Pinnacle Renewable Energy Inc
Smithers Pellet Limited Partnership

Total Particulate & Condensable Organics
February 13, 2025
Smithers, B.C.
Permit 06099

Our Job Number: ME2425-152

Report Author: Matt McCall
McCall Environmental

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February 28, 2025

Smithers Pellet Limited Partnership
1723 Dahlie Rd
PO Box 699
Smithers BC
V0J 2N0

Attention: **Joel Martens/Wayne Kooy**
RE: **Air Emission Testing Feb 13, 2025**
RA-6099, ME2425-152

As requested our firm provided a series of air emission tests at your facility in Smithers, B.C. The purpose of these tests was to satisfy testing requirements as stated in your permit RA-6099.

Testing Parameters

- Total Particulate and Condensable Organics (4 Sources)
  - State of Oregon Method

Key Personnel

- Report Generation: Matt McCall 250-542-5118
- Sr Field Tech: Dave Brandle, Dan Lawrence 250-301-5712
- Plant Personnel: Joel Martens 250-847-1431

All stacks have been examined for cyclonic flow and determined to be tested as laminar in nature.

Test results are summarized immediately following this cover letter.

Lab analysis for condensable organic fractions was carried out by Element Labs in Surrey, B.C. A copy of their report is included in the Appendix of this report.

If you have any questions or concerns please don't hesitate to contact us at your earliest convenience.

Sincerely,

MCCALL ENVIRONMENTAL

Matt McCall

Digitally signed by Matt McCall
Date: 2025.02.28 15:04:51 -07'00'

Matt McCall

Summary of Test Results

Total Particulate	Average of Triplicate Tests						Prev Test
Parameter	**Stack 1**	**Stack2**	**Stack 3**	**Stack 4**	**Avg/ Comb**	**Permit**	**21-Nov-24**
Test Date	13-Feb-25	13-Feb-25	13-Feb-25	13-Feb-25	N/A		*N/A*
Gas Temperature (°C)	18.7	27.3	27.0	39.3	28.1		*29.24*
% Moisture	0.53	0.73	1.65	1.16	1.02		*1.38*
Velocity (m/sec)	9.17	8.70	9.20	8.51	8.89		*9.64*
ACFM	59864	56814	60119	55551	232348		*251778*
Std. Dry Flow Rate (m^3/sec)	**26.55**	**24.42**	**25.63**	**22.87**	99.46	*132	*108.58*
Tot Part. Dry Basis ref. Cond. (mg/m^3)	5.25	8.30	10.91	10.59	**8.68**	15.00	*6.83*
Front Half Particulate (mg/m^3)	3.55	6.47	8.48	7.54	6.51		*4.70*
Back Half Condensibles (mg/m^3)	1.70	1.83	2.43	3.04	2.25		*2.09*
Mass Emission Rate (kg/hr)	0.50	0.73	1.00	0.87	**3.11**	7.67	*2.67*

* Note: ACFM, m3/sec, and kg/hr, are combined as opposed to averaged.

* Permitted flow rate is 33.0 m3/sec per stack, combined flow rate of 132

* Standard reference conditions are on a dry basis, 20 deg C and pressure at sea level 29.92 inches Hg.

**Average Total Particulate across the four stacks is weighted against individual stack flow

Discussion of Test Results

Test results from the last set of compliance testing was performed in November 2024. Those results are included in the summary tables above for comparison purposes.

Field personnel didn't notice any abnormalities during testing. To the best of our knowledge the plant was operating normally during testing.

Plant production data is included in this report.

All stacks are non-cyclonic and are tested with standard testing methodology.

