A.Lanfranco & Associates Inc.
Environmental Consultants

Prepared for

METRO VANCOUVER

Metrotower III
4515 Central Boulevard
Burnaby, BC V5H 0C6

WASTE-TO-ENERGY FACILITY

Appendices of Emissions Testing Report

June 2025 Survey

Second 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) 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.
- Chain of Custody protocols followed for all samples.
- Acceptable blank values for all sample types. All samples blank corrected.

Sample Type	**Blank Value**		
Second Quarter 2025	**Unit 1**	**Unit 2**	**Unit 3**
Filter	-0.6 mg	0.1 mg	-1.2 mg
Front Half Washings	0.5 mg	0.5 mg	0.6 mg
Mercury Front	<0.02 ug	<0.02 ug	<0.02 ug
Mercury Back	<0.27 ug	<0.17 ug	<0.17 ug
Trace Metals Front *	<66.4 ug	<126.8 ug	<109.5 ug
Trace Metals Back*	<47.7 ug	<52.7 ug	<49.6 ug
Ammonia	<6 ug	<6 ug	<6 ug
Fluoride	<70 ug	<70 ug	<70 ug
Chloride	<100 ug	<100 ug	<100ug

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

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

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

Lot ID: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
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

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
Report Type: Final Report

Reference Number	1823114-1	1823114-2	1823114-3
Sample Date	Jun 04, 2025	Jun 05, 2025	Jun 05, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 1 Run 1 (Unit 1 R1 + 4 Bottles) / 21.9 °C	Unit 1 Run 2 (MV Unit 1 Run 2 + 4 Bottles) / 21.9 °C	Unit 1 Run 3 (MV Unit 1 Run 3 + 4 Bottles) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	110	34	20	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<1	<1	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	<0.2	2.0	<0.2	0.2
Cobalt		µg	<0.3	<0.3	<0.3	0.25
Copper		µg	0.9	1	<0.3	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	1	0.9	0.8	0.25
Nickel		µg	4.0	2	2	0.5
Phosphorus		µg	56	37	48	2.5
Selenium		µg	51.4	9.7	15	1.5
Tellurium		µg	<2	<2	<2	2
Thallium		µg	<2	5.5	<2	1.5
Vanadium		µg	1	<1	<1	1
Zinc		µg	9.9	5.2	2	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	10	20	20	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<0.9	<0.9	<0.9	1
Cadmium		µg	<0.2	0.4	<0.2	0.25
Chromium		µg	<0.2	0.40	<0.2	0.2
Cobalt		µg	<0.2	<0.2	<0.2	0.25
Copper		µg	2.3	2.8	4.1	0.25
Lead		µg	<1	2	3.2	1.5
Manganese		µg	0.9	2	1.0	0.25
Nickel		µg	0.6	<0.4	<0.4	0.5
Phosphorus		µg	6	10	7	2.5
Selenium		µg	<1	30.5	36.9	1.5
Tellurium		µg	<2	<2	<2	2
Thallium		µg	6.1	<1	11	1.5
Vanadium		µg	<0.9	<0.9	<0.9	1
Zinc		µg	<0.4	2	1	0.5
Volume	Sample	mL	748	657	734	
Volume	aliquot volume	mL	698	607	684	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
Report Type: Final Report

Reference Number	1823114-1	1823114-2	1823114-3
Sample Date	Jun 04, 2025	Jun 05, 2025	Jun 05, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 1 Run 1 (Unit 1 R1 + 4 Bottles) / 21.9 °C	Unit 1 Run 2 (MV Unit 1 Run 2 + 4 Bottles) / 21.9 °C	Unit 1 Run 3 (MV Unit 1 Run 3 + 4 Bottles) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mercury by CVAA - 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	748	657	734	
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	97	98	106	
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	0.21	0.13	0.20	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	0.067	0.041	0.064	

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
Report Type: Final Report

Reference Number	1823114-4	1823114-5	1823114-6
Sample Date	Jun 12, 2025	Jun 13, 2025	Jun 13, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 2 Run 1 (Unit 2 R1 + 4 Bottles) / 21.9 °C	Unit 2 Run 2 (MV Unit 2 Run 2 + 4 Bottles) / 21.9 °C	Unit 2 Run 3 (MV Unit 2 Run 3 + 4 Bottles) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	48	20	5	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<1	10	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	0.75	<0.2	<0.2	0.2
Cobalt		µg	<0.3	0.3	<0.3	0.25
Copper		µg	<0.3	2.6	2	0.25
Lead		µg	<2	<2	3.5	1.5
Manganese		µg	0.7	0.8	1	0.25
Nickel		µg	3.0	1	4.9	0.5
Phosphorus		µg	33	20	48	2.5
Selenium		µg	19	43.1	8.6	1.5
Tellurium		µg	<2	6.3	15	2
Thallium		µg	<2	17	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	7.1	32.6	33.6	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	25	20	24	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<0.8	<0.9	<0.9	1
Cadmium		µg	<0.2	<0.2	0.6	0.25
Chromium		µg	2.83	1.4	<0.2	0.2
Cobalt		µg	<0.2	0.4	<0.2	0.25
Copper		µg	2.3	5.8	0.3	0.25
Lead		µg	<1	2.8	8.5	1.5
Manganese		µg	2.5	1	2	0.25
Nickel		µg	<0.4	<0.4	3.9	0.5
Phosphorus		µg	29	<2	20	2.5
Selenium		µg	<1	2.8	<1	1.5
Tellurium		µg	<2	<2	8.9	2
Thallium		µg	20	<1	<1	1.5
Vanadium		µg	<0.8	2	<0.9	1
Zinc		µg	2	2	3.9	0.5
Volume	Sample	mL	874	697	677	
Volume	aliquot volume	mL	824	647	627	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
Report Type: Final Report

Reference Number	1823114-4	1823114-5	1823114-6
Sample Date	Jun 12, 2025	Jun 13, 2025	Jun 13, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 2 Run 1 (Unit 2 R1 + 4 Bottles) / 21.9 °C	Unit 2 Run 2 (MV Unit 2 Run 2 + 4 Bottles) / 21.9 °C	Unit 2 Run 3 (MV Unit 2 Run 3 + 4 Bottles) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mercury by CVAA - 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	874	697	677	
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	0.07	<0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	103	97	99	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	µg/sample	<0.008	0.01	<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	0.18	0.14	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	0.059	0.046	

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
Report Type: Final Report

Reference Number	1823114-7	1823114-8	1823114-9
Sample Date	Jun 03, 2025	Jun 04, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 3 Run 1 (MV Unit 3 R1 + 4 Bottles / 21.9 °C	Unit 3 Run 2 (Unit 3 Run 2 + 4 Bottles) / 21.9 °C	Unit 3 Run 3 (MV Unit 3 Run 3 + 4 Bottles) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	<5	29	10	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<1	<1	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	0.28	4.09	7.80	0.2
Cobalt		µg	<0.3	<0.3	<0.3	0.25
Copper		µg	<0.3	2	3.8	0.25
Lead		µg	7.6	18	<2	1.5
Manganese		µg	3.6	7.5	2	0.25
Nickel		µg	<0.5	8.6	9.8	0.5
Phosphorus		µg	27	38	78	2.5
Selenium		µg	39.8	<2	62.2	1.5
Tellurium		µg	<2	12	2	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	47.0	43.8	27.6	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	26	20	28	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	15	<0.9	<0.9	1
Cadmium		µg	<0.2	<0.2	0.2	0.25
Chromium		µg	0.25	1.3	<0.2	0.2
Cobalt		µg	<0.2	0.6	<0.2	0.25
Copper		µg	3.9	4.1	3.1	0.25
Lead		µg	<1	5.8	<1	1.5
Manganese		µg	1	2.6	2	0.25
Nickel		µg	0.8	2.4	<0.4	0.5
Phosphorus		µg	9	29	<2	2.5
Selenium		µg	25.7	<1	16	1.5
Tellurium		µg	<2	7.7	4.3	2
Thallium		µg	7.0	11	<1	1.5
Vanadium		µg	<0.9	<0.9	<0.9	1
Zinc		µg	2	2.4	2	0.5
Volume	Sample	mL	611	661	718	
Volume	aliquot volume	mL	561	611	668	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
Report Type: Final Report

Reference Number	1823114-7	1823114-8	1823114-9
Sample Date	Jun 03, 2025	Jun 04, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 3 Run 1 (MV Unit 3 R1 + 4 Bottles / 21.9 °C	Unit 3 Run 2 (Unit 3 Run 2 + 4 Bottles) / 21.9 °C	Unit 3 Run 3 (MV Unit 3 Run 3 + 4 Bottles) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mercury by CVAA - 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	611	661	718	
Volume	aliquot volume	mL	5.0	5.0	5.0	
Volume	Final	mL	40	40	40	
Mercury	Fraction 2B	µg/sample	<0.2	<0.3	<0.3	
Mercury	As Tested	µg/L	0.34	1.01	<0.05	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	108	96	97	
Volume	aliquot volume	mL	25	25	25	
Volume	Final	mL	40	40	40	
Mercury	Fraction 3A	µg/sample	0.059	0.16	<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	0.50	0.80	0.32	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	0.16	0.25	0.10	

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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: **1823114**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150677
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	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 1B	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Jun 23, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Jun 23, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

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

Lot ID: **1823183**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 25, 2025
Report Number: 3150781
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 1823183. Detection limits are adjusted accordingly.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

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

Lot ID: **1823183**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 25, 2025
Report Number: 3150781
Report Type: Final Report

Reference Number	1823183-1	1823183-2	1823183-3
Sample Date	Jun 05, 2025	Jun 05, 2025	Jun 05, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit #1 HF/HCL Run 1 / 21.9 °C	Unit #1 HF/HCL Run 2 / 21.9 °C	Unit #1 HF/HCL Run 3 / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	378	415	453	
Dilution Factor	chloride		10.00	10.00	10.00	
Chloride	As Tested	mg/L	14.6	62.9	34.0	0.05
Chloride	Water Soluble	µg/sample	5530	26100	15400	
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	<100	<100	<100	

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

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

Lot ID: **1823183**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 25, 2025
Report Number: 3150781
Report Type: Final Report

Reference Number	1823183-4	1823183-5	1823183-6
Sample Date	Jun 13, 2025	Jun 13, 2025	Jun 13, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit #2 HF/HCL Run 1 / 21.9 °C	Unit #2 HF/HCL Run 2 / 21.9 °C	Unit #2 HF/HCL Run 3 / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	373	409	387	
Dilution Factor	chloride		10.00	10.00	10.00	
Chloride	As Tested	mg/L	76.8	94.5	122	0.05
Chloride	Water Soluble	µg/sample	28600	38600	47300	
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	<100	<100	<100	

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

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

Lot ID: **1823183**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 25, 2025
Report Number: 3150781
Report Type: Final Report

Reference Number	1823183-7	1823183-8	1823183-9
Sample Date	Jun 04, 2025	Jun 04, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit #3 HF/HCL Run 1 / 21.9 °C	Unit #3 HF/HCL Run 2 / 21.9 °C	Unit #3 HF/HCL Run 3 / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	358	360	365	
Dilution Factor	chloride		10.00	10.00	10.00	
Chloride	As Tested	mg/L	198	17.9	36.3	0.05
Chloride	Water Soluble	µg/sample	70800	6450	13300	
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	<100	<100	<100	

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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Methodology and Notes

Bill To:	A. Lanfranco & Associates #101, 9488 - 189 Street Surrey, BC, Canada V4N 4W7	Project ID:	Metro Vancouver WTE	Lot ID:	**1823183**
Attn:	Missy	Project Name:	HF/HCL Samples	Control Number:	
Sampled By:		Project Location:		Date Received:	Jun 20, 2025
Company:		LSD:		Date Reported:	Jun 25, 2025
		P.O.:		Report Number:	3150781
		Proj. Acct. code:		Report Type:	Final Report

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Anions by IEC in air (VAN)	EMC	*	Determination of Hydrogen Halide & Halogen Emissions from Stationary Sources (Isokinetic), 26A	Jun 24, 2025	Element Vancouver

** Reference Method Modified*

References

EMC	Emission Measurement Center of EPA

Comments:

- Reduction of analytical volume was necessary for anion analysis due to matrix effects in lot 1823183. Detection limits are adjusted accordingly.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

Project ID: Metro Vancouver WTE
Project Name: NH3 Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823126**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 27, 2025
Report Number: 3150697
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

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

Project ID: Metro Vancouver WTE
Project Name: NH3 Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823126**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 27, 2025
Report Number: 3150697
Report Type: Final Report

Reference Number	1823126-1	1823126-2	1823126-3
Sample Date	Jun 05, 2025	Jun 05, 2025	Jun 05, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 1 Run 1 NH3 / 21.9 °C	Unit 1 Run 2 NH3 / 21.9 °C	Unit 1 Run 3 NH3 / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Ammonium - N	As Tested	µg/L	19600	17800	18200	25
Dilution Factor	As Tested		10.0	10.0	10.0	
Sample Volume	Sample volume	mL	342	382	360	
Ammonium - N		µg/sample	6710	6780	6560	

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

Project ID: Metro Vancouver WTE
Project Name: NH3 Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823126**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 27, 2025
Report Number: 3150697
Report Type: Final Report

Reference Number	1823126-4	1823126-5	1823126-6
Sample Date	Jun 13, 2025	Jun 13, 2025	Jun 13, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 2 Run 1 NH3 / 21.9 °C	Unit 2 Run 2 NH3 / 21.9 °C	Unit 2 Run 3 NH3 / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Ammonium - N	As Tested	µg/L	85900	12200	9640	25
Dilution Factor	As Tested		10.0	10.0	1.00	
Sample Volume	Sample volume	mL	312	368	350	
Ammonium - N		µg/sample	26800	4490	3370	

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

Project ID: Metro Vancouver WTE
Project Name: NH3 Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823126**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 27, 2025
Report Number: 3150697
Report Type: Final Report

Reference Number	1823126-7	1823126-8	1823126-9
Sample Date	Jun 04, 2025	Jun 04, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit 3 Run 1 NH3 / 21.9 °C	Unit 3 Run 2 NH3 / 21.9 °C	Unit 3 Run 3 NH3 / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Ammonium - N	As Tested	µg/L	857	6680	5560	25
Dilution Factor	As Tested		1.00	1.00	1.00	
Sample Volume	Sample volume	mL	380	422	406	
Ammonium - N		µg/sample	326	2820	2260	

Approved by:

Misato Perry, B.Sc Biology
Operations Customer Support

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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Methodology and Notes

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

Project ID: Metro Vancouver WTE
Project Name: NH3 Samples
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823126**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 27, 2025
Report Number: 3150697
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	Jun 26, 2025	Element Edmonton - Roper Road

** Reference Method Modified*

References

APHA Standard Methods for the Examination of Water and Wastewater

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

right solutions.
right partner.

LABORATORY REPORT

June 27, 2025

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

RE: Veolia (MV WTE)

Dear Mark:

Enclosed are the results of the samples submitted to our laboratory on June 18, 2025. For your reference, these analyses have been assigned our service request number P2502218.

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

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

ALS | Environmental

By Sue Anderson at 3:49 pm, Jun 27, 2025

Sue Anderson
Project Manager

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

right solutions.
right partner.

Client: A. Lanfranco and Associates Inc. Service Request No: P2502218
Project: Veolia (MV WTE)

CASE NARRATIVE

The samples were received intact under chain of custody on June 18, 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, Ethane and Ethylene Analysis

The samples were analyzed per modified EPA Method TO-3 for C3 through >C6 hydrocarbons and methane, ethane and ethylene 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.

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

right solutions.
right partner.

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: P2502218
Project ID: Veolia (MV WTE)

Date Received: 6/18/2025
Time Received: 09:07

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
Unit 1 Run 1	P2502218-001	Air	6/5/2025	10:18	SC02063	-4.07	4.98	X	X
Unit 1 Run 2	P2502218-002	Air	6/5/2025	11:32	SC02317	0.74	5.02	X	X
Unit 1 Run 3	P2502218-003	Air	6/5/2025	12:50	SC01063	-4.64	5.03	X	X
Unit 2 Run 1	P2502218-004	Air	6/13/2025	10:20	SC02340	-3.92	5.07	X	X
Unit 2 Run 2	P2502218-005	Air	6/13/2025	11:45	SC00271	-3.62	5.05	X	X
Unit 2 Run 3	P2502218-006	Air	6/13/2025	12:55	SC01765	-3.69	5.00	X	X
Unit 3 Run 1	P2502218-007	Air	6/4/2025	10:25	SC01591	-2.53	4.88	X	X
Unit 3 Run 2	P2502218-008	Air	6/4/2025	11:45	SC02314	-4.82	4.74	X	X
Unit 3 Run 3	P2502218-009	Air	6/4/2025	13:02	SC01848	-4.72	5.05	X	X

ALS Environmental

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

Air - Chain of Custody Record & Analytical Service Request

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. 82218

Company Name & Address (Reporting Information): A. Lanfranco & Associates Inc,

Project Name: Veolia (MV WTE)

Project Number:

ALS Contact:

Project Manager: Mark Lanfranco

P.O. # / Billing Information:

Phone: 604 891 2582

Fax:

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

Sampler (Print & Sign): Louis Agassiz

Analysis Method

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	EPA TO-3		Comments e.g. Actual Preservative or specific instructions
Unit 1 Run 1	1	5 June 25	0918 - 1018	SC02063	OA01313	-28	-11		✓		
Unit 1 Run 2	2	5 June 25	1032 - 1132	SC02317	OA01313	-29	0		✓		
Unit 1 Run 3	3	5 June 25	1150 - 1250	SC01063	OA01313	-30	-11.5		✓		
Unit 2 Run 1	4	13 June 25	0926 - 1026	SC02340	OA01284	-29	-10		✓		
Unit 2 Run 2	5	13 June 25	1045 - 1145	SC00271	OA01284	-29	-9		✓		
Unit 2 Run 3	6	13 June 25	1155 - 1255	SC01765	OA01284	-29	-8		✓		
Unit 3 Run 1	7	4 June 25	0925 - 1025	SC01591	OA00472	-28	-6		✓		
Unit 3 Run 2	8	4 June 25	1045 - 1145	SC02314	OA01313	-29.5	-12		✓		
Unit 3 Run 3	9	4 June 25	1202 - 1302	SC01848	OA01313	-29.5	-12		✓		

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC 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:
	16 June 25	1400			
Relinquished by: (Signature) FED EX	Date:	Time:	Received by: (Signature)	Date: 6-18-25	Time: 0907

Cooler / Blank Temperature ____°C

Signature denotes acceptance of ALS Group USA, Corp. Terms and Conditions - Detailed Terms & Conditions can be reviewed at the link below:
https://www.alsglobal.com/ALSGroupUSACorpTC

ALS Environmental
Sample Acceptance Check Form

Client: A. Lanfranco and Associates Inc. Work order: P2502218

Project: Veolia (MV WTE)

Sample(s) received on: 6/18/25 Date opened: 6/18/25 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
P2502218-001.01	6.0 L Source Can					
P2502218-002.01	6.0 L Source Can					
P2502218-003.01	6.0 L Source Can					
P2502218-004.01	6.0 L Source Can					
P2502218-005.01	6.0 L Source Can					
P2502218-006.01	6.0 L Source Can					
P2502218-007.01	6.0 L Source Can					
P2502218-008.01	6.0 L Source Can					
P2502218-009.01	6.0 L Source Can					

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

Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Unit 1 Run 1** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-001

Test Code: EPA TO-3 Modified Date Collected: 6/5/25
Instrument ID: HP5890 II/GC8/FID Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC02063

Initial Pressure (psig): -4.07 Final Pressure (psig): 4.98

Container Dilution Factor: 1.85

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.9	
C_4 as n-Butane	ND	1.9	
C_5 as n-Pentane	ND	1.9	
C_6 as n-Hexane	ND	11	
C_6+ as n-Hexane	ND	1.9	

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: **Unit 1 Run 2** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-002

Test Code: EPA TO-3 Modified Date Collected: 6/5/25
Instrument ID: HP5890 II/GC8/FID Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC02317

Initial Pressure (psig): 0.74 Final Pressure (psig): 5.02

Container Dilution Factor: 1.28

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	**0.64**	1.3	**J**
C_4 as n-Butane	ND	1.3	
C_5 as n-Pentane	ND	1.3	
C_6 as n-Hexane	ND	7.7	
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.

