A.Lanfranco & Associates Inc.

Environmental Consultants

Prepared for

METRO VANCOUVER

Metrotower III

4515 Central Boulevard

Burnaby, BC V5H 0C6

Trace Organics Emission Report
Waste-to-Energy Facility

July - August 2025 Survey

Operational Certificate 107051

Prepared by Mr. Carter Lanfranco

Report Issued: September 23, 2025

CERTIFICATION

The field monitoring for this survey was conducted by certified stack test technicians as required by the British Columbia Ministry of Environment and Parks (BC MOE) Field Sampling Manual.

The field crew consisted of:

Mr. D. Sampson (certified), Mr. J. Dennis.

The report was prepared by Mr. C. Lanfranco using reporting principles and guidelines generally acceptable to Metro Vancouver (MV) and the BC MOE.

The field crew and A. Lanfranco and Associates Inc. certify that the test methods used were BC MOE/MV approved reference methods for the parameters investigated.

Report reviewed on September 23, 2025, by:

_____

Mr. Mark Lanfranco
Principal

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APPENDICES

TEST PROGRAM ORGANIZATION

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Sampling Crew:	Mr. D. Sampson ï A. Lanfranco and Associates Inc. Mr. J. Dennis ï A. Lanfranco and Associates Inc.

SUMMARY

The following table presents the average of triplicate emission test results from Unit 1 for various trace organics on July 30 - 31, and Aug 1, 2025.

Parameter		Unit 1	Limit
PCDD/PCDF	(TEQ ng/Sm^3 @ 11% O_2)	0.0006	0.08
PCDD/PCDF Mass Emission	(TEQ g/day)	1.16E-06	
PAH	(µg/Sm^3 @ 11% O_2)	0.1354	5.0
HCB*	(µg/Sm^3 @ 11% O_2)	0.0046	
Total CB	(µg/Sm^3 @ 11% O_2)	0.0333	1.0
Total CP*	(µg/Sm^3 @ 11% O_2)	0.0023	1.0
Total PCB	(µg/Sm^3 @ 11% O_2)	0.0077	1.0
Flowrate	(Sm^3/min)	1154	
Temperature	(°C)	151	
O_2	(vol % dry)	10.2	

Standard conditions (S) of 20 °C and 101.325 kPa (dry)

Note - for PCDD/PCDF if the results of all parameters for all three test runs are non-detect, the average result is reported as 'ND' rather than at one half detection limit

*Calculated using one half detection limit

Note: PCDD/PCDF results are in nanograms per cubic meter and grams/day, PAH/HCB/CB/CP are reported in micrograms per cubic meter.

Last year represented an increase in PCDD/PCDF compared to 2022 and 2023. This year, the PCDD/PCDF congeners are lower, close to normal historical levels. Total PAH increased this year when compared to the most recent results from 2024. HCB and CP were both measured at the method detection limit and like most historical data. Total CB reduced this year; however, at these extremely low concentrations the difference year to year is not significant.

1 INTRODUCTION

Metro Vancouver (MV) commissioned an emissions (air) monitoring survey at the Waste-to-Energy Facility (WTEF) in Burnaby, B.C. This report documents the results of a semi-volatile organics survey for dioxin/furan (PCDD/PCDF), polychlorinated biphenyl (PCB), polycyclic aromatic hydrocarbons (PAH), hexachlorobenzenes (HCB), chlorobenzenes (CB), and chlorophenols (CP) during normal operations at the facility.

This report includes detailed emission results, a brief outline of methods employed, equipment used, and a discussion of the survey. Supporting data is presented in the appendices section of this report.

The individual emission source monitored for 2025 was Unit 1. Unit 2 is scheduled for 2026.

2 METHODOLOGY

All services provided by A. Lanfranco and Associates were conducted in accordance with approved reference methods as promulgated by:

- Metro Vancouver
- BC Ministry of Environment & Climate Change Strategy
- Environment Canada (EC)
- US Environmental Protection Agency (EPA)

2.1 Sampling and Analytical Methods

The following table lists the test methods used for the different parameters measured. The subsequent paragraphs briefly describe each method.

Parameter	**Reference Method**
Sample and Velocity traverse points	EPS 1/RM/8 A Determination of Sampling Site and Traverse Points
Velocity and flowrate	EPS 1/RM/8 B Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
Gas molecular weight (O_2/CO_2)	EPS 1/RM/8 C Determination of Molecular Weight by Gas Analysis
Flue gas Moisture	EPS 1/RM/8 D Determination of Moisture Content
Dioxin/Furan (sampling)	EPS 1/RM/2 Reference Method for Source Testing - Measurement of Releases of Semi-Volatile Organic Compounds from Stationary Sources EPA Method 23 Determination of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources supporting
Dioxin/Furan (analytical)	Methodology for Organic Analysis - A Method for the Analysis of Polychlorinated Dibenzopara-Dioxins (PCDD's), Polychlorinated Dibenzofurans (PCDF's) Environment Canada, December 1989

Sampling Site and Traverse Points — Primary: EPS 1/RM/8 Method A; Supporting: EPA Method 1

This method is designed to aid in the representative measurement of pollutant emissions and/or total volumetric flow rate from a stationary source. A measurement site where the effluent stream is flowing in a known direction is selected, and the cross-section of the stack is divided into a number of equal areas. Traverse points are then located within each of these equal areas.

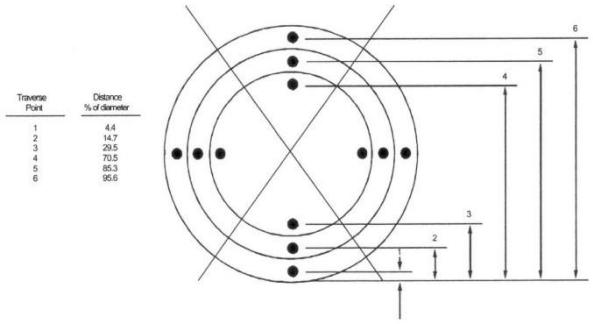


Figure 1. Example showing circular stack cross section divided into 12 equal areas, with location of traverse points.

Stack Gas Velocity and Volumetric Flow Rate

Primary: EPS 1/RM/8 Method B
Supporting: EPA Method 2

The average gas velocity in a stack or duct is determined from the gas density and from the measurement of velocity pressure with an S-type pitot tube. A standard pitot tube may be used where plugging of the tube openings due to particulate matter and/or moisture is not likely to occur. Stack gas volumetric flow rate is determined from measurements of stack gas velocity, temperature, absolute pressure, dry gas composition, moisture content, and stack diameter.

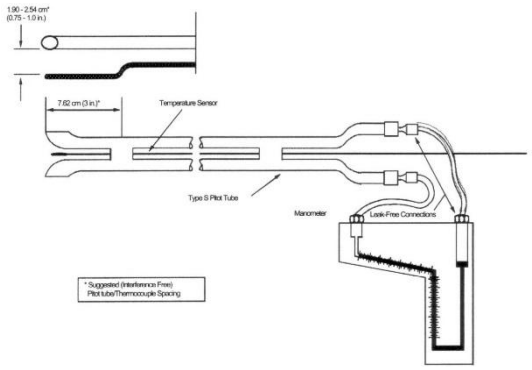


Figure 2. Type S Pitot Tube Manometer Assembly

Molecular Weight by Gas Analysis

Primary: EPS 1/RM/8 Method C
Supporting: EPA Method 3

An integrated or grab sample is extracted from a single point in the gas stream and analyzed for its components using a Fyrite analyzer, a gas chromatograph, or calibrated continuous analyzers.

Moisture Content

Primary: EPS 1/RM/8 Method D
Supporting: EPA Method 4

A gas sample is extracted from a single point in the enclosed gas stream being sampled. The moisture is condensed and its weight measured. This weight, together with the volume of gas sampled, enables the stack gas moisture content to be calculated.

Dioxins / Furans

Primary: EPS 1/RM/2, 1/RM/3, 1/RM/23
Supporting: EPA Method 23

This method is applicable to the determination of emissions of polychlorinated dibenzo-para-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and other semi-volatile organic compounds from stationary sources. An integrated gas sample is isokinetically withdrawn from the stack similar to Method 5. Semi-volatile organic compounds associated with particulate matter are collected in the front half components with remaining compounds not collected by the filter, being absorbed in an Amberlite XAD-2 resin trap.

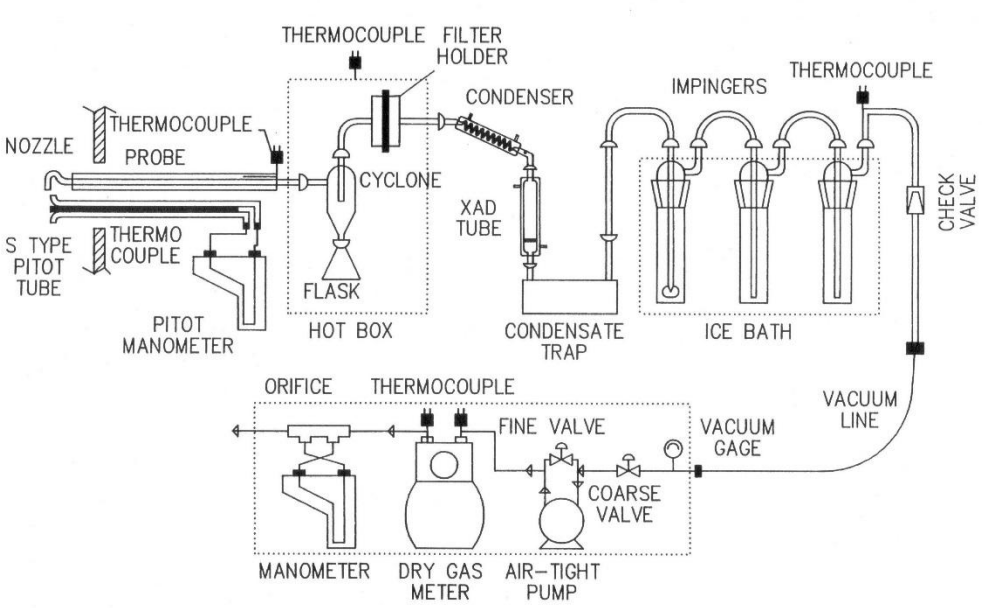


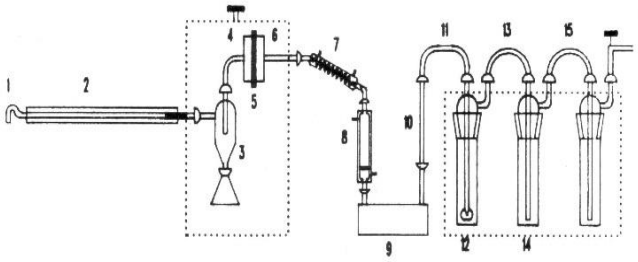
Figure 3 - Dioxin / Furan Sampling Train

Due to the sensitivity of this test method, extra care and precautions are used. All sample trains were cleaned professionally at an accredited laboratory. A solvent proof of the glassware and XAD was archived as suggested by the method.

The train was operated for duration of 240 minutes. Upon completion, it was removed to a clean area for recovery. The recovered sample consists of 6 individual components:

¶ Filter Rinses	¶ Front Half Rinses
¶ XAD Trap	¶ Soak
¶ Impingers	¶ Final Rinse

Complete sampling and recovery procedures can be supplied upon request.



Container or Sample	Component(s)	Recovery Procedure
1	1, 2, 3, 4	Wash and brush 3 times each with hexane (H) and acetone (A). Rinse 3 times each with H and A.
2	5	Remove carefully from holder. Place on pre-cleaned foil. Fold in half. Place in pre-cleaned glass petri dish.
3	6, 7	Soak 5 minutes each with H and A. Rinse 3 times each with H and A.
4	8	Cap ends and wrap in foil.
5	9, 12	Empty contents into container and rinse each 3 times with HPLC water.
6	6 to 15 except 8	Rinse 3 times each with H and A.

Mark liquid levels on all bottles.
All sample containers are pre-cleaned amber glass bottles with pre-cleaned Teflon lid liners.

Figure 4 Recovery Procedures for Semi-Volatile Organics

Samples are analyzed on a high-resolution GS/MS at Pacific Rim Laboratories Inc. of Surrey, BC. Following is a description, in very simplified terms, of the basic procedures used to process the sample train and blank train components.

Initially the sample components are separated into liquid (containers 1, 4, 5 and 6) or solid phases (containers 2 and 3) and surrogate compounds (for recovery calculations) are injected into the solid phases of the front and back half samples. Liquid and solid samples are extracted with various solvents (usually benzene), sometimes under acid conditions. Figure 5 and Figure 6 demonstrate the step by step procedures used to extract the components of interest into a solvent phase which

is ready for detailed splitting and clean-up. The concentrated extracts from Figure 5 are combined and are processed per procedures detailed in Figure 6.

When each target group has been isolated, as indicated in Figure 4, the extract volumes are dried, concentrated, and analysed by GC/MS analytical instrumentation. Prior to actual analysis, all samples were spiked with a performance standard for laboratory QA/QC purposes.

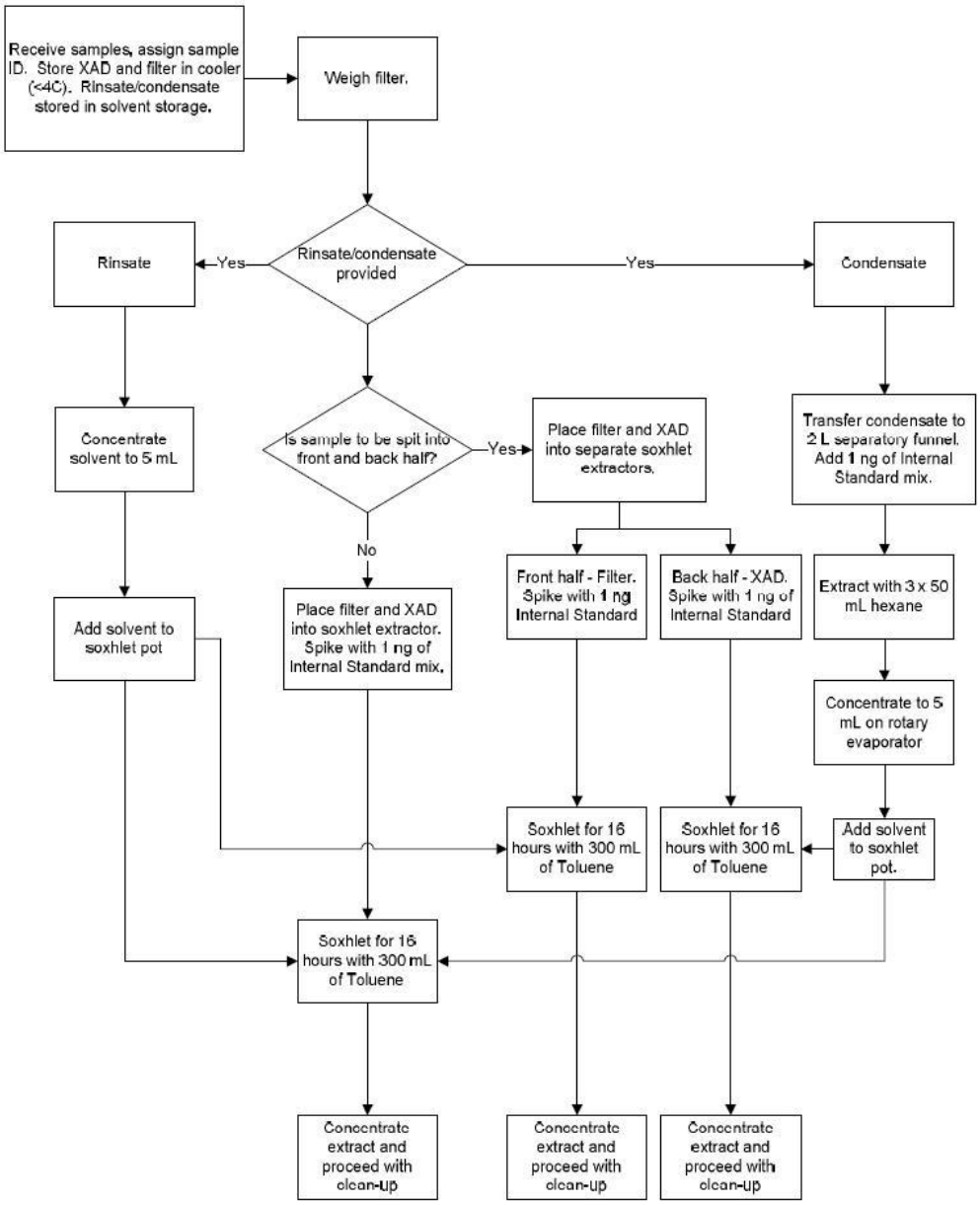


Figure 5 - Semi-Volatile Organics XAD and Filter Recovery Schematic

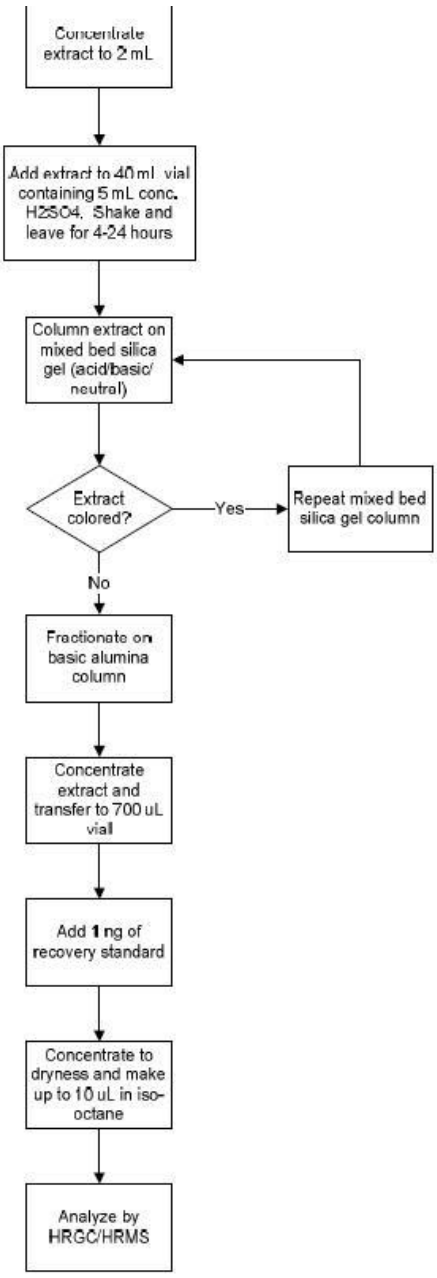


Figure 6 - Schematic of analytical methodology for dioxins and furans

2.2 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 Ñ 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.

