit 1 - Cr+6 Run 3 ----	----
					Client sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	21-Nov-2025 00:00	21-Nov-2025 00:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25D1544-001	VA25D1544-002	VA25D1544-003	VA25D1544-004	----
						Result	Result	Result	Result	----
Sample Preparation										
Volume, impinger	n/a	EP532C/WT	0.1	mL		678	1295	1105	1280	----
Speciated Metals										
Chromium, hexavalent [Cr VI]	18540-29-9	E532C/WT	0.20	µg		<0.68	<1.30	<1.10	<1.28	----

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

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25D1544**	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 Surrey BC Canada V4N 4W7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 881 2582	Telephone	: 778-370-3279
Project	: MV WTE UNIT 1	Date Samples Received	: 25-Nov-2025 15:45
PO	: ----	Issue Date	: 03-Dec-2025 11:48
C-O-C number	: ----		
Sampler	: ----		
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

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.

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.

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: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
HDPE MV WTE Unit 1 - Cr+6 Run 2	E532C	21-Nov-2025	02-Dec-2025	14 days	11 days	✓	02-Dec-2025	14 days	11 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
HDPE MV WTE Unit 1 - Cr+6 Run 3	E532C	21-Nov-2025	02-Dec-2025	14 days	11 days	✓	02-Dec-2025	14 days	11 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
HDPE MV WTE Unit 1 - Cr+6 Blank	E532C	20-Nov-2025	02-Dec-2025	14 days	12 days	✓	02-Dec-2025	14 days	12 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)										
HDPE MV WTE Unit 1 - Cr+6 Run 1	E532C	20-Nov-2025	02-Dec-2025	14 days	12 days	✓	02-Dec-2025	14 days	12 days	✓

Legend & Qualifier Definitions

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

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**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	2364129	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	2364129	1	4	25.0	5.0	✓
Method Blanks (MB)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	2364129	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
Hexavalent Chromium (Cr VI) by IC (Impinger, ug/sample)	E532C	2364129	1	4	25.0	5.0	✓

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 ALS Environmental - Waterloo	Air	EPA 7199 / EPA 306	Impinger samples are analyzed by ion chromatography with UV/Vis detector using diphenylcarbazide in a sulphuric acid solution.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation of Hexavalent Chromium (Impinger)	EP532C ALS Environmental - Waterloo	Air	APHA 3500-Cr C (Ion Chromatography)	pH of a homogenized impinger sample is adjusted to pH 9 by NaOH for Ion Chromatography analysis.

QUALITY CONTROL REPORT

Work Order	: **VA25D1544**	Page	: 1 of 3
Client	: A. Lanfranco & Associates Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Mark Lanfranco	Account Manager	: Brent Mack
Address	: Unit # 101 9488 - 189 St Surrey BC Canada V4N 4W7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 881 2582	Telephone	: 778-370-3279
Project	: MV WTE UNIT 1	Date Samples Received	: 25-Nov-2025 15:45
PO	: ----	Date Analysis Commenced	: 02-Dec-2025
C-O-C number	: ----	Issue Date	: 03-Dec-2025 11:48
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer		
No. of samples received	: 4		
No. of samples analysed	: 4		

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 Metals, Waterloo, Ontario

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: 2364129)											
VA25D1544-002	MV WTE Unit 1 - Cr+6 Run 1	Volume, impinger	n/a	EP532C	0.1	mL	1295	1295		Diff <2x LOR	----
Speciated Metals (QC Lot: 2364129)											
VA25D1544-002	MV WTE Unit 1 - Cr+6 Run 1	Chromium, hexavalent [Cr VI]	18540-29-9	E532C	1.30	µg	<1.30	<1.30	0	Diff <2x LOR	----

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: 2364129)						
Volume, impinger	n/a	EP532C	0.1	mL	200	----
Speciated Metals (QCLot: 2364129)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532C	0.2	µg	<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.

Sub-Matrix: **Air**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 2364129)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532C	0.2	µg	10 µg	103	90.0	110	----

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 Preparation (QCLot: 2364129)										
VA25D1544-002	MV WTE Unit 1 - Cr+6 Run 1	Volume, impinger	n/a	EP532C	----	----		0	0	----
Speciated Metals (QCLot: 2364129)										
VA25D1544-002	MV WTE Unit 1 - Cr+6 Run 1	Chromium, hexavalent [Cr VI]	18540-29-9	E532C	54.0 µg	51.8 µg	104	75.0	125	----

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To				**Report Format / Distribution**				**Service Requested** (Rush for routine analysis subject to availability)
Company:	A. Lanfranco and Associates			☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Mark Lanfranco			☑ PDF	☐ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	Unit 101 9488 189 St			Email 1:	mark.lanfranco@alanfranco.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Surrey BC V4N 4W7			Email 2:				○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-881-2582	Fax:	604-881-2581	Email 3:				**Analysis Request**
Invoice To	Same as Report ?	☑ Yes	☐ No	**Client / Project Information**				Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		☑ Yes	☐ No	Job #:	MV WTE UNIT 1			
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #:				
Lab Work Order # (lab use only)				**ALS Contact:**	Erin Bolster	**Sampler:**	A. Lanfranco and	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Cr+6	Number of Containers
	MV WTE Unit 1 - Cr+6 Blank	20-Nov-25			X	1
	MV WTE Unit 1 - Cr+6 Run 1 (1 of 2 and 2 of 2)	20-Nov-25			X	2
	MV WTE Unit 1 - Cr+6 Run 2 (1 of 2 and 2 of 2)	21-Jan-25			X	2
	MV WTE Unit 1 - Cr+6 Run 3 (1 of 2 and 2 of 2)	21-Jan-25			X	2

Environmental Division
Vancouver
Work Order Reference
VA25D1544

Telephone : +1 604 253 4188

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Account #: 18619 Please report ug/sample and volumes (ml) Cr+6 analysis according to EPA Stack Sampling Method 0061

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			JD	24 NOV 25	14:40	IR-19 20.8 °C	SP	26/11/25	3:45PM	

20°C

Your Project #: MVWTE
Site#: C595952
Site Location: BURNABY, BC
Your C.O.C. #: NA

Attention: Shanaz Akbar

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

Report Date: 2025/11/28
Report #: R8659523
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C5E9078
Received: 2025/11/25, 08:55

Sample Matrix: Air
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Nitrous Oxide	7	N/A	2025/11/26	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.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: MVWTE
Site#: C595952
Site Location: BURNABY, BC
Your C.O.C. #: NA

Attention: Shanaz Akbar

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

Report Date: 2025/11/28
Report #: R8659523
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C5E9078
Received: 2025/11/25, 08:55

Encryption Key

Julian Tong
Project Manager Assistant
28 Nov 2025 09:36:18

Please direct all questions regarding this Certificate of Analysis to:
Julian Tong, Project Manager Assistant
Email: Julian.Tong@bureauveritas.com
Phone# (905) 817-5700

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

COMPRESSED GAS PARAMETERS (AIR)

Bureau Veritas ID		AXRM90	AXRM91	AXRM94	AXRM95		
Sampling Date		2025/11/18 09:11	2025/11/18 10:19	2025/07/16 11:33	2025/07/16 12:45		
COC Number		NA	NA	NA	NA		
	UNITS	DXJ654-UNIT3 BAG 1	DXJ655-UNIT3 BAG 2	DXJ658-UNIT2 BAG 2	DXJ659-UNIT2 BAG 3	RDL	QC Batch
Gas							
Nitrous Oxide	ppmv	3.4	4.1	1.6	3.1	0.1	A062854

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		AXRM96	AXRM96	AXRM97	AXRM98		
Sampling Date		2025/07/15 09:21	2025/07/15 09:21	2025/07/15 10:30	2025/07/15 11:38		
COC Number		NA	NA	NA	NA		
	UNITS	DXJ660-UNIT1 BAG 1	DXJ660-UNIT1 BAG 1 Lab-Dup	DXJ661-UNIT1 BAG 2	DXJ662-UNIT1 BAG 3	RDL	QC Batch
Gas							
Nitrous Oxide	ppmv	3.6	3.7	4.2	3.3	0.1	A062854

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

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

TEST SUMMARY

Bureau Veritas ID: AXRM90
Sample ID: DXJ654-UNIT3 BAG 1
Matrix: Air
Collected: 2025/11/18
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas ID: AXRM91
Sample ID: DXJ655-UNIT3 BAG 2
Matrix: Air
Collected: 2025/11/18
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas ID: AXRM94
Sample ID: DXJ658-UNIT2 BAG 2
Matrix: Air
Collected: 2025/07/16
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas ID: AXRM95
Sample ID: DXJ659-UNIT2 BAG 3
Matrix: Air
Collected: 2025/07/16
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas ID: AXRM96
Sample ID: DXJ660-UNIT1 BAG 1
Matrix: Air
Collected: 2025/07/15
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas ID: AXRM96 Dup
Sample ID: DXJ660-UNIT1 BAG 1
Matrix: Air
Collected: 2025/07/15
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas ID: AXRM97
Sample ID: DXJ661-UNIT1 BAG 2
Matrix: Air
Collected: 2025/07/15
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C5E9078
Report Date: 2025/11/28

Bureau Veritas
Client Project #: MVWTE
Site Location: BURNABY, BC

TEST SUMMARY

Bureau Veritas ID: AXRM98
Sample ID: DXJ662-UNIT1 BAG 3
Matrix: Air

Collected: 2025/07/15
Shipped:
Received: 2025/11/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	A062854	N/A	2025/11/26	Cathy Li

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

Sample AXRM90 [DXJ654-UNIT3 BAG 1] : The sample was analysed 8 days after the date of sampling. The recommended holding time is 2 days.

Sample AXRM91 [DXJ655-UNIT3 BAG 2] : The sample was analysed 8 days after the date of sampling. The recommended holding time is 2 days.

Sample AXRM94 [DXJ658-UNIT2 BAG 2] : The sample was analysed 133 days after the date of sampling. The recommended holding time is 2 days.

Sample AXRM95 [DXJ659-UNIT2 BAG 3] : The sample was analysed 133 days after the date of sampling. The recommended holding time is 2 days.

Sample AXRM96 [DXJ660-UNIT1 BAG 1] : The sample was analysed 134 days after the date of sampling. The recommended holding time is 2 days.

Sample AXRM97 [DXJ661-UNIT1 BAG 2] : The sample was analysed 134 days after the date of sampling. The recommended holding time is 2 days.

Sample AXRM98 [DXJ662-UNIT1 BAG 3] : The sample was analysed 134 days after the date of sampling. The recommended holding time is 2 days.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

QUALITY ASSURANCE REPORT

			Method Blank		RPD	
QC Batch	Parameter	Date	Value	UNITS	Value (%)	QC Limits
A062854	Nitrous Oxide	2025/11/26	<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).

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

C5E9078
2025/11/25 08:55

Sent to: Bureau Veritas Campobello
6740 Campobello Road
Mississauga, ON, L5N 2L8
Tel: (905) 817-5700

BUREAU VERITAS INTERLAB CHAIN OF CUSTODY RECORD

COC # C595952-ONTV-01-01

REPORT INFORMATION	
Company:	Bureau Veritas
Address:	4606 Canada Way, Burnaby, British Columbia, V5G 1K5
Contact Name:	Shanaz Akbar
Email:	Shanaz.Akbar@bureauveritas.com, Customersolutionswest@bureauveritas.com
Phone:	
BV Project #:	C595952
Client Invoice To:	A. LANFRANCO & ASSOCIATES INC. (1301)
Client Report To:	A. LANFRANCO & ASSOCIATES INC. (1301) Incl. on Report? Yes / No

ANALYSIS REQUESTED

Job Barcode Label

NONT-2025-11-4619

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	N2O Gas CSA 22396.1-09 Subcontract	ADDITIONAL SAMPLE INFORMATION
1	DXJ654-UNIT3 BAG 1	AIR	2025/11/18	09:11		1	X	(P: 01)
2	DXJ655-UNIT3 BAG 2	AIR	2025/11/18	10:19		1	X	(P: 01)
3	DXJ656-UNIT3 BAG 3	AIR	2025/11/18	11:26		1	X	(P: 01)
4	DXJ657-UNIT2 BAG 1	AIR	2025/07/16	10:24		1	X	(P: 01)
5	DXJ658-UNIT2 BAG 2	AIR	2025/07/16	11:33		1	X	(P: 01)
6	DXJ659-UNIT2 BAG 3	AIR	2025/07/16	12:45		1	X	(P: 01)
7	DXJ660-UNIT1 BAG 1	AIR	2025/07/15	09:21		1	X	(P: 01)
8	DXJ661-UNIT1 BAG 2	AIR	2025/07/15	10:30		1	X	(P: 01)
9	DXJ662-UNIT1 BAG3	AIR	2025/07/15	11:38		1	X	(P: 01)
10								

SITE LOCATION:	REGULATORY CRITERIA	SPECIAL INSTRUCTIONS	REQUIRED EDDs	TURNAROUND TIME
BURNABY, BC SITE #: PROJECT #: MVWTE PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:		Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching. **Please return a copy of this form with the report.**	National Excel (N001)	☐ Rush Required 2025/12/08 Date Required *Please inform us if rush charges will be incurred.*

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present	✓					
Custody Seal Intact	✓					
Cooling Media Present		✓		NA	NA	NA

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present	✓					
Custody Seal Intact	✓					
Cooling Media Present		✓		NA	NA	NA

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY

Bureau Veritas Job #

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
1. Alfred Ngui	2025/11/24	12:30	1. ANMOLPREET SINGH	2025/11/25	08:55
2.			2.		

ALS Environmental
2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T +1 805 526 7161

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LABORATORY REPORT

December 18, 2025

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

RE: Metro Vancouver WTEF

Dear Mark:

Enclosed are the results of the samples submitted to our laboratory on December 4, 2025. For your reference, these analyses have been assigned our service request number P2504581.

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 4:43 pm, Dec 18, 2025

Sue Anderson
Project Manager

ALS Environmental
2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T +1 805 526 7161

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Client: A. Lanfranco and Associates Inc. Service Request No: P2504581
Project: Metro Vancouver WTEF

CASE NARRATIVE

The samples were received intact under chain of custody on December 4, 2025 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.

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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	203013
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtm	CA012627
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
Pennsylvania DEP	hhttp://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration only)
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
Utah DOH (NELAP)	https://uphl.utah.gov/certifications/environmental-laboratory-certification/	CA01627
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.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: A. Lanfranco and Associates Inc. Service Request: P2504581

Project ID: Metro Vancouver WTEF

Date Received: 12/4/2025

Time Received: 10:08

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-3 Modified - C1C6+ Can	TO-3 Modified - MEEPP Can
MV WTE Unit 1 RUN #1	P2504581-001	Air	11/18/2025	10:11	SC01905	-2.48	3.97	X	X
MV WTE Unit 1 RUN #2	P2504581-002	Air	11/18/2025	11:19	SC02288	-2.36	4.03	X	X
MV WTE Unit 1 RUN #3	P2504581-003	Air	11/18/2025	12:26	SC01716	-1.92	4.15	X	X
MV WTE Unit 2 RUN #1	P2504581-004	Air	11/18/2025	10:24	SC00831	-2.73	3.99	X	X
MV WTE Unit 2 RUN #2	P2504581-005	Air	11/18/2025	11:33	SC01890	-0.01	3.75	X	X
MV WTE Unit 2 RUN #3	P2504581-006	Air	11/18/2025	12:45	SC00121	-2.82	4.06	X	X
MV WTE Unit 3 RUN #1	P2504581-007	Air	11/18/2025	09:21	SC00884	-2.55	4.30	X	X
MV WTE Unit 3 RUN #2	P2504581-008	Air	11/18/2025	10:30	SC01602	-2.06	4.05	X	X

Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

ALS Project No. P2304581

ALS Contact:

Company Name & Address (Reporting Information)
A. Lanfranco & Associates Inc.
Unit 101 - 9488 189 street, Surrey, BC
V4N 4W7

Project Name: Metro Vancouver WTEF

Project Number:

Project Manager: Mark Lanfranco

P.O. # / Billing Information: Bill to account

Phone: 604 881 2582

Fax:

Email Address for Result Reporting: mark.lanfranco@alanfranco.com

Liam Forrer

Analysis Method: TO-15 (list on file)

Comments e.g. Actual Preservative or specific instructions

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15 (list on file)		Comments
MV WTE Unit 1 RUN #1	1	Nov. 18	1011	sc00658	oa2014	-30	-8	6L	✓		
MV WTE Unit 1 RUN #2	2	Nov. 18	1119	sc02315	oa00152	-30	-7.5	6L	✓		
MV WTE Unit 1 RUN #3	3	Nov. 18	1226	sc00374	oa01156	-30	-8	6L	✓		
MV WTE Unit 2 RUN #1	4	Nov. 19	1024	sc01479	oa00843	-29	-8	6L	✓		
MV WTE Unit 2 RUN #2	5	Nov. 19	1133	sc02303	oa01501	-18	-3	6L	✓		
MV WTE Unit 2 RUN #3	6	Nov. 19	1245	sc02040	oa00100	-29	-8	6L	✓		
MV WTE Unit 3 RUN #1	7	Nov. 20	0921	sc01882	oa02223	-30	-6.5	6L	✓		
MV WTE Unit 3 RUN #2	8	Nov. 20	1030	sc01973	oa00465	-28	-6	6L	✓		
									✓		

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: ________ Units: ________

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Mark Lanfranco	Nov 24	1100	[signature]		
[signature]			[signature]	12-4-20	10:08

Cooler / Blank Temperature ____ °C

Sue Anderson

From: Louis Agassiz <louis.agassiz@alanfranco.com>
Sent: Thursday, December 4, 2025 3:31 PM
To: Sue Anderson
Cc: Melissa; Daryl Sampson; Mark Lanfranco
Subject: [EXTERNAL] - RE: Metro Vancouver - Can ID questions

Hi Sue,

Apologies for the confusion, to answer your question:

Unit 1 Run 2:

- Canister SC02288

Unit 2 Run 1:

- Canister SC00831

The third canister did not maintain vacuum before we tried to use it and does not contain a sample.

For confirmation, here is what I have from the field notes:

Canister Number	Sample ID
SC01905	Unit 1 Run 1
SC02288	Unit 1 Run 2
SC01716	Unit 1 Run 3
SC00831	Unit 2 Run 1
SC01890	Unit 2 Run 2
SC00121	Unit 2 Run 3
SC00884	Unit 3 Run 1
SC01602	Unit 3 Run 2
??	Canister was at atmospheric pressure when we opened the valve.

Let me know if you have any other questions.

Cheers,

Louis Agassiz BSc, EP
Senior Project Manager

A. Lanfranco & Associates
Unit 101 - 9488 189 St.
Surrey, BC V4N 4W7
Phone: 604-881-2582
Mobile: 604-992-6064
Email: louis.agassiz@alanfranco.com

ALS Environmental
Sample Acceptance Check Form

Client: A. Lanfranco and Associates Inc. Work order: P2504581

Project: Metro Vancouver WTEF

Sample(s) received on: 12/4/2025 Date opened: 12/4/2025 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☐	☒	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒
12	Lab Notification: Analyst and PM were alerted of Short HT or RUSH samples?	☐	☐	☒
13	Client Notification: Client has been notified regarding HT exceedances and/or other CoC discrepancies?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2504581-001.01	6.0 L Source Can					
P2504581-002.01	6.0 L Source Can					
P2504581-003.01	6.0 L Source Can					
P2504581-004.01	6.0 L Source Can					
P2504581-005.01	6.0 L Source Can					
P2504581-006.01	6.0 L Source Can					
P2504581-007.01	6.0 L Source Can					
P2504581-008.01	6.0 L Source Can					
P2504581-009.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers):

Can IDs listed on COC are incorrect, the client sent field notes to clarify the cans/IDs

The COC notes TO-15 but the correct analyses are TO-3 Mod as logged in.

Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 1 RUN #1** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-001

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC01905

Initial Pressure (psig): -2.48 Final Pressure (psig): 3.97

Container Dilution Factor: 1.53

Compound	Result ppmV	MRL ppmV	Data 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	9.2	
C_6+ as n-Hexane	ND	1.5	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 1 RUN #2** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-002

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC02288

Initial Pressure (psig): -2.36 Final Pressure (psig): 4.03

Container Dilution Factor: 1.52

Compound	Result ppmV	MRL ppmV	Data 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	9.1	
C_6+ as n-Hexane	ND	1.5	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 1 RUN #3** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-003

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC01716

Initial Pressure (psig): -1.92 Final Pressure (psig): 4.15

Container Dilution Factor: 1.47

Compound	Result ppmV	MRL ppmV	Data 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	8.8	
C_6+ as n-Hexane	ND	1.5	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 2 RUN #1** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-004

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC00831

Initial Pressure (psig): -2.73 Final Pressure (psig): 3.99

Container Dilution Factor: 1.56

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.6	
C_4 as n-Butane	ND	1.6	
C_5 as n-Pentane	ND	1.6	
C_6 as n-Hexane	ND	9.4	
C_6+ as n-Hexane	ND	1.6	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 2 RUN #2** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-005

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC01890

Initial Pressure (psig): -0.01 Final Pressure (psig): 3.75

Container Dilution Factor: 1.26

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.3	
C_4 as n-Butane	ND	1.3	
C_5 as n-Pentane	**1.6**	1.3	
C_6 as n-Hexane	ND	7.6	
C_6+ as n-Hexane	ND	1.3	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 2 RUN #3** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-006

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC00121

Initial Pressure (psig): -2.82 Final Pressure (psig): 4.06

Container Dilution Factor: 1.58

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.6	
C_4 as n-Butane	ND	1.6	
C_5 as n-Pentane	ND	1.6	
C_6 as n-Hexane	ND	9.5	
C_6+ as n-Hexane	ND	1.6	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 3 RUN #1** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-007

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC00884

Initial Pressure (psig): -2.55 Final Pressure (psig): 4.30

Container Dilution Factor: 1.56

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.6	
C_4 as n-Butane	ND	1.6	
C_5 as n-Pentane	ND	1.6	
C_6 as n-Hexane	ND	9.4	
C_6+ as n-Hexane	ND	1.6	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 3 RUN #2** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-008

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890 II/GC8/FID Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC01602

Initial Pressure (psig): -2.06 Final Pressure (psig): 4.05

Container Dilution Factor: 1.48

Compound	Result ppmV	MRL ppmV	Data 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	8.9	
C_6+ as n-Hexane	ND	1.5	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P251217-MB

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.0	
C_4 as n-Butane	ND	1.0	
C_5 as n-Pentane	ND	1.0	
C_6 as n-Hexane	ND	6.0	
C_6+ as n-Hexane	ND	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.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P251217-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 12/17/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

Compound	Spike Amount LCS / DLCS ppmV	Result LCS ppmV	Result DLCS ppmV	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
Propane	1,000	1,130	1,150	**113**	**115**	92-120	2	6	
n-Butane	1,000	1,140	1,150	**114**	**115**	91-121	0.9	6	
n-Pentane	1,000	1,110	1,120	**111**	**112**	89-118	0.9	6	
n-Hexane	1,000	1,150	1,160	**115**	**116**	92-125	0.9	6	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 1 RUN #1** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-001

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01905

Initial Pressure (psig): -2.48 Final Pressure (psig): 3.97

Container Dilution Factor: 1.53

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.0	ND	3.1	
74-85-1	Ethene	ND	1.1	ND	0.92	
74-84-0	Ethane	ND	1.1	ND	0.92	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 1 RUN #2** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-002

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC02288

Initial Pressure (psig): -2.36 Final Pressure (psig): 4.03

Container Dilution Factor: 1.52

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.0	ND	3.0	
74-85-1	Ethene	ND	1.0	ND	0.91	
74-84-0	Ethane	ND	1.1	ND	0.91	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 1 RUN #3** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-003

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01716

Initial Pressure (psig): -1.92 Final Pressure (psig): 4.15

Container Dilution Factor: 1.47

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	1.9	ND	2.9	
74-85-1	Ethene	ND	1.0	ND	0.88	
74-84-0	Ethane	ND	1.1	ND	0.88	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 2 RUN #1** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-004

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC00831

Initial Pressure (psig): -2.73 Final Pressure (psig): 3.99

Container Dilution Factor: 1.56

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.0	ND	3.1	
74-85-1	Ethene	ND	1.1	ND	0.94	
74-84-0	Ethane	ND	1.2	ND	0.94	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 2 RUN #2** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-005

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01890

Initial Pressure (psig): -0.01 Final Pressure (psig): 3.75

Container Dilution Factor: 1.26

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	**2.4**	1.7	**3.6**	2.5	
74-85-1	Ethene	ND	0.87	ND	0.76	
74-84-0	Ethane	ND	0.93	ND	0.76	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 2 RUN #3** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-006

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC00121

Initial Pressure (psig): -2.82 Final Pressure (psig): 4.06

Container Dilution Factor: 1.58

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.1	ND	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.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 3 RUN #1** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-007

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC00884

Initial Pressure (psig): -2.55 Final Pressure (psig): 4.30

Container Dilution Factor: 1.56

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.0	ND	3.1	
74-85-1	Ethene	ND	1.1	ND	0.94	
74-84-0	Ethane	ND	1.2	ND	0.94	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **MV WTE Unit 3 RUN #2** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P2504581-008

Test Code: EPA TO-3 Modified Date Collected: 11/18/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 12/4/25
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01602

Initial Pressure (psig): -2.06 Final Pressure (psig): 4.05

Container Dilution Factor: 1.48

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	1.9	ND	3.0	
74-85-1	Ethene	ND	1.0	ND	0.89	
74-84-0	Ethane	ND	1.1	ND	0.89	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P251215-MB

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890A/GC10/FID/TCD Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data 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.

ALS ENVIRONMENTAL

DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2504581
Client Project ID: **Metro Vancouver WTEF** ALS Sample ID: P251215-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890A/GC10/FID/TCD Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 12/15/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ppmV	Result LCS ppmV	Result DLCS ppmV	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	7.79	7.48	7.63	**96**	**98**	70-130	2	15	
74-85-1	Ethene	7.74	7.54	7.62	**97**	**98**	70-130	1	15	
74-84-0	Ethane	7.68	7.76	7.78	**101**	**101**	70-130	0	15	

APPENDIX - D

COMPUTER GENERATED RESULTS

Client:	Metro Vancouver	**Date:**	17-Nov-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	1 - Particulate / Metals
Source:	Unit 1	**Run Time:**	12:27 - 14:29

Concentrations:

Particulate	1.12	mg/dscm	0.00049	gr/dscf
	0.63	mg/Acm	0.00027	gr/Acf
	1.01	mg/dscm (@ 11% O2)	0.00044	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.086	Kg/hr	0.190	lb/hr

Flue Gas Characteristics:

Flow	1286	dscm/min	45422	dscf/min
	21.44	dscm/sec	757	dscf/sec
	2292	Acm/min	80941	Acf/min
Velocity	14.997	m/sec	49.20	f/sec
Temperature	149.7	oC	301.5	oF
Moisture	14.6	%		
Gas Analysis	9.9	% O2		
	9.9	% CO2		
	29.983	Mol. Wt (g/gmole) Dry		
	28.229	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.9136	dscm	102.894	dscf
Sample Time	120.0	minutes		
Isokineticity	103.1	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	17-Nov-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	1 - Particulate / Metals
Source:	Unit 1	**Run Time:**	08:30 - 10:34

Control Unit (Y)	1.0323
Nozzle Diameter (in.)	0.3034
Pitot Factor	0.8568
Baro. Press. (in. Hg)	29.77
Static Press. (in. H20)	-19.00
Stack Height (ft)	30
Stack Diameter (in.)	70.90
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	5.0

Collection:	
Filter (grams)	0.00005
Washings (grams)	0.00320
Total (grams)	**0.00325**

Gas Analysis (Vol. %):	CO2	O2
Traverse 1	10.17	9.77
Traverse 2	9.67	10.07
	9.92	**9.92**

Condensate Collection:	
Impinger 1	212.0
Impinger 2	112.0
Impinger 3	30.0
Impinger 4	2.0
Impinger 5	1.0
Impinger 6	0.0
Gel	18.0
Gain (grams)	**375.0**

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	98.343								
1	5.0	102.600	0.51	2.68	60	60	4	290	1.5	102.9
2	10.0	106.950	0.53	2.78	60	60	4	292	4.7	103.3
3	15.0	111.200	0.51	2.66	60	60	6	296	8.4	103.1
4	20.0	115.280	0.47	2.45	61	61	6	298	12.5	103.0
5	25.0	119.430	0.49	2.54	61	61	6	302	17.7	102.9
6	30.0	123.620	0.50	2.59	61	61	6	304	25.2	103.0
7	35.0	127.750	0.49	2.52	61	61	6	310	45.6	103.0
8	40.0	131.800	0.47	2.41	62	62	6	313	53.2	103.1
9	45.0	135.720	0.44	2.26	62	62	6	313	58.3	103.1
10	50.0	139.540	0.42	2.15	62	62	6	313	62.5	102.8
11	55.0	143.280	0.40	2.05	62	62	5	313	66.1	103.1
12	60.0	146.930	0.38	1.97	62	62	5	306	69.4	102.7
Traverse 2	0.0	146.930								
1	5.0	151.120	0.49	2.57	63	63	6	298	1.5	103.3
2	10.0	155.260	0.48	2.52	63	63	6	296	4.7	102.9
3	15.0	159.280	0.45	2.36	64	64	6	300	8.4	103.3
4	20.0	163.200	0.43	2.24	64	64	6	303	12.5	103.2
5	25.0	167.220	0.45	2.36	65	65	6	301	17.7	103.1
6	30.0	171.280	0.46	2.41	65	65	6	302	25.2	103.1
7	35.0	175.440	0.48	2.52	66	66	6	301	45.6	103.2
8	40.0	179.680	0.50	2.63	66	66	6	300	53.2	103.0
9	45.0	184.090	0.54	2.84	67	67	6	300	58.3	102.9
10	50.0	188.480	0.53	2.80	67	67	6	298	62.5	103.3
11	55.0	192.780	0.51	2.70	67	67	6	296	66.1	103.0
12	60.0	197.020	0.49	2.62	68	68	6	290	69.4	103.0
Average:			0.476	2.485	63.3	63.3	5.8	301.5		103.1

Client:	Metro Vancouver	**Date:**	18-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 1	**Run Time:**	08:53 - 10:55

Concentrations:

Particulate	0.87	mg/dscm	0.00038	gr/dscf
	0.49	mg/Acm	0.00021	gr/Acf
	0.77	mg/dscm (@ 11% O2)	0.00033	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.063	Kg/hr	0.138	lb/hr

Flue Gas Characteristics:

Flow	1198	dscm/min	42303	dscf/min
	19.96	dscm/sec	705	dscf/sec
	2137	Acm/min	75483	Acf/min
Velocity	13.986	m/sec	45.89	f/sec
Temperature	150.6	oC	303.1	oF
Moisture	15.4	%		
Gas Analysis	9.6	% O2		
	10.2	% CO2		
	30.011	Mol. Wt (g/gmole) Dry		
	28.157	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.7485	dscm	97.062	dscf
Sample Time	120.0	minutes		
Isokineticity	104.4	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	18-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 1	**Run Time:**	08:53 - 10:55

Control Unit (Y)	1.0323
Nozzle Diameter (in.)	0.3034
Pitot Factor	0.8568
Baro. Press. (in. Hg)	30.06
Static Press. (in. H20)	-19.00
Stack Height (ft)	30
Stack Diameter (in.)	70.90
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	5.0

Collection:	
Filter (grams)	0.00080
Washings (grams)	0.00160
Total (grams)	**0.00240**

Gas Analysis (Vol. %):		
	CO2	O2
Traverse 1	10.17	9.57
Traverse 2	10.17	9.63
	10.17	**9.60**

Condensate Collection:	
Impinger 1	225.0
Impinger 2	121.0
Impinger 3	7.0
Impinger 4	5.0
Impinger 5	2.0
Impinger 6	1.0
Gel	15.5
Gain (grams)	**376.5**

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	197.438								
1	5.0	200.890	0.32	1.79	56	56	4	292	1.5	107.4
2	10.0	204.260	0.33	1.71	56	56	4	296	4.7	103.5
3	15.0	207.620	0.33	1.70	56	56	5	301	8.4	103.6
4	20.0	210.880	0.31	1.59	57	57	5	305	12.5	103.7
5	25.0	214.030	0.29	1.49	57	57	5	305	17.7	103.6
6	30.0	217.140	0.28	1.44	57	57	5	305	25.2	104.1
7	35.0	220.690	0.44	2.07	58	58	5	304	45.6	94.7
8	40.0	225.020	0.53	2.77	59	59	5	303	53.2	105.1
9	45.0	229.390	0.54	2.86	59	59	5	302	58.3	105.0
10	50.0	233.600	0.50	2.62	60	60	5	302	62.5	104.9
11	55.0	237.750	0.48	2.52	61	61	5	302	66.1	105.3
12	60.0	241.820	0.46	2.43	62	62	5	300	69.4	105.1
Traverse 2	0.0	241.820								
1	5.0	245.940	0.47	2.48	63	63	5	302	1.5	105.2
2	10.0	250.180	0.50	2.64	64	64	5	304	4.7	105.0
3	15.0	254.340	0.48	2.53	65	65	5	305	8.4	105.0
4	20.0	258.380	0.45	2.38	67	67	5	306	12.5	104.9
5	25.0	262.520	0.47	2.49	68	68	6	306	17.7	105.0
6	30.0	266.700	0.48	2.54	69	69	6	307	25.2	104.8
7	35.0	270.920	0.49	2.59	68	68	6	307	45.6	104.9
8	40.0	274.930	0.44	2.33	69	69	6	307	53.2	105.0
9	45.0	278.750	0.40	2.12	69	69	6	306	58.3	104.8
10	50.0	282.540	0.39	2.07	69	69	6	306	62.5	105.2
11	55.0	286.180	0.36	1.92	70	70	6	302	66.1	104.7
12	60.0	289.620	0.32	1.72	70	70	6	299	69.4	104.7
Average:			0.419	2.200	62.9	62.9	5.3	303.1		104.4

Client:	Metro Vancouver	**Date:**	18-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 1	**Run Time:**	11:20 - 13:21

Concentrations:

Particulate	0.2	mg/dscm	0.0001	gr/dscf
	0.1	mg/Acm	0.0001	gr/Acf
	0.2	mg/dscm (@ 11% O2)	0.0001	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.017	Kg/hr	0.038	lb/hr

Flue Gas Characteristics:

Flow	1166	dscm/min	41164	dscf/min
	19.43	dscm/sec	686	dscf/sec
	2062	Acm/min	72836	Acf/min
Velocity	13.496	m/sec	44.28	f/sec
Temperature	150.1	oC	302.2	oF
Moisture	14.8	%		
Gas Analysis	9.7	% O2		
	10.2	% CO2		
	30.013	Mol. Wt (g/gmole) Dry		
	28.232	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.6719	dscm	94.360	dscf
Sample Time	120.0	minutes		
Isokineticity	104.3	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	18-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 1	**Run Time:**	11:20 - 13:21

Control Unit (Y)	1.0323
Nozzle Diameter (in.)	0.3034
Pitot Factor	0.8568
Baro. Press. (in. Hg)	30.06
Static Press. (in. H20)	-19.00
Stack Height (ft)	30
Stack Diameter (in.)	70.90
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	5.0

Collection:	
Filter (grams)	0.00005
Washings (grams)	0.00060
Total (grams)	**0.00065**

Gas Analysis (Vol. %):	CO2	O2
Traverse 1	9.67	10.07
Traverse 2	10.67	9.23
	10.17	**9.65**

Condensate Collection:	
Impinger 1	234.0
Impinger 2	89.0
Impinger 3	7.0
Impinger 4	2.0
Impinger 5	0.0
Impinger 6	0.0
Gel	17.0
Gain (grams)	**349.0**

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	290.340								
1	5.0	294.120	0.38	2.07	68	68	5	285	1.5	104.5
2	10.0	297.920	0.39	2.09	68	68	5	297	4.7	104.5
3	15.0	301.720	0.39	2.09	68	68	5	298	8.4	104.6
4	20.0	305.640	0.42	2.24	68	68	5	301	12.5	104.2
5	25.0	309.620	0.43	2.29	69	69	5	302	17.7	104.4
6	30.0	313.540	0.42	2.23	68	68	5	304	25.2	104.4
7	35.0	317.560	0.44	2.34	68	68	6	304	45.6	104.6
8	40.0	321.280	0.38	2.02	68	68	6	305	53.2	104.2
9	45.0	325.200	0.42	2.23	68	68	7	305	58.3	104.5
10	50.0	328.980	0.39	2.07	68	68	7	304	62.5	104.4
11	55.0	332.720	0.38	2.02	68	68	7	302	66.1	104.5
12	60.0	336.050	0.30	1.61	68	68	7	296	69.4	104.2
Traverse 2	0.0	336.050								
1	5.0	339.380	0.30	1.60	68	68	7	299	1.5	104.4
2	10.0	342.820	0.32	1.71	69	69	7	302	4.7	104.5
3	15.0	346.250	0.32	1.70	69	69	7	306	8.4	104.4
4	20.0	349.560	0.30	1.59	69	69	7	305	12.5	104.0
5	25.0	352.820	0.29	1.54	69	69	7	304	17.7	104.1
6	30.0	355.940	0.27	1.43	69	69	7	306	25.2	103.4
7	35.0	359.850	0.42	2.23	68	68	7	305	45.6	104.2
8	40.0	364.200	0.52	2.75	68	68	7	306	53.2	104.4
9	45.0	368.520	0.51	2.71	68	68	8	305	58.3	104.6
10	50.0	372.750	0.49	2.60	68	68	8	306	62.5	104.5
11	55.0	376.850	0.46	2.44	68	68	8	305	66.1	104.4
12	60.0	380.910	0.45	2.41	69	69	8	300	69.4	104.0
Average:			0.391	2.084	68.3	68.3	6.6	302.2		104.3