J = The analyte was positively identified below the laboratory method reporting limit; the associated numerical value is considered estimate

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Unit 1 Run 3** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-003

Test Code:	EPA TO-3 Modified	Date Collected:	6/5/25
Instrument ID:	HP5890 II/GC8/FID	Date Received:	6/18/25
Analyst:	Stephanie Reynoso	Date Analyzed:	6/26/25
Sampling Media:	6.0 L Summa Canister	Volume(s) Analyzed:	1.0 ml(s)
Test Notes:			
Container ID:	SC01063		

Initial Pressure (psig): -4.64 Final Pressure (psig): 5.03

Container Dilution Factor: 1.96

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	2.0	
C_4 as n-Butane	ND	2.0	
C_5 as n-Pentane	ND	2.0	
C_6 as n-Hexane	ND	12	
C_6+ as n-Hexane	ND	2.0	

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

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Unit 2 Run 1** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-004

Test Code: EPA TO-3 Modified Date Collected: 6/13/25
Instrument ID: HP5890 II/GC8/FID Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC02340

Initial Pressure (psig): -3.92 Final Pressure (psig): 5.07

Container Dilution Factor: 1.83

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.8	
C_4 as n-Butane	ND	1.8	
C_5 as n-Pentane	ND	1.8	
C_6 as n-Hexane	ND	11	
C_6+ as n-Hexane	ND	1.8	

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: **Unit 2 Run 2** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-005

Test Code: EPA TO-3 Modified Date Collected: 6/13/25
Instrument ID: HP5890 II/GC8/FID Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC00271

Initial Pressure (psig): -3.62 Final Pressure (psig): 5.05

Container Dilution Factor: 1.78

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	**0.91**	1.8	**J**
C_4 as n-Butane	ND	1.8	
C_5 as n-Pentane	ND	1.8	
C_6 as n-Hexane	ND	11	
C_6+ as n-Hexane	ND	1.8	

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.

J = The analyte was positively identified below the laboratory method reporting limit; the associated numerical value is considered estimate

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Unit 2 Run 3** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-006

Test Code: EPA TO-3 Modified Date Collected: 6/13/25
Instrument ID: HP5890 II/GC8/FID Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC01765

Initial Pressure (psig): -3.69 Final Pressure (psig): 5.00

Container Dilution Factor: 1.79

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	1.8	
C_4 as n-Butane	ND	1.8	
C_5 as n-Pentane	ND	1.8	
C_6 as n-Hexane	ND	11	
C_6+ as n-Hexane	ND	1.8	

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: **Unit 3 Run 1** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-007

Test Code: EPA TO-3 Modified Date Collected: 6/4/25
Instrument ID: HP5890 II/GC8/FID Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC01591

Initial Pressure (psig): -2.53 Final Pressure (psig): 4.88

Container Dilution Factor: 1.61

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	9.7	
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: **Unit 3 Run 2** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-008

Test Code: EPA TO-3 Modified Date Collected: 6/4/25
Instrument ID: HP5890 II/GC8/FID Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:
Container ID: SC02314

Initial Pressure (psig): -4.82 Final Pressure (psig): 4.74

Container Dilution Factor: 1.97

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	2.0	
C_4 as n-Butane	ND	2.0	
C_5 as n-Pentane	ND	2.0	
C_6 as n-Hexane	ND	12	
C_6+ as n-Hexane	ND	2.0	

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

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Unit 3 Run 3** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-009

Test Code:	EPA TO-3 Modified	Date Collected:	6/4/25
Instrument ID:	HP5890 II/GC8/FID	Date Received:	6/18/25
Analyst:	Stephanie Reynoso	Date Analyzed:	6/26/25
Sampling Media:	6.0 L Summa Canister	Volume(s) Analyzed:	1.0 ml(s)
Test Notes:			
Container ID:	SC01848		

Initial Pressure (psig): -4.72 Final Pressure (psig): 5.05

Container Dilution Factor: 1.98

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_3 as Propane	ND	2.0	
C_4 as n-Butane	ND	2.0	
C_5 as n-Pentane	ND	2.0	
C_6 as n-Hexane	ND	12	
C_6+ as n-Hexane	ND	2.0	

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

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P250626-MB

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
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: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P250626-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 6/26/25
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	1,160	1,140	**116**	**114**	92-120	2	6	
n-Butane	1,000	1,160	1,140	**116**	**114**	91-121	2	6	
n-Pentane	1,000	1,130	1,110	**113**	**111**	89-118	2	6	
n-Hexane	1,000	1,190	1,160	**119**	**116**	92-125	3	6	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **A. Lanfranco and Associates Inc.**
Client Sample ID: **Unit 1 Run 1** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-001

Test Code: EPA TO-3 Modified Date Collected: 6/5/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC02063

Initial Pressure (psig): -4.07 Final Pressure (psig): 4.98

Container Dilution Factor: 1.85

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	**2.8**	2.4	**4.3**	3.7	
74-85-1	Ethene	ND	1.3	ND	1.1	
74-84-0	Ethane	ND	1.4	ND	1.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
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: **Unit 1 Run 2** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-002

Test Code: EPA TO-3 Modified Date Collected: 6/5/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC02317

Initial Pressure (psig): 0.74 Final Pressure (psig): 5.02

Container Dilution Factor: 1.28

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	**2.1**	1.7	**3.2**	2.6	
74-85-1	Ethene	ND	0.88	ND	0.77	
74-84-0	Ethane	ND	0.94	ND	0.77	

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: **Unit 1 Run 3** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-003

Test Code: EPA TO-3 Modified Date Collected: 6/5/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01063

Initial Pressure (psig): -4.64 Final Pressure (psig): 5.03

Container Dilution Factor: 1.96

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

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
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: **Unit 2 Run 1** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-004

Test Code: EPA TO-3 Modified Date Collected: 6/13/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC02340

Initial Pressure (psig): -3.92 Final Pressure (psig): 5.07

Container Dilution Factor: 1.83

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	**2.7**	2.4	**4.1**	3.7	
74-85-1	Ethene	ND	1.3	ND	1.1	
74-84-0	Ethane	ND	1.3	ND	1.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
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: **Unit 2 Run 2** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-005

Test Code: EPA TO-3 Modified Date Collected: 6/13/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC00271

Initial Pressure (psig): -3.62 Final Pressure (psig): 5.05

Container Dilution Factor: 1.78

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.3	ND	3.6	
74-85-1	Ethene	ND	1.2	ND	1.1	
74-84-0	Ethane	ND	1.3	ND	1.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
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: **Unit 2 Run 3** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-006

Test Code: EPA TO-3 Modified Date Collected: 6/13/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01765

Initial Pressure (psig): -3.69 Final Pressure (psig): 5.00

Container Dilution Factor: 1.79

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.3	ND	3.6	
74-85-1	Ethene	ND	1.2	ND	1.1	
74-84-0	Ethane	ND	1.3	ND	1.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
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: **Unit 3 Run 1** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-007

Test Code: EPA TO-3 Modified Date Collected: 6/4/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01591

Initial Pressure (psig): -2.53 Final Pressure (psig): 4.88

Container Dilution Factor: 1.61

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	0.97	
74-84-0	Ethane	ND	1.2	ND	0.97	

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: **Unit 3 Run 2** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-008

Test Code: EPA TO-3 Modified Date Collected: 6/4/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC02314

Initial Pressure (psig): -4.82 Final Pressure (psig): 4.74

Container Dilution Factor: 1.97

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.6	ND	3.9	
74-85-1	Ethene	ND	1.4	ND	1.2	
74-84-0	Ethane	ND	1.5	ND	1.2	

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: **Unit 3 Run 3** ALS Project ID: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P2502218-009

Test Code: EPA TO-3 Modified Date Collected: 6/4/25
Instrument ID: HP5890A/GC10/FID/TCD Date Received: 6/18/25
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 ml(s)
Test Notes:
Container ID: SC01848

Initial Pressure (psig): -4.72 Final Pressure (psig): 5.05

Container Dilution Factor: 1.98

CAS #	Compound	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
74-82-8	Methane	ND	2.6	ND	4.0	
74-85-1	Ethene	ND	1.4	ND	1.2	
74-84-0	Ethane	ND	1.5	ND	1.2	

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: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P250624-MB

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890A/GC10/FID/TCD Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
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: P2502218
Client Project ID: **Veolia (MV WTE)** ALS Sample ID: P250624-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP5890A/GC10/FID/TCD Date Received: NA
Analyst: Stephanie Reynoso Date Analyzed: 6/24/25
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	7.52	7.61	**97**	**98**	70-130	1	15	
74-85-1	Ethene	7.74	7.31	7.42	**94**	**96**	70-130	2	15	
74-84-0	Ethane	7.68	7.47	7.56	**97**	**98**	70-130	1	15	

Appendix C - Particulate Analysis

Client:	Metro Vancouver	**Sample Date:**	June 4-5th, 2025, June 13th, 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	0.4453	0.4447	-0.0006	
Unit 1 Run 1	0.4444	0.4448	0.0004	0.0010
Unit 1 Run 2	0.4484	0.4484	0.0000	0.0006
Unit 1 Run 3	0.4450	0.4451	0.0001	0.0007
Unit 2 Blank	0.4453	0.4454	0.0001	
Unit 2 Run 1	0.4456	0.4445	-0.0011	ND
Unit 2 Run 2	0.4504	0.4501	-0.0003	ND
Unit 2 Run 3	0.4499	0.4497	-0.0002	ND
Unit 3 Blank	0.4471	0.4459	-0.0012	
Unit 3 Run 1	0.4483	0.4486	0.0003	0.0015
Unit 3 Run 2	0.4465	0.4487	0.0022	0.0034
Unit 3 Run 3	0.4479	0.4487	0.0008	0.0020

Front Half Washings:

Test #	Initial (grams)	Final (grams)	Net Diference (grams)	Blank Adjusted (grams)
Unit 1 Blank	87.4054	87.4059	0.0005	
Unit 1 Run 1	103.1169	103.1208	0.0039	0.0034
Unit 1 Run 2	122.2428	122.2442	0.0014	0.0009
Unit 1 Run 3	108.7372	108.7381	0.0009	0.0004
Unit 2 Blank	96.0550	96.0555	0.0005	
Unit 2 Run 1	118.5691	118.5706	0.0015	0.0010
Unit 2 Run 2	127.1421	127.1436	0.0015	0.0010
Unit 2 Run 3	86.4747	86.4752	0.0005	0.0000
Unit 3 Blank	84.6654	84.6660	0.0006	
Unit 3 Run 1	122.9338	122.9350	0.0012	0.0006
Unit 3 Run 2	117.3467	117.3488	0.0021	0.0015
Unit 3 Run 3	118.6531	118.6548	0.0017	0.0011

Task	Unit	Personnel	Date	Quality Control	Y/N
Filter Recovery:	Unit 1	J. Ching	5-Jun-25	Adequate PW volume:	Y
	Unit 2	J. Ching	13-Jun-25	No sample leakage:	Y
	Unit 3	J. Ching	5-Jun-25	Filter not compromised:	Y
PW Initial Analysis:	Unit 1	J. Ching	16-Jun-25		
	Unit 2	J. Ching	16-Jun-25		
	Unit 3	J. Ching	16-Jun-25		
PW, Filter Final Analysis:	Unit 1	S. Verby	18-Jun-25		
	Unit 2	S. Verby	18-Jun-25		
	Unit 3	S. Verby	18-Jun-25		
Data Entered to Computer:	All	C. Lanfranco	18-Jul-25		

Comments:

No problems encountered in sample analysis.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

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

Lot ID: **1823109**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150670
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

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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

Lot ID: **1823109**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150670
Report Type: Final Report

Reference Number	1823109-1	1823109-2	1823109-3
Sample Date	Jun 05, 2025	Jun 13, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Field Blank Unit 1 ('MV Unit 1 Blank' + 4 Bottles) / 21.9 °C	Field Blank Unit 2 ('MV Unit 2 Blank' + 4 Bottles) / 21.9 °C	Field Blank Unit 3 ('MV Unit 3 Blank' + 4 Bottles) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	<5	10	10	5
Antimony		µg	<2	10	<2	2.5
Arsenic		µg	7.1	<1	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	<0.2	<0.2	<0.2	0.2
Cobalt		µg	<0.3	<0.3	<0.3	0.25
Copper		µg	<0.3	<0.3	2	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	0.3	0.5	0.5	0.25
Nickel		µg	1	1	2.7	0.5
Phosphorus		µg	57	62	58	2.5
Selenium		µg	<2	42.3	35.4	1.5
Tellurium		µg	<2	<2	<2	2
Thallium		µg	<2	<2	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	1	1	0.9	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	7	<5	<5	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<0.9	13	<0.9	1
Cadmium		µg	<0.2	<0.2	<0.2	0.25
Chromium		µg	<0.2	<0.2	<0.2	0.2
Cobalt		µg	<0.2	<0.2	<0.2	0.25
Copper		µg	3.1	2	1	0.25
Lead		µg	<1	<1	2.6	1.5
Manganese		µg	0.4	0.3	<0.2	0.25
Nickel		µg	2.5	<0.5	<0.5	0.5
Phosphorus		µg	6	7	24	2.5
Selenium		µg	<1	24	<1	1.5
Tellurium		µg	<2	<2	<2	2
Thallium		µg	28.2	6.4	21	1.5
Vanadium		µg	<0.9	<0.9	<0.9	1
Zinc		µg	0.5	<0.5	1.0	0.5
Volume	Sample	mL	398	320	341	
Volume	aliquot volume	mL	348	270	291	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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

Lot ID: **1823109**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150670
Report Type: Final Report

Reference Number	1823109-1	1823109-2	1823109-3
Sample Date	Jun 05, 2025	Jun 13, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Field Blank Unit 1 ('MV Unit 1 Blank' + 4 Bottles) / 21.9 °C	Field Blank Unit 2 ('MV Unit 2 Blank' + 4 Bottles) / 21.9 °C	Field Blank Unit 3 ('MV Unit 3 Blank' + 4 Bottles) / 21.9 °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	398	320	341	
Volume	aliquot volume	mL	5.0	5.0	5.0	
Volume	Final	mL	40	40	40	
Mercury	Fraction 2B	µg/sample	<0.2	<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	96	96	
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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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

Lot ID: **1823109**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150670
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	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Jun 23, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Jun 23, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

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

Lot ID: **1823105**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150664
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

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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

Lot ID: **1823105**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150664
Report Type: Final Report

Reference Number	1823105-1	1823105-2	1823105-3
Sample Date	Jun 03, 2025	Jun 03, 2025	Jun 03, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Reagent Blank Unit 1 / 21.9 °C	Reagent Blank Unit 2 / 21.9 °C	Reagent Blank Unit 3 / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	<5	6	7	5
Antimony		µg	<2	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	<0.2	0.2
Cobalt		µg	<0.3	<0.3	0.9	0.25
Copper		µg	<0.3	<0.3	0.4	0.25
Lead		µg	<2	8.0	<2	1.5
Manganese		µg	0.4	1	1	0.25
Nickel		µg	<0.5	1	3.5	0.5
Phosphorus		µg	<2	30	20	2.5
Selenium		µg	<2	<2	15	1.5
Tellurium		µg	<2	<2	<2	2
Thallium		µg	<2	<2	33.0	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	0.5	1.0	0.9	0.5
Back Half Metals Fraction 2A						
Aluminum		µg	20	20	<5	5
Antimony		µg	<3	<3	<3	2.5
Arsenic		µg	<1	<1	<1	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	<0.2	<0.2	0.46	0.2
Cobalt		µg	1	<0.3	<0.3	0.25
Copper		µg	<0.3	4.6	4.4	0.25
Lead		µg	<2	<2	<2	1.5
Manganese		µg	0.5	0.7	<0.3	0.25
Nickel		µg	<0.5	<0.5	<0.5	0.5
Phosphorus		µg	7	<3	31	2.5
Selenium		µg	<2	34.0	<2	1.5
Tellurium		µg	3.4	<2	<2	2
Thallium		µg	<2	3.7	<2	1.5
Vanadium		µg	<1	<1	<1	1
Zinc		µg	<0.5	1	2	0.5
Volume	Sample	mL	200	197	201	
Volume	aliquot volume	mL	150	147	151	
Mercury by CVAA						
Mercury	As Tested	µg/L	<0.05	<0.05	<0.05	0.05
Dilution Factor	As Tested		1	1	1	

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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

Lot ID: **1823105**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150664
Report Type: Final Report

Reference Number	1823105-1	1823105-2	1823105-3
Sample Date	Jun 03, 2025	Jun 03, 2025	Jun 03, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Reagent Blank Unit 1 / 21.9 °C	Reagent Blank Unit 2 / 21.9 °C	Reagent Blank Unit 3 / 21.9 °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	0.05	0.06	0.07	0.05
Dilution Factor	As Tested		1	1	1	
Volume	Sample	mL	200	197	201	
Volume	aliquot volume	mL	5.0	5.0	5.0	
Volume	Final	mL	40	40	40	
Mercury	Fraction 2B	µg/sample	0.09	0.09	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	94	98	97	
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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Methodology and Notes

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

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

Lot ID: **1823105**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150664
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	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 2B	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3A	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3B	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Mercury in Air (VAN) - 3C	EMC	*	Metals Emissions from Stationary Sources, 29	Jul 10, 2025	Element Vancouver
Metals in Stack Samples - Back half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Jun 23, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Jun 23, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

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

Lot ID: **1823102**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150662
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

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

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: Filter Reagent Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823102**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150662
Report Type: Final Report

Reference Number	1823102-1	1823102-2	1823102-3
Sample Date	Jun 03, 2025	Jun 03, 2025	Jun 03, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Reagent Blank Unit 1 Container 1 (filter) / 21.9 °C	Reagent Blank Unit 2 Container 1 (filter) / 21.9 °C	Reagent Blank Unit 3 Container 1 (filter) / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Front Half Metals Fraction 1A						
Aluminum		µg	5	<5	9	5
Antimony		µg	<2	<2	<2	2.5
Arsenic		µg	<1	<1	11	1
Cadmium		µg	<0.3	<0.3	<0.3	0.25
Chromium		µg	<0.2	<0.2	<0.2	0.2
Cobalt		µg	<0.3	0.7	<0.3	0.25
Copper		µg	<0.3	<0.3	0.8	0.25
Lead		µg	15	14	<2	1.5
Manganese		µg	0.8	<0.3	0.4	0.25
Nickel		µg	<0.5	6.0	<0.5	0.5
Phosphorus		µg	27	41	32	2.5
Selenium		µg	<2	<2	<2	1.5
Tellurium		µg	<2	<2	<2	2
Thallium		µg	2	21	<2	1.5
Vanadium		µg	1	<1	<1	1
Zinc		µg	2.6	<0.5	1	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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Methodology and Notes