2.2.1 Contaminant Concentration Calculations

$$\text{Equation 1}$$

$$\text{Equation 2}$$

$$\text{Equation 3}$$

$$\text{Equation 4}$$

$$\text{Equation 5}$$

$$\text{Equation 6}$$

$$\text{Equation 7}$$

$$\text{Equation 8}$$

$$\text{Equation 9}$$

$$\text{Equation 10}$$

$$\text{Equation 11}$$

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)
$V_{std(imp)}$	= 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)
$\sum H_{ave}$	= Average of individual point orifice pressures (inches of H_2O)
$\sum H_{i(act)}$	= 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)

Equation 1 is the general concentration calculation used for all contaminants. The contaminant mass, *m*, is the net analytic mass for the given contaminant.

The dioxins/furans and other semi-volatile organic compounds were treated slightly different. The blank results for all trace organic species are used as a Quality Assurance check and are not used to correct the analytic results. Also, according to the terms of the service agreement, individual trace organic species were reported as ñnon-detectò (ND) if all three tests for that species are below the detection limit. If one (or more) of the triplicate samples has a reportable value, the corresponding ND samples from the other test runs were reported at half the detection limit. For calculating of summarized results (PCDD/PCDF TEQ, Total PAHs, Total Chlorobenzenes, Total Chlorophenols, and Total PCBs) the substitution of half DL for each individual species, as detailed above, was performed prior to calculating the sums.

All results are reported in the units outlined in the service agreement. The following unit conversions were used throughout:

$$1 \text{ mg} = 10^{-3} \text{ g}$$

$$1 \text{ εg} = 10^{-6} \text{ g}$$

$$1 \text{ ng} = 10^{-9} \text{ g}$$

$$1 \text{ tonne} = 10^{6} \text{ g}$$

Oxygen corrections were applied by multiplying the result of Equation 1 by the result of Equation 10 for each individual result.

2.2.2 Isokinetic Variation Calculations

Ў΅Ο ﺳﻲ ς፥φς ﻋﻲ ρπ ﻋﻲ ῷ ﻋﻲ ӧ ﻋﻲ ρ ﻃﻲ ὄ ﻋﻲ ϋ ﻋﻲ ΅Ƴ ﻃﻠ τυω፥φχ ﻋﻲ Ўὴ / Ὢ ﻋﻲ ϋ ﻋﻲ ΅Ƴ ﻃﻠ τυω፥φχ **Equation 12**

ΎƳ ﺳﻲ ψυ፥τω ﻋﻲ ῷ ﻋﻲ Ўὴ ... ΅Ƴ ﻃﻠ τυω፥φχ / ϋ ﻋﻲ ῢ ﻋﻲ φπ ﻋﻲ ӧ ﻋﻲ ΅Ƴ ﻃﻠ τυω፥φχ ﻋﻲ ρ ﻃﻲ ὄ / ΅Ƴ ﻃﻠ τυω፥φχ ﻋﻲ ώ **Equation 13**

ӧ ﺳﻲ “ Ὢ / ςτ **Equation 14**

ϋ ﺳﻲ ϋ ﻋﻲ ρ ﻃﻲ ὄ ﻃﻠ ρψ ﻋﻲ ὄ **Equation 15**

ϋ ﺳﻲ π፥ττ ﻋﻲ Þὄΰ. ﻃﻠ π፥σς ﻋﻲ Þΰ. ﻃﻠ π፥ςψ ﻋﻲ ρππ ﻃﻲ Þὄΰ. ﻃﻲ Þΰ. **Equation 16**

΅Ƴ ﺳﻲ ρ / ὲ ΅Ƴ ὗ ύ΅ΏΏὶΏ ὲ ﺳﻲ ὸ΅ΏΏ ὲόάῷΏὶ έ΅Ώ ὴέ΅ὲὸί **Equation 17**

ὄ ﺳﻲ ώ / ώ ﻃﻠ ώ **Equation 18**

ώ ﺳﻲ π፥πτχπχ ﻋﻲ ώ **Equation 19**

΅ίέ ﺳﻲ ρ / ὲ ΅ίέ ὗ ύ΅ΏΏὶΏ ὲ ﺳﻲ ὸ΅ΏΏ ὲόάῷΏὶ έ΅Ώ ὴέ΅ὲὸί **Equation 20**

$$\text{Equation 21}$$

$$\text{Equation 22}$$

$$\text{Equation 23}$$

$$\text{Equation 24}$$

$$\text{Equation 25}$$

$$\text{Equation 26}$$

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)*

2.2.3 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 (Am^3/min)*
Q_S	*= Flowrate (m^3/min) at standard conditions on a dry basis*
A_{stk}	*= Area of stack (ft^2)*
d	*= Diameter of stack (inches)*

2.3 Quality Assurance/Quality Control (QA/QC) Techniques

QA/QC of this survey was accomplished by the following mechanisms.

1. Pre and Post-test leak checks.
2. Calibration of volume measuring and monitoring instrumentation.
3. Proofing of organic glassware and supplies.
4. Analysis of all blank solutions and materials.
5. Surrogate spiking of XAD using EPA protocols
6. Internal standard spiking and recovery analysis of organic trains to Env. Canada specs
7. Blank train sampling of leak check average volume

3 TEST RESULTS

The results of stack emissions were calculated using a ñSTACKò computer program developed by A. Lanfranco and Associates to meet BC MOE/MV requirements.

Table 1 presents summarized trace organic results using the Hazardous Waste Regulation TEQôs, as well as additional organic species. Table 2 presents detailed PCDD/PCDF data and Table 3 presents detailed PAH with additional chlorinated organic species emission concentrations. Production data is presented in Table 4 and supporting data in the Appendices.

Trace organic results were recovery corrected according to surrogate recovery efficiencies determined for each organic analysis. Surrogates added and the recoveries determined are listed in the analytical data presented in the Appendices.

A stratification check was performed in 2018, and a cyclonic flow check was performed in 2006. Neither condition was present at the Unit 1 sampling location.

During the survey the weather was seasonally normal. There was no significant rainfall or wind. Some airborne dust was observed at the facility but there is no reason to believe the sampling was compromised as a result.

TABLE 1: UNIT 3 TRACE ORGANICS RESULTS TABLE

Parameter		Test 1	Test 2	Test 3	Average
Test Date		30/Jul/25	31/Jul/25	1/Aug/25	
Test Time		07:59 - 12:05	08:25 - 12:26	08:41 - 12:45	
Duration	(minutes)	240	240	240	240
PCDD & PCDF TEQ	(ng/Sm^3)	0.0007	0.0005	0.0009	0.0007
PCDD & PCDF TEQ	**(ng/Sm^3 @ 11% O_2)**	**0.0006**	**0.0004**	**0.0009**	**0.0006**
Total PAH	($\varepsilon g/Sm^3$)	0.1410	0.1747	0.1256	0.1471
Total PAH	**($\varepsilon g/Sm^3$ @ 11% O_2)**	**0.1302**	**0.1574**	**0.1185**	**0.1354**
Total HCB*	($\varepsilon g/Sm^3$)	0.0050	0.0050	0.0050	0.0050
Total HCB*	**($\varepsilon g/Sm^3$ @ 11% O_2)**	**0.0046**	**0.0045**	**0.0047**	**0.0046**
Total CB	($\varepsilon g/Sm^3$)	0.0264	0.0166	0.0642	0.0358
Total CB	**($\varepsilon g/Sm^3$ @ 11% O_2)**	**0.0244**	**0.0150**	**0.0606**	**0.0333**
Total CP*	($\varepsilon g/Sm^3$)	0.0025	0.0025	0.0025	0.0025
Total CP*	**($\varepsilon g/Sm^3$ @ 11% O_2)**	**0.0023**	**0.0023**	**0.0024**	**0.0023**
Total PCB	($\varepsilon g/Sm^3$)	0.0048	0.0041	0.0159	0.0082
Total PCB	**($\varepsilon g/Sm^3$ @ 11% O_2)**	**0.0044**	**0.0037**	**0.0150**	**0.0077**
Stack Temperature	(ÁC)	148	151	152	151
Flowrate	(Sm^3/min)	1116	1165	1181	1154
Oxygen (O_2)	(vol % dry)	10.2	9.9	10.4	10.2
Carbon Dioxide (CO_2)	(vol % dry)	9.7	10.1	9.6	9.8
Moisture	(vol %)	13.8	13.4	11.7	12.9
Isokinetic Variation	(%)	101	103	100	101

Standard conditions (S) of 20 ÁC and 101.325 kPa (dry)

*Calculated using half DL convention.

TABLE 2 Detailed PCDD/PCDF Emission Results

		Test 1		Test 2		Test 3	
Test Date:		30-Jul-25		31-Jul-25		1-Aug-25	
Test Time:		07:59 - 12:05		08:25 - 12:26		08:41 - 12:45	
Component	**TEF**	**Analyzed** (ng)	**TEQ** (ng)	**Analyzed** (ng)	**TEQ** (ng)	**Analyzed** (ng)	**TEQ** (ng)
2378 TCDD	1.0000	0.0000	ND	0.0000	ND	0.0000	ND
12378 PCDD	0.5000	0.0000	ND	0.0000	ND	0.0000	ND
123478 HxCDD	0.1000	0.0000	ND	0.0000	ND	0.0000	ND
123678 HxCDD	0.1000	0.0000	ND	0.0000	ND	0.0000	ND
123789 HxCDD	0.1000	0.0000	ND	0.0000	ND	0.0000	ND
1234678 HpCDD	0.0100	0.0180	0.0002	0.0100	0.0001	0.0200	0.0002
OCDD	0.0010	0.0340	0.00003	0.0300	0.00003	0.0370	0.00004
2378 TCDF	0.1000	0.0000	ND	0.0000	ND	0.0000	ND
12378 PCDF	0.0500	0.0000	ND	0.0000	ND	0.0000	ND
23478 PCDF	0.5000	0.0020	0.0010	0.0020	0.0010	0.0048	0.0024
123478 HxCDF	0.1000	0.0000	ND	0.0000	ND	0.0000	ND
123678 HxCDF	0.1000	0.0048	0.0005	0.0020	0.0002	0.0020	0.0002
234678 HxCDF	0.1000	0.0044	0.0004	0.0020	0.0002	0.0020	0.0002
123789 HxCDF	0.1000	0.0000	ND	0.0000	ND	0.0000	ND
1234678 HpCDF	0.0100	0.0220	0.00022	0.0180	0.00018	0.0240	0.00024
1234789 HpCDF	0.0100	0.0000	ND	0.0000	ND	0.0000	ND
OCDF	0.0010	0.0075	7.5E-06	0.0075	7.5E-06	0.0200	2.00E-05
Summed PCDD & PCDF TEQ (ng)			**0.0024**		**0.0017**		**0.0033**
Sample Volume (dscm)			**3.4047**		**3.6056**		**3.5823**
PCDD & PCDF TEQ	**ng/dscm**		**0.00069**		**0.00048**		**0.00092**
PCDD & PCDF TEQ	**ng/dscm @ 11% O_2**		**0.00064**		**0.00043**		**0.00087**
PCDD & PCDF TEQ	**grams/day**		**0.000001**		**0.000001**		**0.000002**
Flowrate (dscm/min)			1116		1165		1181
Oxygen (Vol. %)			10.2		9.9		10.4
Carbon Dioxide (Vol. %)			9.69		10.06		9.60
Moisture (Vol. %)			13.8		13.4		11.7
Temperature (oC)			148		151		152
Isokinetic Variation (%)			101		103		100

TABLE 3 Detailed PCB/PAH/CB/CP Emission Results

	Test 1	Test 2	Test 3
Test Date:	30/Jul/25	31/Jul/25	1/Aug/25
Test Time:	07:59 - 12:05	08:25 - 12:26	08:41 - 12:45
Component	**Analyzed** (ug)	**Analyzed** (ug)	**Analyzed** (ug)
Benz(a)anthracene	ND	0.100	ND
Benzo(a)pyrene	0.010	ND	ND
Benzo(b) fluoranthene	0.010	0.040	ND
Benzo(e)pyrene	0.040	0.030	0.030
Benzo(g,h,i)perylene	0.060	0.100	0.080
Benzo(k)fluoranthene	0.030	0.040	0.040
Chrysene	ND	ND	ND
Dibenz(a,j)acridine	ND	ND	ND
Dibenz(a,h)acridine	ND	ND	ND
Dibenz(a,h)anthracene	ND	ND	ND
Dibenzo(a,i)pyrene	ND	ND	ND
Fluoranthene	0.070	0.040	0.050
Indeno(1,2,3-c,d)pyrene	0.010	ND	0.010
Phenanthrene	0.130	0.160	0.120
Pyrene	0.120	0.040	0.050
7H-dibenzo(c,g)carbazole	ND	ND	ND
Acenaphthene	**ND**	**ND**	**ND**
Acenaphthylene	**ND**	**ND**	**0.070**
Fluorene	**ND**	**0.080**	**ND**
Dibenzo(a,e) fluoranthene	**ND**	**ND**	**ND**
3-Methylcholanthrene	**ND**	**ND**	**ND**
5-Methylchrysene	**ND**	**ND**	**ND**
7,12-Dimethylbenz(a)anthracene	**ND**	**ND**	**ND**
Dibenzo(a,h)pyrene	**ND**	**ND**	**ND**
Dibenzo(a,e)pyrene	**ND**	**ND**	**ND**
Dibenzo(a,l)pyrene	**ND**	**ND**	**ND**
Quinoline	**ND**	**ND**	**ND**
Total CP	**ND**	**ND**	**ND**
Total CB	**0.0900**	**0.0600**	**0.2300**
HCB	**ND**	**ND**	**ND**
* ND = Less than detection limit			
PCB Total (ng)	**16.2**	**14.70**	**56.9**
Total PAH (ug)	**0.480**	**0.630**	**0.450**
Sample Volume (dscm)	**3.40**	**3.61**	**3.58**
Oxygen	10.2	9.9	10.4
PAH ug/dscm	**0.1410**	**0.1747**	**0.1256**
HCB ug/dscm	**0.0050**	**0.0050**	**0.0050**
CB Total ug/dscm	**0.0264**	**0.0166**	**0.0642**
CP Total ug/dscm	**0.0025**	**0.0025**	**0.0025**
PCB Total ug/dscm	**0.0048**	**0.0041**	**0.0159**
PAH ug/dscm @ 11% O_2	**0.1302**	**0.1574**	**0.1185**
HCB ug/dscm @ 11% O_2	**0.0046**	**0.0045**	**0.0047**
CB Total ug/dscm @ 11% O_2	**0.0244**	**0.0150**	**0.0606**
CP Total ug/dscm @ 11% O_2	**0.0023**	**0.0023**	**0.0024**
PCB Total ug/dscm @ 11% O_2	**0.0044**	**0.0037**	**0.0150**

TABLE 4: UNIT 3 - SUMMARY OF OPERATING DATA

Parameter		Run 1	Run 2	Run 3	Normal
Test Date - PCDD/PCDF		30-Jul-25	31-Jul-25	1-Aug-25	
Test Time - PCDD/PCDF		07:59 - 12:05	08:25 - 12:26	08:41 - 12:45	
Boiler Steam Production	(kg/h)	38996	38,641	37,670	36,945
Percentage of normal	(%)	106%	105%	102%	
Boiler Secondary Combustion Zone Temp	(°C)	863	890	871	877
Percentage of normal	(%)	98%	101%	99%	
Rate of refuse fired	(kg/hr)	11,641	11534	11244	11028
Percentage of normal	(%)	106%	105%	102%	
Rate of aux. fuel fired (Natural Gas)	m^3/hr	270	68	148	171
Percentage of normal (%)	(%)	158%	40%	87%	

*Normal refers to the average operating rate from the previous 30 days

4 DISCUSSION

The emissions monitoring for this survey was performed during normal processing of municipal solid waste at the Waste-to-Energy facility. Three sample runs for each test parameter were conducted over three days to determine final results.

Results from this survey indicate that emissions are well below the operational certificate limits for each pollutant.

Last year, several Dioxin and Furan congeners were detected, which represented an increase compared to 2022 and 2023. This year, most congeners are back to what we would consider normal levels, and more in-line with results from 2022 and 2023. Most of the emissions (in terms of TEQ) come from 1234678 HpCDF and 1234678 HpCDD.

Total PAH increased this year from 0.0786 εg/Sm^3 @ 11% O_2 in 2024 to 0.1354 εg/Sm^3 @ 11% O_2 in 2025. The majority of the PAH came from Phenanthrene. HCB and CP were both measured at the method detection limit and like most historical data. Total CB showed the largest decrease compared to last yearôs data. This yearôs result is about ten times lower than the findings from 2024.