Client: Metro Vancouver
Jobsite: WTE (Burnaby,B.C)
Source: Unit 1

Sample Type: HF, HCl, NH_3

Parameter		Test 1	Test 2	Test 3
Test Date		18-Nov-25	18-Nov-25	18-Nov-25
Test Time		09:11 - 10:11	10:19 - 11:19	11:26 - 12:26
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	30.06	30.06	30.06
DGM Factor	(Y)	1.0258	1.0258	1.0258
Initial Reading	(m^3)	194.940	195.072	195.200
Final Reading	(m^3)	195.071	195.198	195.388
Temp. Outlet	(Avg. oF)	57.0	60.0	60.5
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.14	0.13	0.20
HF	(mg)	0.016	0.016	0.021
HCl	(mg)	1.44	9.2	13.7
NH_3	(mg)	0.1	0.9	1.6
Oxygen	(Vol. %)	9.9	9.6	9.7
HF	**(mg/Sm^3)**	**0.114**	**0.120**	**0.107**
HF	**(mg/Sm^3 @ 11% O2)**	**0.103**	**0.105**	**0.094**
HCl	**(mg/Sm^3)**	**10.4**	**69.7**	**69.4**
HCl	**(mg/Sm^3 @ 11% O2)**	**9.38**	**61.1**	**61.1**
NH_3	**(mg/Sm^3)**	**0.857**	**6.88**	**7.94**
NH_3	**(mg/Sm^3 @ 11% O2)**	**0.773**	**6.02**	**6.99**
Moisture	**(Vol. %)**	15.4	15.4	14.8

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

Client:	Metro Vancouver	**Date:**	18-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 2	**Run Time:**	10:55 - 12:56

Concentrations:

Particulate	0.9	mg/dscm	0.0004	gr/dscf
	0.5	mg/Acm	0.0002	gr/Acf
	0.8	mg/dscm (@ 11% O2)	0.0004	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.062	Kg/hr	0.138	lb/hr

Flue Gas Characteristics:

Flow	1132	dscm/min	39963	dscf/min
	18.86	dscm/sec	666	dscf/sec
	1986	Acm/min	70140	Acf/min
Velocity	12.996	m/sec	42.64	f/sec
Temperature	149.2	oC	300.6	oF
Moisture	15.1	%		
Gas Analysis	9.8	% O2		
	8.9	% CO2		
	29.816	Mol. Wt (g/gmole) Dry		
	28.028	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.6083	dscm	92.113	dscf
Sample Time	120.0	minutes		
Isokineticity	102.5	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	18-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 2	**Run Time:**	10:55 - 12:56

Control Unit (Y)	0.9998	**Collection:**			**Gas Analysis (Vol. %):**			**Condensate Collection:**	
Nozzle Diameter (in.)	0.3070	Filter (grams)	0.00050		CO2	O2		Impinger 1	148.0
Pitot Factor	0.8510	Washings (grams)	0.00190	Traverse 1	8.95	9.88		Impinger 2	129.0
Baro. Press. (in. Hg)	30.08			Traverse 2	8.88	9.65		Impinger 3	32.0
Static Press. (in. H20)	-15.50	**Total (grams)**	**0.00240**					Impinger 4	17.0
Stack Height (ft)	30							Impinger 5	5.0
Stack Diameter (in.)	70.90							Impinger 6	2.0
Stack Area (sq.ft.)	27.417							Gel	16.0
Minutes Per Reading	5.0				**8.91**	**9.76**		**Gain (grams)**	**349.0**
Minutes Per Point	5.0								

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	307.243								
1	5.0	311.660	0.52	2.67	60	60	3	315	1.5	102.6
2	10.0	316.010	0.50	2.58	60	60	3	309	4.7	102.7
3	15.0	320.320	0.49	2.54	60	60	3	308	8.4	102.7
4	20.0	324.690	0.50	2.60	61	61	3	305	12.5	102.7
5	25.0	328.880	0.46	2.39	61	61	3.5	305	17.7	102.6
6	30.0	332.910	0.42	2.20	63	63	3.5	303	25.2	102.7
7	35.0	336.530	0.34	1.78	61	61	3.5	300	45.6	102.6
8	40.0	339.700	0.26	1.37	61	61	3.5	295	53.2	102.3
9	45.0	342.750	0.24	1.27	61	61	4	295	58.3	102.4
10	50.0	345.680	0.22	1.17	62	62	4	292	62.5	102.3
11	55.0	348.540	0.21	1.11	62	62	3.5	295	66.1	102.4
12	60.0	351.320	0.20	1.05	62	62	3.5	299	69.4	102.3
Traverse 2	0.0	351.320								
1	5.0	354.860	0.32	1.70	64	64	3.5	294	1.5	102.4
2	10.0	358.510	0.34	1.81	64	64	3.5	294	4.7	102.5
3	15.0	362.150	0.34	1.80	64	64	4	297	8.4	102.4
4	20.0	365.680	0.32	1.69	65	65	4	300	12.5	102.3
5	25.0	368.980	0.28	1.48	65	65	4	301	17.7	102.3
6	30.0	372.400	0.30	1.58	65	65	4	302	25.2	102.5
7	35.0	376.950	0.53	2.80	66	66	4	302	45.6	102.7
8	40.0	381.370	0.50	2.63	66	66	4	303	53.2	102.7
9	45.0	385.770	0.49	2.60	68	68	4	300	58.3	102.7
10	50.0	389.990	0.45	2.39	68	68	4	300	62.5	102.7
11	55.0	393.970	0.40	2.13	69	69	4	300	66.1	102.5
12	60.0	397.690	0.35	1.86	69	69	4	300	69.4	102.4
Average:			0.374	1.967	63.6	63.6	3.7	300.6		102.5

Client:	Metro Vancouver	**Date:**	19-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 2	**Run Time:**	08:52 - 11:55

Concentrations:

Particulate	0.09	mg/dscm	0.00004	gr/dscf
	0.05	mg/Acm	0.00002	gr/Acf
	0.07	mg/dscm (@ 11% O2)	0.00003	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.005	Kg/hr	0.012	lb/hr

Flue Gas Characteristics:

Flow	1052	dscm/min	37150	dscf/min
	17.53	dscm/sec	619	dscf/sec
	1882	Acm/min	66468	Acf/min
Velocity	12.316	m/sec	40.41	f/sec
Temperature	144.1	oC	291.4	oF
Moisture	16.7	%		
Gas Analysis	9.1	% O2		
	10.8	% CO2		
	30.086	Mol. Wt (g/gmole) Dry		
	28.067	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.3391	dscm	82.607	dscf
Sample Time	120.0	minutes		
Isokineticity	105.2	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	19-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 2	**Run Time:**	08:52 - 11:55

Control Unit (Y)	0.9998
Nozzle Diameter (in.)	0.3034
Pitot Factor	0.8568
Baro. Press. (in. Hg)	30.01
Static Press. (in. H20)	-19.5
Stack Height (ft)	30
Stack Diameter (in.)	70.90
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	5.0

Collection:

Filter (grams)	0.00010
Washings (grams)	0.00010
Total (grams)	**0.00020**

Gas Analysis (Vol. %):

	CO2	O2
Traverse 1	10.83	9.09
Traverse 2	10.67	9.18
	10.75	**9.14**

Condensate Collection:

Impinger 1	224.0
Impinger 2	87.0
Impinger 3	16.0
Impinger 4	5.0
Impinger 5	3.0
Impinger 6	1.0
Gel	16.0
Gain (grams)	**352.0**

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	398.667								
1	5.0	401.850	0.28	1.40	49	49	3	292	1.5	105.3
2	10.0	405.780	0.43	2.14	49	49	3	295	4.7	105.3
3	15.0	409.790	0.45	2.23	48	48	3	297	8.4	105.4
4	20.0	413.880	0.47	2.33	47	47	3	296	12.5	105.3
5	25.0	418.020	0.48	2.38	47	47	3	295	17.7	105.4
6	30.0	421.940	0.43	2.14	48	48	3	294	25.2	105.1
7	35.0	424.950	0.25	1.25	49	49	3	292	45.6	105.3
8	40.0	427.850	0.23	1.16	50	50	3	290	53.2	105.4
9	45.0	430.620	0.21	1.06	50	50	3	288	58.3	105.2
10	50.0	433.320	0.20	1.01	50	50	3	287	62.5	105.0
11	55.0	436.020	0.20	1.01	50	50	3	285	66.1	104.9
12	60.0	438.740	0.20	1.02	51	51	3	281	69.4	105.1
Traverse 2	0.0	438.740								
1	5.0	441.840	0.26	1.32	52	52	3	285	1.5	105.3
2	10.0	444.980	0.27	1.37	53	53	3	285	4.7	104.4
3	15.0	448.140	0.27	1.37	54	54	3	290	8.4	105.2
4	20.0	451.230	0.26	1.32	54	54	3	291	12.5	104.9
5	25.0	454.280	0.25	1.25	55	55	3	292	17.7	105.5
6	30.0	457.200	0.23	1.17	56	56	3	292	25.2	105.0
7	35.0	460.900	0.37	1.88	57	57	4	294	45.6	105.1
8	40.0	464.890	0.43	2.18	58	58	4	296	53.2	105.1
9	45.0	469.030	0.46	2.33	59	59	4	296	58.3	105.3
10	50.0	473.390	0.51	2.59	60	60	4	297	62.5	105.2
11	55.0	477.460	0.44	2.25	61	61	4	294	66.1	105.3
12	60.0	481.460	0.42	2.17	63	63	4	290	69.4	105.2
Average:			0.333	1.680	52.9	52.9	3.3	291.4		105.2

Client:	Metro Vancouver	**Date:**	19-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 2	**Run Time:**	12:05 - 14:06

Concentrations:

Particulate	0.5	mg/dscm	0.0002	gr/dscf
	0.3	mg/Acm	0.0001	gr/Acf
	0.4	mg/dscm (@ 11% O2)	0.0002	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.03	Kg/hr	0.071	lb/hr

Flue Gas Characteristics:

Flow	1083	dscm/min	38262	dscf/min
	18.06	dscm/sec	638	dscf/sec
	1887	Acm/min	66654	Acf/min
Velocity	12.350	m/sec	40.52	f/sec
Temperature	146.7	oC	296.0	oF
Moisture	13.9	%		
Gas Analysis	9.8	% O2		
	10.0	% CO2		
	29.990	Mol. Wt (g/gmole) Dry		
	28.320	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.4337	dscm	85.946	dscf
Sample Time	120.0	minutes		
Isokineticity	102.3	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	19-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 2	**Run Time:**	12:05 - 14:06

Control Unit (Y)	0.9998
Nozzle Diameter (in.)	0.3034
Pitot Factor	0.8568
Baro. Press. (in. Hg)	30.01
Static Press. (in. H20)	-19.50
Stack Height (ft)	30
Stack Diameter (in.)	70.90
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	5.0

Collection:	
Filter (grams)	0.00080
Washings (grams)	0.00040
Total (grams)	**0.0012**

Gas Analysis (Vol. %):	CO2	O2
Traverse 1	10.83	9.08
Traverse 2	9.17	10.43
	10.00	**9.75**

Condensate Collection:	
Impinger 1	196.0
Impinger 2	64.0
Impinger 3	15.0
Impinger 4	2.0
Impinger 5	1.0
Impinger 6	1.0
Gel	16.5
Gain (grams)	**295.5**

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	482.206								
1	5.0	485.420	0.27	1.40	62	62	4	285	1.5	102.1
2	10.0	488.690	0.28	1.45	63	63	4	287	4.7	102.0
3	15.0	491.960	0.28	1.45	63	63	4	288	8.4	102.1
4	20.0	495.170	0.27	1.39	62	62	4	292	12.5	102.5
5	25.0	498.200	0.24	1.23	63	63	4	295	17.7	102.6
6	30.0	501.090	0.22	1.13	63	63	4	296	25.2	102.2
7	35.0	504.880	0.38	1.94	64	64	4	298	45.6	102.1
8	40.0	508.960	0.44	2.25	64	64	4	298	53.2	102.3
9	45.0	513.090	0.45	2.30	64	64	5	298	58.3	102.4
10	50.0	517.430	0.50	2.56	64	64	5	298	62.5	102.1
11	55.0	521.480	0.43	2.20	65	65	5	299	66.1	102.5
12	60.0	525.420	0.41	2.11	65	65	5	295	69.4	101.9
Traverse 2	0.0	525.420								
1	5.0	528.750	0.29	1.49	65	65	6	296	1.5	102.3
2	10.0	532.700	0.41	2.10	66	66	6	298	4.7	102.1
3	15.0	536.800	0.44	2.26	66	66	6	298	8.4	102.4
4	20.0	540.990	0.46	2.36	66	66	6	299	12.5	102.4
5	25.0	545.320	0.49	2.51	66	66	6	298	17.7	102.5
6	30.0	549.420	0.44	2.26	66	66	6	298	25.2	102.4
7	35.0	552.580	0.26	1.33	67	67	4	300	45.6	102.3
8	40.0	555.620	0.24	1.23	67	67	4	301	53.2	102.5
9	45.0	558.520	0.22	1.13	67	67	4	299	58.3	102.0
10	50.0	561.440	0.22	1.13	68	68	4	298	62.5	102.4
11	55.0	564.280	0.21	1.08	68	68	4	298	66.1	102.0
12	60.0	567.080	0.20	1.04	68	68	4	292	69.4	102.6
Average:			0.335	1.722	65.1	65.1	3.0	296.0		102.3

Client: Metro Vancouver
Jobsite: WTE (Burnaby,B.C)
Source: Unit 2

Sample Type: HF, HCl, NH_3

Parameter		Test 1	Test 2	Test 3
Test Date		19-Nov-25	19-Nov-25	19-Nov-25
Test Time		10:24 - 11:24	11:33 - 12:33	12:45 - 13:45
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.97	29.97	29.97
DGM Factor	(Y)	1.0258	1.0258	1.0258
Initial Reading	(m^3)	195.591	195.723	195.848
Final Reading	(m^3)	195.722	195.847	195.969
Temp. Outlet	(Avg. oF)	62.5	65.5	67.0
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.14	0.13	0.12
HF	(mg)	0.016	0.016	0.016
HCl	(mg)	10.49	8.3	7.3
NH_3	(mg)	1.0	0.8	0.7
Oxygen	(Vol. %)	9.8	9.1	9.8
HF	**(mg/Sm^3)**	**0.116**	**0.124**	**0.126**
HF	**(mg/Sm^3 @ 11% O2)**	**0.103**	**0.104**	**0.112**
HCl	**(mg/Sm^3)**	**76.8**	**64.6**	**58.1**
HCl	**(mg/Sm^3 @ 11% O2)**	**68.3**	**54.4**	**51.6**
NH_3	**(mg/Sm^3)**	**7.67**	**6.28**	**5.69**
NH_3	**(mg/Sm^3 @ 11% O2)**	**6.81**	**5.29**	**5.06**
Moisture	**(Vol. %)**	15.4	15.4	14.8

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

Client:	Metro Vancouver	**Date:**	19-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:30 - 13:34

Concentrations:

Particulate	0.48	mg/dscm	0.00021	gr/dscf
	0.28	mg/Acm	0.00012	gr/Acf
	0.44	mg/dscm (@ 11% O2)	0.00019	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.032	Kg/hr	0.071	lb/hr

Flue Gas Characteristics:

Flow	1118	dscm/min	39491	dscf/min
	18.64	dscm/sec	658	dscf/sec
	1959	Acm/min	69184	Acf/min
Velocity	12.819	m/sec	42.06	f/sec
Temperature	150.1	oC	302.3	oF
Moisture	13.9	%		
Gas Analysis	10.0	% O2		
	10.0	% CO2		
	29.999	Mol. Wt (g/gmole) Dry		
	28.337	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.5892	dscm	91.438	dscf
Sample Time	120.0	minutes		
Isokineticity	103.4	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	19-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:30 - 13:34

Control Unit (Y)	0.9860
Nozzle Diameter (in.)	0.3063
Pitot Factor	0.8376
Baro. Press. (in. Hg)	29.95
Static Press. (in. H20)	-18.00
Stack Height (ft)	30
Stack Diameter (in.)	70.90
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	5.0

Collection:

Filter (grams)	0.00005
Washings (grams)	0.00120
Total (grams)	**0.00125**

Gas Analysis (Vol. %):

	CO2	O2
Traverse 1	10.00	9.90
Traverse 2	10.00	10.05
	10.00	**9.98**

Condensate Collection:

Impinger 1	152.0
Impinger 2	112.0
Impinger 3	16.0
Impinger 4	12.0
Impinger 5	3.0
Impinger 6	2.0
Gel	15.5
Gain (grams)	**312.5**

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	765.400								
1	5.0	769.620	0.45	2.10	55	55	5	302	1.5	105.2
2	10.0	774.150	0.52	2.42	56	56	5	303	4.7	105.0
3	15.0	778.680	0.52	2.42	56	56	6	304	8.4	105.1
4	20.0	783.130	0.50	2.33	58	58	6	304	12.5	104.8
5	25.0	787.440	0.47	2.19	58	58	6	304	17.7	104.7
6	30.0	791.520	0.42	1.96	58	58	6	303	25.2	104.7
7	35.0	794.790	0.27	1.26	60	60	6	303	45.6	104.1
8	40.0	798.060	0.27	1.26	62	62	6	302	53.2	103.6
9	45.0	801.140	0.24	1.12	62	62	5	300	58.3	103.3
10	50.0	803.950	0.20	0.93	62	62	5	298	62.5	103.1
11	55.0	806.760	0.20	0.93	62	62	4	299	66.1	103.2
12	60.0	809.370	0.18	0.84	63	63	4	300	69.4	100.9
Traverse 2	0.0	809.370								
1	5.0	812.820	0.30	1.40	64	64	5	303	1.5	103.4
2	10.0	816.380	0.32	1.49	64	64	5	302	4.7	103.3
3	15.0	819.700	0.28	1.30	64	64	5	303	8.4	103.0
4	20.0	823.020	0.28	1.30	65	65	5	304	12.5	102.9
5	25.0	826.220	0.26	1.21	66	66	5	304	17.7	102.7
6	30.0	829.540	0.28	1.30	68	68	5	305	25.2	102.3
7	35.0	833.750	0.45	2.10	67	67	5	303	45.6	102.6
8	40.0	838.290	0.52	2.42	68	68	5	304	53.2	102.9
9	45.0	842.920	0.54	2.52	68	68	4	304	58.3	103.0
10	50.0	847.530	0.54	2.52	68	68	4	302	62.5	102.4
11	55.0	852.240	0.56	2.61	69	69	4	300	66.1	102.5
12	60.0	856.770	0.52	2.42	69	69	4	298	69.4	102.1
Average:			0.379	1.765	63.0	63.0	5.0	302.3		103.4

Client:	Metro Vancouver	**Date:**	20-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 3	**Run Time:**	09:05 - 11:06

Concentrations:

Particulate	0.62	mg/dscm	0.00027	gr/dscf
	0.35	mg/Acm	0.00015	gr/Acf
	0.57	mg/dscm (@ 11% O2)	0.00025	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.045	Kg/hr	0.100	lb/hr

Flue Gas Characteristics:

Flow	1226	dscm/min	43307	dscf/min
	20.44	dscm/sec	722	dscf/sec
	2144	Acm/min	75720	Acf/min
Velocity	14.030	m/sec	46.03	f/sec
Temperature	147.7	oC	297.9	oF
Moisture	13.9	%		
Gas Analysis	10.2	% O2		
	9.6	% CO2		
	29.942	Mol. Wt (g/gmole) Dry		
	28.282	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.7518	dscm	97.181	dscf
Sample Time	120.0	minutes		
Isokineticity	102.2	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	20-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 3	**Run Time:**	09:05 - 11:06