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

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

Lot ID: **1823102**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jul 14, 2025
Report Number: 3150662
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	Jul 10, 2025	Element Vancouver
Metals in Stack Samples - Front half (VAN)	EMC	*	Metals Emissions from Stationary Sources, 29	Jun 23, 2025	Element Vancouver

** Reference Method Modified*

References

EMC Emission Measurement Center of EPA

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

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

Lot ID: **1823138**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 25, 2025
Report Number: 3150722
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 1823138. Detection limits are adjusted accordingly.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

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

Lot ID: **1823138**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 25, 2025
Report Number: 3150722
Report Type: Final Report

Reference Number	1823138-1	1823138-2	1823138-3
Sample Date	Jun 05, 2025	Jun 13, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit #1 HF/HCL Blank / 21.9 °C	Unit #2 HF/HCL Blank / 21.9 °C	Unit #3 HF/HCL Blank / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Volume	Sample	mL	229	229	234	
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	<100	<100	<100	
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	<70	<70	<70	

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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Methodology and Notes

Bill To:	A. Lanfranco & Associates #101, 9488 - 189 Street Surrey, BC, Canada V4N 4W7	Project ID:	Metro Vancouver WTE	Lot ID:	**1823138**
Attn:	Missy	Project Name:	HF/HCL Blanks	Control Number:	
Sampled By:		Project Location:		Date Received:	Jun 20, 2025
Company:		LSD:		Date Reported:	Jun 25, 2025
		P.O.:		Report Number:	3150722
		Proj. Acct. code:		Report Type:	Final Report

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Anions by IEC in air (VAN)	EMC	*	Determination of Hydrogen Halide & Halogen Emissions from Stationary Sources (Isokinetic), 26A	Jun 24, 2025	Element Vancouver

** Reference Method Modified*

References

EMC	Emission Measurement Center of EPA

Comments:

- Reduction of analytical volume was necessary for anion analysis due to matrix effects in lot 1823138. Detection limits are adjusted accordingly.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Report Transmission Cover Page

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

Project ID: Metro Vancouver WTE
Project Name: NH3 Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823131**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 27, 2025
Report Number: 3150705
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

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Analytical Report

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

Project ID: Metro Vancouver WTE
Project Name: NH3 Blanks
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1823131**
Control Number:
Date Received: Jun 20, 2025
Date Reported: Jun 27, 2025
Report Number: 3150705
Report Type: Final Report

Reference Number	1823131-1	1823131-2	1823131-3
Sample Date	Jun 05, 2025	Jun 13, 2025	Jun 04, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Unit #1 NH3 Blk / 21.9 °C	Unit #2 NH3 Blk / 21.9 °C	Unit #3 NH3 Blk / 21.9 °C
Matrix	Stack Samples	Stack Samples	Stack Samples

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Air Quality						
Ammonium - N	As Tested	µg/L	<25	<25	26	25
Dilution Factor	As Tested		1.00	1.00	1.00	
Sample Volume	Sample volume	mL	230	230	232	
Ammonium - N		µg/sample	<5.8	<5.8	6.0	

Approved by:

Misato Perry, B.Sc Biology
Operations Customer Support

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.

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

T: +1 (604) 514-3322
E: info.vancouver@element.com
W: www.element.com

Methodology and Notes

Bill To:	A. Lanfranco & Associates #101, 9488 - 189 Street Surrey, BC, Canada V4N 4W7	Project ID:	Metro Vancouver WTE	Lot ID:	**1823131**
Attn:	Missy	Project Name:	NH3 Blanks	Control Number:	
Sampled By:		Project Location:		Date Received:	Jun 20, 2025
Company:		LSD:		Date Reported:	Jun 27, 2025
		P.O.:		Report Number:	3150705
		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	Jun 26, 2025	Element Edmonton - Roper Road

** Reference Method Modified*

References

APHA Standard Methods for the Examination of Water and Wastewater

Your Project #: MVWTE
Site#: C554766
Your C.O.C. #: na

Attention: Shanaz Akbar

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

Report Date: 2025/07/03
Report #: R8568698
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C571875
Received: 2025/06/18, 09:23

Sample Matrix: Air
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Nitrous Oxide	3	N/A	2025/06/18	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#: C554766
Your C.O.C. #: na

Attention: Shanaz Akbar

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

Report Date: 2025/07/03
Report #: R8568698
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C571875
Received: 2025/06/18, 09:23

Encryption Key

Julian Tong
Project Manager Assistant
03 Jul 2025 07:54:29

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		ASBC57	ASBC57	ASBC58	ASBC59		
Sampling Date		2025/06/13	2025/06/13	2025/06/13	2025/06/13		
COC Number		na	na	na	na		
	UNITS	DNG558-UNIT 2 BAG 1	DNG558-UNIT 2 BAG 1 Lab-Dup	DNG559-UNIT 2 BAG 2	DNG560-UNIT 2 BAG 3	RDL	QC Batch
Gas							
Nitrous Oxide	ppmv	2.0	1.9	5.5	5.3	0.1	9957580

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: ASBC57
Sample ID: DNG558-UNIT 2 BAG 1
Matrix: Air

Collected: 2025/06/13
Shipped:
Received: 2025/06/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9957580	N/A	2025/06/18	Vasan Thiagarajah

Bureau Veritas ID: ASBC57 Dup
Sample ID: DNG558-UNIT 2 BAG 1
Matrix: Air

Collected: 2025/06/13
Shipped:
Received: 2025/06/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9957580	N/A	2025/06/18	Vasan Thiagarajah

Bureau Veritas ID: ASBC58
Sample ID: DNG559-UNIT 2 BAG 2
Matrix: Air

Collected: 2025/06/13
Shipped:
Received: 2025/06/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9957580	N/A	2025/06/18	Vasan Thiagarajah

Bureau Veritas ID: ASBC59
Sample ID: DNG560-UNIT 2 BAG 3
Matrix: Air

Collected: 2025/06/13
Shipped:
Received: 2025/06/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9957580	N/A	2025/06/18	Vasan Thiagarajah

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 ASBC57 [DNG558-UNIT 2 BAG 1] : The sample was analysed 4 days after the date of sampling. The recommended holding time is 2 days.

Sample ASBC58 [DNG559-UNIT 2 BAG 2] : The sample was analysed 4 days after the date of sampling. The recommended holding time is 2 days.

Sample ASBC59 [DNG560-UNIT 2 BAG 3] : The sample was analysed 4 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

			Method Blank		RPD	
QC Batch	Parameter	Date	Value	UNITS	Value (%)	QC Limits
9957580	Nitrous Oxide	2025/06/18	<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

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

BUREAU VERITAS INTERLAB CHAIN OF CUSTODY RECORD

COC # C554766-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 #:	C554766
Client Invoice To:	A. LANFRANCO & ASSOCIATES INC. (1301)
Client Report To:	A. LANFRANCO & ASSOCIATES INC. (1301) Incl. on Report? Yes / No

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: N2O Gas CSA 22396.1-09 Subcontract	ADDITIONAL SAMPLE INFORMATION
1	DNG558-UNIT 2 BAG 1	AIR	2025/06/13	09:20		1	X	(P: 01)
2	DNG559-UNIT 2 BAG 2	AIR	2025/06/13	10:45		1	X	(P: 01)
3	DNG560-UNIT 2 BAG 3	AIR	2025/06/13	11:55		1	X	(P: 01)
4								
5								
6								
7								
8								
9								
10								

Job Barcode Label

18-Jun-25 09:23
Augustyna Dobosz De M
C571875
J_L AIR-001

SITE LOCATION: BURNABY, BC

SITE #:

PROJECT #: MVWTE

PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA

SPECIAL INSTRUCTIONS
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.

REQUIRED EDDs
National Excel (N001)

TURNAROUND TIME
☐ Rush Required
2025/07/03
Date Required
Please inform us if rush charges will be incurred

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

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

COOLER ID:	YES	NO	Temp: (°C)
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)
ANTHONY TORRINO	2025/06/17	15:00	1.	2025/06/18	09:23
2.			2.		

Your Project #: MVWTE
Site#: C551948
Site Location: BURNABY, BC
Your C.O.C. #: C551948-ONTV-01-01

Attention: Shanaz Akbar

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

Report Date: 2025/06/20
Report #: R8561946
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C567451
Received: 2025/06/10, 08:45

Sample Matrix: Tedlar Bag
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Nitrous Oxide	5	N/A	2025/06/10	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.

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

Your Project #: MVWTE
Site#: C551948
Site Location: BURNABY, BC
Your C.O.C. #: C551948-ONTV-01-01

Attention: Shanaz Akbar

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

Report Date: 2025/06/20
Report #: R8561946
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C567451
Received: 2025/06/10, 08:45

Encryption Key

Julian Tong
Project Manager Assistant
20 Jun 2025 17:10:19

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 (TEDLAR BAG)

Bureau Veritas ID		ARTE20	ARTE21	ARTE23		
Sampling Date		2025/06/04 09:25	2025/06/04 10:45	2025/06/06 09:18		
COC Number		C551948-ONTV-01-01	C551948-ONTV-01-01	C551948-ONTV-01-01		
	UNITS	DMO144-UNIT 3 BAG 1	DMO145-UNIT 3 BAG 2	DMO147-UNIT 1 BAG 1	RDL	QC Batch
Gas						
Nitrous Oxide	ppmv	3.2	4.8	2.6	0.1	9954120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		ARTE24	ARTE25	ARTE25		
Sampling Date		2025/06/06 10:32	2025/06/06 11:50	2025/06/06 11:50		
COC Number		C551948-ONTV-01-01	C551948-ONTV-01-01	C551948-ONTV-01-01		
	UNITS	DMO148-UNIT 1 BAG 2	DMO149-UNIT 1 BAG 3	DMO149-UNIT 1 BAG 3 Lab-Dup	RDL	QC Batch
Gas						
Nitrous Oxide	ppmv	3.7	5.2	5.2	0.1	9954120

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

Bureau Veritas Job #: C567451
Report Date: 2025/06/20

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

TEST SUMMARY

Bureau Veritas ID: ARTE20
Sample ID: DMO144-UNIT 3 BAG 1
Matrix: Tedlar Bag

Collected: 2025/06/04
Shipped:
Received: 2025/06/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9954120	N/A	2025/06/10	Vasan Thiagarajah

Bureau Veritas ID: ARTE21
Sample ID: DMO145-UNIT 3 BAG 2
Matrix: Tedlar Bag

Collected: 2025/06/04
Shipped:
Received: 2025/06/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9954120	N/A	2025/06/10	Vasan Thiagarajah

Bureau Veritas ID: ARTE23
Sample ID: DMO147-UNIT 1 BAG 1
Matrix: Tedlar Bag

Collected: 2025/06/06
Shipped:
Received: 2025/06/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9954120	N/A	2025/06/10	Vasan Thiagarajah

Bureau Veritas ID: ARTE24
Sample ID: DMO148-UNIT 1 BAG 2
Matrix: Tedlar Bag

Collected: 2025/06/06
Shipped:
Received: 2025/06/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9954120	N/A	2025/06/10	Vasan Thiagarajah

Bureau Veritas ID: ARTE25
Sample ID: DMO149-UNIT 1 BAG 3
Matrix: Tedlar Bag

Collected: 2025/06/06
Shipped:
Received: 2025/06/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9954120	N/A	2025/06/10	Vasan Thiagarajah

Bureau Veritas ID: ARTE25 Dup
Sample ID: DMO149-UNIT 1 BAG 3
Matrix: Tedlar Bag

Collected: 2025/06/06
Shipped:
Received: 2025/06/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrous Oxide	GC/ECD	9954120	N/A	2025/06/10	Vasan Thiagarajah

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 ARTE20 [DMO144-UNIT 3 BAG 1] : The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days.

Sample ARTE21 [DMO145-UNIT 3 BAG 2] : The sample was analysed 5 days after the date of sampling. The recommended holding time is 2 days.

Sample ARTE23 [DMO147-UNIT 1 BAG 1] : The sample was analysed 3 days after the date of sampling. The recommended holding time is 2 days.

Sample ARTE24 [DMO148-UNIT 1 BAG 2] : The sample was analysed 3 days after the date of sampling. The recommended holding time is 2 days.

Sample ARTE25 [DMO149-UNIT 1 BAG 3] : The sample was analysed 3 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

Bureau Veritas Job #: C567451
Report Date: 2025/06/20

QUALITY ASSURANCE REPORT

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

			Method Blank		RPD	
QC Batch	Parameter	Date	Value	UNITS	Value (%)	QC Limits
9954120	Nitrous Oxide	2025/06/10	<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

Bureau Veritas Job #: C567451
Report Date: 2025/06/20

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

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

APPENDIX - D

COMPUTER GENERATED RESULTS

Client:	Metro Vancouver	**Date:**	4-Jun-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	1 - Particulate / Metals
Source:	Unit 1	**Run Time:**	10:31 - 12:34

Concentrations:

Particulate	1.47	mg/dscm	0.00064	gr/dscf
	0.83	mg/Acm	0.00036	gr/Acf
	1.51	mg/dscm (@ 11% O2)	0.00066	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.116	Kg/hr	0.256	lb/hr

Flue Gas Characteristics:

Flow	1317	dscm/min	46496	dscf/min
	21.94	dscm/sec	775	dscf/sec
	2323	Acm/min	82041	Acf/min
Velocity	15.201	m/sec	49.87	f/sec
Temperature	154.6	oC	310.3	oF
Moisture	14.1	%		
Gas Analysis	11.2	% O2		
	8.8	% CO2		
	29.856	Mol. Wt (g/gmole) Dry		
	28.181	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.9959	dscm	105.800	dscf
Sample Time	120.0	minutes		
Isokineticity	99.7	%		

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

Client:	Metro Vancouver	**Date:**	4-Jun-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	1 - Particulate / Metals
Source:	Unit 1	**Run Time:**	08:30 - 10:34

Control Unit (Y)	0.9630
Nozzle Diameter (in.)	0.3092
Pitot Factor	0.8505
Baro. Press. (in. Hg)	30.10
Static Press. (in. H20)	-17.50
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)	0.00100
Washings (grams)	0.00340
Total (grams)	**0.00440**

Gas Analysis (Vol. %):	CO2	O2
Traverse 1	8.83	11.23
Traverse 2	8.75	11.25
	8.79	**11.24**

Condensate Collection:	
Impinger 1	243.0
Impinger 2	98.0
Impinger 3	0.0
Impinger 4	10.0
Impinger 5	4.0
Impinger 6	2.0
Gel	13.0
Gain (grams)	**370.0**

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	563.552								
1	5.0	567.610	0.38	2.10	74	74	3	308	1.5	100.8
2	10.0	571.980	0.44	2.43	76	76	3	310	4.7	100.7
3	15.0	576.870	0.55	3.04	76	76	3	310	8.4	101.0
4	20.0	581.750	0.55	3.04	77	77	3	312	12.5	100.7
5	25.0	586.780	0.58	3.20	78	78	3	312	17.7	100.9
6	30.0	591.970	0.62	3.42	78	78	3	313	25.2	100.9
7	35.0	596.760	0.53	2.93	78	78	3	312	45.6	100.5
8	40.0	601.640	0.55	3.04	78	78	3	312	53.2	100.5
9	45.0	606.120	0.46	2.54	80	80	3	308	58.3	100.2
10	50.0	610.490	0.44	2.43	81	81	3	308	62.5	99.7
11	55.0	614.760	0.42	2.32	81	81	3	308	66.1	99.7
12	60.0	618.930	0.40	2.21	82	82	3	309	69.4	99.6
Traverse 2	0.0	618.930								
1	5.0	623.150	0.41	2.26	82	82	3	310	1.5	99.6
2	10.0	627.560	0.45	2.48	82	82	3	312	4.7	99.6
3	15.0	632.310	0.52	2.87	83	83	3	312	8.4	99.7
4	20.0	637.320	0.58	3.20	84	84	3	310	12.5	99.3
5	25.0	642.330	0.58	3.20	85	85	3	311	17.7	99.2
6	30.0	647.430	0.60	3.31	86	86	3	312	25.2	99.2
7	35.0	652.410	0.57	3.15	86	86	3	312	45.6	99.3
8	40.0	657.070	0.50	2.76	87	87	3	312	53.2	99.0
9	45.0	661.720	0.50	2.76	88	88	4	313	58.3	98.6
10	50.0	666.460	0.52	2.87	88	88	4	313	62.5	98.6
11	55.0	670.790	0.43	2.37	88	88	4	305	66.1	98.4
12	60.0	674.900	0.39	2.15	89	89	4	302	69.4	97.7
Average:			0.499	2.753	82.0	82.0	3.2	310.3		99.7

Client:	Metro Vancouver	**Date:**	5-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 1	**Run Time:**	08:33 - 10:34

Concentrations:

Particulate	0.49	mg/dscm	0.00021	gr/dscf
	0.28	mg/Acm	0.00012	gr/Acf
	0.49	mg/dscm (@ 11% O2)	0.00022	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.040	Kg/hr	0.088	lb/hr

Flue Gas Characteristics:

Flow	1348	dscm/min	47615	dscf/min
	22.47	dscm/sec	794	dscf/sec
	2328	Acm/min	82217	Acf/min
Velocity	15.234	m/sec	49.98	f/sec
Temperature	153.6	oC	308.5	oF
Moisture	12.0	%		
Gas Analysis	11.1	% O2		
	8.3	% CO2		
	29.767	Mol. Wt (g/gmole) Dry		
	28.355	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	3.0547	dscm	107.877	dscf
Sample Time	120.0	minutes		
Isokineticity	101.2	%		

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

Client:	Metro Vancouver	**Date:**	5-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 1	**Run Time:**	08:33 - 10:34