Dioxin/Furan results are expressed using the International Toxic Equivalents (I-TEQ). In this report, individual species that were measured below detection limits were reported as zero or ñnon-detectò if there was no detection in any of the three test runs.

The QA/QC program showed very low or non-detectable levels of target contaminants in the blank sample, which used the same solid sorbent resin and clean-up solvents as those used for samples. Additionally, the proof analysis of the glassware and XAD (prior recent blanks) showed no significant PCDD/PCDF.

For all tests and the blank test, internal standard recoveries ranged from 40 to 68%.

EPA Method 23 surrogate recoveries ranged from 81 to 106% for each Dioxin/Furan sample. The recovery QA/QC data is expected to meet EPA performance specifications (M23) of 70 to 130% for pre-test spiked surrogates. The M23 spiking protocol is not required in Canada and is included in the sampling/analytical protocol for additional QA/QC and information purposes only.

There were no problems associated with sample collection or analysis. Sampling was conducted in accordance with the respective reference methods and passed all appropriate quality assurance and quality control criteria. It is therefore stated that these results are reported with a high degree of confidence and are an accurate representation of emission characteristics for the operating conditions maintained on the test dates.

APPENDIX 1

ANALYTICAL DATA and

QA/QC RESULTS

SAMPLE RECEIPT FORM / TEST REPORT

FILE #: PR253122

CLIENT: A. Lanfranco & Associates
Unit 101 9488 – 189 St.
Surrey, BC
V4N 4W7

Phone: (604) 881-2582
Email: mark.lanfranco@alanfranco.com

RECEIVED BY: R. Jonker
DATE/TIME: August 5, 2025 (3:00 p.m.)
CONDITION: Okay, 24.0°C

# of Containers	Sample Type	Sample (Client Codes)	Lab Codes	Test Requested
4	Stack	Blk Dioxin Unit – 1	PR253122	PCDD/F, PCB, PAH/HCB, CB, CP
4	Stack	Run 1 – Dioxin Unit – 1	PR253123	PCDD/F, PCB, PAH/HCB, CB, CP
4	Stack	Run 2 – Dioxin Unit – 1	PR253124	PCDD/F, PCB, PAH/HCB, CB, CP
4	Stack	Run 3 – Dioxin Unit – 1	PR253125	PCDD/F, PCB, PAH/HCB, CB, CP

STORAGE: XAD and filter stored at 4°C, rinses stored at ambient temperature.

ANALYTES: HRGC/HRMS analysis for polychlorinated dibenzo(p)dioxins and dibenzofurans (PCDD/F), polychlorinated biphenyls (PCB) and polycyclic aromatic hydrocarbons (PAH).

SPECIAL INSTRUCTIONS: None.

METHODOLOGY

Reference Method: PCDD/F: SOP LAB01; EPA Method 23, Environment Canada 1-RM-3
PCB: SOP LAB02; EPA Method 1668C
PAH/CB/CP: SOP LAB013; in house

Data summarized in Data Report attached.

Report sent to: Mark Lanfranco Date: August 26, 2025

Comments: Results relate only to items tested.

_____
David Hope, P.Chem, CEO

METHOD 23/1-RM-3 DATA REPORT

Client:	A. Lanfranco & Associates	**Sample Date:**	28-Jul-25
Client ID:	Blk Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253122	**Date Analysed:**	25-Aug-25
		Filter Wt.:	0.37g

DIOXINS

		DL	# of	I-TEQs (ND=0)	I-TEQs (ND=½DL)	I-TEQs (ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	ND	2		ND	1	2
Total TCDD	ND	2	0			
1,2,3,7,8-PeCDD	ND	4		ND	1	2
Total PeCDD	ND	4	0			
1,2,3,4,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDD	ND	4		ND	0.2	0.4
Total HxCDD	ND	4	0			
1,2,3,4,6,7,8-HpCDD	ND	4		ND	0.02	0.04
Total HpCDD	ND	4	0			
OCDD	ND	15	0	ND	0.0075	0.015
		Total Dioxin TEQ		**0.0**	**2.6**	**5.3**

FURANS

		DL	# of	I-TEQs (ND=0)	I-TEQs (ND=½DL)	I-TEQs (ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDF	ND	2		ND	0.1	0.2
Total TCDF	ND	2	0			
1,2,3,7,8-PeCDF	ND	4		ND	0.1	0.2
2,3,4,7,8-PeCDF	ND	4		ND	1	2
Total PeCDF	ND	4	0			
1,2,3,4,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDF	ND	4		ND	0.2	0.4
2,3,4,6,7,8-HxCDF	ND	4		ND	0.2	0.4
Total HxCDF	ND	4	0			
1,2,3,4,6,7,8-HpCDF	ND	4		ND	0.02	0.04
1,2,3,4,7,8,9-HpCDF	ND	4		ND	0.02	0.04
Total HpCDF	ND	4	0			
OCDF	ND	15	0	ND	0.0075	0.015
		Total Furan TEQ		**0.0**	**2.0**	**4.1**

Total PCDD/PCDF Toxic Equivalent (pg)	**0.0**	**4.7**	**9.4**

Surrogate Recoveries (%)

$^{37}Cl_4$ -2,3,7,8-TCDD	87
$^{13}C_{12}$ -2,3,4,7,8-PeCDF	99
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDD	83
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDF	88
$^{13}C_{12}$ -1,2,3,4,7,8,9-HpCDF	104

ND - none detected

Internal Standards (%)

$^{13}C_{12}$ -2,3,7,8-TCDD	49
$^{13}C_{12}$ -1,2,3,7,8-PeCDD	62
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDD	59
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDD	57
$^{13}C_{12}$ -OCDD	47
$^{13}C_{12}$ -2,3,7,8-TCDF	41
$^{13}C_{12}$ -1,2,3,7,8-PeCDF	59
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDF	57
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDF	56

METHOD 23/1-RM-3 DATA REPORT

Client:	A. Lanfranco & Associates	**Sample Date:**	28-Jul-25
Client ID:	Run 1 – Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253123	**Date Analysed:**	25-Aug-25
		Filter Wt.:	0.37g

DIOXINS				I-TEQs		
		DL	# of	(ND=0)	(ND=½DL)	(ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	ND	2		ND	1	2
Total TCDD	ND	2	0			
1,2,3,7,8-PeCDD	ND	4		ND	1	2
Total PeCDD	ND	4	0			
1,2,3,4,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDD	ND	4		ND	0.2	0.4
Total HxCDD	33	4	2			
1,2,3,4,6,7,8-HpCDD	18	4		0.18	0.18	0.18
Total HpCDD	31	4	2			
OCDD	34	15	1	0.034	0.034	0.034
		Total Dioxin TEQ		**0.2**	**2.8**	**5.4**

FURANS				I-TEQs		
		DL	# of	(ND=0)	(ND=½DL)	(ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDF	ND	2		ND	0.1	0.2
Total TCDF	3.1	2	1			
1,2,3,7,8-PeCDF	ND	4		ND	0.1	0.2
2,3,4,7,8-PeCDF	ND	4		ND	1	2
Total PeCDF	31	4	4			
1,2,3,4,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDF	4.8	4		0.48	0.48	0.48
1,2,3,7,8,9-HxCDF	ND	4		ND	0.2	0.4
2,3,4,6,7,8-HxCDF	4.4	4		0.44	0.44	0.44
Total HxCDF	9.2	4	2			
1,2,3,4,6,7,8-HpCDF	22	4		0.22	0.22	0.22
1,2,3,4,7,8,9-HpCDF	ND	4		ND	0.02	0.04
Total HpCDF	34	4	3			
OCDF	ND	15	0	ND	0.0075	0.015
		Total Furan TEQ		**1.1**	**2.8**	**4.4**

Total PCDD/PCDF Toxic Equivalent (pg)	**1.4**	**5.6**	**9.8**

Surrogate Recoveries (%)

$^{37}Cl_4$ -2,3,7,8-TCDD	91
$^{13}C_{12}$ -2,3,4,7,8-PeCDF	106
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDD	90
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDF	92
$^{13}C_{12}$ -1,2,3,4,7,8,9-HpCDF	106

ND - none detected

Internal Standards (%)

$^{13}C_{12}$ -2,3,7,8-TCDD	53
$^{13}C_{12}$ -1,2,3,7,8-PeCDD	67
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDD	56
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDD	57
$^{13}C_{12}$ -OCDD	40
$^{13}C_{12}$ -2,3,7,8-TCDF	41
$^{13}C_{12}$ -1,2,3,7,8-PeCDF	61
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDF	55
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDF	54

METHOD 23/1-RM-3 DATA REPORT

Client:	A. Lanfranco & Associates	**Sample Date:**	31-Jul-25
Client ID:	Run 2 – Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253124	**Date Analysed:**	25-Aug-25
		Filter Wt.:	0.38g

DIOXINS

		DL	# of	I-TEQs (ND=0)	I-TEQs (ND=½DL)	I-TEQs (ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	ND	2		ND	1	2
Total TCDD	ND	2	0			
1,2,3,7,8-PeCDD	ND	4		ND	1	2
Total PeCDD	ND	4	0			
1,2,3,4,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDD	ND	4		ND	0.2	0.4
Total HxCDD	19	4	1			
1,2,3,4,6,7,8-HpCDD	10	4		0.1	0.1	0.1
Total HpCDD	26	4	2			
OCDD	30	15	1	0.03	0.03	0.03
		Total Dioxin TEQ		**0.1**	**2.7**	**5.3**

FURANS

		DL	# of	I-TEQs (ND=0)	I-TEQs (ND=½DL)	I-TEQs (ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDF	ND	2		ND	0.1	0.2
Total TCDF	ND	2	0			
1,2,3,7,8-PeCDF	ND	4		ND	0.1	0.2
2,3,4,7,8-PeCDF	ND	4		ND	1	2
Total PeCDF	ND	4	0			
1,2,3,4,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDF	ND	4		ND	0.2	0.4
2,3,4,6,7,8-HxCDF	ND	4		ND	0.2	0.4
Total HxCDF	4.3	4	1			
1,2,3,4,6,7,8-HpCDF	18	4		0.18	0.18	0.18
1,2,3,4,7,8,9-HpCDF	ND	4		ND	0.02	0.04
Total HpCDF	18	4	1			
OCDF	ND	15	0	ND	0.0075	0.015
		Total Furan TEQ		**0.2**	**2.2**	**4.2**

Total PCDD/PCDF Toxic Equivalent (pg)	**0.3**	**4.9**	**9.6**

Surrogate Recoveries (%)

$^{37}Cl_4$ -2,3,7,8-TCDD	84
$^{13}C_{12}$ -2,3,4,7,8-PeCDF	98
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDD	81
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDF	86
$^{13}C_{12}$ -1,2,3,4,7,8,9-HpCDF	87

ND - none detected

Internal Standards (%)

$^{13}C_{12}$ -2,3,7,8-TCDD	49
$^{13}C_{12}$ -1,2,3,7,8-PeCDD	56
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDD	57
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDD	53
$^{13}C_{12}$ -OCDD	40
$^{13}C_{12}$ -2,3,7,8-TCDF	42
$^{13}C_{12}$ -1,2,3,7,8-PeCDF	53
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDF	57
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDF	54

METHOD 23/1-RM-3 DATA REPORT

Client:	A. Lanfranco & Associates	**Sample Date:**	1-Aug-25
Client ID:	Run 3 – Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253125	**Date Analysed:**	25-Aug-25
		Filter Wt.:	0.36g

DIOXINS				I-TEQs		
		DL	# of	(ND=0)	(ND=½DL)	(ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	ND	2		ND	1	2
Total TCDD	ND	2	0			
1,2,3,7,8-PeCDD	ND	4		ND	1	2
Total PeCDD	ND	4	0			
1,2,3,4,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDD	ND	4		ND	0.2	0.4
Total HxCDD	25	4	1			
1,2,3,4,6,7,8-HpCDD	20	4		0.2	0.2	0.2
Total HpCDD	40	4	2			
OCDD	37	15	1	0.037	0.037	0.037
		Total Dioxin TEQ		**0.2**	**2.8**	**5.4**

FURANS				I-TEQs		
		DL	# of	(ND=0)	(ND=½DL)	(ND=DL)
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDF	ND	2		ND	0.1	0.2
Total TCDF	33	2	4			
1,2,3,7,8-PeCDF	ND	4		ND	0.1	0.2
2,3,4,7,8-PeCDF	4.8	4		2.4	2.4	2.4
Total PeCDF	13	4	2			
1,2,3,4,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDF	ND	4		ND	0.2	0.4
2,3,4,6,7,8-HxCDF	ND	4		ND	0.2	0.4
Total HxCDF	ND	4	0			
1,2,3,4,6,7,8-HpCDF	24	4		0.24	0.24	0.24
1,2,3,4,7,8,9-HpCDF	ND	4		ND	0.02	0.04
Total HpCDF	34	4	2			
OCDF	20	15	1	0.02	0.02	0.02
		Total Furan TEQ		**2.7**	**3.7**	**4.7**

Total PCDD/PCDF Toxic Equivalent (pg)	**2.9**	**6.5**	**10.1**

Surrogate Recoveries (%)

$^{37}Cl_4$ -2,3,7,8-TCDD	86
$^{13}C_{12}$ -2,3,4,7,8-PeCDF	101
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDD	84
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDF	87
$^{13}C_{12}$ -1,2,3,4,7,8,9-HpCDF	94

ND - none detected

Internal Standards (%)

$^{13}C_{12}$ -2,3,7,8-TCDD	50
$^{13}C_{12}$ -1,2,3,7,8-PeCDD	62
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDD	68
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDD	64
$^{13}C_{12}$ -OCDD	54
$^{13}C_{12}$ -2,3,7,8-TCDF	40
$^{13}C_{12}$ -1,2,3,7,8-PeCDF	58
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDF	65
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDF	64

METHOD 23/1-RM-3 DATA REPORT

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	BLANK	**Date Extracted:**	11-Aug-25
PRL ID:	DF250651B	**Date Analysed:**	25-Aug-25

DIOXINS				**I-TEQs**		
		DL	**# of**	**(ND=0)**	**(ND=½DL)**	**(ND=DL)**
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	ND	2		ND	1	2
Total TCDD	ND	2	0			
1,2,3,7,8-PeCDD	ND	4		ND	1	2
Total PeCDD	ND	4	0			
1,2,3,4,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDD	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDD	ND	4		ND	0.2	0.4
Total HxCDD	ND	4	0			
1,2,3,4,6,7,8-HpCDD	ND	4		ND	0.02	0.04
Total HpCDD	ND	4	0			
OCDD	ND	15	0	ND	0.0075	0.015
		Total Dioxin TEQ		**0.0**	**2.6**	**5.3**

FURANS				**I-TEQs**		
		DL	**# of**	**(ND=0)**	**(ND=½DL)**	**(ND=DL)**
Congeners	**pg**	**pg**	**peaks**	**pg**	**pg**	**pg**
2,3,7,8-TCDF	ND	2		ND	0.1	0.2
Total TCDF	ND	2	0			
1,2,3,7,8-PeCDF	ND	4		ND	0.1	0.2
2,3,4,7,8-PeCDF	ND	4		ND	1	2
Total PeCDF	ND	4	0			
1,2,3,4,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,6,7,8-HxCDF	ND	4		ND	0.2	0.4
1,2,3,7,8,9-HxCDF	ND	4		ND	0.2	0.4
2,3,4,6,7,8-HxCDF	ND	4		ND	0.2	0.4
Total HxCDF	ND	4	0			
1,2,3,4,6,7,8-HpCDF	ND	4		ND	0.02	0.04
1,2,3,4,7,8,9-HpCDF	ND	4		ND	0.02	0.04
Total HpCDF	ND	4	0			
OCDF	ND	15	0	ND	0.0075	0.015
		Total Furan TEQ		**0.0**	**2.0**	**4.1**

Total PCDD/PCDF Toxic Equivalent (pg)	**0.0**	**4.7**	**9.4**

Internal Standards (%)

$^{13}C_{12}$ -2,3,7,8-TCDD	49
$^{13}C_{12}$ -1,2,3,7,8-PeCDD	66
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDD	56
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDD	58
$^{13}C_{12}$ -OCDD	49
$^{13}C_{12}$ -2,3,7,8-TCDF	42
$^{13}C_{12}$ -1,2,3,7,8-PeCDF	60
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDF	58
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDF	56

ND - none detected

QC REPORT - SPIKE

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	SPIKE	**Date Extracted:**	11-Aug-25
PRL ID:	DF250652S	**Date Analysed:**	25-Aug-25

DIOXINS			**Acceptable Recovery**		**Pass/Fail**	**Int. Std**
	LOF	**Recovery**	**Min**	**Max**		**Recoveries**
Congeners	**pg**	**%**	**%**	**%**		**%**
2,3,7,8-TCDD	200	90	80	120	Pass	49
1,2,3,7,8-PeCDD	200	101	80	120	Pass	59
1,2,3,4,7,8-HxCDD	400	97	80	120	Pass	-
1,2,3,6,7,8-HxCDD	400	105	80	120	Pass	70
1,2,3,7,8,9-HxCDD	400	116	80	120	Pass	-
1,2,3,4,6,7,8-HpCDD	400	114	80	120	Pass	61
OCDD	1000	118	80	120	Pass	44