Control Unit (Y)	0.9986
Nozzle Diameter (in.)	0.3034
Pitot Factor	0.8568
Baro. Press. (in. Hg)	29.97
Static Press. (in. H20)	-19.50
Stack Height (ft)	30
Stack Diameter (in.)	70.90
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	5.0

Collection:	
Filter (grams)	0.00110
Washings (grams)	0.00060
Total (grams)	**0.00170**

Gas Analysis (Vol. %):		
	CO2	O2
Traverse 1	9.67	10.23
Traverse 2	9.50	10.20
	9.58	**10.22**

Condensate Collection:	
Impinger 1	190.0
Impinger 2	67.0
Impinger 3	45.0
Impinger 4	12.0
Impinger 5	3.0
Impinger 6	1.0
Gel	15.5
Gain (grams)	**333.5**

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	857.448								
1	5.0	862.280	0.62	2.63	60	60	4	292	1.5	102.2
2	10.0	867.250	0.66	2.78	59	59	4	298	4.7	102.5
3	15.0	872.280	0.68	2.85	59	59	4	301	8.4	102.5
4	20.0	877.160	0.64	2.68	60	60	4	302	12.5	102.3
5	25.0	881.960	0.62	2.60	60	60	4	302	17.7	102.2
6	30.0	886.480	0.55	2.30	60	60	4	302	25.2	102.1
7	35.0	889.980	0.33	1.39	61	61	4	300	45.6	101.5
8	40.0	893.450	0.32	1.35	61	61	4	299	53.2	102.1
9	45.0	896.680	0.28	1.18	62	62	3	299	58.3	101.4
10	50.0	899.850	0.26	1.10	62	62	3	300	62.5	103.3
11	55.0	902.880	0.24	1.02	62	62	3	295	66.1	102.4
12	60.0	905.780	0.22	0.94	62	62	3	291	69.4	102.1
Traverse 2	0.0	905.780								
1	5.0	909.060	0.28	1.20	64	64	3.5	290	1.5	102.0
2	10.0	912.280	0.27	1.15	65	65	3.5	295	4.7	102.1
3	15.0	915.560	0.28	1.19	66	66	4	297	8.4	102.0
4	20.0	918.890	0.29	1.24	66	66	4	298	12.5	101.9
5	25.0	922.230	0.29	1.24	67	67	4	299	17.7	102.1
6	30.0	925.900	0.35	1.49	68	68	4	300	25.2	102.0
7	35.0	930.200	0.48	2.04	69	69	5	303	45.6	102.2
8	40.0	934.690	0.52	2.23	70	70	5	299	53.2	102.1
9	45.0	939.440	0.58	2.48	70	70	5	300	58.3	102.4
10	50.0	944.300	0.61	2.61	70	70	5	300	62.5	102.2
11	55.0	948.980	0.56	2.42	71	71	5	296	66.1	102.2
12	60.0	953.500	0.52	2.25	71	71	5	292	69.4	102.1
Average:			0.435	1.848	64.4	64.4	4.0	297.9		102.2

Client:	Metro Vancouver	**Date:**	20-Nov-25
Jobsite:	WTE(Burnaby,B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:30 - 13:31

Concentrations:

Particulate	0.34	mg/dscm	0.00015	gr/dscf
	0.20	mg/Acm	0.00009	gr/Acf
	0.32	mg/dscm (@ 11% O2)	0.00014	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.027	Kg/hr	0.059	lb/hr

Flue Gas Characteristics:

Flow	1300	dscm/min	45894	dscf/min
	21.66	dscm/sec	765	dscf/sec
	2274	Acm/min	80314	Acf/min
Velocity	14.881	m/sec	48.82	f/sec
Temperature	146.6	oC	296.0	oF
Moisture	14.2	%		
Gas Analysis	10.2	% O2		
	9.6	% CO2		
	29.941	Mol. Wt (g/gmole) Dry		
	28.245	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.9222	dscm	103.199	dscf
Sample Time	120.0	minutes		
Isokineticity	102.4	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	20-Nov-25
Jobsite:	WTE(Burnaby,B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:30 - 13:31

Control Unit (Y)	0.9986	**Collection:**			**Gas Analysis (Vol. %):**			**Condensate Collection:**	
Nozzle Diameter (in.)	0.3034	Filter (grams)	0.00020		CO2	O2		Impinger 1	238.0
Pitot Factor	0.8568	Washings (grams)	0.00080	Traverse 1	9.83	9.97		Impinger 2	87.0
Baro. Press. (in. Hg)	29.97			Traverse 2	9.33	10.43		Impinger 3	17.0
Static Press. (in. H20)	-19.50	**Total (grams)**	**0.00100**					Impinger 4	2.0
Stack Height (ft)	30							Impinger 5	1.0
Stack Diameter (in.)	70.90							Impinger 6	0.0
Stack Area (sq.ft.)	27.417							Gel	18.0
Minutes Per Reading	5.0				**9.58**	**10.20**		**Gain (grams)**	**363.0**
Minutes Per Point	5.0								

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	954.137								
1	5.0	957.680	0.32	1.38	68	68	5	290	1.5	102.6
2	10.0	961.280	0.33	1.42	69	69	5	293	4.7	102.7
3	15.0	964.870	0.33	1.42	69	69	5	296	8.4	102.6
4	20.0	968.490	0.34	1.42	69	69	5	299	12.5	102.1
5	25.0	972.110	0.34	1.45	69	69	5	302	17.7	102.3
6	30.0	975.990	0.39	1.66	69	69	5	302	25.2	102.4
7	35.0	981.080	0.67	2.86	70	70	6	302	45.6	102.6
8	40.0	986.140	0.66	2.82	70	70	6	302	53.2	102.8
9	45.0	991.170	0.65	2.78	71	71	7	302	58.3	102.8
10	50.0	996.080	0.62	2.65	71	71	7	303	62.5	102.7
11	55.0	1000.900	0.60	2.56	71	71	7	303	66.1	102.5
12	60.0	1005.700	0.59	2.54	71	71	7	298	69.4	102.6
Traverse 2	0.0	1005.700								
1	5.0	1010.730	0.65	2.81	71	71	7	295	1.5	102.3
2	10.0	1015.800	0.68	2.93	72	72	7	297	4.7	100.8
3	15.0	1021.040	0.70	3.03	72	72	8	296	8.4	102.6
4	20.0	1026.150	0.66	2.86	73	73	8	295	12.5	102.8
5	25.0	1031.230	0.65	2.84	74	74	8	291	17.7	102.5
6	30.0	1036.090	0.59	2.58	75	75	8	290	25.2	102.6
7	35.0	1039.890	0.36	1.58	76	76	6	291	45.6	102.3
8	40.0	1043.650	0.35	1.53	77	77	6	292	53.2	102.5
9	45.0	1047.250	0.32	1.40	77	77	6	292	58.3	102.6
10	50.0	1050.780	0.31	1.36	77	77	6	291	62.5	102.2
11	55.0	1054.260	0.30	1.32	78	78	6	291	66.1	102.2
12	60.0	1057.630	0.28	1.23	78	78	6	290	69.4	102.3
Average:			0.487	2.101	72.4	72.4	6.3	296.0		102.4

Client: Metro Vancouver
Jobsite: WTE (Burnaby,B.C)
Source: Unit 3

Sample Type: HF, HCl, NH_3

Parameter		Test 1	Test 2	Test 3
Test Date		20-Nov-25	20-Nov-25	20-Nov-25
Test Time		09:21 - 10:21	10:30 - 11:30	11:38 - 12:38
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.95	29.95	29.95
DGM Factor	(Y)	1.0258	1.0258	1.0258
Initial Reading	(m^3)	195.970	196.111	196.252
Final Reading	(m^3)	196.110	196.251	196.391
Temp. Outlet	(Avg. oF)	57.5	59.5	61.0
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.15	0.15	0.14
HF	(mg)	0.016	0.016	0.016
HCl	(mg)	2.90	11.9	18.7
NH_3	(mg)	0.8	0.9	0.5
Oxygen	(Vol. %)	10.0	10.2	10.2
HF	**(mg/Sm^3)**	**0.108**	**0.108**	**0.109**
HF	**(mg/Sm^3 @ 11% O2)**	**0.098**	**0.100**	**0.101**
HCl	**(mg/Sm^3)**	**19.8**	**81.7**	**129.1**
HCl	**(mg/Sm^3 @ 11% O2)**	**17.9**	**75.7**	**119.4**
NH_3	**(mg/Sm^3)**	**5.36**	**5.83**	**3.39**
NH_3	**(mg/Sm^3 @ 11% O2)**	**4.85**	**5.40**	**3.14**
Moisture	**(Vol. %)**	15.4	15.4	14.8

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

Client:	Metro Vancouver	**Date:**	20-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Cr^{+6}
Source:	Unit 1	**Run Time:**	12:00 - 14:05

Concentrations:

Hexavalent Chromium	0.0	mg/dscm	0.0000	gr/dscf
	0.0	mg/Acm	0.0000	gr/Acf
	0.0	mg/dscm (@ 11% O2)	0.0000	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.00	Kg/hr	0.000	lb/hr

Flue Gas Characteristics:

Flow	1191	dscm/min	42064	dscf/min
	19.85	dscm/sec	701	dscf/sec
	2077	Acm/min	73334	Acf/min
Velocity	13.588	m/sec	44.58	f/sec
Temperature	150.8	oC	303.4	oF
Moisture	13.3	%		
Gas Analysis	10.0	% O2		
	9.9	% CO2		
	29.984	Mol. Wt (g/gmole) Dry		
	28.388	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.7500	dscm	97.115	dscf
Sample Time	120.0	minutes		
Isokineticity	103.1	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	20-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Cr+6
Source:	Unit 1	**Run Time:**	12:00 - 14:05

Control Unit (Y)	1.0278	**Collection:**			**Gas Analysis (Vol. %):**			**Condensate Collection:**	
Nozzle Diameter (in.)	0.3063	Cr+6 (grams)	0.00000065		CO2	O2		Impinger 1	-80.0
Pitot Factor	0.8376			Traverse 1	9.97	10.09		Impinger 2	180.0
Baro. Press. (in. Hg)	30.01			Traverse 2	9.83	9.92		Impinger 3	170.0
Static Press. (in. H20)	-18.75	**Total (grams)**	**0.00000065**					Impinger 4	25.0
Stack Height (ft)	30								
Stack Diameter (in.)	70.90								
Stack Area (sq.ft.)	27.417							Gel	22.0
Minutes Per Reading	5.0				**9.90**	**10.01**		**Gain (grams)**	**317.0**
Minutes Per Point	5.0								

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	384.500								
1	5.0	387.450	0.24	1.23	58	58	2	302	1.5	103.8
2	10.0	390.640	0.28	1.43	60	60	2	303	4.7	103.6
3	15.0	394.060	0.32	1.64	62	62	2	302	8.4	103.5
4	20.0	397.470	0.32	1.64	60	60	2	304	12.5	103.7
5	25.0	400.980	0.34	1.74	60	60	2	304	17.7	103.6
6	30.0	404.490	0.34	1.74	60	60	2	306	25.2	103.8
7	35.0	408.920	0.54	2.76	60	60	6	306	45.6	104.2
8	40.0	413.340	0.54	2.76	61	61	6	304	53.2	103.6
9	45.0	417.890	0.57	2.92	62	62	6	302	58.3	103.5
10	50.0	422.470	0.58	2.97	62	62	6	302	62.5	103.3
11	55.0	426.560	0.46	2.36	62	62	6	300	66.1	103.3
12	60.0	430.520	0.44	2.25	62	62	6	298	69.4	102.1
Traverse 2	0.0	430.520								
1	5.0	434.190	0.37	1.89	62	62	4	306	1.5	103.6
2	10.0	438.100	0.42	2.15	62	62	4	304	4.7	103.6
3	15.0	442.090	0.44	2.25	63	63	4	304	8.4	103.1
4	20.0	446.220	0.47	2.41	64	64	4	306	12.5	103.2
5	25.0	450.350	0.47	2.41	64	64	4	306	17.7	103.2
6	30.0	454.560	0.49	2.51	65	65	4	306	25.2	102.9
7	35.0	458.770	0.49	2.51	66	66	4	307	45.6	102.7
8	40.0	462.810	0.45	2.30	68	68	4	306	53.2	102.4
9	45.0	466.720	0.42	2.15	68	68	4	305	58.3	102.4
10	50.0	470.390	0.37	1.89	68	68	4	302	62.5	102.2
11	55.0	473.960	0.35	1.79	69	69	4	300	66.1	101.8
12	60.0	477.370	0.32	1.64	70	70	4	297	69.4	101.3
Average:			0.418	2.139	63.3	63.3	4.0	303.4		103.1

Client:	Metro Vancouver	**Date:**	21-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Cr^{+6}
Source:	Unit 1	**Run Time:**	08:43 - 10:46

Concentrations:

Hexavalent Chromium	0.0	mg/dscm	0.0000	gr/dscf
	0.0	mg/Acm	0.0000	gr/Acf
	0.0	mg/dscm (@ 11% O2)	0.0000	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.00	Kg/hr	0.000	lb/hr

Flue Gas Characteristics:

Flow	1138	dscm/min	40192	dscf/min
	18.97	dscm/sec	670	dscf/sec
	1991	Acm/min	70305	Acf/min
Velocity	13.027	m/sec	42.74	f/sec
Temperature	150.4	oC	302.8	oF
Moisture	13.9	%		
Gas Analysis	9.8	% O2		
	10.0	% CO2		
	29.990	Mol. Wt (g/gmole) Dry		
	28.328	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.6590	dscm	93.902	dscf
Sample Time	120.0	minutes		
Isokineticity	104.3	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	21-Nov-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Cr+6
Source:	Unit 1	**Run Time:**	08:43 - 10:46

Control Unit (Y)	1.0278	**Collection:**			**Gas Analysis (Vol. %):**			**Condensate Collection:**	
Nozzle Diameter (in.)	0.3063	Cr+6 (grams)	0.00000055		CO2	O2		Impinger 1	-75.0
Pitot Factor	0.8376			Traverse 1	10.00	9.75		Impinger 2	205.0
Baro. Press. (in. Hg)	30.05			Traverse 2	10.00	9.75		Impinger 3	170.0
Static Press. (in. H20)	-18.50	**Total (grams)**	**0.0000006**					Impinger 4	0.0
Stack Height (ft)	30								
Stack Diameter (in.)	70.90								
Stack Area (sq.ft.)	27.417							Gel	21.0
Minutes Per Reading	5.0				**10.00**	**9.75**		**Gain (grams)**	**321.0**
Minutes Per Point	5.0								

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	479.900								
1	5.0	483.320	0.32	1.64	54	54	4	303	1.5	105.8
2	10.0	486.840	0.34	1.74	56	56	4	305	4.7	105.4
3	15.0	490.360	0.34	1.74	56	56	4	306	8.4	105.4
4	20.0	493.970	0.36	1.84	57	57	4	306	12.5	104.9
5	25.0	497.380	0.32	1.64	56	56	4	304	17.7	105.1
6	30.0	500.690	0.30	1.54	56	56	4	304	25.2	105.4
7	35.0	504.740	0.45	2.30	57	57	6	304	45.6	105.2
8	40.0	509.050	0.51	2.61	58	58	6	304	53.2	105.1
9	45.0	513.390	0.52	2.66	58	58	6	304	58.3	104.8
10	50.0	517.520	0.47	2.41	59	59	6	302	62.5	104.5
11	55.0	521.560	0.45	2.30	60	60	5	300	66.1	104.1
12	60.0	525.600	0.45	2.30	60	60	5	297	69.4	103.9
Traverse 2	0.0	525.600								
1	5.0	529.170	0.35	1.79	62	62	5	303	1.5	104.0
2	10.0	532.840	0.37	1.89	62	62	5	302	4.7	103.9
3	15.0	536.520	0.37	1.89	61	61	5	304	8.4	104.6
4	20.0	540.090	0.35	1.79	62	62	5	304	12.5	104.1
5	25.0	543.660	0.35	1.79	62	62	5	303	17.7	104.0
6	30.0	547.420	0.39	2.00	63	63	5	302	25.2	103.5
7	35.0	551.180	0.39	2.00	63	63	5	302	45.6	103.5
8	40.0	555.090	0.42	2.15	64	64	5	303	53.2	103.7
9	45.0	558.760	0.37	1.89	64	64	4	302	58.3	103.5
10	50.0	562.270	0.34	1.74	65	65	4	301	62.5	103.0
11	55.0	565.680	0.32	1.64	64	64	4	301	66.1	103.3
12	60.0	569.090	0.32	1.64	65	65	4	300	69.4	103.0
Average:			0.382	1.955	60.2	60.2	4.8	302.8		104.3

Client:	Metro Vancouver	**Date:**	21-Nov-25
Jobsite:	WTE(Burnaby,B.C)	**Run:**	3 - Cr^{+6}
Source:	Unit 1	**Run Time:**	11:11 - 13:13

Concentrations:

Hexavalent Chromium	0.0	mg/dscm	0.0000	gr/dscf
	0.0	mg/Acm	0.0000	gr/Acf
	0.0	mg/dscm (@ 11% O2)	0.0000	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.00	Kg/hr	0.000	lb/hr

Flue Gas Characteristics:

Flow	1064	dscm/min	37584	dscf/min
	17.74	dscm/sec	626	dscf/sec
	1875	Acm/min	66219	Acf/min
Velocity	12.270	m/sec	40.25	f/sec
Temperature	153.9	oC	309.0	oF
Moisture	13.8	%		
Gas Analysis	9.3	% O2		
	10.3	% CO2		
	30.011	Mol. Wt (g/gmole) Dry		
	28.356	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.4857	dscm	87.784	dscf
Sample Time	120.0	minutes		
Isokineticity	104.3	%		

*** Standard Conditions:** Metric: 20 deg C, 101.325 kPa
Imperial: 68 deg F, 29.92 in.Hg

Client:	Metro Vancouver	**Date:**	21-Nov-25
Jobsite:	WTE(Burnaby,B.C)	**Run:**	3 - Cr+6
Source:	Unit 1	**Run Time:**	11:11 - 13:13

Control Unit (Y)	1.0278	**Collection:**			**Gas Analysis (Vol. %):**			**Condensate Collection:**	
Nozzle Diameter (in.)	0.3063	Cr+6 (grams)	0.00000064		CO2	O2		Impinger 1	-70.0
Pitot Factor	0.8376			Traverse 1	10.50	9.17		Impinger 2	258.0
Baro. Press. (in. Hg)	30.05			Traverse 2	10.00	9.38		Impinger 3	90.0
Static Press. (in. H20)	-18.50	**Total (grams)**	**0.0000006**					Impinger 4	0.0
Stack Height (ft)	30								
Stack Diameter (in.)	70.90								
Stack Area (sq.ft.)	27.417							Gel	20.0
Minutes Per Reading	5.0				**10.25**	**9.27**		**Gain (grams)**	**298.0**
Minutes Per Point	5.0								