Control Unit (Y)	0.9630	**Collection:**			**Gas Analysis (Vol. %):**		**Condensate Collection:**	
Nozzle Diameter (in.)	0.3063	Filter (grams)	0.00060		CO2	O2	Impinger 1	178.0
Pitot Factor	0.8367	Washings (grams)	0.00090	Traverse 1	8.00	11.25	Impinger 2	88.0
Baro. Press. (in. Hg)	30.06			Traverse 2	8.55	10.90	Impinger 3	13.0
Static Press. (in. H20)	-19.00	**Total (grams)**	**0.00150**				Impinger 4	8.0
Stack Height (ft)	30						Impinger 5	7.0
Stack Diameter (in.)	70.90						Impinger 6	3.0
Stack Area (sq.ft.)	27.417						Gel	15.5
Minutes Per Reading	5.0				**8.28**	**11.08**	**Gain (grams)**	**312.5**
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	677.394								
1	5.0	682.360	0.59	3.08	71	71	8	307	1.5	101.3
2	10.0	687.490	0.63	3.29	71	71	8	307	4.7	101.3
3	15.0	692.740	0.66	3.45	71	71	8	307	8.4	101.3
4	20.0	698.070	0.68	2.55	71	71	8	307	12.5	101.1
5	25.0	703.250	0.64	3.34	72	72	10	309	17.7	101.4
6	30.0	708.350	0.62	3.24	73	73	10	309	25.2	101.2
7	35.0	713.370	0.60	3.14	73	73	9	309	45.6	101.3
8	40.0	718.310	0.58	3.04	73	73	9	308	53.2	101.3
9	45.0	723.220	0.57	3.00	74	74	9	306	58.3	101.2
10	50.0	727.600	0.45	2.37	75	75	7	305	62.5	101.2
11	55.0	731.780	0.41	2.16	75	75	7	305	66.1	101.1
12	60.0	735.590	0.34	1.80	75	75	7	303	69.4	101.0
Traverse 2	0.0	735.590								
1	5.0	740.370	0.54	2.83	75	75	9	309	1.5	101.2
2	10.0	745.250	0.56	2.94	76	76	9	309	4.7	101.3
3	15.0	749.900	0.51	2.67	76	76	9	311	8.4	101.2
4	20.0	754.420	0.48	2.52	77	77	9	311	12.5	101.2
5	25.0	758.940	0.48	2.52	77	77	9	312	17.7	101.2
6	30.0	763.410	0.47	2.47	77	77	9	312	25.2	101.2
7	35.0	768.070	0.51	2.68	78	78	9	313	45.6	101.2
8	40.0	772.690	0.50	2.63	78	78	9	310	53.2	101.1
9	45.0	777.270	0.49	2.59	78	78	7	309	58.3	101.2
10	50.0	781.620	0.44	2.33	79	79	7	309	62.5	101.1
11	55.0	785.720	0.39	2.06	79	79	7	308	66.1	101.1
12	60.0	789.660	0.36	1.91	79	79	7	308	69.4	101.1
Average:			0.521	2.692	75.1	75.1	8.3	308.5		101.2

Client:	Metro Vancouver	**Date:**	5-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 1	**Run Time:**	10:47 - 12:48

Concentrations:

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

Emission Rates:

Particulate	0.029	Kg/hr	0.063	lb/hr

Flue Gas Characteristics:

Flow	1310	dscm/min	46263	dscf/min
	21.83	dscm/sec	771	dscf/sec
	2323	Acm/min	82033	Acf/min
Velocity	15.200	m/sec	49.87	f/sec
Temperature	155.6	oC	312.1	oF
Moisture	13.9	%		
Gas Analysis	11.1	% O2		
	8.4	% CO2		
	29.792	Mol. Wt (g/gmole) Dry		
	28.153	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	3.0212	dscm	106.694	dscf
Sample Time	120.0	minutes		
Isokineticity	103.0	%		

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

Client:	Metro Vancouver	**Date:**	5-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 1	**Run Time:**	10:47 - 12:48

Control Unit (Y)	0.9630	**Collection:**			**Gas Analysis (Vol. %):**		**Condensate Collection:**	
Nozzle Diameter (in.)	0.3063	Filter (grams)	0.00070		CO2	O2	Impinger 1	209.0
Pitot Factor	0.8376	Washings (grams)	0.00040	Traverse 1	8.20	11.40	Impinger 2	117.0
Baro. Press. (in. Hg)	30.06			Traverse 2	8.67	10.73	Impinger 3	6.0
Static Press. (in. H20)	-19.00	**Total (grams)**	**0.00110**				Impinger 4	12.0
Stack Height (ft)	30						Impinger 5	4.0
Stack Diameter (in.)	70.90						Impinger 6	1.0
Stack Area (sq.ft.)	27.417						Gel	17.0
Minutes Per Reading	5.0				**8.43**	**11.07**	**Gain (grams)**	**366.0**
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	790.240								
1	5.0	794.970	0.53	2.77	75	75	8	311	1.5	102.9
2	10.0	799.780	0.55	2.87	75	75	8	314	4.7	103.0
3	15.0	804.450	0.52	2.71	75	75	8	315	8.4	102.9
4	20.0	808.960	0.48	2.51	76	76	8	313	12.5	103.0
5	25.0	813.420	0.47	2.46	76	76	7	312	17.7	102.9
6	30.0	817.830	0.46	2.41	76	76	7	313	25.2	102.9
7	35.0	822.440	0.50	2.62	77	77	7	313	45.6	103.0
8	40.0	827.100	0.51	2.68	77	77	7	311	53.2	103.0
9	45.0	831.670	0.49	2.57	78	78	7	314	58.3	103.0
10	50.0	835.990	0.44	2.30	78	78	6.5	316	62.5	102.8
11	55.0	840.070	0.39	2.04	79	79	6.5	316	66.1	102.9
12	60.0	843.950	0.35	1.85	79	79	6.5	310	69.4	102.9
Traverse 2	0.0	843.950								
1	5.0	848.860	0.55	2.93	85	85	9	312	1.5	103.1
2	10.0	853.810	0.56	2.98	85	85	9	312	4.7	103.0
3	15.0	858.920	0.60	3.18	83	83	9	312	8.4	103.2
4	20.0	864.110	0.62	3.29	83	83	9	312	12.5	103.1
5	25.0	869.250	0.61	3.23	82	82	9	311	17.7	103.0
6	30.0	874.260	0.58	3.08	82	82	9	311	25.2	103.0
7	35.0	879.190	0.56	2.97	82	82	9	310	45.6	103.0
8	40.0	884.190	0.58	3.07	81	81	9	312	53.2	103.0
9	45.0	889.080	0.55	2.92	83	83	8	312	58.3	103.0
10	50.0	893.600	0.47	2.50	83	83	8	311	62.5	102.9
11	55.0	898.040	0.45	2.40	84	84	8	308	66.1	102.8
12	60.0	902.280	0.41	2.19	85	85	7	309	69.4	102.7
Average:			0.510	2.689	80.0	80.0	7.9	312.1		103.0

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

Sample Type: HF

Parameter		Test 1	Test 2	Test 3
Test Date		5-Jun-25	5-Jun-25	5-Jun-25
Test Time		09:18 - 10:18	10:32 - 11:32	11:50 - 12:50
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.94	29.94	29.94
DGM Factor	(Y)	1.0229	1.0229	1.0229
Initial Reading	(m^3)	165.815	166.228	166.647
Final Reading	(m^3)	166.222	166.643	167.064
Temp. Outlet	(Avg. oF)	66.7	70.5	73.0
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.42	0.42	0.42
HF	(mg)	0.053	0.053	0.053
Oxygen	(Vol. %)	11.2	11.1	11.1
HF	**(mg/Sm^3)**	**0.126**	**0.125**	**0.125**
HF	**(mg/Sm^3 @ 11% O2)**	**0.129**	**0.126**	**0.125**
Moisture	**(Vol. %)**	12.0	12.0	13.9

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

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

Sample Type: HCl

Parameter		Test 1	Test 2	Test 3
Test Date		5-Jun-25	5-Jun-25	5-Jun-25
Test Time		09:18 - 10:18	10:32 - 11:32	11:50 - 12:50
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.94	29.94	29.94
DGM Factor	(Y)	1.0229	1.0229	1.0229
Initial Reading	(m^3)	165.815	166.228	166.647
Final Reading	(m^3)	166.222	166.643	167.064
Temp. Outlet	(Avg. oF)	66.7	70.5	73.0
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.42	0.42	0.42
HCl	(mg)	5.685	26.831	15.831
Oxygen	(Vol. %)	11.2	11.1	11.1
HCl	**(mg/Sm^3)**	**13.6**	**63.5**	**37.4**
HCl	**(mg/Sm^3 @ 11% O2)**	**13.9**	**64.0**	**37.7**
Moisture	**(Vol. %)**	12.0	12.0	13.9

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

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

Sample Type: NH_3

Parameter		Test 1	Test 2	Test 3
Test Date		5-Jun-25	5-Jun-25	5-Jun-25
Test Time		09:18 - 10:18	10:32 - 11:32	11:50 - 12:50
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.94	29.94	29.94
DGM Factor	(Y)	0.9880	0.9880	0.9880
Initial Reading	(m^3)	670.718	671.182	671.642
Final Reading	(m^3)	671.175	671.637	672.095
Temp. Outlet	(Avg. oF)	66.5	70.0	72.0
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.45	0.45	0.45
NH_3	(mg)	8.2	8.2	8.0
Oxygen	(Vol. %)	11.2	11.1	11.1
NH_3	**(mg/Sm^3)**	**18.0**	**18.3**	**17.9**
NH_3	**(mg/Sm^3 @ 11% O2)**	**18.5**	**18.5**	**18.0**
Moisture	**(Vol. %)**	12.0	12.0	13.9

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

Client:	Metro Vancouver	**Date:**	12-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 2	**Run Time:**	10:53 - 12:56

Concentrations:

Particulate	0.6	mg/dscm	0.0003	gr/dscf
	0.3	mg/Acm	0.0002	gr/Acf
	0.6	mg/dscm (@ 11% O2)	0.0003	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.040	Kg/hr	0.089	lb/hr

Flue Gas Characteristics:

Flow	1092	dscm/min	38574	dscf/min
	18.20	dscm/sec	643	dscf/sec
	1926	Acm/min	68013	Acf/min
Velocity	12.602	m/sec	41.34	f/sec
Temperature	152.1	oC	305.8	oF
Moisture	13.6	%		
Gas Analysis	10.6	% O2		
	10.7	% CO2		
	30.139	Mol. Wt (g/gmole) Dry		
	28.485	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	1.7077	dscm	60.306	dscf
Sample Time	120.0	minutes		
Isokineticity	104.8	%		

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

Client:	Metro Vancouver	**Date:**	12-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 2	**Run Time:**	10:53 - 12:56

Control Unit (Y)	0.9805
Nozzle Diameter (in.)	0.2500
Pitot Factor	0.8376
Baro. Press. (in. Hg)	29.97
Static Press. (in. H20)	-20.00
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)	0.00100
Total (grams)	**0.00105**

Gas Analysis (Vol. %):		
	CO2	O2
Traverse 1	10.53	10.85
Traverse 2	10.90	10.40
	10.72	**10.63**

Condensate Collection:	
Impinger 1	129.0
Impinger 2	42.0
Impinger 3	6.0
Impinger 4	2.0
Impinger 5	2.0
Impinger 6	1.0
Gel	20.2
Gain (grams)	**202.2**

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	100.202								
1	5.0	102.554	0.30	0.72	69	69	4	310	1.5	104.9
2	10.0	104.942	0.31	0.74	69	69	4	309	4.7	104.7
3	15.0	107.290	0.30	0.72	69	69	4	309	8.4	104.6
4	20.0	109.487	0.26	0.62	70	70	3	310	12.5	105.0
5	25.0	111.487	0.26	0.62	70	70	3	310	17.7	95.6
6	30.0	113.955	0.28	0.67	69	69	3	310	25.2	113.9
7	35.0	117.000	0.50	1.20	70	70	3	306	45.6	104.8
8	40.0	120.155	0.54	1.29	70	70	5	308	53.2	104.6
9	45.0	123.463	0.59	1.42	71	71	5	308	58.3	104.8
10	50.0	126.821	0.60	1.46	71	71	5	300	62.5	105.0
11	55.0	130.030	0.54	1.33	72	72	5	290	66.1	104.8
12	60.0	133.100	0.49	1.20	72	72	5	291	69.4	105.3
Traverse 2	0.0	133.100								
1	5.0	135.924	0.43	1.03	72	72	5	310	1.5	104.6
2	10.0	138.820	0.45	1.08	73	73	5	312	4.7	104.9
3	15.0	141.685	0.44	1.05	73	73	5	312	8.4	104.9
4	20.0	144.484	0.42	1.01	73	73	5	312	12.5	104.9
5	25.0	147.042	0.36	0.86	73	73	4	311	17.7	103.4
6	30.0	149.555	0.33	0.79	73	73	4	311	25.2	106.1
7	35.0	151.803	0.27	0.68	73	73	4	310	45.6	104.8
8	40.0	153.972	0.25	0.61	74	74	4	305	53.2	104.6
9	45.0	156.114	0.24	0.58	74	74	4	301	58.3	105.1
10	50.0	158.161	0.22	0.54	74	74	4	300	62.5	104.8
11	55.0	160.110	0.20	0.49	74	74	4	298	66.1	104.5
12	60.0	161.908	0.17	0.42	74	74	3	295	69.4	104.4
Average:			0.365	0.880	71.8	71.8	4.2	305.8		104.8

Client:	Metro Vancouver	**Date:**	13-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 2	**Run Time:**	09:06 - 11:08

Concentrations:

Particulate	0.44	mg/dscm	0.00019	gr/dscf
	0.25	mg/Acm	0.00011	gr/Acf
	0.38	mg/dscm (@ 11% O2)	0.00017	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.026	Kg/hr	0.058	lb/hr

Flue Gas Characteristics:

Flow	995	dscm/min	35140	dscf/min
	16.58	dscm/sec	586	dscf/sec
	1755	Acm/min	61987	Acf/min
Velocity	11.485	m/sec	37.68	f/sec
Temperature	154.3	oC	309.7	oF
Moisture	14.6	%		
Gas Analysis	9.4	% O2		
	9.9	% CO2		
	29.951	Mol. Wt (g/gmole) Dry		
	28.208	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.3662	dscm	83.562	dscf
Sample Time	120.0	minutes		
Isokineticity	107.5	%		

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

Client:	Metro Vancouver	**Date:**	13-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 2	**Run Time:**	09:06 - 11:08

Control Unit (Y)	0.9805	**Collection:**			**Gas Analysis (Vol. %):**		**Condensate Collection:**	
Nozzle Diameter (in.)	0.3092	Filter (grams)	0.00005		CO2	O2	Impinger 1	173.0
Pitot Factor	0.8376	Washings (grams)	0.00100	Traverse 1	10.00	9.16	Impinger 2	94.0
Baro. Press. (in. Hg)	29.98			Traverse 2	9.70	9.57	Impinger 3	13.0
Static Press. (in. H20)	-14.0	**Total (grams)**	**0.00105**				Impinger 4	5.0
Stack Height (ft)	30						Impinger 5	1.0
Stack Diameter (in.)	70.90						Impinger 6	1.0
Stack Area (sq.ft.)	27.417						Gel	16.1
Minutes Per Reading	5.0				**9.85**	**9.37**	**Gain (grams)**	**303.1**
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	168.825								
1	5.0	172.720	0.36	2.00	67	67	3	312	1.5	104.3
2	10.0	176.720	0.36	2.11	67	67	3	313	4.7	107.3
3	15.0	180.830	0.40	2.22	68	68	3	313	8.4	104.4
4	20.0	184.940	0.40	2.22	68	68	3	313	12.5	104.4
5	25.0	192.000	0.39	2.17	69	69	3	313	17.7	181.2
6	30.0	195.860	0.35	1.95	70	70	3	313	25.2	104.3
7	35.0	199.250	0.27	1.54	71	71	3	313	45.6	104.0
8	40.0	202.520	0.25	1.40	71	71	3	312	53.2	104.2
9	45.0	205.730	0.24	1.34	72	72	3	312	58.3	104.2
10	50.0	208.800	0.22	1.23	72	72	3	313	62.5	104.1
11	55.0	211.730	0.20	1.12	73	73	3	312	66.1	103.9
12	60.0	214.590	0.19	1.07	73	73	3	312	69.4	104.0
Traverse 2	0.0	214.590								
1	5.0	217.680	0.22	1.24	74	74	3	310	1.5	104.2
2	10.0	220.910	0.24	1.36	75	75	3	309	4.7	104.0
3	15.0	224.070	0.23	1.30	75	75	3	309	8.4	103.9
4	20.0	227.170	0.22	1.25	76	76	3	308	12.5	104.0
5	25.0	230.270	0.22	1.25	76	76	3	307	17.7	103.9
6	30.0	233.450	0.23	1.31	76	76	3	306	25.2	104.2
7	35.0	237.260	0.33	1.88	76	76	3	305	45.6	104.3
8	40.0	241.510	0.41	2.34	77	77	3	305	53.2	104.3
9	45.0	245.660	0.39	2.23	78	78	3	305	58.3	104.2
10	50.0	249.710	0.37	2.12	78	78	3	305	62.5	104.4
11	55.0	253.640	0.35	2.00	78	78	3	306	66.1	104.2
12	60.0	257.460	0.33	1.88	78	78	3	306	69.4	104.3
Average:			0.299	1.689	73.3	73.3	3.0	309.7		107.5

Client:	Metro Vancouver	**Date:**	13-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 2	**Run Time:**	11:18 - 13:20

Concentrations:

Particulate	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	0.003	lb/hr

Flue Gas Characteristics:

Flow	1010	dscm/min	35683	dscf/min
	16.84	dscm/sec	595	dscf/sec
	1782	Acm/min	62935	Acf/min
Velocity	11.661	m/sec	38.26	f/sec
Temperature	153.0	oC	307.4	oF
Moisture	14.8	%		
Gas Analysis	9.3	% O2		
	10.1	% CO2		
	29.985	Mol. Wt (g/gmole) Dry		
	28.209	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.4100	dscm	85.110	dscf
Sample Time	120.0	minutes		
Isokineticity	104.5	%		

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

Client:	Metro Vancouver	**Date:**	13-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 2	**Run Time:**	11:18 - 13:20

Control Unit (Y)	0.9805	**Collection:**			**Gas Analysis (Vol. %):**			**Condensate Collection:**	
Nozzle Diameter (in.)	0.3092	Filter (grams)	0.00005		CO2	O2		Impinger 1	219.0
Pitot Factor	0.8376	Washings (grams)	0.00000	Traverse 1	10.33	8.93		Impinger 2	55.0
Baro. Press. (in. Hg)	29.98			Traverse 2	9.83	9.70		Impinger 3	12.0
Static Press. (in. H20)	-14.00	**Total (grams)**	**0.0001**					Impinger 4	10.0
Stack Height (ft)	30							Impinger 5	3.0
Stack Diameter (in.)	70.90							Impinger 6	1.0
Stack Area (sq.ft.)	27.417							Gel	14.7
Minutes Per Reading	5.0				**10.08**	**9.32**		**Gain (grams)**	**314.7**
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	258.082								
1	5.0	261.280	0.23	1.32	79	79	4	305	1.5	104.4
2	10.0	264.550	0.24	1.38	80	80	4	306	4.7	104.4
3	15.0	267.750	0.23	1.32	79	79	4	305	8.4	104.5
4	20.0	270.880	0.22	1.26	80	80	4	305	12.5	104.3
5	25.0	274.080	0.23	1.32	80	80	5	305	17.7	104.3
6	30.0	277.350	0.24	1.38	80	80	5	305	25.2	104.4
7	35.0	281.240	0.34	1.95	81	81	5	305	45.6	104.3
8	40.0	285.630	0.43	2.47	81	81	6	305	53.2	104.8
9	45.0	289.960	0.42	2.41	81	81	6	306	58.3	104.6
10	50.0	294.190	0.40	2.30	81	81	6	305	62.5	104.6
11	55.0	298.310	0.38	2.18	81	81	7	305	66.1	104.5
12	60.0	302.380	0.37	2.13	81	81	7	305	69.4	104.6
Traverse 2	0.0	302.380								
1	5.0	306.350	0.35	2.02	82	82	7	304	1.5	104.6
2	10.0	310.420	0.37	2.13	82	82	7	306	4.7	104.5
3	15.0	314.700	0.41	2.35	82	82	7	308	8.4	104.6
4	20.0	318.760	0.37	2.12	82	82	7	310	12.5	104.5
5	25.0	323.000	0.40	2.29	83	83	7	311	17.7	104.9
6	30.0	327.180	0.39	2.23	83	83	7	311	25.2	104.7
7	35.0	330.660	0.27	1.55	83	83	6	310	45.6	104.5
8	40.0	334.010	0.25	1.43	84	84	6	311	53.2	104.4
9	45.0	337.290	0.24	1.38	84	84	6	311	58.3	104.3
10	50.0	340.500	0.23	1.32	83	83	5	311	62.5	104.5
11	55.0	343.570	0.21	1.20	84	84	5	311	66.1	104.3
12	60.0	346.570	0.20	1.15	84	84	5	311	69.4	104.5
Average:			0.309	1.775	81.7	81.7	3.0	307.4		104.5