FURANS			**Acceptable Recovery**		**Pass/Fail**	**Int. Std**
	LOF	**Recovery**	**Min**	**Max**		**Recoveries**
Congeners	**pg**	**%**	**%**	**%**		**%**
2,3,7,8-TCDF	200	93	80	120	Pass	43
1,2,3,7,8-PeCDF	200	90	80	120	Pass	57
2,3,4,7,8-PeCDF	200	95	80	120	Pass	-
1,2,3,4,7,8-HxCDF	400	92	80	120	Pass	-
1,2,3,6,7,8-HxCDF	400	94	80	120	Pass	73
1,2,3,7,8,9-HxCDF	400	97	80	120	Pass	-
2,3,4,6,7,8-HxCDF	400	94	80	120	Pass	-
1,2,3,4,6,7,8-HpCDF	400	102	80	120	Pass	63
1,2,3,4,7,8,9-HpCDF	400	81	80	120	Pass	-
OCDF	1000	91	80	120	Pass	-

LOF - Level of Fortification

DATA REPORT

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	Blk Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253122	**Date Analysed:**	25-Aug-25

Dioxin-like PCBs				**Surrogate**	**WHO-TEQs (2005)**	
			DL	**Recoveries**	**(ND=0)**	**(ND=DL)**
Chemical Name	**IUPAC #**	**ng**	**ng**	**%**	**ng**	**ng**
3,4,4',5-TeCB	PCB 81	ND	0.02	64	ND	6.00E-06
3,3',4,4'-TeCB	PCB 77	ND	0.02	68	ND	2.00E-06
2,3',4,4',5'-PeCB	PCB 123	ND	0.02	56	ND	6.00E-07
2,3',4,4',5-PeCB	PCB 118	ND	0.02	52	ND	6.00E-07
2,3,4,4',5-PeCB	PCB 114	ND	0.02	44	ND	6.00E-07
2,3,3',4,4'-PeCB	PCB 105	ND	0.02	68	ND	6.00E-07
3,3',4,4',5-PeCB	PCB 126	ND	0.02	84	ND	2.00E-03
2,3',4,4',5,5'-HxCB	PCB 167	ND	0.02	72	ND	6.00E-07
2,3,3',4,4',5-HxCB	PCB 156	ND	0.02	60	ND	6.00E-07
2,3,3',4,4',5'-HxCB	PCB 157	ND	0.02	112	ND	6.00E-07
3,3',4,4',5,5'-HxCB	PCB 169	ND	0.02	100	ND	6.00E-04
2,3,3',4,4',5,5'-HpCB	PCB 189	ND	0.02	48	ND	6.00E-07
		Toxic Equivalent (WHO-TEQ)			0.00E+00	2.61E-03

Total PCB		
		DL
Homologs	**ng**	**ng**
Monochlorobiphenyls	ND	0.05
Dichlorobiphenyls	0.91	0.05
Trichlorobiphenyls	0.06	0.05
Tetrachlorobiphenyls	0.11	0.05
Pentachlorobiphenyls	0.14	0.05
Hexachlorobiphenyls	0.16	0.05
Heptachlorobiphenyls	ND	0.05
Octachlorobiphenyls	ND	0.05
Nonachlorobiphenyls	ND	0.05
Decachlorobiphenyl	ND	0.05
Total PCB	1.38	

ND - none detected

Surrogate Recoveries		
Chemical Name	**IUPAC #**	**%**
13C12-2-MoCB	1L	12
13C12-4,4'-DiCB	15L	28
13C12-2,2',6'-TrCB	19L	24
13C12-3,4,4'-TrCB	37L	52
13C12-2,2',6,6'-TeCB	54L	40
13C12-2,2',4,6,6'-PeCB	104L	40
13C12-2,2',4,4',6,6'-HxCB	155L	40
13C12-2,2',3,4',5,6,6'-HpCB	188L	32
13C12-2,2',3,3',5,5',6,6'-OcCB	202L	44
13C12-2,3,3',4,4',5,5',6-OcCB	205L	92
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	52
13C12-DeCB	209L	68

DATA REPORT

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	Run 1 – Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253123	**Date Analysed:**	25-Aug-25

Dioxin-like PCBs				**Surrogate**	**WHO-TEQs (2005)**	
			DL	**Recoveries**	**(ND=0)**	**(ND=DL)**
Chemical Name	**IUPAC #**	**ng**	**ng**	**%**	**ng**	**ng**
3,4,4',5-TeCB	PCB 81	ND	0.02	72	ND	6.00E-06
3,3',4,4'-TeCB	PCB 77	ND	0.02	72	ND	2.00E-06
2,3',4,4',5'-PeCB	PCB 123	ND	0.02	76	ND	6.00E-07
2,3',4,4',5-PeCB	PCB 118	0.11	0.02	76	3.37E-06	3.37E-06
2,3,4,4',5-PeCB	PCB 114	ND	0.02	72	ND	6.00E-07
2,3,3',4,4'-PeCB	PCB 105	0.06	0.02	80	1.73E-06	1.73E-06
3,3',4,4',5-PeCB	PCB 126	ND	0.02	100	ND	2.00E-03
2,3',4,4',5,5'-HxCB	PCB 167	ND	0.02	80	ND	6.00E-07
2,3,3',4,4',5-HxCB	PCB 156	ND	0.02	88	ND	6.00E-07
2,3,3',4,4',5'-HxCB	PCB 157	ND	0.02	120	ND	6.00E-07
3,3',4,4',5,5'-HxCB	PCB 169	ND	0.02	108	ND	6.00E-04
2,3,3',4,4',5,5'-HpCB	PCB 189	ND	0.02	100	ND	6.00E-07
		Toxic Equivalent (WHO-TEQ)			5.10E-06	2.62E-03

Total PCB		
		DL
Homologs	**ng**	**ng**
Monochlorobiphenyls	0.10	0.05
Dichlorobiphenyls	13.4	0.05
Trichlorobiphenyls	1.00	0.05
Tetrachlorobiphenyls	0.73	0.05
Pentachlorobiphenyls	0.52	0.05
Hexachlorobiphenyls	0.31	0.05
Heptachlorobiphenyls	0.11	0.05
Octachlorobiphenyls	ND	0.05
Nonachlorobiphenyls	ND	0.05
Decachlorobiphenyl	ND	0.05
Total PCB	16.2	

ND - none detected

Surrogate Recoveries		
Chemical Name	**IUPAC #**	**%**
13C12-2-MoCB	1L	20
13C12-4,4'-DiCB	15L	28
13C12-2,2',6'-TrCB	19L	32
13C12-3,4,4'-TrCB	37L	60
13C12-2,2',6,6'-TeCB	54L	36
13C12-2,2',4,6,6'-PeCB	104L	44
13C12-2,2',4,4',6,6'-HxCB	155L	48
13C12-2,2',3,4',5,6,6'-HpCB	188L	44
13C12-2,2',3,3',5,5',6,6'-OcCB	202L	56
13C12-2,3,3',4,4',5,5',6-OcCB	205L	92
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	76
13C12-DeCB	209L	76

DATA REPORT

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	Run 2 – Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253124	**Date Analysed:**	25-Aug-25

Dioxin-like PCBs				**Surrogate**	**WHO-TEQs (2005)**	
			DL	**Recoveries**	**(ND=0)**	**(ND=DL)**
Chemical Name	**IUPAC #**	**ng**	**ng**	**%**	**ng**	**ng**
3,4,4',5-TeCB	PCB 81	ND	0.02	72	ND	6.00E-06
3,3',4,4'-TeCB	PCB 77	ND	0.02	80	ND	2.00E-06
2,3',4,4',5'-PeCB	PCB 123	ND	0.02	72	ND	6.00E-07
2,3',4,4',5-PeCB	PCB 118	0.13	0.02	76	3.97E-06	3.97E-06
2,3,4,4',5-PeCB	PCB 114	ND	0.02	72	ND	6.00E-07
2,3,3',4,4'-PeCB	PCB 105	0.08	0.02	76	2.25E-06	2.25E-06
3,3',4,4',5-PeCB	PCB 126	ND	0.02	96	ND	2.00E-03
2,3',4,4',5,5'-HxCB	PCB 167	ND	0.02	76	ND	6.00E-07
2,3,3',4,4',5-HxCB	PCB 156	ND	0.02	84	ND	6.00E-07
2,3,3',4,4',5'-HxCB	PCB 157	ND	0.02	116	ND	6.00E-07
3,3',4,4',5,5'-HxCB	PCB 169	ND	0.02	104	ND	6.00E-04
2,3,3',4,4',5,5'-HpCB	PCB 189	ND	0.02	92	ND	6.00E-07
		Toxic Equivalent (WHO-TEQ)			6.22E-06	2.62E-03

Total PCB		
		DL
Homologs	**ng**	**ng**
Monochlorobiphenyls	0.23	0.05
Dichlorobiphenyls	11.6	0.05
Trichlorobiphenyls	0.71	0.05
Tetrachlorobiphenyls	0.90	0.05
Pentachlorobiphenyls	0.48	0.05
Hexachlorobiphenyls	0.56	0.05
Heptachlorobiphenyls	0.15	0.05
Octachlorobiphenyls	ND	0.05
Nonachlorobiphenyls	ND	0.05
Decachlorobiphenyl	0.06	0.05
Total PCB	14.7	

ND - none detected

Surrogate Recoveries		
Chemical Name	**IUPAC #**	**%**
13C12-2-MoCB	1L	32
13C12-4,4'-DiCB	15L	32
13C12-2,2',6'-TrCB	19L	32
13C12-3,4,4'-TrCB	37L	60
13C12-2,2',6,6'-TeCB	54L	40
13C12-2,2',4,6,6'-PeCB	104L	40
13C12-2,2',4,4',6,6'-HxCB	155L	44
13C12-2,2',3,4',5,6,6'-HpCB	188L	44
13C12-2,2',3,3',5,5',6,6'-OcCB	202L	52
13C12-2,3,3',4,4',5,5',6-OcCB	205L	84
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	92
13C12-DeCB	209L	72

DATA REPORT

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	Run 3 – Dioxin Unit – 1	**Date Extracted:**	11-Aug-25
PRL ID:	PR253125	**Date Analysed:**	25-Aug-25

Dioxin-like PCBs				**Surrogate**	**WHO-TEQs (2005)**	
			DL	**Recoveries**	**(ND=0)**	**(ND=DL)**
Chemical Name	**IUPAC #**	**ng**	**ng**	**%**	**ng**	**ng**
3,4,4',5-TeCB	PCB 81	ND	0.02	68	ND	6.00E-06
3,3',4,4'-TeCB	PCB 77	ND	0.02	72	ND	2.00E-06
2,3',4,4',5'-PeCB	PCB 123	ND	0.02	72	ND	6.00E-07
2,3',4,4',5-PeCB	PCB 118	0.17	0.02	68	5.15E-06	5.15E-06
2,3,4,4',5-PeCB	PCB 114	ND	0.02	68	ND	6.00E-07
2,3,3',4,4'-PeCB	PCB 105	0.07	0.02	76	2.11E-06	2.11E-06
3,3',4,4',5-PeCB	PCB 126	ND	0.02	92	ND	2.00E-03
2,3',4,4',5,5'-HxCB	PCB 167	ND	0.02	76	ND	6.00E-07
2,3,3',4,4',5-HxCB	PCB 156	ND	0.02	84	ND	6.00E-07
2,3,3',4,4',5'-HxCB	PCB 157	ND	0.02	116	ND	6.00E-07
3,3',4,4',5,5'-HxCB	PCB 169	ND	0.02	96	ND	6.00E-04
2,3,3',4,4',5,5'-HpCB	PCB 189	ND	0.02	92	ND	6.00E-07
		Toxic Equivalent (WHO-TEQ)			7.25E-06	2.62E-03

Total PCB		
		DL
Homologs	**ng**	**ng**
Monochlorobiphenyls	0.38	0.05
Dichlorobiphenyls	54.6	0.05
Trichlorobiphenyls	0.54	0.05
Tetrachlorobiphenyls	0.57	0.05
Pentachlorobiphenyls	0.43	0.05
Hexachlorobiphenyls	0.43	0.05
Heptachlorobiphenyls	ND	0.05
Octachlorobiphenyls	ND	0.05
Nonachlorobiphenyls	ND	0.05
Decachlorobiphenyl	ND	0.05
Total PCB	56.9	

ND - none detected

Surrogate Recoveries		
Chemical Name	**IUPAC #**	**%**
13C12-2-MoCB	1L	20
13C12-4,4'-DiCB	15L	28
13C12-2,2',6'-TrCB	19L	32
13C12-3,4,4'-TrCB	37L	56
13C12-2,2',6,6'-TeCB	54L	36
13C12-2,2',4,6,6'-PeCB	104L	40
13C12-2,2',4,4',6,6'-HxCB	155L	44
13C12-2,2',3,4',5,6,6'-HpCB	188L	36
13C12-2,2',3,3',5,5',6,6'-OcCB	202L	56
13C12-2,3,3',4,4',5,5',6-OcCB	205L	88
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	84
13C12-DeCB	209L	76

DATA REPORT

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	BLANK	**Date Extracted:**	11-Aug-25
PRL ID:	PC250651B	**Date Analysed:**	25-Aug-25

Dioxin-like PCBs					**Surrogate**	**WHO-TEQs (2005)**	
			DL		**Recoveries**	**(ND=0)**	**(ND=DL)**
Chemical Name	**IUPAC #**	**ng**	**ng**		**%**	**ng**	**ng**
3,4,4',5-TeCB	PCB 81	ND	0.02		56	ND	6.00E-06
3,3',4,4'-TeCB	PCB 77	ND	0.02		64	ND	2.00E-06
2,3',4,4',5'-PeCB	PCB 123	ND	0.02		60	ND	6.00E-07
2,3',4,4',5-PeCB	PCB 118	ND	0.02		60	ND	6.00E-07
2,3,4,4',5-PeCB	PCB 114	ND	0.02		56	ND	6.00E-07
2,3,3',4,4'-PeCB	PCB 105	ND	0.02		64	ND	6.00E-07
3,3',4,4',5-PeCB	PCB 126	ND	0.02		76	ND	2.00E-03
2,3',4,4',5,5'-HxCB	PCB 167	ND	0.02		68	ND	6.00E-07
2,3,3',4,4',5-HxCB	PCB 156	ND	0.02		80	ND	6.00E-07
2,3,3',4,4',5'-HxCB	PCB 157	ND	0.02		112	ND	6.00E-07
3,3',4,4',5,5'-HxCB	PCB 169	ND	0.02		92	ND	6.00E-04
2,3,3',4,4',5,5'-HpCB	PCB 189	ND	0.02		88	ND	6.00E-07
		Toxic Equivalent (WHO-TEQ)				0.00E+00	2.61E-03

Total PCB		
		DL
Homologs	**ng**	**ng**
Monochlorobiphenyls	ND	0.05
Dichlorobiphenyls	ND	0.05
Trichlorobiphenyls	ND	0.05
Tetrachlorobiphenyls	ND	0.05
Pentachlorobiphenyls	ND	0.05
Hexachlorobiphenyls	ND	0.05
Heptachlorobiphenyls	ND	0.05
Octachlorobiphenyls	ND	0.05
Nonachlorobiphenyls	ND	0.05
Decachlorobiphenyl	ND	0.05
Total PCB	ND	

ND - none detected

Surrogate Recoveries		
Chemical Name	**IUPAC #**	**%**
13C12-2-MoCB	1L	24
13C12-4,4'-DiCB	15L	24
13C12-2,2',6'-TrCB	19L	32
13C12-3,4,4'-TrCB	37L	40
13C12-2,2',6,6'-TeCB	54L	32
13C12-2,2',4,6,6'-PeCB	104L	36
13C12-2,2',4,4',6,6'-HxCB	155L	36
13C12-2,2',3,4',5,6,6'-HpCB	188L	36
13C12-2,2',3,3',5,5',6,6'-OcCB	202L	48
13C12-2,3,3',4,4',5,5',6-OcCB	205L	88
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	76
13C12-DeCB	209L	64

QC REPORT - SPIKE

Client:	A. Lanfranco & Associates	**Contact:**	Mark Lanfranco
Client ID:	**SPIKE**	**Date Extracted:**	2-Aug-24
PRL ID:	PC250652S	**Date Analysed:**	15-Aug-24

Dioxin-like PCBs			**Acceptable Recovery**		**Pass/Fail**	**Surrogate Recoveries**
	LOF	**Recovery**	**Min**	**Max**		
Chemical Name	**ng**	**%**	**%**	**%**		**%**
3,4,4',5-TeCB (81)	1	93	60	135	Pass	52
3,3',4,4'-TeCB (77)	1	81	60	135	Pass	44
2,3',4,4',5'-PeCB (123)	1	74	60	135	Pass	60
2,3',4,4',5-PeCB (118)	1	94	60	135	Pass	56
2,3,4,4',5-PeCB (114)	1	79	60	135	Pass	60
2,3,3',4,4'-PeCB (105)	1	92	60	135	Pass	60
3,3',4,4',5-PeCB (126)	1	95	60	135	Pass	72
2,3',4,4',5,5'-HxCB (167)	1	89	60	135	Pass	60
2,3,3',4,4',5-HxCB (156)	1	86	60	135	Pass	68
2,3,3',4,4',5'-HxCB (157)	1	76	60	135	Pass	108
3,3',4,4',5,5'-HxCB (169)	1	100	60	135	Pass	76
2,3,3',4,4',5,5'-HpCB (189)	1	89	60	135	Pass	84

Total PCB			**Acceptable Recovery**		**Pass/Fail**
	LOF	**Recovery**	**Min**	**Max**	
Homologs	**ng**	**%**	**%**	**%**	
Monochlorobiphenyls	2	76			
Dichlorobiphenyls	4	104			
Trichlorobiphenyls	6	77			
Tetrachlorobiphenyls	12	81			
Pentachlorobiphenyls	13	87			
Hexachlorobiphenyls	15	83			
Heptachlorobiphenyls	11	88			
Octachlorobiphenyls	6	83			
Nonachlorobiphenyls	2	114			
Decachlorobiphenyl	1	115			
Total PCB	72	86	50	150	Pass