Traverse / Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Dry Gas Temperature Outlet (oF)	Vacuum (in. Hg.)	Stack Temp. (oF)	Wall Dist. (in.)	Isokin. (%)
Traverse 1	0.0	570.850								
1	5.0	574.320	0.33	1.69	60	60	3	303	1.5	104.4
2	10.0	577.890	0.35	1.79	62	62	3	307	4.7	104.2
3	15.0	581.460	0.35	1.79	60	60	3	310	8.4	104.8
4	20.0	585.140	0.37	1.89	60	60	3	311	12.5	105.2
5	25.0	588.950	0.40	2.05	60	60	5	311	17.7	104.8
6	30.0	592.870	0.42	2.15	61	61	5	311	25.2	105.0
7	35.0	596.790	0.42	2.15	60	60	5	310	45.6	105.2
8	40.0	600.600	0.40	2.05	60	60	5	305	53.2	104.4
9	45.0	604.320	0.38	1.95	61	61	4	309	58.3	104.6
10	50.0	607.890	0.35	1.79	61	61	4	310	62.5	104.6
11	55.0	611.300	0.32	1.64	62	62	4	306	66.1	104.0
12	60.0	614.720	0.32	1.64	62	62	4	299	69.4	103.8
Traverse 2	0.0	614.720								
1	5.0	617.540	0.22	1.13	61	61	3	311	1.5	104.1
2	10.0	620.230	0.20	1.02	62	62	3	311	4.7	104.0
3	15.0	622.920	0.20	1.02	62	62	3	312	8.4	104.0
4	20.0	625.470	0.18	0.92	62	62	3	312	12.5	103.9
5	25.0	628.430	0.24	1.23	62	62	3	311	17.7	104.5
6	30.0	631.380	0.24	1.23	63	63	3	312	25.2	104.0
7	35.0	635.190	0.40	2.05	63	63	3	301	45.6	103.5
8	40.0	639.320	0.47	2.41	64	64	3	310	53.2	104.0
9	45.0	643.220	0.42	2.15	63	63	3	312	58.3	104.2
10	50.0	647.120	0.42	2.15	64	64	3	314	62.5	104.1
11	55.0	650.930	0.40	2.05	64	64	3	316	66.1	104.3
12	60.0	654.540	0.36	1.84	65	65	3	302	69.4	103.0
Average:			0.340	1.741	61.8	61.8	3.5	309.0		104.3

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

Parameter: N_2O

Molecular Weight: 44.00 grams/mol
Lab Detection Limit: 0.1 ppm
Reportable Detection Limit: 0.18 mg/Sm^3

Sample ID	Date	Time	N_2O ppm	N_2O mg/Sm^3	N_2O mg/Sm^3 @ 11% O_2
Unit 1 - Run 1	18-Nov-25	09:11 - 10:11	3.65	6.68	6.03
Unit 1 - Run 2	18-Nov-25	10:19 - 11:19	4.20	7.69	6.74
Unit 1 - Run 3	18-Nov-25	11:26 - 12:26	3.30	6.04	5.32
Average					**6.03**
Unit 2 - Run 1	19-Nov-25	10:24 - 11:24	-	-	-
Unit 2 - Run 2	19-Nov-25	11:33 - 12:33	1.60	2.93	2.47
Unit 2 - Run 3	19-Nov-25	12:45 - 13:45	3.10	5.67	5.04
Average					**3.76**
Unit 3 - Run 1	20-Nov-25	09:21 - 10:21	3.40	6.22	5.64
Unit 3 - Run 2	20-Nov-25	10:30 - 11:30	4.10	7.50	6.96
Unit 3 - Run 3	20-Nov-25	11:40 - 12:40	-	-	-
Average					**6.30**

Unit 2 Run 1 and Unit 3 Run 3 sample bags were compromised in transport and analytical was not completed.

Date:	**18-Nov-25**			**19-Nov-25**			**20-Nov-25**		
	Unit 1			**Unit 2**			**Unit 3**		
	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3
Test Times:	09:11 - 10:11	10:19 - 11:19	11:26 - 12:26	10:24 - 11:24	11:33 - 12:33	12:45 - 13:45	09:21 - 10:21	10:30 - 11:30	Bad Canister
Methane (ppmv)	ND	ND	ND	ND	3.6	ND	ND	ND	-
Ethane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	-
Ethene (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	-
C3 as Propane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	-
C4 as n-Butane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	-
C5 as n-Pentane (ppmv)	ND	ND	ND	ND	1.6	ND	ND	ND	-
C6 as n-Hexane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	-
C6+ as n-Hexane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	-
Detection Limits:									
Methane	3.1	3.0	2.9	3.1	2.5	3.2	3.1	3.0	-
Ethane	0.92	0.91	0.88	0.94	0.76	0.95	0.94	0.89	-
Ethene	0.92	0.91	0.88	0.94	0.76	0.95	0.94	0.89	-
C3 as Propane	1.50	1.5	1.5	1.6	1.3	1.60	1.60	1.5	-
C4 as n-Butane	1.50	1.5	1.5	1.6	1.3	1.60	1.60	1.5	-
C5 as n-Pentane	1.50	1.5	1.5	1.6	1.3	1.60	1.60	1.5	-
C6 as n-Hexane	9.20	9.1	8.8	9.4	7.6	9.50	9.40	8.9	-
C6+	1.5	1.5	1.5	1.6	1.3	1.6	1.6	1.5	-

Using 1/2 DL Convention

Sample Date:	**18-Nov-25**			**19-Nov-25**			**20-Nov-25**		
	Unit 1			**Unit 2**			**Unit 3**		
	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3
Test Times:	09:11 - 10:11	10:19 - 11:19	11:26 - 12:26	10:24 - 11:24	11:33 - 12:33	12:45 - 13:45	09:21 - 10:21	10:30 - 11:30	Bad Canister
Methane (ppm)	1.55	1.50	1.45	1.55	3.60	1.60	1.55	1.50	-
Ethane (ppm)	0.46	0.46	0.44	0.47	0.38	0.48	0.47	0.45	-
Ethene (ppm)	0.46	0.46	0.44	0.47	0.38	0.48	0.47	0.45	-
C3 as Propane (ppm)	0.75	0.75	0.75	0.80	0.65	0.80	0.80	0.75	-
C4 as n-Butane (ppm)	0.75	0.75	0.75	0.80	0.65	0.80	0.80	0.75	-
C5 as n-Pentane (ppm)	0.75	0.75	0.75	0.80	1.60	0.80	0.80	0.75	-
C6 as n-Hexane (ppm)	4.60	4.55	4.40	4.70	3.80	4.75	4.70	4.45	-
C6+ as n-Hexane (ppm)	0.75	0.75	0.75	0.80	0.65	0.80	0.80	0.75	-
Methane (mg/m^3 as CH_4)	1.03	1.00	0.97	1.03	2.40	1.07	1.03	1.00	-
Ethane (mg/m^3 as CH_4)	0.31	0.30	0.29	0.31	0.25	0.32	0.31	0.30	-
Ethene (mg/m^3 as CH_4)	0.31	0.30	0.29	0.31	0.25	0.32	0.31	0.30	-
C3 as Propane (mg/m^3 as CH_4)	0.50	0.50	0.50	0.53	0.43	0.53	0.53	0.50	-
C4 as n-Butane (mg/m^3 as CH_4)	0.50	0.50	0.50	0.53	0.43	0.53	0.53	0.50	-
C5 as n-Pentane (mg/m^3 as CH_4)	0.50	0.50	0.50	0.53	1.07	0.53	0.53	0.50	-
C6 as n-Hexane (mg/m^3 as CH_4)	3.07	3.04	2.94	3.14	2.54	3.17	3.14	2.97	-
C6+ as n-Hexane (mg/m^3 as CH_4)	0.50	0.50	0.50	0.53	0.43	0.53	0.53	0.50	-
Total mg/Sm^3 @11% O_2 as CH_4	5.12	5.06	4.92	5.50	6.19	5.26	4.49	4.73	-

All data is corrected to standard conditions (S) of 20 $^{\circ}C$, 101.325 kPa (dry) unless otherwise noted.

APPENDIX - E

FIELD DATA SHEETS

METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #1	NOZZLE	S-304 DIAMETER, IN. 0.3034
PARAMETER / RUN No	Metals/Particulate / R-1	PROBE	7' ALGVRD Cp 0.8568
DATE	NOV. 17, 2025	PORT LENGTH	
OPERATOR:	DS	STATIC PRESSURE, IN. H2O	-19.01
CONTROL UNIT	FE18 Y 1.0323	STACK DIAMETER	70.94
	ΔH@ 1.875	STACK HEIGHT	30.0'
BAROMETRIC PRESSURE, IN. Hg	29.77	INITIAL LEAK TEST	0.001 @ 15"
ASSUMED MOISTURE, Bw	15%	FINAL LEAK TEST	0.002 @ 15"

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	212	212
Imp. #2	100	212	112
Imp. #3	100	130	30
Imp. #4	0	2	2
Imp. #5	100	101	1
Imp. #6	100	100	
Imp. #7	200g		
Imp. #8			

Testo #2

5 Point MIN	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F: Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites: CO_2 Vol. %	Fyrites: O_2 Vol. %
1	12:27	98.343	0.51	2.68	60	290	249	249	49	4		
2	10	106.95	0.53	2.78	60	292					10.5	9.5
3		111.20	0.51	2.66	60	296	248	253	50	6		
4	20	115.28	0.47	2.45	61	298						
5		119.43	0.49	2.54	61	302	251	251	52	6		
6	30	123.62	0.50	2.59	61	304						
7		127.75	0.49	2.52	61	310	250	251	54	6	10.0	9.8
8	40	131.80	0.47	2.41	62	313						
9		135.72	0.44	2.26	62	313	249	250	52	6		
10	50	139.54	0.42	2.15	62	313						
11		143.28	0.40	2.05	62	313	249	250	50	5	10.0	10.0
12	60	146.93	0.38	1.97	62	306						
1		151.12	0.49	2.57	63	298	250	251	52	6		
2	10	155.26	0.48	2.52	63	296					9.5	10.2
3		159.28	0.45	2.36	64	300	249	251	54	6		
4	20	163.20	0.43	2.24	64	303						
5		167.22	0.45	2.36	65	301	250	251	52	6		
6	30	171.28	0.46	2.41	65	302						
7		175.44	0.48	2.52	66	301	249	251	54	6	10.0	9.6
8	40	179.68	0.50	2.63	66	300						
9		184.09	0.54	2.84	67	300	249	249	55	6		
10	50	188.48	0.53	2.80	67	298						
11		192.78	0.51	2.70	67	296	249	250	52	6	9.5	10.4
12	1429	197.02	0.49	2.62	68	290						

A. Lanfranco and Associates Inc.

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METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #1	NOZZLE G-304 DIAMETER, IN. 0.3034	
PARAMETER / RUN No	Metals / particulate / R-2	PROBE 7' AL GURD Cp 0.8568	
DATE	Nov. 18, 2025	PORT LENGTH	
OPERATOR:	DS	STATIC PRESSURE, IN. H2O -19.0"	
CONTROL UNIT	FE18 Y 1.0323	STACK DIAMETER 70.94'	
	ΔH@ 1.875	STACK HEIGHT 30.0'	
BAROMETRIC PRESSURE, IN. Hg	30.06	INITIAL LEAK TEST 0.002 @ 15"	
ASSUMED MOISTURE, Bw	15%	FINAL LEAK TEST 0.003 @ 15"	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	225	225
Imp. #2	100	224	124
Imp. #3	100	107	7
Imp. #4	0	5	5
Imp. #5	100	102	2
Imp. #6	100	101	1
Imp. #7	200g		
Imp. #8			

Testo #2

5 Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F: Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites: CO_2 Vol. %	Fyrites: O_2 Vol. %
now	0853	197.438										
1		200.89	0.32	1.79	56	297	236	242	45	4		
2	10	204.26	0.33	1.71	56	298					10.5	9.3
3		207.62	0.33	1.70	56	301	240	245	48	5		
4	20	210.88	0.31	1.59	57	305						
5		214.03	0.29	1.49	57	305	252	252	50	5		
6	30	217.14	0.28	1.44	57	305					10.0	9.6
7		220.69	0.44	2.07	58	304	248	233	52	5		
8	40	225.02	0.53	2.77	59	303						
9		229.39	0.54	2.83	59	302	249	234	54	5	10.0	9.8
10	50	233.60	0.50	2.62	60	302						
11		237.75	0.48	2.52	61	302	250	239	56	5		
12	60	241.82	0.46	2.43	62	300						
1		245.94	0.47	2.48	63	302	252	268	54	5		
2	10	250.18	0.50	2.64	64	304					10.0	9.8
3		254.34	0.48	2.53	65	305	253	262	56	5		
4	20	258.38	0.45	2.38	67	306						
5		262.52	0.44	2.49	68	306	250	248	57	6		
6	30	266.70	0.48	2.54	69	307					10.5	9.3
7		270.92	0.49	2.59	68	307	250	246	59	6		
8	40	274.93	0.44	2.33	69	307						
9		278.75	0.40	2.12	69	306	250	248	60	6		
10	50	282.54	0.39	2.07	69	306					10.0	9.8
11		286.18	0.36	1.92	70	302	249	248	62	6		
12	1055	289.67	0.32	1.72	70	299						

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METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #1	NOZZLE G-304 DIAMETER, IN. 0.3034	
PARAMETER / RUN No	Metals / Particulate / R-3	PROBE 9' ALGVLD Cp 0.8588	
DATE	Nov. 18 2025	PORT LENGTH	
OPERATOR:	DS	STATIC PRESSURE, IN. H2O -19.0"	
CONTROL UNIT	FE 18 Y 1.0323	STACK DIAMETER 70.94"	
	ΔH@ 1.875	STACK HEIGHT 30.0	
BAROMETRIC PRESSURE, IN. Hg	30.06	INITIAL LEAK TEST 0.002 @ 15"	
ASSUMED MOISTURE, Bw	15%	FINAL LEAK TEST 0.002 @ 15"	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	234	
Imp. #2	100	189	
Imp. #3	100	104	
Imp. #4	0	2	
Imp. #5	100	100	
Imp. #6	100	100	
Imp. #7	Gel	200g	
Imp. #8			

Testo #2

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F: Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites: CO_2 Vol. %	Fyrites: O_2 Vol. %		
1	11:20	290.340	0.38	2.07	68	285	235	255	42	5	9.5	10.1		
2	10	294.12	0.39	2.09	68	297								
3		297.92	0.39	2.09	68	298	242	254	46	5				
4	20	301.72	0.42	2.24	68	301					10.5	9.5		
5		305.64	0.43	2.29	69	302	254	252	50	5				
6	30	309.67	0.42	2.23	68	304								
7		313.54	0.44	2.39	68	304	252	254	52	6				
8	40	317.56	0.38	2.02	68	305								
9		321.28	0.42	2.23	68	305	249	250	54	7	9.0	10.6		
10	50	325.20	0.39	2.07	68	304								
11		328.98	0.38	2.02	68	302	250	252	52	7				
12	60	332.72	0.30	1.61	68	298								
		336.05												
1		339.38	0.30	1.60	68	299	257	247	52	7				
2	10	342.82	0.32	1.71	69	302					10.5	9.2		
3		346.25	0.32	1.70	69	303	235	244	55	7				
4	20	349.56	0.30	1.59	69	305								
5		352.82	0.29	1.54	69	304	245	247	56	7	11.5	8.5		
6	30	355.94	0.27	1.43	69	306								
7		359.85	0.42	2.23	68	305	249	250	57	7				
8	40	364.20	0.52	2.75	68	306								
9		368.52	0.51	2.71	68	305	252	248	45	8				
10	50	372.75	0.49	2.60	68	306					10.0	10.0		
11		376.85	0.46	2.44	68	305	251	246	48	8				
12	13:21	380.91	0.45	2.41	69	300								

CLIENT: Metro Van		NOZZLE P307	DIAMETER, IN. .3070	IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
SOURCE: Unit #2		PROBE 7C	Cp .8510	Imp. #1	000	148	148
PARAMETER / RUN No Partic/Metals R1		PORT LENGTH		Imp. #2	100	229	129
DATE 18 NOV 25		STATIC PRESSURE, IN. H2O	-15.5	Imp. #3	100	132	32
OPERATOR: JG/JD		STACK DIAMETER	70.90	Imp. #4	000	17	17
CONTROL UNIT CAE 1099	Y .9998	STACK HEIGHT	30	Imp. #5	100	105	5
	ΔH@ 1.826			Imp. #6	100	102	2
BAROMETRIC PRESSURE, IN. Hg	30.68	INITIAL LEAK TEST	.001 @ 15"	Upstream Diameters			
ASSUMED MOISTURE, Bw	15%	FINAL LEAK TEST	.001 @ 15"	Downstream Diameters			
				Testo #3			

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	O_2 Vol. %
	10:55	307.243										
1		311.66	.52	2.67	60	315	250	252	58	3.0		
2		316.01	.50	2.58	60	309						
3		320.32	.49	2.54	60	308	251	248	58	3.0	8.90	9.75
4		324.69	.50	2.60	61	305						
5		328.88	.46	2.39	61	303	250	249	55	3.5		
6		332.91	.42	2.20	63	303						
7		336.53	.34	1.78	61	300	250	250	58	3.5		
8		339.70	.26	1.37	61	295						
9		342.75	.24	1.27	61	295	250	251	59	4.0		
10		345.68	.22	1.17	62	292						
11		348.54	.21	1.11	62	295	249	257	58	3.5	9.0	10.0
12		351.32	.20	1.05	62	299						
1		354.86	.32	1.70	64	294	250	250	58	3.5		
2		358.51	.34	1.81	64	294					8.85	9.55
3		362.15	.34	1.80	64	297	251	251	58	4.0		
4		365.68	.32	1.69	65	300						
5		368.98	.28	1.48	65	301	250	250	58	4.0		
6		372.40	.30	1.58	65	302						
7		376.95	.53	2.80	66	302	250	250	58	4.0		
8		381.37	.50	2.63	66	303						
9		385.47	.49	2.60	68	300	250	249	58	4.0	9.90	9.74
10		389.99	.45	2.39	68	300						
11		393.97	.40	2.13	68	300	251	250	58	4.0		
12		397.69	.35	1.86	69	300						
	12:56											

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METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #2	NOZZLE G-304 DIAMETER, IN. 0.3034	
PARAMETER / RUN No	Metals / Particulate / R-2	PROBE 4' ALGUARD Cp 0.8568	
DATE	NOV. 19, 2025	PORT LENGTH	
OPERATOR:	DS.	STATIC PRESSURE, IN. H2O −19.5"	
CONTROL UNIT	CAE J099 Y 0.9998	STACK DIAMETER 70.94	
	ΔH@ 1.826	STACK HEIGHT 30.0'	
BAROMETRIC PRESSURE, IN. Hg	30.01	INITIAL LEAK TEST 0.002 @ 15"	
ASSUMED MOISTURE, Bw	15%	FINAL LEAK TEST 0.003 @ 15"	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	224	224
Imp. #2	100	187	87
Imp. #3	100	116	16
Imp. #4	0	5	5
Imp. #5	100	103	3
Imp. #6	100	101	1
Imp. #7	200g		
Imp. #8			