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

Sample Type: HF

Parameter		Test 1	Test 2	Test 3
Test Date		13-Jun-25	13-Jun-25	13-Jun-25
Test Time		09:36 - 10:36	10:45 - 11:45	11:55 - 12:55
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.98	29.98	29.98
DGM Factor	(Y)	0.9880	0.9880	0.9880
Initial Reading	(m^3)	672.099	672.676	673.271
Final Reading	(m^3)	672.673	673.267	673.848
Temp. Outlet	(Avg. oF)	62.7	65.3	67.3
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.57415	0.58837	0.57264
HF	(mg)	0.053	0.053	0.053
Oxygen	(Vol. %)	10.6	9.4	9.3
HF	**(mg/Sm^3)**	**0.092**	**0.089**	**0.092**
HF	**(mg/Sm^3 @ 11% O2)**	**0.088**	**0.077**	**0.079**
Moisture (isokinetic)	**(Vol. %)**	13.6	14.6	14.8

*Wet Basis Calculated on moisture from isokinetic tests
Tstd. (oF) 68 Pstd. (in. Hg) 29.92

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

Sample Type: HCl

Parameter		Test 1	Test 2	Test 3
Test Date		13-Jun-25	13-Jun-25	13-Jun-25
Test Time		09:36 - 10:36	10:45 - 11:45	11:55 - 12:55
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.98	29.98	29.98
DGM Factor	(Y)	0.9880	0.9880	0.9880
Initial Reading	(m^3)	672.099	672.676	673.271
Final Reading	(m^3)	672.673	673.267	673.848
Temp. Outlet	(Avg. oF)	62.7	65.3	67.3
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.57415	0.58837	0.57264
HCl	(mg)	29.401	39.681	48.624
Oxygen	(Vol. %)	10.6	9.4	9.3
HCl	**(mg/Sm^3)**	**51.2**	**67.4**	**84.9**
HCl	**(mg/Sm^3 @ 11% O2)**	**49.3**	**57.9**	**72.6**
Moisture (isokinetic)	**(Vol. %)**	13.6	14.6	14.8

*Wet Basis Calculated on moisture from isokinetic tests
Tstd. (oF) 68 Pstd. (in. Hg) 29.92

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

Sample Type: NH_3

Parameter		Test 1	Test 2	Test 3
Test Date		13-Jun-25	13-Jun-25	13-Jun-25
Test Time		09:36 - 10:36	10:45 - 11:45	11:55 - 12:55
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	29.98	29.98	29.98
DGM Factor	(Y)	1.0229	1.0229	1.0229
Initial Reading	(m^3)	167.068	167.447	167.818
Final Reading	(m^3)	167.444	167.814	168.172
Temp. Outlet	(Avg. oF)	66.0	70.7	70.7
Orifice Press.	(ΔH in.H2O)	0.50	0.50	0.50
Gas Volume	(Sm^3)	0.38753	0.37432	0.36166
NH_3	(mg)	32.59	5.46	4.10
Oxygen	(Vol. %)	10.6	9.4	9.3
NH_3	**(mg/Sm^3)**	**84.1**	**14.6**	**11.3**
NH_3	**(mg/Sm^3 @ 11% O2)**	**81.0**	**12.5**	**9.68**
Moisture (isokinetic)	**(Vol. %)**	13.6	14.6	14.8

*Wet Basis Calculated on moisture from isokinetic tests
Tstd. (oF) 68 Pstd. (in. Hg) 29.92

Client:	Metro Vancouver	**Date:**	3-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:40 - 13:42

Concentrations:

Particulate	0.86	mg/dscm	0.00038	gr/dscf
	0.49	mg/Acm	0.00021	gr/Acf
	0.83	mg/dscm (@ 11% O2)	0.00036	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.055	Kg/hr	0.120	lb/hr

Flue Gas Characteristics:

Flow	1053	dscm/min	37192	dscf/min
	17.55	dscm/sec	620	dscf/sec
	1867	Acm/min	65920	Acf/min
Velocity	12.214	m/sec	40.07	f/sec
Temperature	156.7	oC	314.0	oF
Moisture	14.0	%		
Gas Analysis	10.6	% O2		
	9.6	% CO2		
	29.957	Mol. Wt (g/gmole) Dry		
	28.282	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.4290	dscm	85.782	dscf
Sample Time	120.0	minutes		
Isokineticity	103.0	%		

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

Client:	Metro Vancouver	**Date:**	3-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	1 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:40 - 13:42

Control Unit (Y)	1.0010
Nozzle Diameter (in.)	0.3063
Pitot Factor	0.8376
Baro. Press. (in. Hg)	30.18
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)	0.00150
Washings (grams)	0.00060
Total (grams)	**0.00210**

Gas Analysis (Vol. %):	CO2	O2
Traverse 1	9.55	10.60
Traverse 2	9.60	10.65
	9.58	**10.63**

Condensate Collection:	
Impinger 1	125.0
Impinger 2	103.0
Impinger 3	30.0
Impinger 4	16.0
Impinger 5	6.0
Impinger 6	5.0
Gel	12.0
Gain (grams)	**297.0**

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	664.100								
1	5.0	667.460	0.29	1.76	75	75	4	307	1.5	102.8
2	10.0	670.750	0.28	1.68	75	75	5	314	4.7	102.9
3	15.0	673.970	0.27	1.62	74	74	5	314	8.4	102.7
4	20.0	677.260	0.28	1.68	75	75	5	314	12.5	102.9
5	25.0	680.430	0.26	1.56	75	75	4	315	17.7	102.9
6	30.0	683.540	0.25	1.50	75	75	5	315	25.2	103.0
7	35.0	687.520	0.41	2.46	75	75	5	315	45.6	103.1
8	40.0	691.750	0.46	2.77	77	77	5	314	53.2	103.1
9	45.0	696.210	0.51	3.07	77	77	6	314	58.3	103.3
10	50.0	700.730	0.52	3.16	78	78	6	309	62.5	103.2
11	55.0	704.940	0.45	2.73	78	78	6	309	66.1	103.2
12	60.0	709.060	0.43	2.62	78	78	6	308	69.4	103.2
Traverse 2	0.0	709.060								
1	5.0	713.130	0.42	2.55	80	80	6	312	1.5	103.0
2	10.0	717.290	0.44	2.66	80	80	6	316	4.7	103.2
3	15.0	721.460	0.44	2.66	81	81	6	316	8.4	103.3
4	20.0	725.580	0.43	2.60	82	82	6	317	12.5	103.1
5	25.0	729.650	0.42	2.54	82	82	6	317	17.7	103.0
6	30.0	733.870	0.45	2.73	82	82	6	316	25.2	103.2
7	35.0	737.590	0.35	2.12	82	82	6	317	45.6	103.0
8	40.0	740.860	0.27	1.64	82	82	6	317	53.2	103.0
9	45.0	743.940	0.24	1.46	82	82	6	316	58.3	102.8
10	50.0	746.300	0.14	0.85	83	83	6	316	62.5	102.8
11	55.0	748.490	0.12	0.73	83	83	5	314	66.1	102.8
12	60.0	750.380	0.09	0.55	83	83	5	314	69.4	102.4
Average:			0.343	2.071	78.9	78.9	5.5	314.0		103.0

Client:	Metro Vancouver	**Date:**	4-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 3	**Run Time:**	08:45 - 10:47

Concentrations:

Particulate	1.91	mg/dscm	0.00083	gr/dscf
	1.08	mg/Acm	0.00047	gr/Acf
	1.61	mg/dscm (@ 11% O2)	0.00070	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.128	Kg/hr	0.281	lb/hr

Flue Gas Characteristics:

Flow	1114	dscm/min	39329	dscf/min
	18.56	dscm/sec	655	dscf/sec
	1969	Acm/min	69523	Acf/min
Velocity	12.882	m/sec	42.26	f/sec
Temperature	156.7	oC	314.0	oF
Moisture	13.8	%		
Gas Analysis	9.2	% O2		
	10.6	% CO2		
	30.056	Mol. Wt (g/gmole) Dry		
	28.394	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.5677	dscm	90.680	dscf
Sample Time	120.0	minutes		
Isokineticity	103.0	%		

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

Client:	Metro Vancouver	**Date:**	4-Jun-25
Jobsite:	WTE (Burnaby, B.C)	**Run:**	2 - Particulate / Metals
Source:	Unit 3	**Run Time:**	08:45 - 10:47

Control Unit (Y)	1.0010	**Collection:**			**Gas Analysis (Vol. %):**			**Condensate Collection:**	
Nozzle Diameter (in.)	0.3063	Filter (grams)	0.00340		CO2	O2		Impinger 1	110.0
Pitot Factor	0.8376	Washings (grams)	0.00150	Traverse 1	10.58	9.15		Impinger 2	116.0
Baro. Press. (in. Hg)	30.18			Traverse 2	10.53	9.20		Impinger 3	40.0
Static Press. (in. H20)	-19.00	**Total (grams)**	**0.00490**					Impinger 4	11.0
Stack Height (ft)	30							Impinger 5	10.0
Stack Diameter (in.)	70.90							Impinger 6	8.0
Stack Area (sq.ft.)	27.417							Gel	13.0
Minutes Per Reading	5.0				**10.56**	**9.18**		**Gain (grams)**	**308.0**
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	751.894								
1	5.0	756.040	0.45	2.69	72	72	3	313	1.5	103.0
2	10.0	760.410	0.50	2.99	72	72	3	313	4.7	103.0
3	15.0	764.870	0.52	3.10	73	73	3	316	8.4	103.2
4	20.0	769.370	0.53	3.16	72	72	5	316	12.5	103.3
5	25.0	773.880	0.53	3.16	74	74	5	317	17.7	103.2
6	30.0	778.080	0.46	2.75	74	74	5	317	25.2	103.1
7	35.0	781.650	0.33	1.98	76	76	5	316	45.6	102.8
8	40.0	784.720	0.24	1.46	76	76	5	306	53.2	102.8
9	45.0	787.640	0.22	1.32	76	76	5	313	58.3	102.6
10	50.0	790.500	0.21	1.27	77	77	5	313	62.5	102.7
11	55.0	792.920	0.15	0.90	77	77	4	314	66.1	102.8
12	60.0	795.090	0.12	0.73	78	78	4	313	69.4	102.7
Traverse 2	0.0	795.090								
1	5.0	798.580	0.31	1.88	79	79	4	312	1.5	102.8
2	10.0	802.010	0.30	1.81	79	79	4	315	4.7	102.9
3	15.0	805.610	0.33	1.99	79	79	4	315	8.4	103.0
4	20.0	809.160	0.32	1.94	80	80	4	314	12.5	102.9
5	25.0	812.820	0.34	2.06	80	80	4	314	17.7	102.9
6	30.0	816.430	0.33	2.00	80	80	4	313	25.2	103.0
7	35.0	820.920	0.51	3.10	81	81	6	314	45.6	103.2
8	40.0	825.370	0.50	3.03	81	81	6	314	53.2	103.3
9	45.0	829.910	0.52	3.16	82	82	6	315	58.3	103.2
10	50.0	834.490	0.53	3.22	82	82	6	315	62.5	103.1
11	55.0	838.810	0.47	2.86	82	82	6	314	66.1	103.2
12	60.0	842.840	0.41	2.49	82	82	6	314	69.4	102.9
Average:			0.380	2.294	77.7	77.7	4.7	314.0		103.0

Client:	Metro Vancouver	**Date:**	4-Jun-25
Jobsite:	WTE(Burnaby,B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:38 - 13:40

Concentrations:

Particulate	1.21	mg/dscm	0.00053	gr/dscf
	0.68	mg/Acm	0.00030	gr/Acf
	1.09	mg/dscm (@ 11% O2)	0.00048	gr/dscf (@ 11% O2)

Emission Rates:

Particulate	0.079	Kg/hr	0.175	lb/hr

Flue Gas Characteristics:

Flow	1087	dscm/min	38389	dscf/min
	18.12	dscm/sec	640	dscf/sec
	1952	Acm/min	68926	Acf/min
Velocity	12.771	m/sec	41.90	f/sec
Temperature	153.2	oC	307.8	oF
Moisture	15.8	%		
Gas Analysis	9.9	% O2		
	9.8	% CO2		
	29.970	Mol. Wt (g/gmole) Dry		
	28.079	Mol. Wt (g/gmole) Wet		

Sample Parameters:

Sample Volume	2.5532	dscm	90.167	dscf
Sample Time	120.0	minutes		
Isokineticity	104.8	%		

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

Client:	Metro Vancouver	**Date:**	4-Jun-25
Jobsite:	WTE(Burnaby,B.C)	**Run:**	3 - Particulate / Metals
Source:	Unit 3	**Run Time:**	11:38 - 13:40

Control Unit (Y)	1.0010
Nozzle Diameter (in.)	0.3063
Pitot Factor	0.8376
Baro. Press. (in. Hg)	30.18
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)	0.00200
Washings (grams)	0.00110
Total (grams)	**0.00310**

Gas Analysis (Vol. %):

	CO2	O2
Traverse 1	9.91	10.10
Traverse 2	9.77	9.68
	9.84	**9.89**

Condensate Collection:

Impinger 1	150.0
Impinger 2	119.0
Impinger 3	44.0
Impinger 4	19.0
Impinger 5	9.0
Impinger 6	5.0
Gel	13.5
Gain (grams)	**359.5**

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	846.056								
1	5.0	849.760	0.35	2.11	80	80	6	316	1.5	104.7
2	10.0	853.470	0.35	2.11	80	80	6	317	4.7	104.9
3	15.0	857.120	0.34	2.05	80	80	6	316	8.4	104.7
4	20.0	860.770	0.34	2.05	80	80	6	317	12.5	104.7
5	25.0	864.320	0.32	1.93	80	80	8	316	17.7	104.9
6	30.0	868.000	0.34	2.07	81	81	8	310	25.2	104.9
7	35.0	872.520	0.51	3.13	81	81	8	305	45.6	105.2
8	40.0	877.150	0.53	3.28	82	82	8	300	53.2	105.2
9	45.0	882.000	0.58	3.60	82	82	9	298	58.3	105.2
10	50.0	886.630	0.53	3.29	82	82	9	299	62.5	105.1
11	55.0	890.950	0.46	2.86	83	83	9	299	66.1	104.9
12	60.0	895.080	0.42	2.61	83	83	10	298	69.4	104.9
Traverse 2	0.0	895.080								
1	5.0	898.800	0.34	2.11	84	84	6	300	1.5	104.8
2	10.0	902.820	0.40	2.47	84	84	6	305	4.7	104.8
3	15.0	906.890	0.41	2.53	84	84	6	305	8.4	104.9
4	20.0	911.010	0.42	2.59	85	85	7	308	12.5	104.9
5	25.0	915.280	0.45	2.78	85	85	7	308	17.7	105.1
6	30.0	919.400	0.42	2.59	86	86	7	310	25.2	104.9
7	35.0	922.700	0.27	1.66	86	86	6	311	45.6	104.6
8	40.0	925.810	0.24	1.48	86	86	7	311	53.2	104.5
9	45.0	928.990	0.25	1.54	87	87	7	311	58.3	104.5
10	50.0	932.050	0.23	1.42	87	87	7	310	62.5	104.7
11	55.0	934.830	0.19	1.17	87	87	6	310	66.1	104.6
12	60.0	937.460	0.17	1.05	87	87	6	306	69.4	104.4
Average:			0.369	2.270	83.4	83.4	7.1	307.8		104.8

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

Sample Type: HF

Parameter		Test 1	Test 2	Test 3
Test Date		4-Jun-25	4-Jun-25	4-Jun-25
Test Time		09:25 - 10:25	10:45 - 11:45	12:02 - 13:02
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	30.18	30.18	30.18
DGM Factor	(Y)	1.0229	1.0229	1.0229
Initial Reading	(m^3)	164.417	164.897	165.349
Final Reading	(m^3)	164.892	165.344	165.805
Temp. Outlet	(Avg. oF)	73.0	75.5	78.0
Orifice Press.	(ΔH in.H2O)	0.30	0.30	0.30
Gas Volume	(Sm^3)	0.48534	0.45498	0.46178
HF	(mg)	0.051	0.051	0.051
Oxygen	(Vol. %)	10.6	9.2	9.9
HF	**(mg/Sm^3)**	**0.106**	**0.113**	**0.111**
HF	**(mg/Sm^3 @ 11% O2)**	**0.102**	**0.095**	**0.100**
Moisture (isokinetic)	**(Vol. %)**	14.0	13.8	15.8

*Wet Basis Calculated on moisture from isokinetic tests
Tstd. (oF) 68 Pstd. (in. Hg) 29.92

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

Sample Type: HCl

Parameter		Test 1	Test 2	Test 3
Test Date		4-Jun-25	4-Jun-25	4-Jun-25
Test Time		09:25 - 10:25	10:45 - 11:45	12:02 - 13:02
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	30.18	30.18	30.18
DGM Factor	(Y)	1.0229	1.0229	1.0229
Initial Reading	(m^3)	164.417	164.897	165.349
Final Reading	(m^3)	164.892	165.344	165.805
Temp. Outlet	(Avg. oF)	73.0	75.5	78.0
Orifice Press.	(ΔH in.H2O)	0.30	0.30	0.30
Gas Volume	(Sm^3)	0.48534	0.45498	0.46178
HCl	(mg)	72.782	6.631	13.672
Oxygen	(Vol. %)	10.6	9.2	9.9
HCl	**(mg/Sm^3)**	**150.0**	**14.6**	**29.6**
HCl	**(mg/Sm^3 @ 11% O2)**	**144.5**	**12.3**	**26.6**
Moisture (isokinetic)	**(Vol. %)**	14.0	13.8	15.8

*Wet Basis Calculated on moisture from isokinetic tests
Tstd. (oF) 68 Pstd. (in. Hg) 29.92

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

Sample Type: NH_3

Parameter		Test 1	Test 2	Test 3
Test Date		4-Jun-25	4-Jun-25	4-Jun-25
Test Time		09:25 - 10:25	10:45 - 11:45	12:02 - 13:02
Test Duration	(min.)	60	60	60
Baro. Press.	(in. Hg)	30.18	30.18	30.18
DGM Factor	(Y)	0.9880	0.9880	0.9880
Initial Reading	(m^3)	669.267	669.728	670.221
Final Reading	(m^3)	669.723	670.203	670.708
Temp. Outlet	(Avg. oF)	74.0	76.0	77.5
Orifice Press.	(ΔH in.H2O)	0.30	0.30	0.30
Gas Volume	(Sm^3)	0.45006	0.46704	0.47710
NH_3	(mg)	0.39	3.42	2.74
Oxygen	(Vol. %)	10.6	9.2	9.9
NH_3	**(mg/Sm^3)**	**0.86**	**7.33**	**5.74**
NH_3	**(mg/Sm^3 @ 11% O2)**	**0.83**	**6.19**	**5.16**
Moisture (isokinetic)	**(Vol. %)**	14.0	13.8	15.8