LOF - Level of Fortification

DATA REPORT

Client: A. Lanfranco & Associates
Contact: Mark Lanfranco
Project: MetroVan

Date Extracted: 11-Aug-25
Date Analysed: 18-Aug-25

	Client ID:	Blk Dioxin Unit – 1	Run 1 – Dioxin Unit – 1	Run 2 – Dioxin Unit – 1	Run 3 – Dioxin Unit – 1		BLANK
	PRL ID:	PR253122	PR253123	PR253124	PR253125		PH250651B
NPRI PAH	**DL**						
	εg	**εg**	**εg**	**εg**	**εg**		**εg**
Acenaphthylene	0.05	ND	ND	ND	0.07		ND
Acenaphthene	0.05	ND	ND	ND	ND		ND
Fluorene	0.02	ND	ND	0.08	ND		ND
Phenanthrene	0.02	ND	0.13	0.16	0.12		ND
Fluoranthene	0.01	0.01	0.07	0.04	0.05		ND
Pyrene	0.01	0.01	0.12	0.04	0.05		ND
Benz(a)anthracene	0.02	ND	ND	ND	ND		ND
Chrysene	0.02	ND	ND	ND	ND		ND
Benzo(b)fluoranthene	0.01	ND	0.01	0.04	ND		ND
Benzo(k)fluoranthene	0.01	0.02	0.03	0.04	0.04		ND
Benzo(a)pyrene	0.01	ND	0.01	ND	ND		ND
Indeno(1,2,3-cd)pyrene	0.01	ND	0.01	ND	0.01		ND
Dibenz(a,h)anthracene	0.01	ND	ND	ND	ND		ND
Benzo(ghi)perylene	0.01	ND	0.06	0.10	0.08		ND
1-Nitropyrene	0.05	ND	ND	ND	ND		ND
5-Methylchrysene	0.05	ND	ND	ND	ND		ND
7,12-Dimethylbenz(a)anthracene	0.05	ND	ND	ND	ND		ND
3-Methylcholanthrene	0.05	ND	ND	ND	ND		ND
Benzo(e)pyrene	0.01	ND	0.04	0.03	0.03		ND
Perylene	0.05	ND	ND	ND	ND		ND
Dibenz(a,h)acridine	0.05	ND	ND	ND	ND		ND
Dibenz(a,j)acridine	0.05	ND	ND	ND	ND		ND
7H-Dibenzo(c,g)carbazole	0.05	ND	ND	ND	ND		ND
Dibenzo(a,e)fluoranthene	0.05	ND	ND	ND	ND		ND
Dibenzo(a,e)pyrene	0.05	ND	ND	ND	ND		ND
Dibenzo(a,h)pyrene	0.05	ND	ND	ND	ND		ND
Dibenzo(a,l)pyrene	0.05	ND	ND	ND	ND		ND
Dibenzo(a,i)pyrene	0.05	ND	ND	ND	ND		ND
Quinoline	0.05	ND	ND	ND	ND		ND
Other PAH							
Naphthalene	0.05	2.9	2.7	3.0	3.4		ND
Anthracene	0.05	ND	ND	0.10	ND		ND

DATA REPORT

Client: A. Lanfranco & Associates
Contact: Mark Lanfranco
Project: MetroVan

Date Extracted: 11-Aug-25
Date Analysed: 18-Aug-25

	Client ID:	Blk Dioxin Unit – 1	Run 1 – Dioxin Unit – 1	Run 2 – Dioxin Unit – 1	Run 3 – Dioxin Unit – 1		BLANK
	PRL ID:	PR253122	PR253123	PR253124	PR253125		PH250651B
NPRI PAH	**DL**						
Surrogate Recoveries (%)							
d8-Naphthalene		20	22	48	24		31
d10-Acenaphthylene		22	25	19	22		28
d10-Acenaphthene		32	35	65	38		42
d10-Fluorene		37	42	74	48		48
d10-Phenanthrene		45	45	54	43		48
d10-Fluoranthene		57	58	70	62		56
d10-Pyrene		56	56	64	61		53
d12-Chrysene		90	80	77	78		84
d12-Benzo(b)fluoranthene		113	111	101	102		114
d12-Benzo(a)pyrene		102	106	69	105		96
d14-Dibenz(a,h)anthracene		70	76	80	77		77

ND - none detected

DATA REPORT

Client: A. Lanfranco & Associates
Contact: Mark Lanfranco
Project: MetroVan

Date Extracted: 11-Aug-25
Date Analysed: 18-Aug-25

Client ID: **SPIKE**
PRL ID: PH250652S

NPRI PAH

	εg/g	LOF	Recovery	Acceptable	Pass/Fail
Acenaphthene	1.13	1	113%	50-150%	pass
Acenaphthylene	1.21	1	121%	50-150%	pass
Benz(a)anthracene	0.98	1	98%	50-150%	pass
Benzo(a)pyrene	0.92	1	92%	50-150%	pass
Benzo(b)fluoranthene	1.08	1	108%	50-150%	pass
Benzo(ghi)perylene	1.20	1	120%	50-150%	pass
Benzo(k)fluoranthene	1.11	1	111%	50-150%	pass
Chrysene	1.21	1	121%	50-150%	pass
Dibenz(a,h)anthracene	1.13	1	113%	50-150%	pass
Fluoranthene	1.16	1	116%	50-150%	pass
Fluorene	0.96	1	96%	50-150%	pass
Indeno(1,2,3-cd)pyrene	1.23	1	123%	50-150%	pass
Phenanthrene	1.04	1	104%	50-150%	pass
Pyrene	1.07	1	107%	50-150%	pass
Other PAH					
Naphthalene	1.08	1	108%	50-150%	pass

DATA REPORT

Client: A. Lanfranco & Associates
Contact: Mark Lanfranco

Date Extracted: 11-Aug-25
Date Analysed: 25-Aug-25

	Client ID:	Blk Dioxin Unit – 1	Run 1 – Dioxin Unit – 1	Run 2 – Dioxin Unit – 1	Run 3 – Dioxin Unit – 1		BLANK
	PRL ID:	PR253122	PR253123	PR253124	PR253125		CP250651B
Compound	**DL σg**	**σg**	**σg**	**σg**	**σg**		**σg**
Trichlorobenzenes	0.05	ND	0.09	ND	0.17		ND
Tetrachlorobenzenes	0.05	ND	ND	0.06	0.06		ND
Pentachlorobenzene	0.05	ND	ND	ND	ND		ND
Hexachlorobenzene	0.01	ND	ND	ND	ND		ND
Surrogate Recoveries (%)							
13C6-Hexachlorobenzene		75	70	74	65		86

Compound	**DL σg**	**σg**	**σg**	**σg**	**σg**		**σg**
Trichlorophenols	0.05	ND	ND	ND	ND		ND
Tetrachlorophenols	0.05	ND	ND	ND	ND		ND
Pentachlorophenol	0.05	ND	ND	ND	ND		ND
Surrogate Recoveries (%)							
13C6-Trichlorophenol		62	61	94	97		90
13C6-Tetrachlorophenol		31	107	123	109		33
13C6-Pentachlorophenol		80	77	63	101		65

ND - none detected

QC REPORT - SPIKE

Client: A. Lanfranco & Associates
Contact: Mark Lanfranco

Date Extracted: 11-Aug-25
Date Analysed: 25-Aug-25

Client ID: SPIKE
PRL ID: CP250652S

Compound	LOF σg	σg	Recovery
Trichlorobenzenes	2.00	1.45	73%
Tetrachlorobenzenes	3.00	2.78	93%
Pentachlorobenzene	1.00	0.71	71%
Hexachlorobenzene	1.00	0.71	71%
Trichlorophenols	1.00	1.00	100%
Tetrachlorophenols	1.00	0.86	86%
Pentachlorophenol	1.00	0.71	71%

LOF - level of fortification

Acronyms used in reporting dioxins and furans:

TCDD = Tetrachlorodibenzo-*p*-dioxin
PeCDD = Pentachlorodibenzo-*p*-dioxin
HxCDD = Hexachlorodibenzo-*p*-dioxin
HpCDD = Heptachlorodibenzo-*p*-dioxin
OCDD = Octachlorodibenzo-*p*-dioxin

TCDF = Tetrachlorodibenzofuran
PeCDF = Pentachlorodibenzofuran
HxCDF = Hexachlorodibenzofuran
HpCDF = Heptachlorodibenzofuran
OCDF = Octachlorodibenzofuran

Acceptable recoveries for surrogates	**EPA Method 23**	
	Min (%)	**Max (%)**
$^{37}Cl_4$ -2,3,7,8-TCDD	70	130
$^{13}C_{12}$ -2,3,4,7,8-PeCDF	70	130
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDD	70	130
$^{13}C_{12}$ -1,2,3,4,7,8-HxCDF	70	130
$^{13}C_{12}$ -1,2,3,4,7,8,9-HpCDF	70	130

Acceptable recoveries for Internal Standards

	EPA Method 23		**Env. Can. 1-RM-3**	
	Min (%)	**Max (%)**	**Min (%)**	**Max (%)**
$^{13}C_{12}$ -2,3,7,8-TCDD	40	130	40	130
$^{13}C_{12}$ -1,2,3,7,8-PeCDD	40	130	40	130
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDD	40	130	40	130
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDD	25	130	40	130
$^{13}C_{12}$ -OCDD	25	130	40	130
$^{13}C_{12}$ -2,3,7,8-TCDF	40	130	40	130
$^{13}C_{12}$ -1,2,3,7,8-PeCDF	40	130		
$^{13}C_{12}$ -1,2,3,6,7,8-HxCDF	40	130		
$^{13}C_{12}$ -1,2,3,4,6,7,8-HpCDF	25	130		

Acronyms used in reporting Polychlorinated Biphenyls (PCBs)

MoCB = Monochlorobiphenyl
DiCB = Dichlorobiphenyl
TrCB = Trichlorobiphenyl
TeCB = Tetrachlorobiphenyl
PeCB = Pentachlorobiphenyl
HxCB = Hexachlorobiphenyl
HpCB = Heptachlorobiphenyl
OcCB = Octachlorobiphenyl
NoCB = Nonachlorobiphenyl
DeCB = Decachlorobiphenyl

Acceptable recoveries for PCB Internal Standards - EPA 1668C

Chemical Name	IUPAC #	Min	Max
$^{13}C_{12}$-2-MoCB	1L	5	145
$^{13}C_{12}$-4-MoCB	3L	5	145
$^{13}C_{12}$-2,2'-DiCB	4L	5	145
$^{13}C_{12}$-4,4'-DiCB	15L	5	145
$^{13}C_{12}$-2,2',6'-TrCB	19L	5	145
$^{13}C_{12}$-3,4,4'-TrCB	37L	5	145
$^{13}C_{12}$-2,2',6,6'-TeCB	54L	5	145
$^{13}C_{12}$-3,4,4',5-TeCB	81L	10	145
$^{13}C_{12}$-3,3',4,4'-TeCB	77L	10	145
$^{13}C_{12}$-2,2',4,6,6'-PeCB	104L	10	145
$^{13}C_{12}$-2',3,4,4',5-PeCB	123L	10	145
$^{13}C_{12}$-2,3',4,4',5-PeCB	118L	10	145
$^{13}C_{12}$-2,3,4,4',5-PeCB	114L	10	145
$^{13}C_{12}$-2,3,3',4,4'-PeCB	105L	10	145
$^{13}C_{12}$-3,3',4,4',5-PeCB	126L	10	145
$^{13}C_{12}$-2,2',4,4',6,6'-HxCB	155L	10	145
$^{13}C_{12}$-2,3',4,4',5,5'-HxCB	167L	10	145
$^{13}C_{12}$-2,3,3',4,4',5-HxCB	156L	10	145
$^{13}C_{12}$-2,3,3',4,4',5'-HxCB	157L	10	145
$^{13}C_{12}$-3,3',4,4',5,5'-HxCB	169L	10	145
$^{13}C_{12}$-2,2',3,4',5,6,6'-HpCB	188L	10	145
$^{13}C_{12}$-2,3,3',4,4',5,5'-HpCB	189L	10	145
$^{13}C_{12}$-2,2',3,3',5,5',6,6'-OcCB	202L	10	145
$^{13}C_{12}$-2,3,3',4,4',5,5',6-OcCB	205L	10	145
$^{13}C_{12}$-2,2',3,3',4',5,5',6,6'-NoCB	208L	10	145
$^{13}C_{12}$-2,2',3,3',4,4',5,5',6-NoCB	206L	10	145
$^{13}C_{12}$-DeCB	209L	10	145
$^{13}C_{12}$-2,4,4'-TrCB	28L	5	145
$^{13}C_{12}$-2,3,3',5,5'-PeCB	111L	10	145
$^{13}C_{12}$-2,2',3,3',5,5',6-HpCB	178L	10	145

Acceptable recoveries for Polycyclic Aromatic Hydrocarbon Standards in Environmental Samples

	Surrogate Recovery	
	Min (%)	**Max (%)**
Naphthalene-d8	0	135
Biphenyl-d10	15	135
Acenapthylene-d10	15	135
Acenaphthene-d10	15	135
Fluorene-d10	30	135
Phenanthrene-d10	30	135
Fluoranthene-d10	30	135
Pyrene-d10	30	135
Chrysene-d12	30	150
Benzo(b)fluoranthene-d12	30	150
Benzo(a)pyrene-d12	15	150
Dibenz(a,h)anthracene-d14	30	150

PACIFIC RIM LABORATORIES INC

CHAIN OF CUSTODY RECORD / ANALYSIS REQUEST

Pacific Rim Laboratories Inc. #103, 19575 - 55A Avenue, Surrey, BC V3S 8P8 Tel: 604-532-8711 Fax: 604-532-8712

COMPANY: A. Lanfranco & Associates Inc.
101-9488 189 Street
Surrey, BC Canada V4N 4W7

CONTACT: Mark Lanfranco

PHONE: *604-881-2582*

DATE: 5-Aug-25

EMAIL: mark.lanfranco@alanfranco.com

CLIENT: Metro Vancouver WTE

SOURCE: Unit 1

SAMPLE ID	PRL ID	DATE SAMPLED	SAMPLE MATRIX	NUMBER OF CONTAINERS	DIOXIN/FURAN	PCB - dioxin-like (12)	PCB - 209 congener	PAH	HCB	TBT	Nonylphenol	PBDE	CB, CP	COMMENTS
Blk Dioxin Unit - 1	PR253122	28-Jul-25		5	X	X		X	X				X	Solvent btls say Unit #2 not #1
Run 1 - Dioxin Unit - 1	PR253123	28-Jul-25		5	X	X		X	X				X	
Run 2 - Dioxin Unit - 1	PR253124	31-Jul-25		5	X	X		X	X				X	
Run 3 - Dioxin Unit - 1	PR253125	1-Aug-25		5	X	X		X	X				X	
Run 1 - Dioxin Unit - 2	PR253126	28-Jul-25		5										

Sampler's Signature	Relinquished by:	Company	Date	Time	Received by:		
Comments:	Method of Shipment	Waybill No.:	Rec'd for PRL: RJ		Date: 05 Aug 25	Time: 3:00pm	
	Shipment Condition	Temp.: 24°C	Cooler Opened By:				

APPENDIX 2

COMPUTER OUTPUTS OF MEASURED and CALCULATED DATA

Client:	Metro Vancouver	**Date:**	30-Jul-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	2 PCDD-PCDF
Source:	Unit 1	**Run Time:**	07:59 - 12:05

Dioxin Concentration:		**0.7**	**pg/dscm**	0.0003	gr/dscf
		0.4	**pg/dscm**	0.0002	gr/Acf
		0.6	pg/dscm (@ 11% O2)	0.0003	gr/dscf (@ 11% O2)
Emission Rate:	see D/F data Table 2				
Sample Gas Volume:		3.4047	dscm	120.238	dscf
Total Sample Time:		240.0	minutes		
Average Isokineticity:		101.1	%		

Flue Gas Characteristics

	Moisture:	13.80	%		
	Temperature	148.0	oC	298.3	oF
	Flow	1115.5	dscm/min	39395	dscf/min
		18.59	dscm/sec	656.6	dscf/sec
		1945.1	Acm/min	68690	Acf/min
	Velocity	12.727	m/sec	41.76	f/sec
	Gas Analysis	10.18	% O2	9.69	% CO2
		29.957	Mol. Wt (g/gmole) Dry	28.307	Mol. Wt (g/gmole) Wet

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

Client:	Metro Vancouver	**Date:**	30-Jul-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	2 PCDD-PCDF
Source:	Unit 1	**Run Time:**	07:59 - 12:05

Control Unit (Y)	1.0230
Nozzle Diameter (in.)	0.2515
Pitot Factor	0.8510
Baro. Press. (in. Hg)	30.03
Static Press. (in. H2O)	-19.50
Stack Height (ft)	30
Stack Diameter (in.)	70.9
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	10.0

Gas Analysis (Vol. %):

	CO2	O2
Trav 1	9.38	10.45
Trav 2	10.00	9.92
Average =	**9.69**	**10.18**

Condensate Collection:

Impinger 1 (grams)	370.0
Impinger 2 (grams)	15.0
Impinger 3 (grams)	5.0
Impinger 4 (grams)	18.9
Total Gain (grams)	**408.9**

Collection:

D/F TEQ (ng)	**0.0024**

Traverse	Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Outlet (oF)	Stack (oF)	Wall Dist. (in.)	Isokin. (%)
		0.0	371.735							
1	1	5.0	374.300	0.380	1.02	80	80	308	1.5	100.9
		10.0	376.950	0.400	1.08	80	80	307	1.5	101.5
	2	15.0	379.490	0.370	1.00	81	81	308	4.7	101.0
		20.0	381.980	0.360	0.97	81	81	307	4.7	100.3
	3	25.0	384.440	0.340	0.92	83	83	303	8.4	101.3
		30.0	386.860	0.330	0.90	84	84	304	8.4	101.1
	4	35.0	389.250	0.320	0.87	85	85	302	12.5	101.0
		40.0	391.600	0.310	0.85	86	86	301	12.5	100.7
	5	45.0	394.350	0.420	1.15	86	86	301	17.7	101.3
		50.0	397.060	0.410	1.13	87	87	301	17.7	100.8
	6	55.0	399.500	0.330	0.91	87	87	301	25.2	101.1
		60.0	401.980	0.340	0.93	88	88	302	25.2	101.2
	7	65.0	404.430	0.330	0.91	89	89	299	45.6	101.0
		70.0	406.850	0.320	0.88	89	89	302	45.6	101.6
	8	75.0	409.380	0.350	0.97	89	89	300	53.2	101.4
		80.0	411.950	0.360	1.00	90	90	299	53.2	101.3
	9	85.0	414.620	0.390	1.08	91	91	299	58.3	101.0
		90.0	417.260	0.380	1.06	91	91	298	58.3	101.1
	10	95.0	419.840	0.360	1.00	91	91	298	62.5	101.5
		100.0	422.380	0.350	0.97	92	92	299	62.5	101.2
	11	105.0	424.850	0.330	0.92	92	92	298	66.1	101.3
		110.0	427.280	0.320	0.89	93	93	296	66.1	100.8
	12	115.0	429.680	0.310	0.87	93	93	295	69.4	101.1
		120.0	432.030	0.300	0.84	93	93	293	69.4	100.5
		0.0	432.030							
2	1	5.0	434.350	0.290	0.81	93	93	296	1.5	101.1
		10.0	436.720	0.300	0.84	96	96	297	1.5	101.1
	2	15.0	439.090	0.300	0.84	97	97	297	4.7	100.9
		20.0	441.500	0.310	0.87	98	98	297	4.7	100.8
	3	25.0	443.790	0.280	0.79	96	96	296	8.4	101.0
		30.0	446.120	0.290	0.81	95	95	296	8.4	101.2
	4	35.0	448.400	0.280	0.78	94	94	296	12.5	100.9
		40.0	450.720	0.290	0.81	95	95	296	12.5	100.7
	5	45.0	453.200	0.330	0.93	95	95	295	17.7	100.9
		50.0	455.720	0.340	0.95	95	95	295	17.7	101.0
	6	55.0	458.280	0.350	0.98	96	96	295	25.2	101.0
		60.0	460.850	0.350	0.98	96	96	296	25.2	101.4
	7	65.0	463.520	0.380	1.07	95	95	296	45.6	101.4
		70.0	466.180	0.380	1.06	95	95	297	45.6	101.0
	8	75.0	468.880	0.390	1.09	95	95	296	53.2	101.2
		80.0	471.620	0.400	1.12	95	95	296	53.2	101.4
	9	85.0	474.460	0.430	1.21	96	96	295	58.3	101.1
		90.0	477.260	0.420	1.18	96	96	296	58.3	100.9
	10	95.0	480.030	0.410	1.15	96	96	296	62.5	101.1
		100.0	482.780	0.400	1.12	97	97	297	62.5	101.5
	11	105.0	485.650	0.440	1.23	96	96	297	66.1	101.2
		110.0	488.430	0.420	1.18	96	96	296	66.1	100.2
	12	115.0	491.140	0.390	1.10	96	96	294	69.4	101.2
		120.0	493.780	0.370	1.05	96	96	291	69.4	101.0
			Average:	0.353	0.981	91.6	91.6	298.3		101.1

Client:	Metro Vancouver	**Date:**	31-Jul-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	2 PCDD-PCDF
Source:	Unit 1	**Run Time:**	08:25 - 12:26

Dioxin Concentration:	**0.48**	**pg/dscm**	0.0002	gr/dscf	
	0.3	**pg/dscm**	0.0001	gr/Acf	
	0.43	pg/dscm (@ 11% O2)	0.0002	gr/dscf (@ 11% O2)	

Emission Rate: see D/F data Table 2

Sample Gas Volume:	3.6056	dscm	127.331	dscf
Total Sample Time:	240.0	minutes		
Average Isokineticity:	102.6	%		

Flue Gas Characteristics

Moisture:	13.37	%		
Temperature	151.1	oC	304.1	oF
Flow	1164.7	dscm/min	41132	dscf/min
	19.41	dscm/sec	685.5	dscf/sec
	2040.3	Acm/min	72054	Acf/min
Velocity	13.351	m/sec	43.80	f/sec
Gas Analysis	9.91	% O2	10.06	% CO2
	30.007	Mol. Wt (g/gmole) Dry	28.401	Mol. Wt (g/gmole) Wet

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

Client:	Metro Vancouver	**Date:**	31-Jul-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	2 PCDD-PCDF
Source:	Unit 1	**Run Time:**	08:25 - 12:26

Control Unit (Y)	1.0230
Nozzle Diameter (in.)	0.2515
Pitot Factor	0.8515
Baro. Press. (in. Hg)	29.97
Static Press. (in. H2O)	-19.50
Stack Height (ft)	30
Stack Diameter (in.)	70.9
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	10.0

Gas Analysis (Vol. %):

	CO2	O2
Trav 1	9.88	10.08
Trav 2	10.25	9.75
Average =	**10.06**	**9.91**

Condensate Collection:

Impinger 1 (grams)	383.0
Impinger 2 (grams)	13.0
Impinger 3 (grams)	2.0
Impinger 4 (grams)	19.5
Total Gain (grams)	**417.5**

Collection:

D/F TEQ (ng)	**0.0017**

Traverse	Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Outlet (oF)	Stack (oF)	Wall Dist. (in.)	Isokin. (%)
		0.0	493.820							
1	1	5.0	496.730	0.470	1.31	80	80	310	1.5	102.6
		10.0	499.680	0.480	1.34	81	81	311	1.5	102.8
	2	15.0	502.540	0.450	1.25	81	81	312	4.7	103.0
		20.0	505.380	0.440	1.23	81	81	312	4.7	103.4
	3	25.0	508.240	0.450	1.25	82	82	314	8.4	102.9
		30.0	511.140	0.460	1.28	83	83	314	8.4	103.0
	4	35.0	514.050	0.470	1.30	83	83	315	12.5	102.4
		40.0	516.980	0.480	1.34	84	84	315	12.5	101.8
	5	45.0	520.080	0.520	1.45	85	85	315	17.7	103.3
		50.0	523.200	0.540	1.51	86	86	315	17.7	101.9
	6	55.0	526.080	0.450	1.27	86	86	312	25.2	102.7
		60.0	528.800	0.400	1.13	87	87	313	25.2	102.8
	7	65.0	531.580	0.420	1.18	87	87	314	45.6	102.6
		70.0	534.300	0.400	1.13	88	88	311	45.6	102.4
	8	75.0	537.120	0.430	1.22	88	88	311	53.2	102.5
		80.0	539.980	0.440	1.25	89	89	311	53.2	102.5
	9	85.0	542.530	0.350	0.99	89	89	308	58.3	102.3
		90.0	545.080	0.340	0.97	90	90	306	58.3	103.4
	10	95.0	547.480	0.310	0.89	90	90	304	62.5	101.8
		100.0	549.860	0.300	0.86	90	90	304	62.5	102.6
	11	105.0	552.280	0.310	0.89	90	90	302	66.1	102.5
		110.0	554.630	0.290	0.84	91	91	300	66.1	102.6
	12	115.0	556.860	0.260	0.75	91	91	296	69.4	102.5
		120.0	559.050	0.250	0.73	91	91	295	69.4	102.6
		0.0	559.050							
2	1	5.0	561.700	0.370	1.07	92	92	302	1.5	102.4
		10.0	564.300	0.360	1.04	92	92	302	1.5	101.9
	2	15.0	566.850	0.340	0.98	93	93	301	4.7	102.5
		20.0	569.360	0.330	0.95	93	93	301	4.7	102.4
	3	25.0	571.950	0.350	1.01	94	94	300	8.4	102.4
		30.0	574.580	0.360	1.04	95	95	301	8.4	102.4
	4	35.0	577.180	0.350	1.01	94	94	300	12.5	102.8
		40.0	579.720	0.330	0.96	95	95	299	12.5	103.1
	5	45.0	582.220	0.320	0.93	95	95	299	17.7	103.1
		50.0	584.650	0.310	0.90	94	94	298	17.7	101.9
	6	55.0	587.250	0.350	1.02	94	94	299	25.2	102.7
		60.0	589.890	0.360	1.05	95	95	297	25.2	102.5
	7	65.0	592.640	0.390	1.13	94	94	298	45.6	102.9
		70.0	595.400	0.400	1.16	94	94	298	45.6	102.0
	8	75.0	598.080	0.370	1.08	94	94	297	53.2	102.9
		80.0	600.720	0.360	1.05	94	94	298	53.2	102.8
	9	85.0	603.440	0.380	1.11	95	95	298	58.3	102.9
		90.0	606.200	0.390	1.14	95	95	297	58.3	103.0
	10	95.0	608.980	0.400	1.16	94	94	297	62.5	102.6
		100.0	611.800	0.410	1.19	95	95	298	62.5	102.7
	11	105.0	614.580	0.400	1.16	95	95	299	66.1	102.6
		110.0	617.440	0.420	1.22	95	95	299	66.1	103.0
	12	115.0	620.250	0.410	1.19	95	95	299	69.4	102.4
		120.0	622.980	0.390	1.14	95	95	298	69.4	102.0
			Average:	0.387	1.105	90.3	90.3	304.1		102.6

Client:	Metro Vancouver	**Date:**	1-Aug-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	3 - PCDD-PCDF
Source:	Unit 1	**Run Time:**	08:41 - 12:45

Dioxin Concentration:	**0.9**	**pg/dscm**	0.0004	gr/dscf
	0.5	pg/Acm	0.0002	gr/Acf
	0.9	pg/dscm (@ 11% O2)	0.0004	gr/dscf (@ 11% O2)

Emission Rate: see D/F data Table 2

Sample Gas Volume:	3.5823	dscm	126.508	dscf
Total Sample Time:	240.0	minutes		
Average Isokineticity:	100.4	%		

Flue Gas Characteristics

Moisture:	11.67	%		
Temperature	152.5	oC	306.5	oF
Flow	1181.4	dscm/min	41723	dscf/min
	19.69	dscm/sec	695.4	dscf/sec
	2035.4	Acm/min	71880	Acf/min
Velocity	13.319	m/sec	43.70	f/sec
Gas Analysis	10.40	% O2	9.60	% CO2
	29.952	Mol. Wt (g/gmole) Dry	28.557	Mol. Wt (g/gmole) Wet

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

Client:	Metro Vancouver	**Date:**	1-Aug-25
Jobsite:	WTE (Burnaby, BC)	**Run:**	3 - PCDD-PCDF
Source:	Unit 1	**Run Time:**	08:41 - 12:45

Control Unit (Y)	1.0230
Nozzle Diameter (in.)	0.2515
Pitot Factor	0.8510
Baro. Press. (in. Hg)	30.01
Static Press. (in. H2O)	-19.90
Stack Height (ft)	30
Stack Diameter (in.)	70.9
Stack Area (sq.ft.)	27.417
Minutes Per Reading	5.0
Minutes Per Point	10.0

Gas Analysis (Vol. %):

	CO2	O2
Trav 1	9.33	10.87
Trav 2	9.86	9.94
Average =	**9.60**	**10.40**

Condensate Collection:

Impinger 1 (grams)	326.0
Impinger 2 (grams)	8.0
Impinger 3 (grams)	0.0
Impinger 4 (grams)	21.0
Total Gain (grams)	**355.0**

Collection:

D/F TEQ (ng) **0.0033**

Traverse	Point	Time (min.)	Dry Gas Meter (ft3)	Pitot ^P (in. H2O)	Orifice ^H (in. H2O)	Dry Gas Temperature Inlet (oF)	Outlet (oF)	Stack (oF)	Wall Dist. (in.)	Isokin. (%)
		0.0	623.340							
1	1	5.0	625.410	0.230	0.64	79	79	311	1.5	102.9
		10.0	627.580	0.270	0.75	78	78	311	1.5	99.7
	2	15.0	629.740	0.270	0.75	79	79	310	4.7	99.0
		20.0	632.130	0.320	0.89	79	79	309	4.7	100.6
	3	25.0	634.520	0.330	0.92	80	80	309	8.4	98.9
		30.0	636.810	0.290	0.81	80	80	309	8.4	101.1
	4	35.0	639.240	0.330	0.92	80	80	309	12.5	100.6
		40.0	641.580	0.310	0.87	81	81	308	12.5	99.6
	5	45.0	643.750	0.270	0.76	81	81	308	17.7	99.0
		50.0	646.110	0.310	0.87	82	82	309	17.7	100.4
	6	55.0	648.380	0.290	0.81	82	82	308	25.2	99.7
		60.0	650.630	0.270	0.76	84	84	308	25.2	102.1
	7	65.0	653.590	0.470	1.33	85	85	306	45.6	101.6
		70.0	656.490	0.450	1.27	84	84	305	45.6	101.8
	8	75.0	659.720	0.560	1.59	85	85	304	53.2	101.5
		80.0	662.680	0.490	1.39	86	86	304	53.2	99.2
	9	85.0	665.950	0.590	1.68	86	86	303	58.3	99.9
		90.0	669.250	0.590	1.67	86	86	304	58.3	100.9
	10	95.0	672.590	0.600	1.70	87	87	306	62.5	101.2
		100.0	676.000	0.640	1.81	87	87	307	62.5	100.1
	11	105.0	679.210	0.550	1.56	87	87	306	66.1	101.5
		110.0	682.040	0.440	1.25	88	88	307	66.1	99.9
	12	115.0	684.830	0.420	1.20	88	88	303	69.4	100.5
		120.0	687.530	0.400	1.14	88	88	303	69.4	99.7
		0.0	687.530							
2	1	5.0	689.880	0.290	0.82	89	89	309	1.5	102.0
		10.0	692.240	0.310	0.88	89	89	311	1.5	99.2
	2	15.0	694.920	0.400	1.13	89	89	310	4.7	99.2
		20.0	697.550	0.370	1.05	90	90	311	4.7	101.1
	3	25.0	700.400	0.440	1.25	90	90	309	8.4	100.4
		30.0	703.170	0.420	1.19	90	90	310	8.4	99.9
	4	35.0	706.000	0.440	1.25	91	91	310	12.5	99.5
		40.0	708.930	0.460	1.31	91	91	310	12.5	100.8
	5	45.0	711.540	0.370	1.06	92	92	308	17.7	99.7
		50.0	714.110	0.370	1.05	92	92	309	17.7	98.3
	6	55.0	716.840	0.390	1.12	93	93	307	25.2	101.4
		60.0	719.770	0.440	1.26	93	93	309	25.2	102.6
	7	65.0	722.850	0.520	1.48	93	93	309	45.6	99.3
		70.0	725.960	0.520	1.48	93	93	310	45.6	100.3
	8	75.0	728.800	0.430	1.22	93	93	311	53.2	100.7
		80.0	731.810	0.470	1.34	94	94	311	53.2	102.0
	9	85.0	734.590	0.410	1.17	94	94	310	58.3	100.7
		90.0	737.370	0.410	1.17	94	94	310	58.3	100.7
	10	95.0	739.910	0.350	1.01	93	93	304	62.5	99.4
		100.0	742.450	0.340	0.98	93	93	301	62.5	100.6
	11	105.0	744.690	0.250	0.73	94	94	297	66.1	102.9
		110.0	746.800	0.250	0.73	94	94	295	66.1	96.8
	12	115.0	748.830	0.210	0.62	94	94	287	69.4	101.1
		120.0	750.905	0.230	0.68	93	93	286	69.4	98.9
			Average:	0.391	1.111	87.8	87.8	306.5		100.4

APPENDIX 3

FIELD DATA SHEETS

A. Lanfranco and Associates Inc.

(1 of 2)

Entered CEMS

METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #1	NOZZLE P-256 DIAMETER, IN. 0.2515	
PARAMETER / RUN No	PCDD/PCDF / R-1	PROBE 4IC Cp 0.8510	
DATE	July 30 2025		
OPERATOR:	DS + JD	PORT LENGTH	
CONTROL UNIT	JV 14 Y 1.0230	STATIC PRESSURE, IN. H2O -19.5"	
	ΔH@ 2.066	STACK DIAMETER 70.9"	
BAROMETRIC PRESSURE, IN. Hg	30.03	STACK HEIGHT 30.0	
ASSUMED MOISTURE, Bw	16%	INITIAL LEAK TEST 0.001 @ 15"	
		FINAL LEAK TEST 0.002 @ 15"	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1		370	370
Imp. #2	100	115	15
Imp. #3	0	5	5
Imp. #4	200g		
Imp. #5			
Imp. #6			
Imp. #7			
Imp. #8			

(Testo #2)

5 min Ready.