Test #3

5 Point Run	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F: Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites: CO_2 Vol. %	Fyrites: O_2 Vol. %
1	08.52	398.667	0.28	1.40	49	292	256	235	47	3		
2	10	401.85	0.43	2.14	49	295					10.5	9.6
3		405.78	0.45	2.23	48	297	254	241	48	3		
4	20	409.79	0.47	2.33	47	296						
5		413.88	0.48	2.38	47	295	253	262	49	3		
6	30	418.02	0.43	2.14	48	294					10.0	9.83
7		421.94	0.25	1.25	49	292	256	242	50	3		
8	40	424.95	0.23	1.16	50	290						
9		427.85	0.21	1.06	50	288	245	252	52	3		
10	50	430.62	0.20	1.01	50	287					12.0	7.85
11		433.32	0.20	1.01	50	285	242	250	54	3		
12	60	436.02	0.20	1.02	51	281						
		438.74										
1		441.84	0.26	1.32	52	285	257	256	52	3		
2	10	444.98	0.27	1.37	53	285					10.5	9.30
3		448.14	0.27	1.37	54	290	256	257	54	3		
4	20	451.23	0.26	1.32	54	291						
5		454.28	0.25	1.25	55	292	256	263	55	3		
6	30	457.20	0.23	1.17	56	292					10.5	9.42
7		460.90	0.37	1.88	57	294	256	262	54	4		
8	40	464.89	0.43	2.18	58	295						
9		469.03	0.46	2.33	59	295	257	261	56	4		
10	50	473.39	0.51	2.59	60	297					11.0	8.83
11		477.46	0.44	2.25	61	294	256	261	57	4		
12	1155	481.46	0.42	2.17	63	290						

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METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #2	NOZZLE G-304 DIAMETER, IN. 0.3034	
PARAMETER / RUN No	Metals/Particulate / R-3	PROBE 7' ALGURO Cp 0.8568	
DATE	Nov. 19, 2025	PORT LENGTH	
OPERATOR:	DS	STATIC PRESSURE, IN. H2O -19.5"	
CONTROL UNIT	CAE 3099 Y 0.9998	STACK DIAMETER 70.9"	
	ΔH@ 1.826	STACK HEIGHT 30.0'	
BAROMETRIC PRESSURE, IN. Hg	30.01	INITIAL LEAK TEST 0.002 @ 15"	
ASSUMED MOISTURE, Bw	15%	FINAL LEAK TEST 0.003 @ 15"	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	196	196
Imp. #2	100	164	64
Imp. #3	100	115	15
Imp. #4	0	2	2
Imp. #5	100	101	1
Imp. #6	100	101	1
Imp. #7	200g		
Imp. #8			

5 Point min	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F: Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites: CO_2 Vol. %	Fyrites: O_2 Vol. %		
1	12:05	482.206												
2		485.42	0.27	1.90	62	285	242	246	45	4				
3	10	488.69	0.28	1.95	63	287					11.0	8.85		
4		491.96	0.28	1.95	63	288	246	249	47	4				
5	20	495.17	0.27	1.89	62	292								
6		498.20	0.24	1.73	63	295	250	250	49	4				
7	30	501.09	0.22	1.53	63	296					10.5	9.34		
8		504.88	0.38	1.99	64	298	252	251	52	4				
9	40	508.96	0.44	2.25	64	298								
10		513.09	0.45	2.30	64	298	249	246	54	5				
11	50	517.43	0.50	2.56	64	298					11.00	9.05		
12		521.48	0.43	2.20	65	299	251	250	55	5				
	60	525.42	0.41	2.11	65	295								
1		528.75	0.29	1.49	65	296	256	242	56	6				
2	10	532.70	0.41	2.10	66	298					8.5	11.22		
3		536.80	0.44	2.26	66	298	249	249	55	6				
4	20	540.99	0.46	2.36	66	299								
5		545.32	0.49	2.51	66	298	252	252	54	6				
6	30	549.42	0.44	2.26	66	298					9.5	10.21		
7		552.58	0.26	1.33	64	300	254	246	52	4				
8	40	555.62	0.24	1.23	67	301								
9		558.52	0.22	1.13	67	299	255	248	53	4				
10	50	561.44	0.22	1.13	68	298					9.5	9.85		
11		564.28	0.21	1.08	68	298	252	247	55	4				
12	14:06	567.08	0.20	1.04	68	292								

$\sqrt{6.28}$ 4.66ΔH

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CLIENT: MURD	NOZZLE G3121	DIAMETER, IN. .3063		IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
	PROBE 7E	Cp .8376					
SOURCE: Unit #3				Imp. #1	0	152	152
PARAMETER / RUN No 1, Metals/Partic	PORT LENGTH			Imp. #2	100	212	112
DATE Nov. 19/25	STATIC PRESSURE, IN. H2O -18.00			Imp. #3	100	116	16
OPERATOR: CL/FLF	STACK DIAMETER 70.9			Imp. #4	0	12	12
CONTROL UNIT AU 15 Y .9860	STACK HEIGHT 30'			Imp. #5	100	103	3
ΔH@				Imp. #6	100	102	2
BAROMETRIC PRESSURE, IN. Hg 29.45	INITIAL LEAK TEST 0.002 @ 15"			Upstream Diameters			
ASSUMED MOISTURE, Bw 15%	FINAL LEAK TEST 0.002 @ 15"			Downstream Diameters			

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	O_2 Vol. %		
	11:30	765.400												
1		769.62	.45	2.10	55	302	250	250	52	5				
2		774.15	.52	2.42	56	303					10.0	9.8		
3		778.68	.52	2.42	56	304	250	250	52	6				
4		783.13	.50	2.33	58	304								
5		787.44	.47	2.19	58	304	250	250	52	6				
6		791.52	.42	1.96	58	303								
7		794.79	.27	1.26	60	303	250	250	54	6	10.0	10.0		
8		798.06	.27	1.26	62	302								
9		801.14	.24	1.12	62	300	250	250	54	5				
10		803.95	.20	.93	62	298								
11		806.70	.20	.93	62	299	250	250	50	4				
12		809.37	.18	.84	63	300					10.0	9.9		
1		812.82	.30	1.40	64	303	250	250	50	5				
2		816.38	.32	1.49	64	302								
3		819.70	.28	1.30	64	303	250	250	48	5	10.0	10.1		
4		823.02	.28	1.30	65	304								
5		826.29	.26	1.21	66	304	250	250	48	5				
6		829.54	.28	1.30	68	305								
7		833.75	.45	2.10	67	303	250	250	50	5				
8		838.29	.52	2.42	68	304								
9		842.92	.54	2.52	68	304	250	250	50	4	10.0	10.0		
10		847.53	.54	2.52	68	302								
11		852.24	.56	2.61	69	300	250	250	48	4				
12	13:34	856.77	.52	2.42	69	298								

A. Lanfranco and Associates Inc.

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METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #3	NOZZLE G-304 DIAMETER, IN. 0.3034	
PARAMETER / RUN No	metals / Particulate / R-2	PROBE 7' ALGARD Cp 0.8568	
DATE	NOV. 20, 2025	PORT LENGTH	
OPERATOR:	OS	STATIC PRESSURE, IN. H2O -19.5"	
CONTROL UNIT	AVIS Y 0.9985	STACK DIAMETER 70.94"	
	ΔH@ 1.514	STACK HEIGHT 30.0	
BAROMETRIC PRESSURE, IN. Hg	29.97	INITIAL LEAK TEST 0.004 @ 15"	
ASSUMED MOISTURE, Bw	15%	FINAL LEAK TEST 0.003 @ 15"	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	190	
Imp. #2	100	167	
Imp. #3	100	145	
Imp. #4	0	12	
Imp. #5	100	123	
Imp. #6	100	101	
Imp. #7	200g		
Imp. #8			

Tests #4 (new)

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F: Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites: CO_2 Vol. %	Fyrites: O_2 Vol. %		
	0905	857.448												
1		862.28	0.62	2.63	60	297	260	251	47	4				
2	10	867.25	0.66	2.78	59	298					9.5	10.5		
3		872.28	0.68	2.85	59	301	249	255	48	4				
4	20	877.16	0.64	2.68	60	302								
5		881.96	0.62	2.60	60	302	249	256	50	4				
6	30	886.48	0.55	2.30	60	302					10.0	10.0		
7		889.98	0.33	1.39	61	300	250	250	52	4				
8	40	893.45	0.32	1.35	61	299								
9		896.68	0.28	1.18	62	299	250	250	54	3				
10	50	899.85	0.26	1.10	62	300								
11		902.88	0.24	1.02	62	295	252	249	52	3	9.5	10.2		
12	60	905.78	0.22	0.94	62	297								
1		909.06	0.28	1.20	64	290	250	250	50	3.5				
2	10	912.28	0.27	1.15	65	295					9.5	10.4		
3		915.56	0.28	1.19	66	297	249	248	49	4				
4	20	918.89	0.29	1.24	66	298								
5		922.23	0.29	1.24	67	299	251	250	47	4				
6	30	925.90	0.35	1.49	68	300								
7		930.20	0.48	2.04	69	303	250	251	46	5	9.5	10.0		
8	40	934.69	0.52	2.23	70	299								
9		939.44	0.58	2.48	70	300	251	248	50	5				
10	50	944.30	0.61	2.61	70	300								
11		948.98	0.56	2.42	71	296	252	250	52	5	9.5	10.2		
12	1106	953.50	0.52	2.25	71	292								

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CLIENT: M.V. W.T.E	NOZZLE G-304 DIAMETER, IN. 0.3034	IMPINGER VOLUMES	
SOURCE: Unit #3	PROBE 7' ALB/URD Cp 0.8568		
PARAMETER / RUN No Metals/particulate / R-3	PORT LENGTH		
DATE NOV. 20, 2025	STATIC PRESSURE, IN. H2O -19.5"		
OPERATOR: DS	STACK DIAMETER 70.94		
CONTROL UNIT AUCS Y 0.9986	STACK HEIGHT 300'		
ΔH@ 1.517			
BAROMETRIC PRESSURE, IN. Hg 29.97	INITIAL LEAK TEST 0.002 @ 15"	Upstream Diameters [illegible]	
ASSUMED MOISTURE, Bw 15%	FINAL LEAK TEST 0.002 @ 15"	Downstream Diameters	
		Testo #4	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	238	238
Imp. #2	100	187	87
Imp. #3	100	117	17
Imp. #4	0	2	2
Imp. #5	100	101	1
Imp. #6	100	100	0

8 Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	O_2 Vol. %		
MON	11:30	954.137												
1		957.68	0.32	1.38	68	290	228	242	46	5				
2		961.28	0.33	1.42	67	293					10.5	9.2		
3		964.84	0.33	1.42	69	296	245	245	48	5				
4		968.49	0.34	1.42	69	299								
5		972.11	0.34	1.45	69	302	252	252	50	5				
6		975.99	0.39	1.66	69	302					9.5	10.3		
7		981.08	0.67	2.86	70	302	259	256	52	6				
8		986.14	0.66	2.82	70	302								
9		991.17	0.65	2.78	71	302	252	251	54	7				
10		996.08	0.62	2.65	71	303								
11		1000.90	0.60	2.56	71	303	251	253	51	7	9.5	10.4		
12		1005.70	0.59	2.54	71	298								
		~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~295~~	~~250~~	~~252~~	~~[illegible]~~	~~7~~				
1		1010.73	0.65	2.81	71	295	251	253	51	7				
2		1015.80	0.68	2.93	72	297					9.0	10.6		
3		1021.04	0.70	3.03	72	296	250	241	52	8				
4		1026.15	0.66	2.86	73	295								
5		1031.23	0.65	2.84	74	291	249	252	54	8				
6		1036.09	0.59	2.58	75	290					9.5	10.5		
7		1039.89	0.36	1.58	76	291	252	251	49	8				
8		1043.65	0.35	1.53	77	292								
9		1047.25	0.32	1.40	77	292	251	250	46	6				
10		1050.78	0.31	1.36	77	291					9.5	10.2		
11		1054.26	0.30	1.32	78	291	249	249	44	6				
12	13:37	1057.63	0.28	1.23	78	290								

Client	MVWTE Unit #1	Y	LMU-C=1.0258
Source	Unit #1	Cp	
Parameter	HF, Cl⁻, NH₃	Pbar	30.06 Static
Date	18 Nov 25	Operator	CD + LF
Stack Dia		Down	Up

Leak Check	Run 1	Run 2	Run 3
Initial	.0001	.0001	.0001
Final	.0201	.0001	.0001

Run No.	Time (hhmm)	DGM Volume (cu ft) / (m^3)	Temp (°F) DGM Outlet	Temp (°F) Stack	Imp. Vol. (mL)	ΔP IN. H_2O R1	ΔP IN. H_2O R2	ΔP IN. H_2O R3
1	0911	194.9400	54		25			
					25			
	10:11	195.0712	60					
2	10:19	195.0722	60		25			
					25			
	11:19	195.1982	60					
3	11:26	195.200	60		25			
					25			
	12:26	195.3881	61					

	Run 1	Run 2	Run 3
O_2			
CO_2			

Client	MVWTE	Y	LMU-C=1.0258
Source	Unit #2	Cp	
Parameter	HF, Cl⁻, NH₃	Pbar	29.97 Static
Date	19 Nov 25	Operator	CD + LF
Stack Dia		Down	Up

Leak Check	Run 1	Run 2	Run 3
Initial	.0001	.0001	.0001
Final	.0001	.0001	.0001

Run No.	Time (hhmm) 1024	DGM Volume (cu ft) / (m^3)	Temperature (°F) DGM Outlet	Temperature (°F) Stack	Imp. Vol. (mL)	ΔP IN. H_2O R1	ΔP IN. H_2O R2	ΔP IN. H_2O R3
1	0918	195.5907	60		25			
					25			
	11:24	195.7220	65					
2	1133	195.7231	64		25			
					25			
	12:33	195.8467	67					
3	1245	195.8481	65		25			
					25			
	13:45	195.9693	69					

	Run 1	Run 2	Run 3
O_2			
CO_2			

LA

Client	MV WTF	Y	LMV-C 1.0258		
Source	Unit 3	Cp			
Parameter	HF, Cl, NH_3	Pbar	29.95	Static	
Date	20 Nov 2025	Operator	LF + CD		
Stack Dia		Down		Up	

Leak Check	Run 1	Run 2	Run 3
Initial	0.0001	0.0001	0.0001
Final	0.0001	0.0001	0.0001

Run No.	Time (hhmm)	DGM Volume (cu ft) / (m^3)	Temp (°F) DGM Outlet	Temp (°F) Stack	Imp. Vol. (mL)	ΔP IN. H_2O R1	ΔP IN. H_2O R2	ΔP IN. H_2O R3
1	0921	195.9702	54					
	10:21	196.1100	61					
2	10:30	196.1113	58					
	11:30	196.2510	61					
3	11:38	196.2521	59					
	12:38	196.3912	63					

	Run 1	Run 2	Run 3
O_2			
CO_2			

Client		Y	
Source		Cp	
Parameter		Pbar	Static
Date		Operator	
Stack Dia		Down	Up

Leak Check	Run 1	Run 2	Run 3
Initial			
Final			

Run No.	Time (hhmm)	DGM Volume (cu ft) / (m^3)	Temperature (°F) DGM Outlet	Temperature (°F) Stack	Imp. Vol. (mL)	ΔP IN. H_2O R1	ΔP IN. H_2O R2	ΔP IN. H_2O R3
1	0							
2								
3								

	Run 1	Run 2	Run 3
O_2			
CO_2			

A. Lanfranco and Associates Inc.

4A

Client MWTE

Source Unit #1 Date 18 Nov 25

		Run 1	Run 2	Run 3	Run 4	Run 5
Pbar (in. Hg)		30.06	30.06	30.06		
Canister Number		SC01905	SC02288	SC01716		
Controller Number		OA01890	OA01890	OA01890		
Gauge Number						
Initial:	Start Time	09:11	10:19	11:26		
	Flask Vac. (in. Hg)	-30	-30	-30		
Final:	End Time	10:11	11:19	12:26		
	Flask Vac. (in. Hg)	-8	-7.5	-8		

Source Unit #2 Date 19 Nov 25

		Run 1	Run 2	Run 3	Run 4	Run 5
Pbar (in. Hg)		29.97	29.92	29.97		
Canister Number		SC00831	SC01890	SC00121		
Controller Number		OA01890	OA01890	OA01890		
Gauge Number						
Initial:	Start Time	10:24	11:33	12:45		
	Flask Vac. (in. Hg)	-29	-18	-29		
Final:	End Time	11:24	12:33	13:45		
	Flask Vac. (in. Hg)	-8	-3	-8		

Source Unit #3 Date 20 Nov / bad canister

		Run 1	Run 2	Run 3	Run 4	Run 5
Pbar (in. Hg)		29.95	29.97			
Canister Number		SC00884	SC01602			
Controller Number		OA 01290	OA 01290			
Gauge Number						
Initial:	Start Time	09:21	10:30			
	Flask Vac. (in. Hg)	-30	-28			
Final:	End Time	-0.5	-6			
	Flask Vac. (in. Hg)	10:21	11:30			

Source _____ Date _____

		Run 1	Run 2	Run 3	Run 4	Run 5
Pbar (in. Hg)						
Canister Number						
Controller Number						
Gauge Number						
Initial:	Start Time					
	Flask Vac. (in. Hg)					
Final:	End Time					
	Flask Vac. (in. Hg)					

√6.02 5.122=H

4A

A. Lanfranco and Associates Inc.

CLIENT: MURD	NOZZLE G3121 DIAMETER, IN. .3063	IMPINGER VOLUMES	INITIAL (mL) / FINAL (mL) / TOTAL GAIN (mL)
SOURCE: Unit #1	PROBE 7C Cp .8376	Imp. #1	150 / 70 /
PARAMETER / RUN No Cr6+ 1	PORT LENGTH	Imp. #2	75 / 252 /
DATE Nov. 20/25	STATIC PRESSURE, IN. H2O -18.75	Imp. #3	75 / 245 /
OPERATOR: CL + CD	STACK DIAMETER 70.9"	Imp. #4	/ 27 /
CONTROL UNIT FE18 Y 1.0278	STACK HEIGHT 30'	Imp. #5	
ΔH@		Imp. #6	
BAROMETRIC PRESSURE, IN. Hg 30.01	INITIAL LEAK TEST 0.002 @ 15"	Upstream Diameters	
ASSUMED MOISTURE, Bw 15%	FINAL LEAK TEST 0.001 @ 15"	Downstream Diameters	

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	O_2 Vol. %		
	12:00	384.500												
1		387.45	.24	1.23	58	302	N/A	N/A	58	2				
2		390.64	.28	1.43	60	303	↓	↓			9.9	10.3		
3		394.06	.32	1.64	62	302			60	2				
4		397.47	.32	1.64	60	304								
5		400.98	.34	1.74	60	304			58	2				
6		404.49	.34	1.74	60	306								
7		408.92	.54	2.76	60	306			56	6	10.0	10.0		
8		413.34	.54	2.76	61	304								
9		417.89	.57	2.92	62	302			58	6				
10		422.47	.58	2.97	62	302								
11		426.55	.46	2.36	62	300			58		10.0	9.98		
12		430.52	.44	2.25	62	298								
1		434.19	.37	1.89	63	306	N/A	N/A	56	4				
2		438.10	.42	2.15	63	304	↓	↓						
3		442.09	.44	2.25	63	304			52	4	10.0	9.70		
4		446.22	.47	2.41	64	306								
5		450.35	.47	2.41	64	306			52	4				
6		454.56	.49	2.51	65	306								
7		458.77	.49	2.51	66	307			50	4	10.0	9.55		
8		462.81	.45	2.30	68	306								
9		466.72	.42	2.15	68	305			50	4				
10		470.39	.37	1.89	68	302								
11		473.96	.35	1.79	69	309			52	4	9.5	10.50		
12	14:05	477.57	.32	1.64	70	297								