*Wet Basis Calculated on moisture from isokinetic tests
Tstd. (oF) 68 Pstd. (in. Hg) 29.92

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

Parameter: N_2O

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

Sample ID	Date	Time	N_2O ppm	N_2O mg/Sm^3	N_2O mg/Sm^3 @ 11% O_2
Unit 1 - Run 1	5-Jun-25	09:18 - 10:18	2.60	4.76	4.88
Unit 1 - Run 2	5-Jun-25	10:32 - 11:32	3.70	6.77	6.83
Unit 1 - Run 3	5-Jun-25	11:50 - 12:50	5.2	9.52	9.59
Average					**7.10**
Unit 2 - Run 1	13-Jun-25	09:20 - 10:20	1.95	3.57	3.44
Unit 2 - Run 2	13-Jun-25	10:45 - 11:45	5.50	10.07	8.65
Unit 2 - Run 3	13-Jun-25	11:55 - 12:55	5.30	9.70	8.30
Average					**6.80**
Unit 3 - Run 1	4-Jun-25	09:25 - 10:25	3.20	5.86	5.65
Unit 3 - Run 2	4-Jun-25	10:45 - 11:45	4.80	8.79	7.43
Unit 3 - Run 3	4-Jun-25	12:02 - 13:02			
Average					**6.54**

Date:	**5-Jun-25**			**13-Jun-25**			**4-Jun-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:	09:18 - 10:18	10:32 - 11:32	11:50 - 12:50	09:45 - 10:45	10:56 - 11:56	12:07 - 13:07	09:35 - 10:35	10:46 - 11:46	11:58 - 12:58
Methane (ppmv)	4	3.2	ND	4.1	ND	ND	ND	ND	ND
Ethane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethene (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND
C3 as Propane (ppmv)	ND	0.64	ND	ND	0.91	ND	ND	ND	ND
C4 as n-Butane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND
C5 as n-Pentane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND
C6 as n-Hexane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND
C6+ as n-Hexane (ppmv)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Detection Limits:									
Methane	2.8	3.1	3	3.1	3.5	3.1	3.3	2.9	3.1
Ethane	0.84	0.92	0.89	0.94	1.1	0.93	0.99	0.88	0.94
Ethene	0.84	0.92	0.89	0.94	1.1	0.93	0.99	0.88	0.94
C3 as Propane	0.70	0.77	0.74	0.78	0.89	0.78	0.83	0.73	0.78
C4 as n-Butane	0.70	0.77	0.74	0.78	0.89	0.78	0.83	0.73	0.78
C5 as n-Pentane	0.70	0.77	0.74	0.78	0.89	0.78	0.83	0.73	0.78
C6 as n-Hexane	0.70	0.77	0.74	0.78	0.89	0.78	0.83	0.73	0.78
C6+	4.2	4.6	4.4	4.7	5.3	4.7	5	4.4	4.7
Using 1/2 DL Convention									
Sample Date:	**5-Jun-25**			**13-Jun-25**			**4-Jun-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:	09:25 - 10:25	10:56 - 11:56	12:10 - 13:10	09:45 - 10:45	10:56 - 11:56	12:07 - 13:07	09:35 - 10:35	10:46 - 11:46	11:58 - 12:58
Methane (ppm)	4.30	3.20	1.50	4.10	1.75	1.55	1.65	1.45	1.55
Ethane (ppm)	0.42	0.46	0.45	0.47	0.55	0.47	0.50	0.44	0.47
Ethene (ppm)	0.42	0.46	0.45	0.47	0.55	0.47	0.50	0.44	0.47
C3 as Propane (ppm)	0.35	0.64	0.37	0.39	0.91	0.39	0.42	0.37	0.39
C4 as n-Butane (ppm)	0.35	0.39	0.37	0.39	0.45	0.39	0.42	0.37	0.39
C5 as n-Pentane (ppm)	0.35	0.39	0.37	0.39	0.45	0.39	0.42	0.37	0.39
C6 as n-Hexane (ppm)	0.35	0.39	0.37	0.39	0.45	0.39	0.42	0.37	0.39
C6+ as n-Hexane (ppm)	2.10	2.30	2.20	2.35	2.65	2.35	2.50	2.20	2.35
Methane (mg/m^3 as CH_4)	2.87	2.14	1.00	2.74	1.17	1.03	1.10	0.97	1.03
Ethane (mg/m^3 as CH_4)	0.28	0.31	0.30	0.31	0.37	0.31	0.33	0.29	0.31
Ethene (mg/m^3 as CH_4)	0.28	0.31	0.30	0.31	0.37	0.31	0.33	0.29	0.31
C3 as Propane (mg/m^3 as CH_4)	0.23	0.43	0.25	0.26	0.61	0.26	0.28	0.24	0.26
C4 as n-Butane (mg/m^3 as CH_4)	0.23	0.26	0.25	0.26	0.30	0.26	0.28	0.24	0.26
C5 as n-Pentane (mg/m^3 as CH_4)	0.23	0.26	0.25	0.26	0.30	0.26	0.28	0.24	0.26
C6 as n-Hexane (mg/m^3 as CH_4)	0.23	0.26	0.25	0.26	0.30	0.26	0.28	0.24	0.26
C6+ as n-Hexane (mg/m^3 as CH_4)	1.40	1.53	1.47	1.57	1.77	1.57	1.67	1.47	1.57
Total mg/Sm^3 @11% O_2 as CH_4	3.75	3.63	2.68	4.14	4.02	3.33	2.83	3.16	3.17

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

APPENDIX - E

FIELD DATA SHEETS

A. Lanfranco and Associates Inc.

√658 552

CLIENT: MVRD		NOZZLE G 3092	DIAMETER, IN. .3092	IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
SOURCE: Unit #1				Imp. #1	0	243	
PARAMETER / RUN No 1 Metals/Partic		PROBE AL GVRD	Cp .8505	Imp. #2	100	198	
DATE June 4/25		PORT LENGTH		Imp. #3	100	100	
OPERATOR: ALI	.9630	STATIC PRESSURE, IN. H2O -17.50		Imp. #4	0	10	
CONTROL UNIT CL4LA	ΔH@	STACK DIAMETER 70.90		Imp. #5	100	104	
		STACK HEIGHT 30'		Imp. #6	100	102	
BAROMETRIC PRESSURE, IN. Hg 30.10		INITIAL LEAK TEST 0.005 @ 15"		Upstream Diameters			
ASSUMED MOISTURE, Bw 15%		FINAL LEAK TEST 0.002 @ 15"		Downstream Diameters			

TESTO 1

5 Min 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. %	PPM NOx	CO
	10:31	563.552												
1		567.61	.38	2.10	74	308	250	250	60	3				
2		571.98	.44	2.43	76	310					9.0	11.0	76	14
3		576.87	.55	3.04	76	310	250	250	62	3				
4		581.75	.55	3.04	77	312								
5		586.78	.58	3.20	76	312	250	250	62	3				
6		591.97	.62	3.42	76	313								
7		596.76	.53	2.93	78	312	250	250	64	3	8.5	11.2	80	20
8		601.64	.55	3.04	78	312								
9		606.12	.46	2.54	80	308	250	250	62	3				
10		610.49	.44	2.43	81	308								
11		614.76	.42	2.32	81	308	250	250	60	3				
12		618.93	.40	2.21	82	309					9.0	11.5	92	15
1		623.15	.41	2.26	82	310	250	250	58	3				
2		627.56	.45	2.48	82	312								
3		632.31	.52	2.87	83	312	250	250	56	3				
4		637.32	.58	3.20	84	310					8.5	11.5	67	14
5		642.33	.58	3.20	85	311	250	250	56	3				
6		647.43	.60	3.31	86	312								
7		652.41	.57	3.15	86	312	250	250	58	4				
8		657.07	.50	2.76	87	312								
9		661.72	.50	2.76	88	313	250	250	60	4	9.0	11.0	70	20
10		666.46	.52	2.87	88	313								
11		670.71	.43	2.37	88	305	250	250	62					
12	12:34	674.90	.39	2.15	89	302								

A. Lanfranco and Associates Inc.

CLIENT: MU					NOZZLE G-3121 DIAMETER, IN. .3063					IMPINGER	INITIAL	FINAL	TOTAL GAIN				
					PROBE 7L Cp .8376					VOLUMES	(mL)	(mL)	(mL)				
SOURCE: Unit #1										Imp. #1	0	178	178				
PARAMETER / RUN No Particle/Metals 122					PORT LENGTH					Imp. #2	100	188	88				
DATE 5 June 25					STATIC PRESSURE, IN. H2O -19					Imp. #3	100	113	13				
OPERATOR: JG+CD					STACK DIAMETER 70.90					Imp. #4	0	8	8				
CONTROL UNIT CAE AL1 Y .9630					STACK HEIGHT 30					Imp. #5	100	107	7				
ΔH@ 1.842										Imp. #6	100	103	3				
BAROMETRIC PRESSURE, IN. Hg 30.06					INITIAL LEAK TEST .001@15"					Upstream Diameters							
ASSUMED MOISTURE, Bw 14%					FINAL LEAK TEST .001@15"					Downstream Diameters							
										Test #1							

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F					Pump Vac. IN. Hg	Fyrites			
					Dry Gas Outlet	Stack	Probe	Box	Impinger Exit		CO_2 Vol. %	O_2 Vol. %		
	8:33	677.394												
1		682.36	.59	3.08	71	307	250	254	54	8.0				
2	10	687.49	.63	3.29	71	307								
3		692.74	.66	3.45	71	307	250	251	54	8.0	8.0	11.3		
4	20	698.07	.68	3.55	71	307								
5		703.25	.64	3.34	72	309	250	252	54	9.0				
6	30	708.35	.62	3.24	73	309								
7		713.37	.60	3.14	73	309	250	254	54	10.0				
8	40	718.31	.58	3.04	73	308								
9		723.12	.57	3.00	74	306	252	252	54	9.0				
10	50	727.60	.45	2.37	75	305					8.0	11.2		
11		731.78	.41	2.16	75	305	250	254	54	7.0				
12	60	735.59	.34	1.80	75	303								
1		740.37	.54	2.83	75	309	251	251	54	8.5				
2	10	745.25	.56	2.94	76	309					8.5	11.3		
3		749.90	.51	2.67	76	311	250	250	54	8.5				
4	20	754.42	.48	2.52	77	311								
5		758.94	.48	2.52	77	312	251	255	54	9.0				
6	30	763.41	.47	2.47	77	312								
7		768.07	.51	2.68	78	313	251	252	54	8.0				
8	40	772.69	.50	2.63	78	310								
9		777.27	.49	2.59	78	309	249	251	54	7.0	8.9	10.5		
10	50	781.62	.44	2.33	79	309								
11		785.72	.39	2.06	79	308	247	251	54	7.0				
12		789.66	.36	1.91	79	308								
	10:34	END TEST												

A. Lanfranco and Associates Inc.

CLIENT: MU		NOZZLE 4-3(2)	DIAMETER, IN. .3063		
		PROBE 7C	Cp .8376		
SOURCE: Unit #1					
PARAMETER / RUN No Partic / metals R3		PORT LENGTH			
DATE 5 June 25		STATIC PRESSURE, IN. H2O	-19		
OPERATOR: JG+CD		STACK DIAMETER	70.90		
CONTROL UNIT CAE AL 1	Y .9630	STACK HEIGHT	30		
	ΔH@ 1.842				
BAROMETRIC PRESSURE, IN. Hg 30.06		INITIAL LEAK TEST	.001@15"		
ASSUMED MOISTURE, Bw		FINAL LEAK TEST	.001@15"		

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	[illegible]	209	209
Imp. #2	100	217	117
Imp. #3	100	106	6
Imp. #4	0	17	17
Imp. #5	100	104	4
Imp. #6	100	101	1
Upstream Diameters			
Downstream Diameters			
testo #1			

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. %		
	10:47	790.240												
1		794.97	.53	2.77	75	311	280	287	58	8.0				
2	10	799.78	.55	2.87	75	314								
3		804.45	.52	2.71	75	315	287	252	58	8.0	8.0	11.6		
4	20	808.96	.48	2.51	76	313								
5		813.47	.47	2.46	76	312	282	251	58	7.0				
6	30	817.83	.46	2.41	76	313								
7		822.44	.50	2.62	77	313	252	252	58	7.0				
8	40	827.10	.51	2.68	77	311								
9		831.67	.49	2.57	78	314	250	250	58	7.0				
10	50	835.99	.44	2.30	78	316					8.4	11.2		
11		840.07	.39	2.04	79	316	250	257	58	6.5				
12	60	843.95	.35	1.85	79	310								
1		848.86	.55	2.93	85	312	252	257	58	9.5	8.5	10.8		
2	10	853.81	.56	2.98	85	312								
3		858.92	.60	3.18	83	312	250	252	58	8.5				
4	20	864.11	.62	3.29	83	312								
5		869.25	.61	3.23	82	311	250	250	58	9.0				
6	30	874.26	.58	3.08	82	311					9.0	10.5		
7		879.19	.56	2.97	82	310	250	253	58	8.0				
8	40	884.19	.58	3.07	81	312								
9		889.08	.55	2.92	83	312	257	252	58	8.0				
10	50	893.60	.47	2.50	83	311					8.5	10.9		
11		898.04	.45	2.40	84	308	249	257	55	7.0				
12		901.78	.41	2.19	85	309								
	11:48	END test												

Client	MV WTE	Y	LMU-A.9880	Client	MV WTE	Y	LMU-C 1.0229
Source	Unit #1	Cp		Source	Unit #1	Cp	
Parameter	NH_3	Pbar	29.94 Static	Parameter	HF/HCl	Pbar	29.94 Static
Date	05 Jun 25	Operator	SV + CD	Date	05 Jun 25	Operator	SV + CD
Stack Dia		Down	Up	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

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	9:18	670.7182	65					
	10:18	671.1746	68					
2	10:32	671.1815	68					
	11:32	671.6372	72					
3	11:50	671.6424	71					
	12:50	672.0954	73					

	Run 1	Run 2	Run 3
O_2			
CO_2			

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	9:18	165.8142	66					
	10:18	166.2216	68	~~68~~				
2	10:32	166.2282	68					
	11:32	166.6426	73					
3	11:50	166.6472	71					
	12:50	167.0636	75					

	Run 1	Run 2	Run 3
O_2			
CO_2			

A. Lanfranco and Associates Inc.

CLIENT MWTE	NOZZLE S-250 DIAMETER, IN. .2500	IMPINGER VOLUMES	INITIAL (mL) / FINAL (mL) / ~~TOTAL GAIN~~ (mL)
SOURCE Unit #2	PROBE 7C Cp .8376	Imp. #1	~~1000~~ ~~1129~~ ~~1130~~ 129
PARAMETER / RUN No Metals -1	PORT LENGTH	Imp. #2	100 ~~143~~ ~~142~~ 142
DATE 12 JUN 25	STATIC PRESSURE, IN. H2O -.20	Imp. #3	100 ~~106~~ ~~#2~~ 106
OPERATOR: CD	STACK DIAMETER	Imp. #4	~~6000~~ 2
CONTROL UNIT STACK 2 Y .9805	STACK HEIGHT	Imp. #5	200 102
ΔH@ 1.877		Imp. #6	~~100~~ 101
BAROMETRIC PRESSURE, IN. Hg 29.97	INITIAL LEAK TEST .002@15"	Upstream Diameters	
ASSUMED MOISTURE, Bw 13%.	FINAL LEAK TEST	Downstream Diameters	
		Testo #2	

Final Gain 129 142 6 22-1

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		102.554	.30	.72	69	310	267	260	67	3.5	10.61	10.8		
2	10	104.942	.31	.74	69	309								
3		107.290	.30	.72	69	309	266	260	68	3				
4	20	109.487	.26	.62	70	310								
5		111.681	.26	.62	70	310	265	261	68	3				
6	30	113.955	.28	.67	69	310								
7		117.000	.50	1.20	70	306	266	260	64	5				
8	40	120.155	.54	1.29	70	308								
9		123.463	.59	1.42	71	308	265	261	60	5	10.45	10.9		
10	50	126.821	.60	1.46	71	300								
11		130.030	.54	1.33	72	290	267	261	59	4.75				
12	60	133.100	.49	1.20	72	291								
+														
1		135.924	.43	1.03	72	310	266	259	60	4.5				
2	70	138.820	.45	1.08	73	312					10.84	10.5		
3		141.685	.44	1.05	73	312	265	260	60	4.5				
4	80	144.484	.42	1.01	73	312								
5		147.042	.38	.86	73	311	265	260	62	4				
6	90	149.555	.33	.79	73	311								
7		151.803	.27	.68	73	310	266	260	63	3.5				
8	100	153.972	.25	.61	74	305								
9		156.114	.24	.58	74	301	266	259	64	3.5				
10	110	158.161	.22	.54	74	300								
11		160.110	.20	.49	74	298	266	261	64	3				
12	120	161.908	.17	.42	74	295					10.95	10.3		
END	12:56													

CLIENT: Veolia - MV WTE		NOZZLE G-3092	DIAMETER, IN. 0.3092	IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
SOURCE: Unit 2		PROBE K	Cp 0.8376	Imp. #1	0	173	
PARAMETER / RUN No	Metals / Partic Run 2			Imp. #2	100	194	
DATE	13 June 2025	PORT LENGTH		Imp. #3	100	113	
OPERATOR:	LA JG SV	STATIC PRESSURE, IN. H2O	-19	Imp. #4	0	5	
CONTROL UNIT	STOAE 2	Y 0.9805	STACK DIAMETER	70.9"	Imp. #5	100	101	
	ΔH@ 1.877	STACK HEIGHT	30'	Imp. #6	100	101	
BAROMETRIC PRESSURE, IN. Hg	29.98	INITIAL LEAK TEST	0.001@15"	Upstream Diameters			
ASSUMED MOISTURE, Bw	13	FINAL LEAK TEST	0.001@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 (Testo 2) CO_2 Vol. %	O_2 Vol. %		
	0906	168.825												
1		172.72	0.36	2.00	67	312	255	254	62	3				
2		176.77	0.38	2.11	67	313					10.0	9.5		
3		180.83	0.40	2.22	68	313	235	253	61	3				
4		184.94	0.40	2.22	68	313								
5		192.00	0.39	2.17	69	313	254	254	60	3				
6		195.86	0.35	1.95	70	313					10.0	9.0		
7		199.25	0.27	1.51	71	313	255	255	60	3				
8		202.52	0.25	1.40	71	312								
9		205.73	0.24	1.34	72	312	254	256	59	3				
10		208.80	0.22	1.23	72	313					10.0	9.0		
11		211.73	0.20	1.12	73	312	255	255	59	3				
12		214.59	0.19	1.07	73	312								
1		217.68	0.22	1.24	74	310	254	233	57	3				
2		220.91	0.24	1.36	75	309					9.5	10.0		
3		224.07	0.23	1.30	75	309	253	252	57	3				
4		227.17	0.22	1.25	76	308								
5		230.27	0.22	1.25	76	307	254	251	58	3				
6		233.45	0.23	1.31	76	306					10.1	9.2		
7		237.26	0.33	1.88	76	305	255	250	58	3				
8		241.51	0.41	2.34	77	305								
9		245.66	0.39	2.23	78	305	254	251	58	3				
10		249.71	0.37	2.12	78	305					9.5	9.5		
11		253.64	0.35	2.00	78	306	255	252	59	3				
12	1108	257.46	0.33	1.88	78	306								