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. %	XAD
1		374.30	0.38	1.02	80	308	228	226	45	4			42
2	10	376.95	0.40	1.08	80	307					9.5	10.4	
3		379.49	0.37	1.00	81	308	259	254	47	5			44
4	20	381.98	0.36	0.97	81	307							
5		384.44	0.34	0.92	83	303	251	251	48	5			45
6	30	386.86	0.33	0.90	84	304							
7		389.25	0.32	0.87	85	302	253	251	46	5			47
8	40	391.6	0.31	0.85	86	301							
9		394.35	0.42	1.15	86	301	253	251	48	5.5	9.5	10.2	49
10	50	397.06	0.41	1.13	87	301							
11		399.50	0.33	0.91	87	301	252	252	45	5			45
12	60	401.98	0.34	0.93	88	302							
1		404.43	0.33	0.91	89	299	252	251	46	5			42
2	10	406.85	0.32	0.88	89	302					9.5	10.5	
3		409.38	0.35	0.97	89	300	251	250	50	5			44
4	20	411.95	0.36	1.00	90	299							
5		414.62	0.39	1.08	90	299	249	250	52	5.5			46
6	30	417.26	0.38	1.06	91	298							
7		419.84	0.36	1.00	91	298	250	249	54	5.5			47
8	40	422.38	0.35	0.97	92	299					9.0	10.7	
9		424.85	0.33	0.92	92	298	250	249	51	5			46
10	50	427.28	0.32	0.89	93	298							
11		429.68	0.31	0.87	93	295	251	249	46	5			47
12		432.03	0.30	0.84	93	293							

A. Lanfranco and Associates Inc.

(2 of 2)

Entered

METRO VANCOUVER WTE - BURNABY B.C.	NOZZLE DIAMETER, IN.	IMPINGER	INITIAL	FINAL	TOTAL GAIN
	PROBE Cp	VOLUMES	(mL)	(mL)	(mL)
SOURCE Unit #1		Imp. #1			
PARAMETER / RUN No PCDD/PCDF / R-1 Cont..	PORT LENGTH	Imp. #2			
DATE July. 30, 2025	STATIC PRESSURE, IN. H2O	Imp. #3			
OPERATOR:	STACK DIAMETER	Imp. #4			
CONTROL UNIT Y	STACK HEIGHT	Imp. #5			
ΔH@		Imp. #6			
BAROMETRIC PRESSURE, IN. Hg	INITIAL LEAK TEST	Imp. #7			
ASSUMED MOISTURE, Bw	FINAL LEAK TEST 0.002 @ 15"	Imp. #8			

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F					Pump Vac. IN. Hg	Fyrites		XAD
					Dry Gas Outlet	Stack	Probe	Box	Impinger Exit		CO_2 Vol. %	O_2 Vol. %	
		432.03											
1		434.35	0.29	0.81	93	296	249	250	52	5			42
1	10	436.72	0.30	0.84	96	297					10.5	9.4	
2		439.09	0.30	0.84	97	297	250	250	50	5			40
2	20	441.50	0.31	0.87	98	297							
3		443.79	0.28	0.79	96	296	250	250	49	5			39
3	30	446.12	0.29	0.81	95	293							
4		448.40	0.28	0.78	94	296	252	250	50	5			44
4	40	450.72	0.29	0.81	95	296							
5		453.20	0.33	0.93	95	295	251	251	52	5	9.0	10.7	46
5	50	455.72	0.34	0.95	95	295							
6		458.28	0.35	0.98	96	295	252	250	46	5.5			50
6	60	460.85	0.35	0.98	96	296							
7		463.52	0.38	1.07	95	296	252	250	48	5.5			45
7	10	466.18	0.39	1.09	95	297					9.0	10.8	
8		468.88	0.39	1.09	95	296	251	250	49	5.5			43
8	20	471.62	0.40	1.12	95	296							
9		474.46	0.43	1.21	96	295	252	250	48	6			46
9	30	477.26	0.42	1.18	96	296							
10		480.03	0.41	1.15	96	296	251	249	49	6			50
10	40	482.78	0.40	1.12	97	297							
11		485.55	0.44	1.23	96	297	251	250	50	6	10.0	10.0	51
11	50	488.43	0.42	1.18	96	296							
12		491.14	0.39	1.10	96	294	251	249	47	6			
12	12:05	493.78	0.37	1.05	96	294							

(1 of 2)

A. Lanfranco and Associates Inc.

ENTERED

METRO VANCOUVER WTE - BURNABY B.C.

SOURCE	Unit #1	NOZZLE P-256 DIAMETER, IN. 0.2515	
PARAMETER / RUN No	PCDD/PCDF / R-2	PROBE F/C Cp 0.85	
DATE	July 30 2025		
OPERATOR:	DS + DD	PORT LENGTH	
CONTROL UNIT	JU 19 Y 1.023D	STATIC PRESSURE, IN. H2O -19.5"	
	ΔH@ 2.066	STACK DIAMETER 70.96	
BAROMETRIC PRESSURE, IN. Hg	29.97	STACK HEIGHT 30.0'	
ASSUMED MOISTURE, Bw	14%	INITIAL LEAK TEST 0.009 @ 15"	
		FINAL LEAK TEST 0.002 @ 15"	

IMPINGER VOLUMES	INITIAL (mL)	FINAL (mL)	TOTAL GAIN (mL)
Imp. #1	0	383	383
Imp. #2	100	113	13
Imp. #3	0	2	2
Imp. #4	0	200 g	
Imp. #5			
Imp. #6			
Imp. #7			
Imp. #8			

5 min readj.

Point No.	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. %	%AD
1	0825	493.820	0.47	1.31	80	310	252	261	45	5			40
1	10	496.73	0.48	1.34	81	311					9.0	11.1	
2		499.68	0.45	1.25	81	312	264	258	44	5			44
2	20	502.54	0.44	1.23	81	311							
3		505.36	0.45	1.25	82	314	252	254	46	6			46
3	30	508.24	0.46	1.28	83	314							
4		511.14	0.47	1.30	83	315	252	259	49	6			42
4	40	514.05	0.48	1.34	84	315							
5		516.98	0.52	1.45	85	315	251	252	48	6	9.5	10.4	44
5	50	520.06	0.54	1.51	86	315							
6		523.20	0.46	1.27	86	312	251	254	49	5.5			43
6	60	526.08	0.40	1.13	87	313							
7		528.80	0.42	1.18	87	314	251	247	45	5.5			44
7	10	531.58	0.40	1.13	88	311					10.0	10.1	
8		534.30	0.43	1.22	88	311	251	249	48	5.5			46
8	20	537.12	0.44	1.25	89	311							
9		539.98	0.38	0.99	89	308	249	250	47	6.5			48
9	30	542.53	0.34	0.97	90	306							
10		545.06	0.31	0.89	90	304	250	248	49	6	11.0	8.7	40
10	40	547.48	0.30	0.86	90	304							
11		549.86	0.31	0.89	90	302	251	250	50	5			42
11	50	552.28	0.29	0.84	91	300							
12		554.63	0.26	0.75	91	296	251	248	52	5			44
12		556.85	0.25	0.73	91	295							
		559.05											

A. Lanfranco and Associates Inc.

(2 of 2)

Entered

METRO VANCOUVER WTE - BURNABY B.C.		NOZZLE DIAMETER, IN.	IMPINGER	INITIAL	FINAL	TOTAL GAIN
		PROBE Cp	VOLUMES	(mL)	(mL)	(mL)
SOURCE	Unit #1		Imp. #1			
PARAMETER / RUN No	PCDD/PCDF - R-2 Cont.	PORT LENGTH	Imp. #2			
DATE	July. 31st, 2025	STATIC PRESSURE, IN. H2O	Imp. #3			
OPERATOR:		STACK DIAMETER	Imp. #4			
CONTROL UNIT	Y	STACK HEIGHT	Imp. #5			
	ΔH@		Imp. #6			
BAROMETRIC PRESSURE, IN. Hg		INITIAL LEAK TEST	Imp. #7			
ASSUMED MOISTURE, Bw		FINAL LEAK TEST	Imp. #8			

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F					Pump Vac. IN. Hg	Fyrites		XAD	
					Dry Gas Outlet	Stack	Probe	Box	Impinger Exit		CO_2 Vol. %	O_2 Vol. %		
		559.05												
1		561.70	0.37	1.07	92	302	250	252	45	6			45	
2	10	564.30	0.36	1.04	92	302					9.5	10.3		
3		566.85	0.34	0.98	93	301	252	254	46	6			46	
4	20	569.36	0.33	0.95	93	301								
5		571.95	0.35	1.01	94	300	251	246	48	6			48	
6	30	574.58	0.36	1.04	95	301								
7		577.18	0.35	1.01	94	300	250	248	49	6			42	
8	40	579.72	0.33	0.96	95	299								
9		582.22	0.32	0.93	95	299	251	252	50	6	10.0	10.1	40	
10	50	584.65	0.31	0.90	94	298								
11		587.25	0.35	1.02	94	299	249	248	42	6			43	
12	60	589.89	0.36	1.05	95	297								
1		592.64	0.39	1.13	94	298	251	256	45	7			47	
2	10	595.40	0.40	1.16	94	298					11.5	8.5		
3		598.08	0.37	1.08	94	297	250	259	47	7			49	
4	20	600.72	0.36	1.05	94	298								
5		603.44	0.38	1.11	95	298	249	260	48	7			50	
6	30	606.20	0.39	1.14	95	297								
7		608.98	0.40	1.18	94	297	250	258	49	7			47	
8	40	611.80	0.41	1.19	95	298								
9		614.58	0.40	1.16	96	299	251	248	50	8	10.0	10.1	45	
10	50	617.44	0.42	1.22	95	299								
11		620.25	0.41	1.19	95	299	252	247	51	8			43	
12	12:26	622.98	0.39	1.14	95	298								

(1 of 2)

ENTERED

A. Lanfranco and Associates Inc.

CLIENT: MWTE	NOZZLE P256	DIAMETER, IN. 0.2515	IMPINGER	INITIAL	FINAL	TOTAL GAIN
	PROBE TC	Cp 0.8516	VOLUMES	(mL)	(mL)	(mL)
SOURCE: Unit 1			Imp. #1	8		
PARAMETER / RUN No Dioxin Run 3	PORT LENGTH		Imp. #2	10		
DATE Thu Aug. 7, 2025	STATIC PRESSURE, IN. H2O −19.9"		Imp. #3	8		
OPERATOR: Justin Ching	STACK DIAMETER 70.9"		Imp. #4	GEL		
CONTROL UNIT 3014 Y 1.0230	STACK HEIGHT 30'		Imp. #5			
ΔH@ 2.066			Imp. #6			
BAROMETRIC PRESSURE, IN. Hg 30.01	INITIAL LEAK TEST 0.005 @15"		Upstream Diameters			
ASSUMED MOISTURE, Bw 14%	FINAL LEAK TEST 0.002 @9"		Downstream Diameters			

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F					Pump Vac. IN. Hg	Fyrites		XAD	CO
					Dry Gas Outlet	Stack	Probe	Box	Impinger Exit		CO_2 Vol. %	O_2 Vol. %		
1	8:41	625.41	0.23	0.64	79	311	250	250	51	5	9.5	10.8	46	14
1	10	627.38	0.27	0.75	78	311								
2		629.74	0.27	0.75	79	310	250	250	49	5			44	
2	20	632.13	0.32	0.89	79	309								
3		634.52	0.33	0.92	80	309	250	250	49	6	9.0	11.1	43	16
3	30	636.81	0.29	0.81	80	309								
4		639.24	0.33	0.92	80	309	250	250	48	6			44	
4	40	641.58	0.31	0.87	81	308								
5		643.75	0.27	0.76	81	308	250	250	49	6	9.0	11.3	43	40
5	50	646.11	0.31	0.87	82	309								
6		648.38	0.29	0.81	82	309	250	250	49	6			44	
6	60	650.63	0.27	0.76	84	308								
7		653.39	0.47	1.33	83	306	250	250	50	7	10.0	10.2	43	47
7	70	656.49	0.45	1.27	84	305								
8		659.12	0.56	1.59	85	304	250	250	50	8			44	
8	80	662.18	0.49	1.39	86	304								
9		665.42	0.59	1.68	86	303	250	250	49	8	9.0	11.1	44	28
9	90	668.25	0.54	1.67	86	304								
10		671.39	0.60	1.70	87	306	250	250	50	8			45	
10	100	676.00	0.64	1.81	87	307								
11		679.21	0.55	1.56	87	306	250	250	51	8	9.5	10.9	44	17
11	110	682.04	0.44	1.25	88	307								
12		684.83	0.42	1.20	88	303	250	250	51	7			44	
12	120	687.53	0.40	1.14	88	303								

A. Lanfranco and Associates Inc.

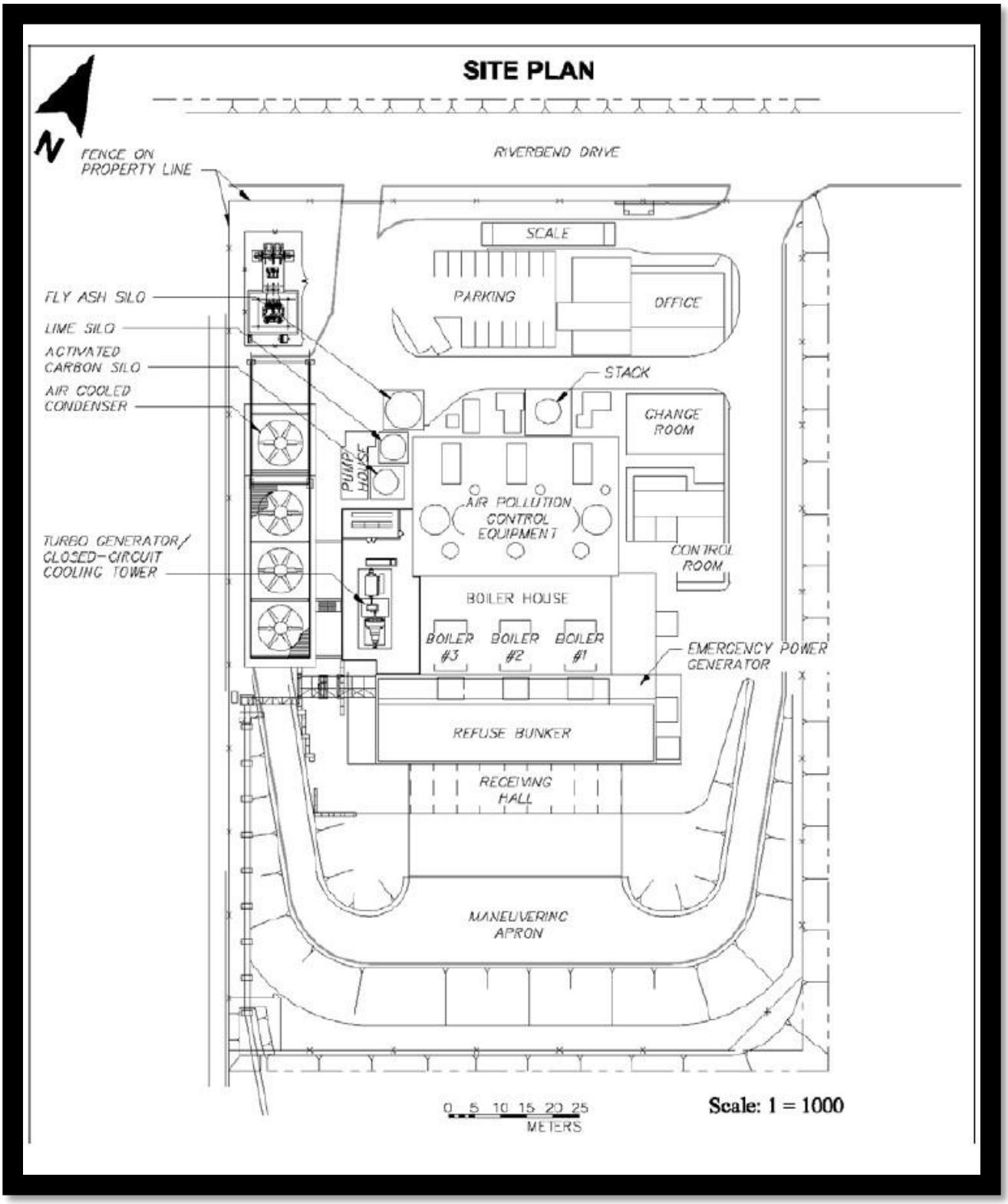
Entered

CLIENT: MUWTF	NOZZLE DIAMETER, IN.	IMPINGER VOLUMES	INITIAL (mL) / FINAL (mL) / TOTAL GAIN (mL)
SOURCE: Unit 1	PROBE Cp	Imp. #1	0 / 326 / 326
PARAMETER / RUN No Dioxin Run 3 continued	PORT LENGTH	Imp. #2	100 / 108 / 8
DATE Aug. 1 2025	STATIC PRESSURE, IN. H2O	Imp. #3	0 / 0 / 0
OPERATOR: Justin Ching	STACK DIAMETER	Imp. #4	GEL
CONTROL UNIT JU14 Y 1.0230	STACK HEIGHT	Imp. #5	
ΔH@ 2.066		Imp. #6	
BAROMETRIC PRESSURE, IN. Hg	INITIAL LEAK TEST	Upstream Diameters	
ASSUMED MOISTURE, Bw	FINAL LEAK TEST	Downstream Diameters	