92.97

$\sqrt{6.02}$ 5.12 ΔH

4A

A. Lanfranco and Associates Inc.

CLIENT: MWRD	NOZZLE G321	DIAMETER, IN. .3063	
	PROBE FE	Cp .8376	
SOURCE: Unit #1			
PARAMETER / RUN No Cr6+ - [illegible]	PORT LENGTH		
DATE Nov. 21 '25	STATIC PRESSURE, IN. H2O -18.50"		
OPERATOR: C.D	STACK DIAMETER 10.9		
CONTROL UNIT FE 18	Y 1.0278	STACK HEIGHT 30'	
	ΔH@		
BAROMETRIC PRESSURE, IN. Hg 30.05	INITIAL LEAK TEST 0.004 @ 15"		
ASSUMED MOISTURE, Bw 15%	FINAL LEAK TEST 0.002 @ 15"		

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	150	75	
Imp. #2	75	280	
Imp. #3	75	245	
Imp. #4			
Imp. #5			
Imp. #6			

Upstream Diameters

Downstream Diameters

TESTO #3

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	O_2 Vol. %
	08:43	479.90										
1		483.32	.32	1.64	54	303	N/A	N/A	45	4	10.0	10.05
2		486.84	.34	1.74	56	305						
3		490.36	.34	1.74	56	306			48	4		
4		493.97	.36	1.84	57	306						
5		497.38	.32	1.64	56	304			48	4	10.0	9.45
6		500.69	.30	1.54	56	304						
7		504.74	.45	2.30	57	304			48	6		
8		509.05	.51	2.61	58	304						
9		513.39	.52	2.66	58	304			50	6		
10		517.52	.47	2.41	59	302					10.0	9.75
11		521.56	.45	2.30	60	300			52	5		
12		525.60	.45	2.30	60	297						
1		529.17	.35	1.79	62	303			52	5		
2		532.84	.37	1.89	62	302						
3		536.52	.37	1.89	61	304			52	5		
4		540.09	.35	1.79	62	304					10.0	9.50
5		543.66	.35	1.79	63	303			54	5		
6		547.42	.39	2.00	63	302						
7		551.18	.39	2.00	63	302			54	5		
8		555.09	.42	2.15	64	303						
9		558.76	.37	1.89	64	302			55	4	10.0	10.0
10		562.27	.34	1.74	65	301						
11		565.68	.32	1.64	64	301			56	4		
12	10:46	569.09	.32	1.64	65	300						

$\sqrt{6.02}$ 5.12ΔH

4A

A. Lanfranco and Associates Inc.

CLIENT: MWRD	NOZZLE G3(21) DIAMETER, IN. .3063	IMPINGER VOLUMES	INITIAL (mL) / FINAL (mL) / TOTAL GAIN (mL)
SOURCE: Unit #1	PROBE 7E Cp .8376	Imp. #1	150 / 80 /
PARAMETER / RUN No Cr6+ -3	PORT LENGTH	Imp. #2	75 / 333 /
DATE Nov. 21/25	STATIC PRESSURE, IN. H2O -18.50"	Imp. #3	75 / 165 /
OPERATOR: CF + SD	STACK DIAMETER 70.9"	Imp. #4	
CONTROL UNIT FE 18 Y 1.0278	STACK HEIGHT 30'	Imp. #5	
ΔH@		Imp. #6	
BAROMETRIC PRESSURE, IN. Hg 30.05	INITIAL LEAK TEST 0.002 @ 15"	Upstream Diameters	
ASSUMED MOISTURE, Bw 15%	FINAL LEAK TEST 0.002 @ 15"	Downstream Diameters	
		TESTO #3	

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	O_2 Vol. %		
	11:11	570.850												
1		574.32	.33	1.69	60	300	N/A	N/A	49	3				
2 (5min)		577.89	.35	1.79	62	302	↓	↓			10.5	9.35		
3		581.46	.35	1.79	60	300			52	3				
4		585.14	.37	1.89	60	299								
5		588.95	.40	2.05	60	301			50	5				
6		592.87	.42	2.15	61	302								
7		596.79	.42	2.15	60	302			50	5	10.5	9.00		
8		600.60	.40	2.05	60	303								
9		604.32	.38	1.93	61	301			52	4				
10		607.89	.35	1.79	61	300								
11		611.30	.32	1.64	62	300			52	4				
12		614.72	.32	1.64	62	299								
1		617.54	.22	1.13	61	295			50	3				
2		620.23	.20	1.02	62	292	↓	↓						
3		622.92	.20	1.02	62	290			50	3	10.0	9.50		
4		625.47	.18	.92	62	290								
5		628.43	.24	1.23	62	296			52	3				
6		631.38	.24	1.23	63	299								
7		635.19	.40	2.05	63	294			50	3				
8		639.32	.47	2.41	64	295								
9		643.22	.42	2.15	63	293			50	3	10.0	9.26		
10		647.12	.42	2.15	64	293								
11		650.95	.40	2.05	65	292			52	3				
12	13:13	654.54	.36	1.84	65	292								

APPENDIX – F

CALIBRATION SHEETS and

TECHNICIAN CERTIFICATES

A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

GLASS NOZZLE DIAMETER CALIBRATION FORM

Calibrated by: Christian De La O
Date: 24-Jun-25

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	0.1881	0.1884	0.1874	0.0010	0.1880	0.0001927
E	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
L	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-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
C-250	0.2500	0.2500	0.2500	0.0000	0.2500	0.0003409
P-250	0.2500	0.2495	0.2505	0.0010	0.2500	0.0003409
P-254	0.2535	0.2535	0.2530	0.0005	0.2533	0.0003500
P-256	0.2520	0.2510	0.2515	0.0010	0.2515	0.0003450
C-280	0.2800	0.2800	0.2800	0.0000	0.2800	0.0004276
C-281	0.2800	0.2820	0.2780	0.0040	0.2800	0.0004276
P-281	0.2820	0.2820	0.2815	0.0005	0.2818	0.0004332
C-282	0.2800	0.2800	0.2800	0.0000	0.2800	0.0004276
C-283	0.2800	0.2800	0.2800	0.0000	0.2800	0.0004276
G-2825	0.2825	0.2820	0.2825	0.0005	0.2823	0.0004348
G-304	0.3038	0.3028	0.3035	0.0010	0.3034	0.0005020
G-3121	0.3055	0.3063	0.3070	0.0015	0.3063	0.0005116
P-307	0.3070	0.3065	0.3075	0.0010	0.3070	0.0005140
G-3092	0.3100	0.3085	0.3090	0.0015	0.3092	0.0005213
P-31	0.3120	0.312	0.3120	0.0000	0.3120	0.0005309
P-311	0.3105	0.3115	0.3110	0.0010	0.3110	0.0005275
P-312	0.3120	0.312	0.3120	0.0000	0.3120	0.0005309
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	0.0005395
V-06	0.3210	0.3200	0.3200	0.0010	0.3203	0.0005597
P-34	0.3430	0.3430	0.3430	0.0000	0.3430	0.0006417
343-GS	0.3430	0.3430	0.3430	0.0000	0.3430	0.0006417
P-343	0.3425	0.3420	0.3425	0.0005	0.3423	0.0006392
G-345	0.3470	0.3475	0.3475	0.0005	0.3473	0.0006580
G-349	0.3655	0.3659	0.3665	0.0010	0.3660	0.0007305
G-367	0.3680	0.3660	0.3658	0.0022	0.3666	0.0007330
G-372	0.3669	0.3700	0.3668	0.0032	0.3679	0.0007382
P-375	0.3705	0.3710	0.3709	0.0005	0.3708	0.0007499
C-3751	0.3675	0.3672	0.3673	0.0003	0.3673	0.0007359
P-38	0.3750	0.3750	0.3750	0.0000	0.3750	0.0007670
P-381	0.3800	0.3800	0.3800	0.0000	0.3800	0.0007876
P-401	0.3980	0.3990	0.4000	0.0020	0.3990	0.0008683
P-405	0.4047	0.4055	0.4056	0.0009	0.4053	0.0008958
P-407	0.4065	0.4070	0.4072	0.0007	0.4069	0.0009030
P-406	0.4058	0.4062	0.4060	0.0004	0.4060	0.0008990
P-41	0.4060	0.4060	0.4060	0.0000	0.4060	0.0008990
G-433	0.4360	0.4360	0.4355	0.0005	0.4358	0.0010360
P-47	0.4680	0.4680	0.4680	0.0000	0.4680	0.0011946
P-29	0.4681	0.4683	0.4685	0.0004	0.4683	0.0011961
G-468	0.4700	0.4685	0.4720	0.0035	0.4702	0.0012057
P-7	0.4965	0.4945	0.4975	0.0030	0.4962	0.0013427
G-540	0.5400	0.5410	0.5400	0.0010	0.5403	0.0015924

(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-25
Pbar (in.Hg): 29.94

Temp (R): 539
Dn (in.): 0.25

Pitot ID: **7A-1**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.025	0.035	10.6	0.8367	0.0061
0.140	0.195	25.0	0.8388	0.0040
0.225	0.310	31.7	0.8434	0.0006
0.510	0.695	47.7	0.8481	0.0052
0.820	1.120	60.4	0.8471	0.0043
		Average :	0.8428	0.0040

Pitot ID: **ST 8A**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.220	0.300	31.3	0.8478	0.0128
0.340	0.480	38.9	0.8332	0.0018
0.430	0.610	43.8	0.8312	0.0038
0.520	0.740	48.1	0.8299	0.0051
0.630	0.890	53.0	0.8329	0.0021
		Average :	0.8350	0.0051

Pitot ID: **7B**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.050	0.070	14.9	0.8367	0.0020
0.150	0.205	25.8	0.8468	0.0082
0.260	0.360	34.0	0.8413	0.0027
0.420	0.595	43.3	0.8318	0.0069
0.750	1.050	57.8	0.8367	0.0020
		Average :	0.8387	0.0043

Pitot ID: **ST 8B**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.050	0.070	14.9	0.8367	0.0091
0.175	0.240	27.9	0.8454	0.0005
0.330	0.450	38.3	0.8478	0.0019
0.560	0.760	49.9	0.8498	0.0040
0.810	1.100	60.1	0.8495	0.0037
		Average :	0.8458	0.0038

Pitot ID: **7 AL GVRD-1**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.060	0.080	16.3	0.8574	0.0006
0.175	0.235	19.9	0.8543	0.0025
0.320	0.430	25.3	0.8540	0.0028
0.505	0.670	35.8	0.8595	0.0027
0.790	1.050	48.4	0.8587	0.0019
		Average :	0.8568	0.0021

Pitot ID: **ST 8C**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.030	0.040	14.9	0.8574	0.0093
0.160	0.220	19.4	0.8443	0.0038
0.255	0.360	29.0	0.8332	0.0149
0.580	0.790	43.1	0.8483	0.0002
0.900	1.200	52.8	0.8574	0.0093
		Average :	0.8481	0.0075

Pitot ID: **7C**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.025	0.035	10.6	0.8367	0.0143
0.140	0.190	16.3	0.8498	0.0012
0.255	0.345	33.7	0.8511	0.0001
0.425	0.565	30.5	0.8586	0.0076
0.700	0.930	47.0	0.8589	0.0079
		Average :	0.8510	0.0062

Pitot ID:

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

* Average absolute deviation must not exceed 0.01.

Calibrated by: Jack Dennis Signature:  Date: July 2, 2024

A.Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: AU 15
Serial #: 0028SPC-081915-1

Date: 02-Jul-25
Barometric Pressure: 29.84 (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 GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	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)
3.30	20.00	428.332	449.940	21.608	77.0	77.0	80.0	80.0	73	0.8185	17.0	73.0	75.0	74.0
1.70	16.00	415.837	428.332	12.495	76.0	76.0	77.0	77.0	63	0.5956	20.0	74.0	73.0	73.5
1.00	18.00	393.355	404.309	10.954	74.0	74.0	74.0	74.0	55	0.4606	22.0	71.0	71.0	71.0
0.51	25.00	404.329	415.837	11.508	74.0	74.0	76.0	76.0	48	0.3560	23.0	71.0	74.0	72.5
0.26	17.00	387.945	393.355	5.410	73.0	73.0	74.0	74.0	40	0.2408	24.0	70.0	71.0	70.5

********** RESULTS **********

--- DRY GAS METER ---		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
					CALIBRATION FACTOR Y		CALIBRATION FACTOR dH@			
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Value (number)	Variation (number)	Value (in H2O)	Value (mm H2O)	Variation (in H2O)	Ko (value)
21.293	603.0	21.139	598.6	21.445	0.993	-0.006	1.625	41.27	0.108	0.755
12.311	348.6	12.311	348.7	12.478	1.000	0.002	1.585	40.26	0.068	0.761
10.824	306.5	10.736	304.0	10.830	0.992	-0.007	1.559	39.60	0.042	0.774
11.337	321.1	11.509	325.9	11.643	1.015	0.017	1.332	33.84	-0.185	0.818
5.341	151.3	5.303	150.2	5.345	0.993	-0.006	1.483	37.67	-0.034	0.793
				Average Y---------->	**0.9986**		**Average dH@----->**	**1.517**	**38.5**	**Average Ko----->**	**0.780**

TEMPERATURE CALIBRATION

Calibration Standard -------> Omega Model CL23A S/N:T-218768

Reference	Temperature Device Reading									
Set-Point	Stack		Hot Box		Probe		Imp Out		Aux	
(deg F)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)
32	32	0.00%	31	-0.20%	32	0.00%	32	0.00%	31	-0.20%
100	100	0.00%	99	-0.18%	99	-0.18%	100	0.00%	99	-0.18%
300	299	-0.13%	298	-0.26%	298	-0.26%	299	-0.13%	299	-0.13%
500	499	-0.10%	498	-0.21%	498	-0.21%	498	-0.21%	498	-0.21%
1000	998	-0.14%	998	-0.14%	998	-0.14%	998	-0.14%	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.

Calibrated by: Justin Ching Signature: _____ Date: July 2, 2025

A.Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: FE 18

Serial #: 0028-020118-1

Date: 2-Jul-25

Barometric Pressure: 29.84 (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 GAS METER READINGS ----------

dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temps. Inlet (deg F)	Initial Temps. Outlet (deg F)	Final Temps. Inlet (deg F)	Final Temps. Outlet (deg F)
3.75	24.00	558.207	583.030	24.823	71.0	71.0	75.0	75.0
1.95	48.00	583.030	619.120	36.090	75.0	75.0	80.0	80.0
1.20	25.00	619.120	633.836	14.716	80.0	80.0	81.0	81.0
0.69	25.00	633.836	645.061	11.225	81.0	81.0	82.0	82.0
0.35	19.00	645.061	650.963	5.902	82.0	82.0	83.0	83.0

-CRITICAL ORIFICE READINGS-

Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	-- Ambient Temperature -- Initial (deg F)	Final (deg F)	Average (deg F)
73	0.8185	16.0	73.0	75.0	74.0
63	0.5956	17.0	75.0	78.0	76.5
55	0.4606	18.0	78.0	79.0	78.5
48	0.3560	20.0	79.0	81.0	80.0
40	0.2408	21.0	81.0	83.0	82.0

********** **RESULTS** **********

--- DRY GAS METER --- VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	--------- ORIFICE --------- VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	-- DRY GAS METER -- CALIBRATION FACTOR Y Value (number)	Variation (number)	--------- ORIFICE --------- CALIBRATION FACTOR dH@ Value (in H2O)	Value (mm H2O)	Variation (in H2O)	Ko (value)
24.741	700.7	25.366	718.4	25.734	1.025	-0.007	1.866	47.38	-0.010	0.705
35.513	1005.7	36.831	1043.0	37.539	1.037	0.005	1.825	46.36	-0.050	0.706
14.374	407.1	14.807	419.3	15.148	1.030	-0.002	1.875	47.62	-0.001	0.702
10.930	309.5	11.429	323.7	11.724	1.046	0.013	1.806	45.87	-0.069	0.705
5.732	162.3	5.864	166.1	6.038	1.023	-0.009	2.006	50.95	0.131	0.684
				Average Y--------->	**1.0323**		**Average dH@----->**	**1.875**	**47.6**	**Average Ko----->**	**0.701**

TEMPERATURE CALIBRATION

Calibration Standard -------> Omega Model CL23A S/N:T-218768

Reference Set-Point (deg F)	Temperature Device Reading Stack (deg F)	Stack (% diff)	Hot Box (deg F)	Hot Box (% diff)	Probe (deg F)	Probe (% diff)	Imp Out (deg F)	Imp Out (% diff)	Aux (deg F)	Aux (% diff)
32	32	0.00%	32	0.00%	31	-0.20%	31	-0.20%	31	-0.20%
100	99	-0.18%	99	-0.18%	99	-0.18%	98	-0.36%	98	-0.36%
300	298	-0.26%	299	-0.13%	299	-0.13%	298	-0.26%	298	-0.26%
500	499	-0.10%	498	-0.21%	498	-0.21%	497	-0.31%	498	-0.21%
1000	998	-0.14%	998	-0.14%	997	-0.21%	997	-0.21%	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.