A. Lanfranco and Associates Inc.

CLIENT: Veolia - MV WTE	NOZZLE G-3092 DIAMETER, IN. 0.3092	IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
SOURCE: Unit 2	PROBE 7C Cp 0.8376	Imp. #1	0	219	
PARAMETER / RUN No Partic/Metals Run 3	PORT LENGTH	Imp. #2	100	155	
DATE 13 June 2025	STATIC PRESSURE, IN. H2O -14	Imp. #3	100	112	
OPERATOR: KA JG SV	STACK DIAMETER 70.91	Imp. #4	0	10	
CONTROL UNIT STACK2 Y 0.9805	STACK HEIGHT	Imp. #5	100	103	
ΔH@ 1.877		Imp. #6	100	107	
BAROMETRIC PRESSURE, IN. Hg 29.98	INITIAL LEAK TEST 0.001@15"	Upstream Diameters			
ASSUMED MOISTURE, Bw	FINAL LEAK TEST 0.001@15"	Downstream Diameters			

Tests 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. %	Fyrites O_2 Vol. %
	11:18	258.092										
1		261.28	0.23	1.32	79	305	254	250	59	4	10.5	8.5
2		264.55	0.24	1.38	80	306						
3		267.75	0.23	1.32	79	305	253	253	59	4		
4		270.88	0.22	1.26	80	305						
5		274.08	0.23	1.32	80	305	253	252	58	5	10.5	8.8
6		277.35	0.24	1.38	80	305						
7		281.24	0.34	1.95	80	305	254	251	57	6		
8		285.63	0.43	2.47	81	305						
9		289.96	0.42	2.41	81	305	255	252	57	6	10.0	9.5
10		294.19	0.40	2.30	81	305						
11		298.31	0.38	2.18	81	305	255	250	57	7		
12		302.38	0.37	2.13	81	305						
1		306.35	0.35	2.02	82	304	255	250	56	7	10.0	9.4
2		310.42	0.37	2.13	82	306						
3		314.70	0.41	2.35	82	308	256	250	55	7		
4		318.76	0.37	2.12	83	310						
5		323.00	0.40	2.29	83	311	255	251	54	7	10.0	9.7
6		327.18	0.39	2.23	83	311						
7		330.66	0.27	1.55	83	310	255	250	55	6		
8		334.01	0.25	1.43	84	311						
9		337.29	0.24	1.38	84	311	255	250	56	6	9.5	10.0
10		340.50	0.23	1.32	83	311						
11		343.57	0.21	1.20	84	311	256	250	57	5		
12	1320	346.57	0.20	1.15	84	311						

Client	MV WTE	Y	LMV-A .9880		
Source	Unit #2	Cp			
Parameter	HCl	Pbar	29.98	Static	
Date	13 June 25	Operator	SV		
Stack Dia		Down		Up	

Leak Check	Run 1	Run 2	Run 3
Initial	.0001	.0001	.0001
Final	.0001	.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	9:36	672.0992	60					
			62					
	10:36	672.6726	66					
2	10:45	672.6762	64					
			65					
	11:45	673.2668	67					
3	11:55	673.2706	65					
			66					
	12:55	673.8476	71					

	Run 1	Run 2	Run 3
O_2			
CO_2			

Client	MV WTE	Y	LMV-C 1.0229		
Source	Unit #2	Cp			
Parameter	NH_3	Pbar	29.98	Static	
Date	13 June 25	Operator	SV		
Stack Dia		Down		Up	

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

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	9:36	167.0678	62					
			66					
	10:36	167.4460	70					
2	10:45	167.4478	69					
			70					
	11:45	167.8138	73					
3	11:55	167.8180	69					
			70					
	12:55	168.1722	73					

	Run 1	Run 2	Run 3
O_2			
CO_2			

Canister sampling sheet

Client MV WTE Test Date 13 June 25

File No. Recovery Date

Source: Unit #2

	R1	R2	R3			
Pbar in hg	29.98	29.98	29.98			
Canister number	SC02340	SC00277	SC01765			
Controller number	OA01284	OA01284	OA01284			
Initial: Start time	09:20	10:45	11:55			
Flask Vac. (in Hg)	-29	-29	-29			
Final: Finish time	10:20	11:45	12:55			
Flask Vac. (in Hg)	-10	-9	-8			

Source:

Pbar in hg						
Canister number						
Controller number						
Initial: Start time						
Flask Vac. (in Hg)						
Final: End time						
Flask Vac. (in Hg)						

Source:

Pbar in hg						
Canister number						
Controller number						
Initial: Start time						
Flask Vac. (in Hg)						
Final: End time						
Flask Vac. (in Hg)						

Source:

Pbar in hg						
Canister number						
Controller number						
Initial: Start time						
Flask Vac. (in Hg)						
Final: End time						
Flask Vac. (in Hg)						

A. Lanfranco and Associates Inc.

CLIENT: MV		NOZZLE G-3121	DIAMETER, IN. .3063	IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
SOURCE: Unit #3		PROBE 7C	Cp .8376	Imp. #1	0	125	
PARAMETER / RUN No Metals / Partic R1		PORT LENGTH		Imp. #2	100	203	
DATE 3 June 25		STATIC PRESSURE, IN. H2O	-19	Imp. #3	100	130	
OPERATOR: JG+CD		STACK DIAMETER	70.90	Imp. #4	0	16	
CONTROL UNIT Ju14	Y 1.0010	STACK HEIGHT	30	Imp. #5	100	106	
	ΔH@ 2.120			Imp. #6	100	105	
BAROMETRIC PRESSURE, IN. Hg	30.18	INITIAL LEAK TEST	.001@15"	Upstream Diameters			
ASSUMED MOISTURE, Bw	14%	FINAL LEAK TEST	.001@15"	Downstream Diameters			

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Dry Gas Outlet °F	Stack °F	Probe °F	Box °F	Impinger Exit °F	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	Fyrites O_2 Vol. %		
	11:40	664.100												
1		667.46	.29	1.76	75	307	250	257	58	4.0				
2	10	670.75	.28	1.68	75	314					9.80	10.50		
3		673.97	.27	1.62	74	314	250	257	58	4.5				
4	20	677.26	.28	1.68	75	314								
5		680.43	.26	1.56	75	315	251	253	58	4.0				
6	30	683.59	.25	1.50	75	315								
7		687.52	.41	2.46	75	315	252	255	58	5.0				
8	40	691.75	.46	2.77	77	314								
9		696.21	.51	3.07	77	314	250	250	58	5.5				
10	50	700.73	.52	3.16	78	309					9.60	10.65		
11		704.94	.45	2.73	78	309	251	252	58	6.0				
12	60	709.06	.43	2.62	78	308								
1		713.13	.42	2.55	80	312	250	257	58	6.0				
2	10	717.29	.44	2.66	80	316					9.65	10.70		
3		721.46	.44	2.66	81	316	250	257	58	6.0				
4	20	725.58	.43	2.60	82	317								
5		729.65	.42	2.54	82	317	250	252	58	6.0				
6	30	733.87	.45	2.73	82	316								
7		737.59	.35	2.12	82	317	251	249	58	6.0				
8	40	740.86	.27	1.64	82	317								
9		743.94	.24	1.46	82	316	249	251	58	5.5	9.30	10.60		
10	50	746.38	.14	.85	83	316								
11		748.49	.12	.73	83	314	251	251	58	4.5				
12		750.35	.09	.55	83	314								
	13:42	END test												

CLIENT: MU	NOZZLE G-3/21 DIAMETER, IN. .3063	IMPINGER VOLUMES	INITIAL (mL) / FINAL (mL) / TOTAL GAIN (mL)
SOURCE: Unit #3	PROBE 7E Cp .8376	Imp. #1	0 / 110 / 110
PARAMETER / RUN No Metals / Partic R2	PORT LENGTH	Imp. #2	200 / 216 / 16
DATE 4 June 25	STATIC PRESSURE, IN. H2O -19	Imp. #3	100 / 140 / 40
OPERATOR: JG/CD	STACK DIAMETER 70.50	Imp. #4	0 / 11 / 11
CONTROL UNIT 5u14 Y 1.0010	STACK HEIGHT 30	Imp. #5	100 / 110 / 10
ΔH@ 2.120		Imp. #6	100 / 108 / 8
BAROMETRIC PRESSURE, IN. Hg 30.18	INITIAL LEAK TEST .001@15"	Upstream Diameters	
ASSUMED MOISTURE, Bw 14%	FINAL LEAK TEST .001@15"	Downstream Diameters	
		testo #2	

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Dry Gas Outlet °F	Stack °F	Probe °F	Box °F	Impinger Exit °F	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	Fyrites O_2 Vol. %
	8:45	751.894										
1		756.04	.45	2.69	72	313	250	257	54	3.0		
2	10	760.41	.50	2.99	72	313					10.56	9.2
3		764.87	.52	3.10	73	316	250	254	58	5.0		
4	20	769.37	.53	3.16	72	316						
5		773.85	.53	3.16	74	317	251	262	55	5.0		
6	30	778.08	.46	2.75	74	317						
7		781.65	.33	1.98	70	316	250	257	55	5.0		
8	40	784.72	.24	1.46	76	306						
9		787.64	.22	1.32	76	313	250	252	58	4.5		
10	50	790.58	.21	1.27	77	313						
11		792.92	.15	.90	77	314	251	251	58	4.0	10.60	9.1
12	60	795.09	.12	.73	78	313						
1		798.58	.31	1.84	79	312	250	250	58	4.0		
2	10	802.01	.30	1.81	79	315						
3		805.61	.33	1.99	79	315	251	252	58	4.0	10.54	9.20
4	20	809.16	.32	1.94	80	314						
5		812.82	.34	2.06	80	314	250	254	58	4.0		
6	30	816.43	.33	2.00	80	313						
7		820.97	.51	3.10	81	314	250	251	58	5.5		
8	40	825.37	.50	3.03	81	314					10.52	9.20
9		829.91	.52	3.16	82	315	250	252	56	6.0		
10	50	834.49	.53	3.22	82	315						
11		838.81	.47	2.86	82	314	254	251	58	6.0		
12		842.84	.41	2.49	82	314						
	10:47	END test										

A. Lanfranco and Associates Inc.

CLIENT: MU	NOZZLE G-3121 DIAMETER, IN. .3063	IMPINGER VOLUMES	INITIAL (mL) / FINAL (mL) / TOTAL GAIN (mL)
SOURCE: Unit #3	PROBE 7C Cp .8376	Imp. #1	0 / 150 / 150
PARAMETER / RUN No metals / PAH 1e 123	PORT LENGTH	Imp. #2	100 / 219 / 119
DATE 4 June 25	STATIC PRESSURE, IN. H2O -19	Imp. #3	100 / 144 / 44
OPERATOR: JG / CD	STACK DIAMETER 70.90	Imp. #4	0 / 19 / 19
CONTROL UNIT July Y 1.0010	STACK HEIGHT 30	Imp. #5	100 / 109 / 9
ΔH@ 2.120		Imp. #6	100 / 105 / 5
BAROMETRIC PRESSURE, IN. Hg 30.18	INITIAL LEAK TEST .001 @ 15"	Upstream Diameters	
ASSUMED MOISTURE, Bw 14%	FINAL LEAK TEST .001 @ 15"	Downstream Diameters	
		testo #2	

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Dry Gas Outlet (°F)	Stack (°F)	Probe (°F)	Box (°F)	Impinger Exit (°F)	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	Fyrites O_2 Vol. %
	11:38	846.056										
1		849.76	.35	2.11	80	316	252	251	58	5.5		
2	10	853.47	.35	2.11	80	317						
3		857.12	.34	2.05	80	316	250	252	58	6.0	10.0	10.40
4	20	860.77	.34	2.05	80	317						
5		864.32	.32	1.97	80	316	257	253	58	6.0		
6	30	868.00	.34	2.07	81	310						
7		872.52	.51	3.13	81	305	250	257	58	8.0		
8	40	877.15	.53	3.28	82	300						
9		882.00	.58	3.60	82	298	250	257	58	9.0		
10	50	886.63	.53	3.29	82	299					9.82	9.80
11		890.95	.46	2.86	83	299	250	257	58	9.5		
12	60	895.08	.42	2.61	83	298						
1		898.80	.34	2.11	84	300	250	257	58	5.5		
2	10	902.87	.40	2.47	84	305					9.70	9.50
3		906.89	.41	2.55	84	305	251	249	58	6.5		
4	20	911.01	.42	2.59	85	308						
5		915.14	.45	2.76	85	309	250	251	58	7.0		
6	30	919.48	.42	2.59	86	310						
7		922.70	.27	1.66	86	311	251	252	58	6.5		
8	40	925.81	.24	1.48	86	311					9.85	9.95
9		928.99	.25	1.54	87	311	250	251	58	6.5		
10	50	932.05	.23	1.42	87	310						
11		934.83	.19	1.17	87	310	250	257	58	6.0		
12		937.46	.17	1.05	87	309						
	13:40	END test										

Client	MV WTE	Y	LMU-A .9860		
Source	Unit 3	Cp			
Parameter	NH_3	Pbar	30.18	Static	
Date	04 Jun 25	Operator	SV + 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		~~234.4484~~						
	9:25	669.2668	69					
	10:25	669.7232	79					
2	1045	669.7278	76					
	1145	670.2032	76					
3	12:02	670.2210	75					
	13:02	670.7080	80					

	Run 1	Run 2	Run 3
O_2			
CO_2			

Client	MV WTE	Y	LMU-C 1.0229		
Source	Unit 3	Cp			
Parameter	HF / HCl	Pbar	30.18	Static	
Date	04 Jun 25	Operator	SV + 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	

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	9:25	164.4170	68					
	10:25	164.8915	78					
2	1045	164.8969	75					
	1145	165.3438	76					
3	12:02	165.3480	75					
	13:02	165.8045	81					

	Run 1	Run 2	Run 3
O_2			
CO_2			

Canister sampling sheet

Plant Veolia (MVWTE) Test Date 04 June 25, 05 June 25
File No. _____ Recovery Date _____

Source: Unit #3

		R-1	R-2	R-3			
Pbar in hg		30.18	30.18	30.18			
Canister number		SC01591	SC02314	SC01848			
Controller number		OA0472	OA0143	OA1313			
Initial:	Start time	0915	1045	1202			
	Flask Vac. (in Hg)	~~-28~~	-29.5	-29.5			
Final:	Finish time	1025	1145	1302			
	Flask Vac. (in Hg)	-6	-12	-12			

Source:

~~Pbar in hg~~							
Canister number		SC02314					
Controller number		OA0143					
Initial:	Start time	1045					
	Flask Vac. (in Hg)	-29.5					
Final:	End time	1145					
	Flask Vac. (in Hg)						

Source: Unit #1

		R-1	R-2	R-3			
Pbar in hg		29.94	29.94	29.94			
Canister number		SC02063	SC02317	SC01063			
Controller number		OA1313	OA1313	OA1313			
Initial:	Start time	0918	1032	1150			
	Flask Vac. (in Hg)	-28	-29	-30			
Final:	End time	1018	1132	1250			
	Flask Vac. (in Hg)	-11	0	-11.5			

Source:

Pbar in hg							
Canister number							
Controller number							
Initial:	Start time						
	Flask Vac. (in Hg)						
Final:	End time						
	Flask Vac. (in Hg)						

APPENDIX – F

CALIBRATION SHEETS and

TECHNICIAN CERTIFICATES

A.Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: CAE AL1

Serial #: 0028-070611-1

Date: 7-Jan-25

Barometric Pressure: 30.41 (in. Hg)

Theoretical Critical Vacuum: 14.34 (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)
3.85	15.00	272.003	288.409	16.406	58.0	58.0	61.0	61.0	73	0.8185	18.0	62.0	68.0	65.0
1.95	15.00	288.409	300.290	11.881	61.0	61.0	70.0	63.0	63	0.5956	20.5	70.0	75.0	72.5
1.20	15.00	300.290	309.535	9.245	64.0	64.0	66.0	66.0	55	0.4606	22.0	74.0	78.0	76.0
0.67	15.00	309.535	316.560	7.025	67.0	67.0	69.0	69.0	48	0.3560	23.5	78.0	80.0	79.0
0.32	15.00	316.560	321.403	4.843	69.0	69.0	71.0	71.0	40	0.2408	25.0	79.0	83.0	81.0

********** 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)
17.098	484.2	16.295	461.5	15.947	0.953	-0.010	1.896	48.15	0.053	0.702
12.226	346.2	11.773	333.4	11.687	0.963	0.000	1.830	46.49	-0.012	0.711
9.474	268.3	9.075	257.0	9.068	0.958	-0.005	1.885	47.88	0.043	0.703
7.149	202.5	6.995	198.1	7.028	0.978	0.015	1.762	44.74	-0.081	0.712
4.906	138.9	4.722	133.7	4.763	0.963	0.000	1.839	46.71	-0.004	0.709
				Average Y---------->	**0.9630**		**Average dH@-----> 1.842**	**46.8**	**Average Ko----->**	**0.707**

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	32	0.00%	32	0.00%	33	0.20%	32	0.00%	32	0.00%
100	100	0.00%	100	0.00%	101	0.18%	100	0.00%	101	0.18%
300	300	0.00%	300	0.00%	301	0.13%	300	0.00%	300	0.00%
500	499	-0.10%	499	-0.10%	501	0.10%	500	0.00%	500	0.00%
1000	999	-0.07%	999	-0.07%	1001	0.07%	999	-0.07%	999	-0.07%

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.
For Temperature Devicee, the reading must be within 1.5% of certified calibration standard (absolute temperature) to be acceptable.