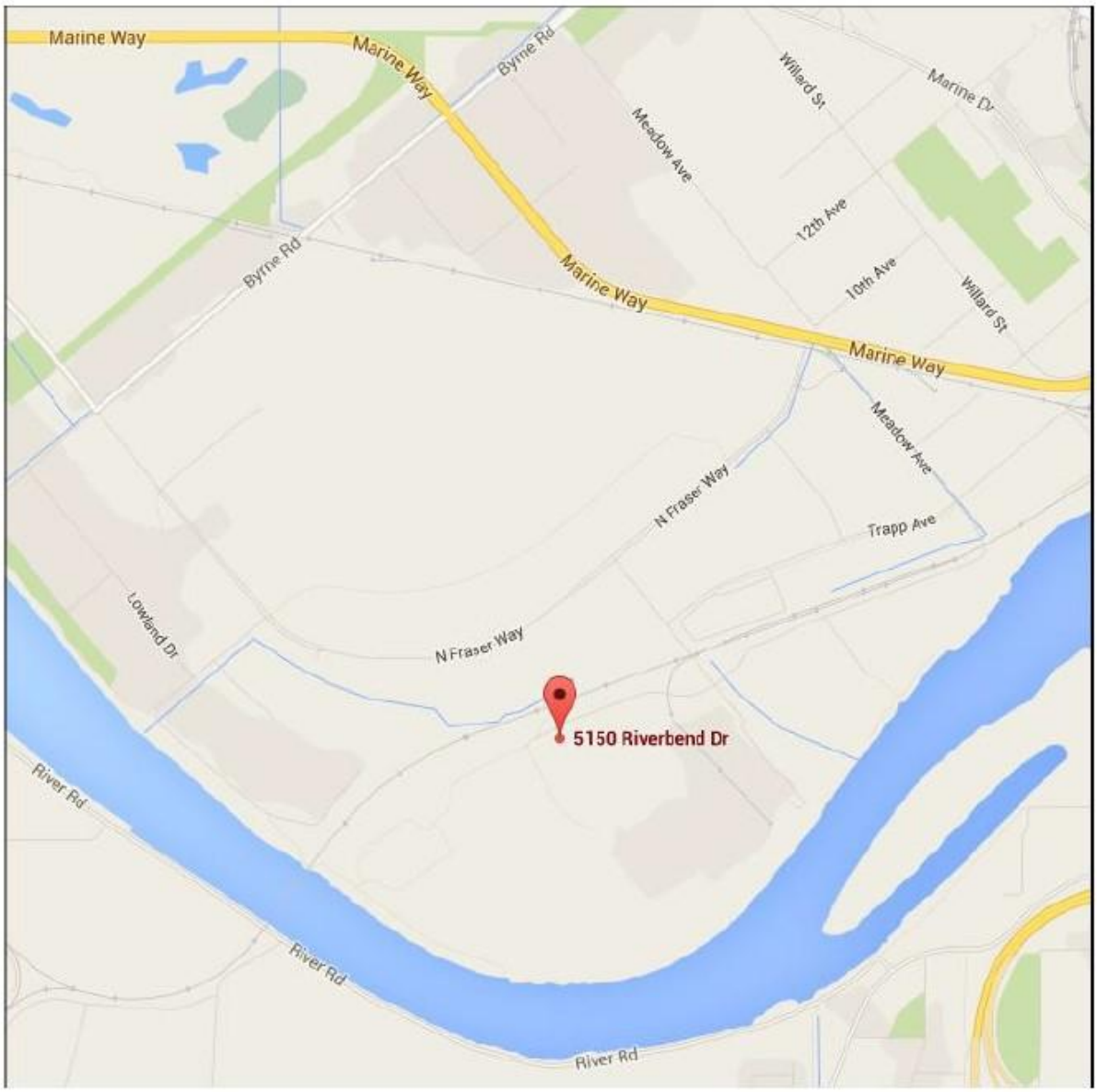
Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP IN. H_2O	Orifice ΔH IN. H_2O	Temperature °F Dry Gas Outlet	Stack	Probe	Box	Impinger Exit	Pump Vac. IN. Hg	Fyrites CO_2 Vol. %	O_2 Vol. %	XAD	CO
		687.53												
1		689.88	0.29	0.82	89	309	250	250	53	6	9.5	10.9	42	9
1	10	692.24	0.31	0.88	89	311								
2		694.92	0.40	1.13	89	310	250	250	51	7			43	
2	20	697.53	0.37	1.05	90	311								
3		700.40	0.44	1.25	90	309	250	250	51	7	9.5	11.2	45	8
3	30	703.17	0.42	1.17	90	310								
4		706.06	0.44	1.25	91	310	250	250	52	7			45	
4	40	708.93	0.46	1.31	91	310								
5		711.54	0.37	1.06	92	308	250	250	53	7	10.0	10.6	44	10
5	50	714.11	0.37	1.05	92	309								
6		716.84	0.39	1.12	93	307	250	250	53	7			44	
6	60	719.77	0.44	1.26	93	309								
7		722.85	0.52	1.48	93	309	250	250	54	8	9.5	10.8	43	12
7	70	725.96	0.52	1.48	93	310								
8		728.80	0.43	1.22	93	311	250	250	54	7			42	
8	80	731.81	0.47	1.34	94	311								
9		734.59	0.41	1.17	94	310	250	250	53	7	9.5	10.7	42	16
9	90	737.37	0.41	1.17	94	310								
10		739.91	0.35	1.01	93	304	250	250	54	7			41	
10	100	742.45	0.34	0.98	93	301								
11		744.69	0.25	0.73	94	297	250	250	54	6	9.5	10.8	42	15
11	110	746.80	0.25	0.73	94	295								
12		748.83	0.21	0.62	94	287	250	250	54	6			42	
12	120	750.965	0.23	0.68	93	286								
END	12:45													

APPENDIX 4

SITE AND LOCATION MAPS


SITE PLAN
N
FENCE ON PROPERTY LINE
RIVERBEND DRIVE
SCALE
PARKING
OFFICE
FLY ASH SILO
LIME SILO
ACTIVATED CARBON SILO
AIR COOLED CONDENSER
STACK
CHANGE ROOM
PUMP HOUSE
AIR POLLUTION CONTROL EQUIPMENT
TURBO GENERATOR/ CLOSED-CIRCUIT COOLING TOWER
CONTROL ROOM
BOILER HOUSE
BOILER #3
BOILER #2
BOILER #1
EMERGENCY POWER GENERATOR
REFUSE BUNKER
RECEIVING HALL
MANEUVERING APRON
0 5 10 15 20 25
METERS
Scale: 1 = 1000

LOCATION MAP



APPENDIX 5

CALIBRATION DATA and

CERTIFICATION

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: 2-Jul-25
Barometric Pressure: 29.84 (in. Hg)
Theoretical Critical Vacuum: 14.08 (in. Hg)

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

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
4.10	18.00	937.846	956.692	18.846	77.0	77.0	80.0	80.0	73	0.8185	15.0	79.0	81.0	80.0
2.15	16.00	956.652	968.818	12.166	80.0	80.0	81.0	81.0	63	0.5956	17.0	81.0	83.0	82.0
1.35	16.00	968.818	978.314	9.496	81.0	81.0	83.0	83.0	55	0.4606	18.0	83.0	86.0	84.5
0.76	15.00	978.314	985.093	6.779	83.0	83.0	84.0	84.0	48	0.3560	20.0	86.0	87.0	86.5
0.37	17.00	985.093	990.397	5.304	84.0	84.0	86.0	86.0	40	0.2408	21.0	87.0	88.0	87.5

********** 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)
18.608	527.0	18.919	535.8	19.408	1.017	-0.006	2.041	51.85	-0.024	0.673
11.911	337.3	12.214	345.9	12.577	1.025	0.002	2.022	51.35	-0.044	0.672
9.253	262.0	9.424	266.9	9.749	1.019	-0.005	2.127	54.01	0.061	0.661
6.578	186.3	6.816	193.0	7.077	1.036	0.013	2.006	50.95	-0.060	0.669
5.127	145.2	5.221	147.8	5.430	1.018	-0.005	2.132	54.16	0.067	0.661
				Average Y---------->	**1.0230**	**Average dH@----->**	**2.066**	**52.5**	**Average Ko----->**	**0.667**

TEMPERATURE CALIBRATION

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

Reference	Temperature Device Reading									
Set-Point	Stack		Hot Box		Probe		Imp Out		Aux	
(deg F)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)	(deg F)	(% diff)
32	31	-0.20%	32	0.00%	32	0.00%	31	-0.20%	31	-0.20%
100	99	-0.18%	100	0.00%	100	0.00%	100	0.00%	98	-0.36%
300	299	-0.13%	299	-0.13%	299	-0.13%	300	0.00%	298	-0.26%
500	498	-0.21%	498	-0.21%	498	-0.21%	498	-0.21%	497	-0.31%
1000	998	-0.14%	998	-0.14%	998	-0.14%	999	-0.07%	997	-0.21%

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

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

Pitot Tube Calibration

Date: 02-Jul-25
Pbar (in.Hg): 29.94

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

Pitot ID: **7A-1**

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

Pitot ID: **ST 8A**

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

Pitot ID: **7B**

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

Pitot ID: **ST 8B**

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

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

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

Pitot ID: **ST 8C**

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

Pitot ID: **7C**

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

Pitot ID:

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

* Average absolute deviation must not exceed 0.01.

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

A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

GLASS NOZZLE DIAMETER CALIBRATION FORM

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

Signature: 

Nozzle I.D.	d1	d2	d3	difference	average dia.	average area
	(inch)	(inch)	(inch)	(inch)	(inch)	(ft^2)
A	0.1270	0.1270	0.1255	0.0015	0.1265	0.0000873
G-165	0.1650	0.1660	0.1645	0.0015	0.1652	0.0001488
G-170	0.1700	0.1710	0.1695	0.0015	0.1702	0.0001579
G-178	0.1760	0.1770	0.1790	0.0030	0.1773	0.0001715
J	0.1881	0.1884	0.1874	0.0010	0.1880	0.0001927
E	0.1950	0.1930	0.1960	0.0030	0.1947	0.0002067
Q	0.2030	0.2040	0.2050	0.0020	0.2040	0.0002270
L	0.2100	0.2070	0.2090	0.0030	0.2087	0.0002375
P-2240	0.2160	0.2155	0.2170	0.0015	0.2162	0.0002549
P-224	0.2160	0.2170	0.2150	0.0020	0.2160	0.0002545
G-221	0.2160	0.2185	0.2190	0.0030	0.2178	0.0002588
G-2232	0.2210	0.2200	0.2215	0.0015	0.2208	0.0002660
P-223	0.2297	0.2296	0.2298	0.0002	0.2297	0.0002878
C-250	0.2500	0.2500	0.2500	0.0000	0.2500	0.0003409
P-250	0.2500	0.2495	0.2505	0.0010	0.2500	0.0003409
P-254	0.2535	0.2535	0.2530	0.0005	0.2533	0.0003500
P-256	0.2520	0.2510	0.2515	0.0010	0.2515	0.0003450
C-280	0.2800	0.2800	0.2800	0.0000	0.2800	0.0004276
C-281	0.2800	0.2820	0.2780	0.0040	0.2800	0.0004276
P-281	0.2820	0.2820	0.2815	0.0005	0.2818	0.0004332
C-282	0.2800	0.2800	0.2800	0.0000	0.2800	0.0004276
C-283	0.2800	0.2800	0.2800	0.0000	0.2800	0.0004276
G-2825	0.2825	0.2820	0.2825	0.0005	0.2823	0.0004348
G-304	0.3038	0.3028	0.3035	0.0010	0.3034	0.0005020
G-3121	0.3055	0.3063	0.3070	0.0015	0.3063	0.0005116
P-307	0.3070	0.3065	0.3075	0.0010	0.3070	0.0005140
G-3092	0.3100	0.3085	0.3090	0.0015	0.3092	0.0005213
P-31	0.3120	0.312	0.3120	0.0000	0.3120	0.0005309
P-311	0.3105	0.3115	0.3110	0.0010	0.3110	0.0005275
P-312	0.3120	0.312	0.3120	0.0000	0.3120	0.0005309
P-314	0.3135	0.3135	0.3140	0.0005	0.3137	0.0005366
P-315	0.3145	0.3145	0.3145	0.0000	0.3145	0.0005395
V-06	0.3210	0.3200	0.3200	0.0010	0.3203	0.0005597
P-34	0.3430	0.3430	0.3430	0.0000	0.3430	0.0006417
343-GS	0.3430	0.3430	0.3430	0.0000	0.3430	0.0006417
P-343	0.3425	0.3420	0.3425	0.0005	0.3423	0.0006392
G-345	0.3470	0.3475	0.3475	0.0005	0.3473	0.0006580
G-349	0.3655	0.3659	0.3665	0.0010	0.3660	0.0007305
G-367	0.3680	0.3660	0.3658	0.0022	0.3666	0.0007330
G-372	0.3669	0.3700	0.3668	0.0032	0.3679	0.0007382
P-375	0.3705	0.3710	0.3709	0.0005	0.3708	0.0007499
C-3751	0.3675	0.3672	0.3673	0.0003	0.3673	0.0007359
P-38	0.3750	0.3750	0.3750	0.0000	0.3750	0.0007670
P-381	0.3800	0.3800	0.3800	0.0000	0.3800	0.0007876
P-401	0.3980	0.3990	0.4000	0.0020	0.3990	0.0008683
P-405	0.4047	0.4055	0.4056	0.0009	0.4053	0.0008958
P-407	0.4065	0.4070	0.4072	0.0007	0.4069	0.0009030
P-406	0.4058	0.4062	0.4060	0.0004	0.4060	0.0008990
P-41	0.4060	0.4060	0.4060	0.0000	0.4060	0.0008990
G-433	0.4360	0.4360	0.4355	0.0005	0.4358	0.0010360
P-47	0.4680	0.4680	0.4680	0.0000	0.4680	0.0011946
P-29	0.4681	0.4683	0.4685	0.0004	0.4683	0.0011961
G-468	0.4700	0.4685	0.4720	0.0035	0.4702	0.0012057
P-7	0.4965	0.4945	0.4975	0.0030	0.4962	0.0013427
G-540	0.5400	0.5410	0.5400	0.0010	0.5403	0.0015924

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

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

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

Calibration Certificate

Date: 03-Jul-25
Calibrated by: Louis Agassiz
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	0.00	Pass		0
O_2	10.9	0.07	Pass		10.9	0.07	Pass		10.83
Ambient	20.9	0.06	Pass		20.9	0.06	Pass		20.96

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

CO	Initial Evaluation				After Calibration				
Gas	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Instrument Reading (ppm)	% Calibration Error	Pass/Fail	Notes	Certified Value (ppm)
Zero	0	0.0%	Pass		0	0.0%	Pass		0
1 Gas	251	1.2%	Pass		251	1.2%	Pass		254
2 Gas	491	0.6%	Pass		491	0.6%	Pass		494
3 Gas	941	1.2%	Pass		941	1.2%	Pass		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	0.5	0.2%	Pass		0	0.0%	Pass		0
1 Gas	47	4.9%	Pass		45	0.4%	Pass		44.8
2 Gas	85	4.6%	Pass		89	0.1%	Pass		89.1
3 Gas	241	3.4%	Pass		249	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			500	0	0	0
1 Gas	435	19-Dec-23	20-Dec-31	250	44.81	0	254.1
2 Gas	K9P	15-Apr-24	15-Apr-32	1200	89.11	0	494.2
3 Gas	K2H	22-May-24	22-May-32	1600	249.6	0	952.9
O_2/CO_2	A1M	14-Mar-24	14-Mar-32	500	0	10.83	0

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

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

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

Performance Specification is
Device Corrected for Elevation must be +/- 0.1 " Hg of ENV CANADA SEA-LEVEL Pbar
Enter Environment canada Pressure from their website for Vancouver (link below)
and the reading from your barometer on the ground floor of the office.

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

A. LANFRANCO and ASSOCIATES INC.

ENVIRONMENTAL CONSULTANTS

TEMPERATURE CALIBRATION FORM

Calibrated by: Christian De La O

Date: 2-Jul-25

Signature: Carter Lanfranco

TEMPERATURE DEVICE CALIBRATIONS

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

MOUNT ROYAL COLLEGE

Faculty of Continuing Education and Extension

Daryl Sampson

has successfully completed

The program of studies and is awarded the certificate in

STACK SAMPLING

May 2005
Date

Donna Spaulding
Dean
Faculty of Continuing Education and Extension

Conflict of Interest Disclosure Statement

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

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

a) an ownership interest in the regulated person's business;

b) an opportunity to influence a decision that leads to financial benefits from the regulated person or their business other than a standard fee for service (e.g. bonuses, stock options, other profit sharing arrangements);

c) a personal or professional interest in a specific outcome;

d) the promise of a long term or ongoing business relationship with the regulated person, that is contingent upon a specific outcome of work;

e) a spouse or other family member who will benefit from a specific outcome; or

f) any other interest that could be perceived as a threat to the independence or objectivity of the qualified professional in performing a duty or function.

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

Declaration

I Daryl Sampson, as a member of **Air and Waste Management Association** declare

Select one of the following:

☒ Absence from conflict of interest

Other than the standard fee I will receive for my professional services, I have no financial or other interest in the outcome of this **project**. I further declare that should a conflict of interest arise in the future during the course of this work, I will fully disclose the circumstances in writing and without delay to **Mr. Sajid Barlas**, erring on the side of caution.

ñ 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: Daryl Sampson

Date: Dec.18, 2020

Witnessed by:

X

Print name: Mark Lanfranco

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

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

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

Declaration of Competency

The Ministry of Environment and Climate Change Strategy relies on the work, advice, recommendations and in some cases decision making of qualified 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 Daryl Sampson

   Title Senior 9ƴǾǆƻƴϓŜƴǘŀƪ ¢ŜǓKƴƛǑŀƪƴƙProject Manager

2. Are you a registered member of a professional association in B.C.? Yes X No

   Name of Association: ____________ Registration # ____________

3. Brief description of professional services:

   9ƴǾǆƻƴϓŜƴǘŀƪ ǑƻƴǎdzƪǘƛƴƎΣ ǎLJŜǓƛŀƪƛǍƛƴƎ ƛƴ ŀǆǆ ŀƴŘ ŀǘϓƻǎLJKŜǆƛǓ ǎǓƛŜƴǓŜǎ

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: ____________	Print Name: ____________

Date signed: ____________

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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*

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