Calibrated by: Justin Ching Signature:  Date: July 2, 2025

A.Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: CAE JO99
Serial #: 0028-022210-1

Date: 2-Jul-25
Barometric Pressure: 29.84 (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 GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	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)
3.60	28.00	718.802	748.895	30.093	73.0	73.0	76.0	76.0	73	0.8185	17.0	73.0	74.0	73.5
1.95	33.00	748.895	774.661	25.766	76.0	76.0	79.0	79.0	63	0.5956	20.0	74.0	76.0	75.0
1.20	50.00	774.661	805.121	30.460	79.0	79.0	81.0	81.0	55	0.4606	21.0	76.0	81.0	78.5
0.67	25.00	805.121	816.794	11.673	81.0	81.0	82.0	82.0	48	0.3560	23.0	81.0	82.0	81.5
0.33	24.00	816.794	824.342	7.548	82.0	82.0	82.0	82.0	40	0.2408	24.0	82.0	81.0	82.5

********** RESULTS **********

--- DRY GAS METER ---		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------			
					CALIBRATION FACTOR Y		CALIBRATION FACTOR dH@			
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Value (number)	Variation (number)	Value (in H2O)	Value (mm H2O)	Variation (in H2O)	Ko (value)
29.899	846.7	29.608	838.5	30.009	0.9903	-0.010	1.784	45.32	-0.042	0.723
25.354	718.0	25.357	718.1	25.772	1.0001	0.000	1.820	46.23	-0.006	0.710
29.779	843.4	29.614	838.7	30.296	0.9945	-0.005	1.876	47.66	0.050	0.704
11.366	321.9	11.413	323.2	11.741	1.0041	0.004	1.759	44.67	-0.068	0.721
7.336	207.8	7.411	209.9	7.624	1.0101	0.010	1.891	48.04	0.065	0.691
				Average Y---------->	**0.9998**		**Average dH@----->**	**1.826**	**46.4**	**Average Ko----->**	**0.710**

TEMPERATURE CALIBRATION

Calibration Standard -------> Omega Model CL23A S/N:T-218768

Reference Set-Point	Temperature Device Reading: Stack		Hot Box		Probe		Imp Out		Aux	
(deg F)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)
32	31	-0.20%	30	-0.41%	32	0.00%	32	0.00%	30	-0.41%
100	99	-0.18%	99	-0.18%	100	0.00%	100	0.00%	98	-0.36%
300	298	-0.26%	299	-0.13%	300	0.00%	299	-0.13%	298	-0.26%
500	498	-0.21%	499	-0.10%	499	-0.10%	499	-0.10%	498	-0.21%
1000	998	-0.14%	998	-0.14%	998	-0.14%	998	-0.14%	997	-0.21%

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: Justin Ching Signature:  Date: July 6, 2025

A. Lanfranco & Associates Inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: LMU-C

Serial #: Wizit 4615

Date: 02-Jul-25

Barometric Pressure: 29.84 (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 GAS METER READINGS ----------

dH (in H2O)	Time (min)	Volume Initial (m^3)	Volume Final (m^3)	Volume Total (cu ft)	Initial Temps. Inlet (deg F)	Initial Temps. Outlet (deg F)	Final Temps. Inlet (deg F)	Final Temps. Outlet (deg F)
0.00	16.00	169.472	169.677	7.264	76.0	76.0	81.0	81.0
0.00	25.00	169.677	170.002	11.467	81.0	81.0	86.0	86.0
0.00	17.00	170.002	170.224	7.836	86.0	86.0	87.0	87.0

-CRITICAL ORIFICE READINGS-

Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	-- Ambient Temperature -- Initial (deg F)	Final (deg F)	Average (deg F)
48	0.3560	20.0	78.0	83.0	80.5
48	0.3560	20.0	83.0	86.0	84.5
48	0.3560	20.0	86.0	88.0	87.0

********** **RESULTS** **********

--- DRY GAS METER --- VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	--------- ORIFICE --------- VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	-- DRY GAS METER -- CALIBRATION FACTOR Y Value (number)	Variation (number)	--------- ORIFICE --------- CALIBRATION FACTOR dH@ Value (in H2O)	Value (mm H2O)	Variation (in H2O)
7.101	201.1	7.311	207.0	7.507	1.030	0.004	0.000	0.00	0.000
11.105	314.5	11.381	322.3	11.773	1.025	-0.001	0.000	0.00	0.000
7.548	213.8	7.722	218.7	8.024	1.023	-0.003	0.000	0.00	0.000

Average Y---------> 1.0258 **Average dH@-----> 0.0000 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 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: Justin Ching Signature: _____ Date: July 2, 2025

Calibration Certificate

Date: 29-Oct-25
Calibrated by: Daryl Sampson
Authorizing Signature: Daryl Sampson

Insrtument Calibrated: Testo 2 (330-2LX)
Serial #: 03282252
Customer: ALA

Ambient Conditions: Temperature: 15 °C Barometric Pressure: 102 kPa Relative Humidity: 78%

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 Evaluation				After Calibration				
Gas	Instrument Reading (vol %)	Calibration Error	Pass/Fail	Notes	Instrument Reading (vol %)	Calibration Error	Pass/Fail	Notes	Certified Value (vol %)
Zero	0.04	0.04	Pass		0.04	0.04	Pass		0
O_2	10.90	0.01	Pass		10.95	0.04	Pass		10.91
Ambient	20.9	0.06	Pass		20.9	0.06	Pass		20.96

Performance Specification: +/- 1% O_2 (absolute diff)

CO	Initial Evaluation				After Calibration				
Gas	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Certified Value (ppm)
Zero	0	0.0%	Pass		0	0.0%	Pass		0
1 Gas	955	0.2%	Pass		953	0.0%	Pass		952.9
2 Gas	504	2.2%	Pass		496	0.5%	Pass		493.3
3 Gas	249	2.1%	Pass		247	1.4%	Pass		243.5

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

NO	Initial Evaluation				After Calibration				
Gas	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Certified Value (ppm)
Zero	1	0.3%	Pass		0.5	0.2%	Pass		0
1 Gas	252	1.0%	Pass		251	0.6%	Pass		249.6
2 Gas	89.6	2.5%	Pass		87.8	0.5%	Pass		87.4
3 Gas	46.2	4.2%	Pass		44.1	0.5%	Pass		44.33

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)	72Y	02-May-25	1-May-30	1200	0	0	0
1 Gas	K2K	22-May-24	22-May-32	1150	249.6	0	952.9
2 Gas	DK8	16-Sep-25	16-Sep-33	900	87.4	0	493.3
3 Gas	435	30-May-25	30-May-28	600	44.33	0	243.5
O_2/CO_2	LD9	Jult 7, 2025	7-Jul-33	1450	0	10.91	0

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

Calibration Certificate

Date: 29-Oct-25
Calibrated by: Daryl Sampson
Authorizing Signature: Daryl Sampson

Insrtument Calibrated: Testo 3 (340)
Serial #: 64057016
Customer: ALA

Ambient Conditions: Temperature: 15 °C Barometric Pressure: 102.1 kPa Relative Humidity: 77%

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 Evaluation				After Calibration				
Gas	Instrument Reading (vol %)	Calibration Error	Pass/Fail	Notes	Instrument Reading (vol %)	Calibration Error	Pass/Fail	Notes	Certified Value (vol %)
Zero	0.1	0.10	Pass		0.0	0.10	Pass		0
O_2	10.90	0.01	Pass		10.89	0.02	Pass		10.91
Ambient	20.86	0.10	Pass		20.9	0.06	Pass		20.96

Performance Specification: +/- 1% O_2 (absolute diff)

CO	Initial Evaluation				After Calibration				
Gas	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Certified Value (ppm)
Zero	1	0.3%	Pass		2	0.0%	Pass		0
1 Gas	957	0.4%	Pass		955	0.2%	Pass		952.9
2 Gas	499	1.2%	Pass		493	0.1%	Pass		493.3
3 Gas	246	1.0%	Pass		244	0.2%	Pass		243.5

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

NO	Initial Evaluation				After Calibration				
Gas	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Certified Value (ppm)
Zero	2	0.3%	Pass		1	0.0%	Pass		0
1 Gas	252	1.0%	Pass		251	0.6%	Pass		249.6
2 Gas	90	3.0%	Pass		88	0.7%	Pass		87.4
3 Gas	47	6.0%	Fail		45	1.5%	Pass		44.33

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)	72Y	02-May-25	1-May-30	1200	0	0	0
1 Gas	K2K	22-May-24	22-May-32	1150	249.6	0	952.9
2 Gas	DK8	16-Sep-25	16-Sep-33	900	87.4	0	493.3
3 Gas	435	30-May-25	30-May-28	600	44.33	0	243.5
O_2/CO_2	LD9	Jult 7, 2025	7-Jul-33	1450	0	10.91	0

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

Kalibrier-Protokoll

Certificate of conformity • Protocole d'étalonnage
Certificato di taratura • Informe de calibración

Be sure. testo

Gerät / Module type / Type de modèle / Prodotto / Modelo: T310 II
Seriennummer / Serial No. / No. de série / No. Serie strumento / n° de serie: 64910282

	Sollwert Reference Référence Valore campione Referencia	Istwert Actual value Valeur effective Valore misurato Valor medido	zulässige Abweichung Permissible deviation Différence admissible Scostamento ammesso Desviación permitida
Temperaturmessung **Temperature measurement** **Measure de température** **Misura della temperatura** **Medición de temperatura**			
Verbrennungslufttemp./ Ambient air temp. Température d'air de combustion Temperatura aria comburente Temperatura ambiente	60.1 °C	60.1 °C	± 1.0 °C
Abgastemperatur / Flue gas temperature Température des fumées Temperatura fumi Temperatura gases	60.1 °C	60.1 °C	± 1.0 °C
Druckmessung **Pressure measurement** **Mesure de pression** **Misura della tiraggio** **Medición de presión**	1.00 hPa	1.00 hPa	± 0.50 hPa

Gasmeßwerte / Gas values / Valeurs de gaz measurées / Parametri di misura dei gas / Gases patrón

Reg. Nr. Reg. No. Reg. No. Num. reg. n° certi	Gas Gas Gaz Gas Gas	Sollwert Reference Référence Valore campione Referencia	Istwert Actual value Valeur effective Valore misurato Valor medido	zulässige Abweichung Permissible deviation Différence admissible Scostamento ammesso Desviación permitida
409D704082	O2	2.5 %	2.5 %	±0.2 %
408D328084	O2	0.0 %	0.0 %	±0.2 %
409D704082	CO	700 ppm	701 ppm	±35 ppm
408D328084	CO	100 ppm	103 ppm	±20 ppm

Datum/Date/Date/Data/Fecha: 13.02.2025 **Prüfer/Inspector/Vérificateur/Verificatore/Verificador:** 7092

A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

TEMPERATURE CALIBRATION FORM

Calibrated by: Christian De La O

Date: 2-Jul-25

Signature: 

TEMPERATURE DEVICE CALIBRATIONS

Reference Device Model CL23A Calibrator			Temperature Settings (degrees F)													
			32		100		200		300		500		800		1700	
Device	**ALA #**	**Serial #**	**Reading**	**Variation**	**Reading**	**Variation**	**Reading**	**Variation**	**Reading**	**Variation**	**Reading**	**Variation**	**Reading**	**Variation**	**Reading**	**Variation**
TPI 341K	7	20314590036		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	8	20313490047	30.8	-0.24%	99.1	-0.16%	198.6	-0.21%	298.1	-0.25%	497.7	-0.24%	796.9	-0.25%	1695	-0.23%
TPI 341K	11	20345510024	31.6	-0.08%	99.7	-0.05%	199.7	-0.05%	299.1	-0.12%	498.5	-0.16%	798.5	-0.12%	1696	-0.19%
TPI 341K	12	20345510031		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	18	20329480036		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	20	20329480013	31	-0.20%	99.5	-0.09%	199.1	-0.14%	298.6	-0.18%	498.6	-0.15%	798.2	-0.14%	1698	-0.09%
TPI 341K	22	20329480041	30.4	-0.33%	98.4	-0.29%	198	-0.30%	298.1	-0.25%	497.4	-0.27%	797.3	-0.21%	1696	-0.19%
TPI 341K	24	20142030017		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	26	20345510036		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	28	20142030009		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	30	20345510023		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	32	20142030028	28.9	-0.63%	97.6	-0.43%	198.4	-0.24%	298.4	-0.21%	498.5	-0.16%	798.4	-0.13%	1697	-0.14%
Reference device is a NIST certified digital thermocouple calibrator																
Variation expressed as a percentage of the absolute temperature must be within 1.5 %																

BAROMETER CALIBRATION FORM						
		Pbar Env Canada		Device (inches of Hg)		Difference
Device	Cal Date	(kPa)	(inches of Hg)	Reading	Elevation Corrected	(Env Can - Elv Corr)
LA	2-Jul-25	101.4	29.95	29.88	29.95	0.00
DS	2-Jul-25	101.4	29.95	29.86	29.93	0.02
CL	2-Jul-25	101.4	29.95	29.88	29.95	0.00
JC	2-Jul-25	101.4	29.95	29.88	29.95	0.00
LF	2-Jul-25	101.4	29.95	29.85	29.92	0.03
SV	2-Jul-25	101.4	29.95	29.85	29.92	0.03
CDO	2-Jul-25	101.4	29.95	29.85	29.92	0.03
JG	2-Jul-25	101.4	29.95	29.85	29.92	0.03
ML	2-Jul-25	101.4	29.95	29.85	29.92	0.03
JD	2-Jul-25	101.4	29.95	29.87	29.94	0.01

Calibrated by: Louis Agassiz Signature:  Date: 02-Jul-25

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

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:	5/15/2025
Accreditation Date:	2/5/2021
Expiry Date:	11/14/2027

President and CEO

For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.

MOUNT ROYAL COLLEGE

Faculty of Continuing Education and Extension

Carter Lanfranco

has successfully completed

Stack Sampling

May 2009

Date

Norma D. MacDonald

Dean
Faculty of Continuing Education and Extension

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

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 Carter Lanfranco, 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.

☐ Real or perceived conflict of interest

Description and nature of conflict(s):

_____

_____

_____

I will maintain my objectivity, conducting my work in accordance with my Code of Ethics and standards of practice.

In addition, I will take the following steps to mitigate the real or perceived conflict(s) I have disclosed, to ensure the public interest remains paramount:

_____

_____

_____

Further, I acknowledge that this disclosure may be interpreted as a threat to my independence and will be considered by the statutory decision maker accordingly.

This conflict of interest disclosure statement is collected under section 26(c) of the *Freedom of Information and Protection of Privacy Act* 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.

Signature:

X _____

Print name: Carter Lanfranco

Witnessed by:

X _____

Print name: Mark Lanfranco

Date: Dec. 16, 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.

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

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 professionals[1], 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 Carter LanFranco

   Title Chief operations officer / owner

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:

   _____

   _____

This declaration of competency is collected under section 26(c) of the *Freedom of Information and Protection of Privacy Act* 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.

Declaration

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.

Signature:

x _____

Print Name: Carter LanFranco

Witnessed by:

x Shawn Harrington

Print Name: Shawn Harrington

Date signed: Dec. 7/2020

[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.*

MOUNT ROYAL UNIVERSITY
Faculty of Continuing Education

MOUNT ROYAL
UNIVERSITY
1910
CALGARY, ALBERTA

Christian Gonzalo De La O

has successfully completed

Stack Sampling

The Faculty of Continuing Education
Mount Royal University

30 hours | May 1, 2024

Dimitra Fotopoulos, Vice Dean
Professional and Continuing Education

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

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 Christian De La O, 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.

☐ Real or perceived conflict of interest

Description and nature of conflict(s):

_____

_____

_____

I will maintain my objectivity, conducting my work in accordance with my Code of Ethics and standards of practice.

In addition, I will take the following steps to mitigate the real or perceived conflict(s) I have disclosed, to ensure the public interest remains paramount:

_____

_____

_____

Further, I acknowledge that this disclosure may be interpreted as a threat to my independence and will be considered by the statutory decision maker accordingly.

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Signature:

X _____

Print name: Christian De La O

Witnessed by:

X _____

Print name: Mark Lanfranco

Date: [redacted] 29 August 2024

[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.*

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

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 professionals[1], 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 Christian De La O

Title Environmental Air Quality Technician

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

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Declaration

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.

Signature: Witnessed by:

X _____ **X** _____

Print Name: Christian De La O Print Name: Daryl Sampson

Date signed: 29 August 2024

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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.*

MOUNT ROYAL COLLEGE

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

Donna Spaulding
Dean
Faculty of Continuing Education and Extension

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

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.

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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.

Ministry of Environment and Climate Change Strategy

☐ Real or perceived conflict of interest

Description and nature of conflict(s):

I will maintain my objectivity, conducting my work in accordance with my Code of Ethics and standards of practice.

In addition, I will take the following steps to mitigate the real or perceived conflict(s) I have disclosed, to ensure the public interest remains paramount:

Further, I acknowledge that this disclosure may be interpreted as a threat to my independence and will be considered by the statutory decision maker accordingly.

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Signature:

X Daryl Sampson

Print name: Daryl Sampson

Witnessed by:

X

Print name: Mark Lanfranco

Date: Dec.18, 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.*

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

Declaration of Competency

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1. Name of Qualified Professional Daryl Sampson

   Title Senior Environmental Technician/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

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Declaration

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.

Signature: Witnessed by:

X Daryl Sampson **X** _____

Print Name: Daryl Sampson Print Name: Louis Agassiz

Date signed: November 23, 2020

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

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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.*

MOUNT ROYAL UNIVERSITY

Faculty of Continuing Education and Extension

Jeremy Shawn Gibbs

has successfully completed

Stack Sampling

35 Hours / 2019

May 22, 2019

Date

Dean
Faculty of Continuing Education and Extension

MOUNT ROYAL
UNIVERSITY
1910

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

Conflict of Interest Disclosure Statement

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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.

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Declaration

I Jeremy Gibbs, 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.

☐ Real or perceived conflict of interest

Description and nature of conflict(s):

_____

_____

_____

I will maintain my objectivity, conducting my work in accordance with my Code of Ethics and standards of practice.

In addition, I will take the following steps to mitigate the real or perceived conflict(s) I have disclosed, to ensure the public interest remains paramount:

_____

_____

_____

Further, I acknowledge that this disclosure may be interpreted as a threat to my independence and will be considered by the statutory decision maker accordingly.

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Signature:

X _____

Print name: Jeremy G. Sss

Witnessed by:

X _____

Print name: Mark Lanfranco

Date: Dec.16, 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.*

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

Declaration of Competency

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1. Name of Qualified Professional Jeremy Gibbs

   Title Environmental technician

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 Consultant Specialize in air and atmospheric sciences

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Declaration

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.

Signature:

X _____

Print Name: Jeremy Gibbs

Witnessed by:

X _____

Print Name: Connor Laan

Date signed: Nov 1, 2020

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

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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.*

MOUNT ROYAL UNIVERSITY
Faculty of Continuing Education

MOUNT ROYAL
UNIVERSITY
1910
CALGARY, ALBERTA

Justin Ching

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

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

Conflict of Interest Disclosure Statement

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Declaration

I Justin Ching, 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.

☐ Real or perceived conflict of interest

Description and nature of conflict(s):

_____

_____

_____

I will maintain my objectivity, conducting my work in accordance with my Code of Ethics and standards of practice.

In addition, I will take the following steps to mitigate the real or perceived conflict(s) I have disclosed, to ensure the public interest remains paramount:

_____

_____

_____

Further, I acknowledge that this disclosure may be interpreted as a threat to my independence and will be considered by the statutory decision maker accordingly.

This conflict of interest disclosure statement is collected under section 26(c) of the *Freedom of Information and Protection of Privacy Act* 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.

Signature:

X Justin Ching

Print name: Justin Ching

Witnessed by:

X _____

Print name: Mark Lanfranco

Date: June 28, 2023

[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.*

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

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 professionals[1], 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 Justin Ching

Title Environmental Technician

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 Technician - specialising in air and atmospheric sciences

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Declaration

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.

Signature: Witnessed by:

X Justin Ching **X** Daryl Sampson

Print Name: Justin Ching Print Name: Daryl Sampson

Date signed: June 28, 2023

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MOUNT ROYAL UNIVERSITY
Faculty of Continuing Education

MOUNT ROYAL
UNIVERSITY
1910
CALGARY, ALBERTA

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

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

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 Liam Forrer, 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.

Ministry of Environment and Climate Change Strategy

☐ Real or perceived conflict of interest

Description and nature of conflict(s):

I will maintain my objectivity, conducting my work in accordance with my Code of Ethics and standards of practice.

In addition, I will take the following steps to mitigate the real or perceived conflict(s) I have disclosed, to ensure the public interest remains paramount:

Further, I acknowledge that this disclosure may be interpreted as a threat to my independence and will be considered by the statutory decision maker accordingly.

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Signature:

X Liam Forrer

Print name: Liam Forrer

Witnessed by:

X

Print name: Mark Lanfranco

Date: July 12, 2023

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BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

Declaration of Competency

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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. Brief description of professional services:

Environmental consulting, specializing in air and atmospheric sciences

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Declaration

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.

Signature:

x Liam Forrer

Print Name: Liam Forrer

Witnessed by:

x Daryl Sampson

Print Name: Daryl Sampson

Date signed: July 12, 2023

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