Calibrated by: Liam Forrer

Signature: Carter Lanfranco

Date: January 7, 2025

A. Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: LMU A

Serial #: Kimmon 186

Date: 7-Jan-25

Barometric Pressure: 30.41 (in. Hg)

Theoretical Critical Vacuum: 14.34 (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	15.00	634.455	634.652	6.957	63.0	63.0	69.0	69.0
0.00	15.00	634.652	634.851	7.028	68.0	68.0	71.0	71.0
0.00	15.00	634.851	635.049	6.992	70.0	70.0	73.0	73.0

-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	70.0	79.0	74.5
48	0.3560	20.0	77.0	81.0	79.0
48	0.3560	20.0	78.0	79.0	78.5

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

--- DRY GAS METER ---

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
7.095	200.9
7.120	201.6
7.057	199.9

--------- ORIFICE ---------

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)
7.024	198.9	6.999
6.995	198.1	7.028
6.998	198.2	7.025

-- DRY GAS METER --

CALIBRATION FACTOR Y Value (number)	Variation (number)
0.990	0.002
0.982	-0.006
0.992	0.004

--------- ORIFICE ---------

CALIBRATION FACTOR dH@ Value (in H2O)	Value (mm H2O)	Variation (in H2O)
0.000	0.00	0.000
0.000	0.00	0.000
0.000	0.00	0.000

Average Y---------> 0.9880 **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: Liam Forrer Signature:  Date: January 7, 2025

A.Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: ST CAE2
Serial #: 0028-072911-1

Date: 06-Jan-25
Barometric Pressure: 30.40 (in. Hg)
Theoretical Critical Vacuum: 14.34 (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-					
					Initial Temps.		Final Temps.					-- Ambient Temperature --		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
3.90	15.00	485.415	501.694	16.279	66.0	66.0	67.0	67.0	73	0.8185	15.5	67.0	68.0	67.5
2.05	15.00	501.694	513.489	11.795	67.0	67.0	69.0	69.0	63	0.5956	18.0	69.0	73.0	71.0
1.20	15.00	513.489	522.669	9.180	70.0	70.0	71.0	71.0	55	0.4606	19.5	72.0	74.0	73.0
0.69	15.00	522.669	529.633	6.964	70.0	71.0	70.0	72.0	48	0.3560	20.5	74.0	76.0	75.0
0.34	15.00	529.633	534.423	4.790	71.0	71.0	72.0	72.0	40	0.2408	22.0	77.0	78.0	77.5

********** 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)
16.737	474.0	16.251	460.2	15.985	0.971	-0.010	1.904	48.37	0.028	0.700
12.039	340.9	11.786	333.8	11.671	0.979	-0.001	1.898	48.20	0.021	0.697
9.307	263.6	9.098	257.6	9.042	0.978	-0.003	1.856	47.13	-0.021	0.707
7.048	199.6	7.018	198.8	7.002	0.996	0.015	1.789	45.45	-0.087	0.706
4.837	137.0	4.736	134.1	4.747	0.979	-0.001	1.936	49.18	0.060	0.691
				Average Y---------->	**0.9805**		**Average dH@----->**	**1.877**	**47.7**	**Average Ko----->**	**0.700**

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	33	0.20%	32	0.00%	32	0.00%	33	0.20%	33	0.20%
100	100	0.00%	100	0.00%	99	-0.18%	101	0.18%	101	0.18%
300	300	0.00%	300	0.00%	300	0.00%	301	0.13%	300	0.00%
500	500	0.00%	499	-0.10%	499	-0.10%	500	0.00%	500	0.00%
1000	999	-0.07%	999	-0.07%	999	-0.07%	1000	0.00%	1000	0.00%

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.
For Temperature Devicee, the reading must be within 1.5% of certified calibration standard (absolute temperature) to be acceptable.

Calibrated by: Liam Forrer Signature: _____ Date: January 6, 2025

A.Lanfranco & Associates inc.

EPA Method 5

Meter Box Calibration

English Meter Box Units, English K' Factor

Model #: JU 14
Serial #: 0028-030615-1

Date: 8-Jan-25
Barometric Pressure: 30.43 (in. Hg)
Theoretical Critical Vacuum: 14.35 (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-					
					Initial Temps.		Final Temps.					-- Ambient Temperature --		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
4.15	15.00	922.156	937.700	15.544	68.0	68.0	70.0	70.0	73	0.8185	15.5	71.0	75.0	73.0
2.25	15.00	937.700	949.240	11.540	70.0	70.0	72.0	72.0	63	0.5956	17.0	72.0	77.0	74.5
1.35	15.00	949.240	958.128	8.888	72.0	72.0	73.0	73.0	55	0.4606	18.5	76.0	80.0	78.0
0.83	15.00	958.128	965.090	6.962	69.0	73.0	69.0	74.0	48	0.3560	20.0	79.0	81.0	80.0
0.39	19.00	965.090	971.095	6.005	68.0	74.0	69.0	74.0	40	0.2408	21.5	79.0	82.0	80.5

********** 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)
15.931	451.2	16.183	458.3	16.068	1.016	0.015	2.036	51.71	-0.084	0.660
11.729	332.2	11.759	333.0	11.709	1.003	0.002	2.083	52.90	-0.037	0.663
8.989	254.6	9.064	256.7	9.085	1.008	0.007	2.097	53.27	-0.023	0.658
7.049	199.6	6.993	198.0	7.035	0.992	-0.009	2.162	54.92	0.043	0.656
6.073	172.0	5.988	169.6	6.030	0.986	-0.015	2.221	56.41	0.101	0.651
				Average Y---------->	**1.0010**	**Average dH@----->**	**2.120**	**53.8**	**Average Ko----->**	**0.658**

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	33	0.20%	31	-0.20%	30	-0.41%	33	0.20%	33	0.20%
100	101	0.18%	99	-0.18%	98	-0.36%	101	0.18%	101	0.18%
300	301	0.13%	299	-0.13%	298	-0.26%	301	0.13%	301	0.13%
500	501	0.10%	499	-0.10%	498	-0.21%	501	0.10%	501	0.10%
1000	1000	0.00%	998	-0.14%	997	-0.21%	1001	0.07%	1000	0.00%

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.
For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.
For Temperature Devicee, the reading must be within 1.5% of certified calibration standard (absolute temperature) to be acceptable.

Calibrated by: Liam Forrer Signature:  Date: January 8, 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: 07-Jan-25

Barometric Pressure: 30.41 (in. Hg)

Theoretical Critical Vacuum: 14.34 (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	15.00	157.492	157.684	6.780	71.0	71.0	73.0	73.0
0.00	15.00	157.684	157.877	6.816	72.0	72.0	74.0	74.0
0.00	15.00	157.877	158.070	6.816	73.0	73.0	73.0	73.0

-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	75.0	77.0	76.0
48	0.3560	20.0	76.0	79.0	77.5
48	0.3560	20.0	78.0	76.0	77.0

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

--- DRY GAS METER ---

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
6.837	193.6
6.860	194.3
6.860	194.3

--------- ORIFICE ---------

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)
7.014	198.6	7.008
7.004	198.4	7.018
7.008	198.5	7.015

-- DRY GAS METER --

CALIBRATION FACTOR Y Value (number)	CALIBRATION FACTOR Y Variation (number)
1.026	0.003
1.021	-0.002
1.022	-0.001

--------- ORIFICE ---------

CALIBRATION FACTOR dH@ Value (in H2O)	Value (mm H2O)	Variation (in H2O)
0.000	0.00	0.000
0.000	0.00	0.000
0.000	0.00	0.000

Average Y---------> 1.0229 **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: Liam Forrer Signature: _____ Date: January 7, 2025

Pitot Tube Calibration

Date: 8-Jan-25
Pbar (in.Hg): 30.41
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)
0.220	0.310	31.1	0.8340	0.0030
0.310	0.430	36.9	0.8406	0.0036
0.400	0.560	41.9	0.8367	0.0003
0.480	0.670	45.9	0.8380	0.0010
0.570	0.800	50.0	0.8357	0.0013
		Average :	0.8370	0.0018

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	31.1	0.8478	0.0128
0.340	0.480	38.6	0.8332	0.0018
0.430	0.610	43.4	0.8312	0.0038
0.520	0.740	47.8	0.8299	0.0051
0.630	0.890	52.6	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)
0.180	0.240	28.1	0.8574	0.0084
0.290	0.400	35.7	0.8430	0.0060
0.390	0.530	41.4	0.8492	0.0003
0.480	0.650	45.9	0.8507	0.0018
0.560	0.770	49.6	0.8443	0.0046
		Average :	0.8489	0.0042

Pitot ID: **ST 8B**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.200	0.280	29.6	0.8367	0.0030
0.310	0.440	36.9	0.8310	0.0027
0.390	0.550	41.4	0.8337	0.0000
0.520	0.730	47.8	0.8356	0.0019
0.670	0.950	54.2	0.8314	0.0023
		Average :	0.8337	0.0020

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

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.200	0.270	16.3	0.8521	0.0016
0.290	0.400	19.9	0.8430	0.0075
0.390	0.530	25.3	0.8492	0.0012
0.480	0.650	35.8	0.8507	0.0003
0.570	0.760	48.4	0.8574	0.0069
		Average :	0.8505	0.0035

Pitot ID: **ST 8C**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.210	0.290	14.9	0.8425	0.0063
0.310	0.440	19.4	0.8310	0.0052
0.430	0.600	29.0	0.8381	0.0019
0.520	0.730	43.1	0.8356	0.0006
0.610	0.860	52.8	0.8338	0.0024
		Average :	0.8362	0.0033

Pitot ID: **7C**

Reference Pitot (in H2O)	S-Type Pitot (in H2O)	Air Velocity (ft/s)	Pitot Coeff. Cp	Deviation (absolute)
0.200	0.280	29.6	0.8367	0.0009
0.300	0.420	16.3	0.8367	0.0009
0.430	0.600	43.4	0.8381	0.0005
0.530	0.740	30.5	0.8378	0.0002
0.610	0.850	47.0	0.8387	0.0011
		Average :	0.8376	0.0007

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: Sean Verby Signature: Date: Jan 8, 2025

A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

GLASS NOZZLE DIAMETER CALIBRATION FORM

Calibrated by: Christian De La O
Date: 18-Feb-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
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
P-250	0.2500	0.2495	0.2505	0.0010	0.2500	0.0003409
C-250	0.2500	0.2500	0.2500	0.0000	0.2500	0.0003409
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
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-33-13	0.3008	0.3009	0.3009	0.0001	0.3009	0.0004937
G-3121	0.3055	0.3063	0.3070	0.0015	0.3063	0.0005116
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-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
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
G-345	0.3470	0.3475	0.3475	0.0005	0.3473	0.0006580
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
P-38	0.3750	0.3750	0.3750	0.0000	0.3750	0.0007670
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

BAROMETER CALIBRATION FORM

Device	Cal Date	Pbar Env Canada		Device (inches of Hg)		Difference
		(kPa)	(inches of Hg)	Reading	Elevation Corrected	(Env Can - Elv Corr)
LA	6-Jan-25	103.3	30.51	30.42	30.49	0.02
DS	6-Jan-25	103.3	30.51	30.40	30.47	0.04
CL	6-Jan-25	103.3	30.51	30.42	30.49	0.02
JC	6-Jan-25	103.3	30.51	30.42	30.49	0.02
LF	6-Jan-25	103.3	30.51	30.41	30.48	0.03
Sv	6-Jan-25	103.3	30.51	30.41	30.48	0.03
CDO	6-Jan-25	103.3	30.51	30.41	30.48	0.03
JG	6-Jan-25	103.3	30.51	30.41	30.48	0.03
ML	6-Jan-25	103.3	30.51	30.41	30.48	0.03
BL	6-Jan-25	103.3	30.51	30.43	30.50	0.01

Calibrated by: Jeremy Gibbs Signature: Date: 06-Jan-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

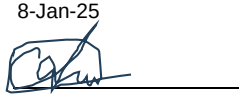
A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

TEMPERATURE CALIBRATION FORM

Calibrated by: Christian De La O

Date: 8-Jan-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	30.1	-0.39%	97.8	-0.39%	197.6	-0.36%	297.2	-0.37%	496.6	-0.35%	795.9	-0.33%	1693	-0.32%
TPI 341K	8	20313490047	31.1	-0.18%	99	-0.18%	198.6	-0.21%	298.3	-0.22%	497.6	-0.25%	797.1	-0.23%	1695	-0.23%
TPI 341K	11	20345510024	31.7	-0.06%	98.9	-0.20%	198.7	-0.20%	298.5	-0.20%	498	-0.21%	797.8	-0.17%	1696	-0.19%
TPI 341K	12	20345510031	32.7	0.14%	100.1	0.02%	199.9	-0.02%	299.8	-0.03%	499.4	-0.06%	798.8	-0.10%	1697	-0.14%
TPI 341K	18	20329480036		-6.51%		-17.87%		-30.32%		-39.49%		-52.10%		-63.51%		-78.72%
TPI 341K	20	20329480013	29.8	-0.45%	98.1	-0.34%	198	-0.30%	297.8	-0.29%	497.6	-0.25%	797.5	-0.20%	1697	-0.14%
TPI 341K	22	20329480041	30	-0.41%	98.1	-0.34%	197.7	-0.35%	297	-0.39%	497.1	-0.30%	796.8	-0.25%	1696	-0.19%
TPI 341K	24	20142030017	31.4	-0.12%	99.6	-0.07%	199.6	-0.06%	299.4	-0.08%	499	-0.10%	798.8	-0.10%	1697	-0.14%
TPI 341K	26	20345510036	31.6	-0.08%	99.6	-0.07%	199.2	-0.12%	299	-0.13%	498.7	-0.14%	798.4	-0.13%	1696	-0.19%
TPI 341K	28	20142030009	31	-0.20%	99.3	-0.13%	199.4	-0.09%	299.3	-0.09%	498.6	-0.15%	798.8	-0.10%	1697	-0.14%
TPI 341K	30	20345510023	31.7	-0.06%	99.3	-0.13%	198.9	-0.17%	298.7	-0.17%	498.4	-0.17%	797.8	-0.17%	1696	-0.19%
TPI 341K	32	20142030028	31.3	-0.14%	99.5	-0.09%	199.4	-0.09%	299	-0.13%	498.9	-0.11%	798.7	-0.10%	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 %																

Calibration Certificate

Date: 10-Jan-25
Calibrated by: SV/LF
Authorizing Signature:

Insrtument Calibrated: Testo 1 (330-2LL)
Serial #: 03101345
Customer: **ALA**

Ambient Conditions: Temperature: 20 °C Barometric Pressure: 102 kPa Relative Humidity: 76%

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			0.00	Pass		0
O_2	11.0	0.17	Pass			10.83	Fail		10.83
Ambient	20.9	0.05	Pass			20.95	Fail		20.95

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%	Pass		0
1 Gas	247	2.8%	Pass			100.0%	Fail		254
2 Gas	487	1.5%	Pass			100.0%	Fail		494
3 Gas	920	3.5%	Pass			100.0%	Fail		953

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	0	0.0%	Pass			0.0%	Pass		0
1 Gas	50	11.6%	Fail		47	4.9%	Pass		45
2 Gas	95	6.6%	Fail		92	3.2%	Pass		89
3 Gas	251	0.6%	Pass		252	1.0%	Pass		250

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)	353	0	0	1550	0	0	0
1 Gas	435	45279	48202	500	44.81	0	254.1
2 Gas	K9P	45397	48319	1500	89.11	0	494.2
3 Gas	K2H	45434	48356	1750	249.6	0	952.9
O_2/CO_2	A1M	45365	48287	1400	0	10.83	0

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

Calibration Certificate

Date: 10-Jan-25
Calibrated by: Sean Verby
Authorizing Signature: 

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

Ambient Conditions: Temperature: 20 °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	0.00	Pass			0.00	Pass		0
O_2	10.8	0.03	Pass			10.83	Fail		10.83
Ambient	20.9	0.06	Pass			20.96	Fail		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%	Pass		0
1 Gas	247	2.8%	Pass			100.0%	Fail		254
2 Gas	485	1.9%	Pass			100.0%	Fail		494
3 Gas	924	3.0%	Pass			100.0%	Fail		953

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	0.0%	Pass		0
1 Gas	48	7.1%	Fail		45	0.4%	Pass		44.8
2 Gas	92	3.2%	Pass		89	0.1%	Pass		89.1
3 Gas	253	1.4%	Pass		246	1.4%	Pass		249.6

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

NIST Traceable Calibration Gases:

Cylinder	Cylinder ID Number	Certification Date	Expiration Date	Cylinder Pressure (PSI)	NO (ppm)	O_2 (Vol. %)	CO (ppm)
Zero Gas (N_2)	353	0	0	1550	0	0	0
1 Gas	435	45279	48202	500	44.81	0	254.1
2 Gas	K9P	45397	48319	1500	89.11	0	494.2
3 Gas	K2H	45434	48356	1750	249.6	0	952.9
O_2/CO_2	A1M	45365	48287	1400	0	10.83	0

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

Calibration Certificate

Date: 10-Jan-25
Calibrated by: Sean Verby
Authorizing Signature: 

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

Ambient Conditions: Temperature: 8 °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	0.13	0.13	Pass			0.00	Pass		0
O_2	11.12	0.29	Pass			10.83	Fail		10.83
Ambient	20.85	0.11	Pass			20.96	Fail		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	2	0.7%	Pass			0.0%	Pass		0
1 Gas	254	0.0%	Pass			100.0%	Fail		254
2 Gas	500	1.2%	Pass			100.0%	Fail		494
3 Gas	937	1.7%	Pass			100.0%	Fail		953

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	0.7%	Pass		0	0.0%	Pass		0
1 Gas	47	4.9%	Pass		46	2.7%	Pass		44.8
2 Gas	93	4.4%	Pass		92	3.2%	Pass		89.1
3 Gas	255	2.2%	Pass		250	0.2%	Pass		249.6

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

NIST Traceable Calibration Gases:

Cylinder	Cylinder ID Number	Certification Date	Expiration Date	Cylinder Pressure (PSI)	NO (ppm)	O_2 (Vol. %)	CO (ppm)
Zero Gas (N_2)	353			1550	0	0	0
1 Gas	435	12/19/2023	12/20/2031	500	44.81	0	254.1
2 Gas	K9P	4/15/2024	4/15/2032	1500	89.11	0	494.2
3 Gas	K2H	5/22/2024	5/22/2032	1750	249.6	0	952.9
O_2/CO_2	A1M	3/14/2024	3/14/2032	1400	0	10.83	0

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

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

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

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 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

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: Witnessed by:

X Justin Ching **X** Daryl Sampson

Print Name: Justin Ching Print Name: Daryl Sampson

Date signed: 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.*

Walter Smith & Associates, Inc.

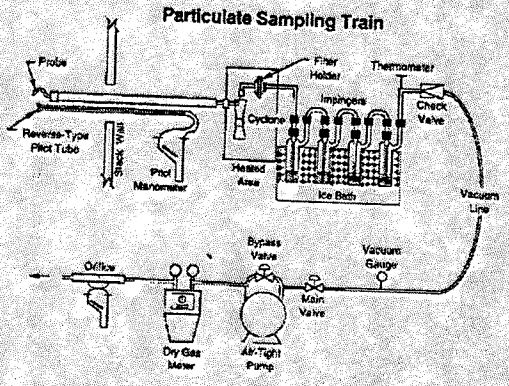
is hereby granted to:

Louis Agassiz

to certify that they have completed to satisfaction

Source Sampling & CEMS Workshop

Granted: March 11, 2011



Walter S, Smith, PE, DEE

3.5 CEU

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 Louis Agassiz, as a member of ECO Canada 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: Louis Agassiz

Witnessed by:

X _____

Print name: Mark Lanfranco

Date: Jan. 4, 2021

[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 Louis Agassiz

   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

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: Witnessed by:

X _____ **X** Daryl Sampson

Print Name: Louis Agassiz Print Name: Daryl Sampson

Date signed: November 23, 2020

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

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

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

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.

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: 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

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: Witnessed by:

X _____ **X** _____

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

Date signed: 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.*

MOUNT ROYAL UNIVERSITY
Faculty of Continuing Education

MOUNT ROYAL
UNIVERSITY
1910
CALGARY, ALBERTA

Sean Verby

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

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 Sean Verby

   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

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: Witnessed by:

X _____ **X** _____

Print Name: Sean Verby Print Name: Daryl Sampson

Date signed: Sept, 4, 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

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 Sean Verby, 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: Sean Verby

Witnessed by:

X _____

Print name: Mark Lanfranco

Date: Sept, 4, 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.*

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

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

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

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

President and CEO