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Pinnacle Renewable Energy Inc **13-Feb-25**
Dryer1 Stack 1 **Permit Number: RA-6099**
Smithers BC

AVERAGE OF AIR EMISSION TESTS 1 TO 3

Gas Temperature:	66 ^{o} F	19 ^{o} C
Moisture Content (by volume):	0.53 %	
Average Stack Gas Velocity:	30.1 ft/sec	9.2 m/sec
Total Actual Gas Flow Rate:	59864 ACFM	
Dry Gas flow Rate at Reference Conditions:	56251 SCFM	26.5 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.002 gr/ft^3	5.25 mg/m^3
Front Half Particulate	0.002 gr/ft^3	3.5 mg/m^3
Back Half Condensibles	0.001 gr/ft^3	1.7 mg/m^3
Mass Emission Rate	1.11 lbs/hr	0.50 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	65 ^{o} F	18 ^{o} C
Moisture Content (by volume):	.5 %	
Average Stack Gas Velocity:	30.1 ft/sec	9.2 m/sec
Total Actual Gas Flow Rate:	59905 ACFM	
Dry Gas flow Rate at Reference Conditions:	56413 SCFM	26.6 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.003 gr/ft^3	5.7 mg/m^3
Front Half Particulate	.002 gr/ft^3	4.0 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.7 mg/m^3
Mass Emission Rate	1.21 lbs/hr	0.55 kg/hr

TEST 2:

Gas Temperature:	65 ^{o} F	18 ^{o} C
Moisture Content (by volume):	.6 %	
Average Stack Gas Velocity:	30.0 ft/sec	9.2 m/sec
Total Actual Gas Flow Rate:	59770 ACFM	
Dry Gas flow Rate at Reference Conditions:	56240 SCFM	26.5 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.002 gr/ft^3	5.3 mg/m^3
Front Half Particulate	.002 gr/ft^3	3.6 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.7 mg/m^3
Mass Emission Rate	1.12 lbs/hr	0.51 kg/hr

TEST 3:

Gas Temperature:	67 ^{o} F	20 ^{o} C
Moisture Content (by volume):	.6 %	
Average Stack Gas Velocity:	30.1 ft/sec	9.2 m/sec
Total Actual Gas Flow Rate:	59919 ACFM	
Dry Gas flow Rate at Reference Conditions:	56099 SCFM	26.5 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.002 gr/ft^3	4.7 mg/m^3
Front Half Particulate	.001 gr/ft^3	3.0 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.7 mg/m^3
Mass Emission Rate	0.98 lbs/hr	0.45 kg/hr

DATA FOR TESTS 1 TO 3

Client:	Pinnacle Renewable Energy Inc	
Plant Location:	Smithers BC	
Process:	Dryer1 Stack 1	
Permit Number:	RA-6099	
Job Number:	ME2425-152	
Pollution Control Permit:	15.0 mg/m3	49.5 m3/sec
Number of Tests:	3 tests	
Minutes per Point:	2.5 minutes	

	TEST 1	TEST 2	TEST 3
Filter Number:	P96	P97	P98
Date of Test:	13-Feb-25	13-Feb-25	13-Feb-25
Start Time:	10:46	10:47	12:07
Stop Time:	11:48	11:49	13:09
On-line Sampling Time:	60	60	60
Testing Personnel:	DL/CB	DL/CB	DL/CB
Sampler Model:	980	980	980
Barometric Pressure("Hg):	28.15	28.15	28.15
Static Pressure("H_2O):	-0.20	-0.20	-0.20
%CO_2:	0.0	0.0	0.0
%O_2:	21.0	21.0	21.0
%CO:	0.0	0.0	0.0
%N_2:	79.0	79.0	79.0
Diameter of Nozzle(inches):	0.277	0.277	0.277
Meter Factor:	0.9997	0.9997	0.9997
Type-S Pitot Tube Coefficient:	0.83365	0.83365	0.83365
Cross Sectional Area of Stack(ft^2):	33.18	33.18	33.18
Impinger Condensate(g):	3	4	4
Weight of Moisture in Silica Gel(g):	1.0	1.0	1.0
Weight of Filter Particulate(g):	0.0005	0.0001	0.0006
Weight of Probe Washings(g):	0.0042	0.0041	0.0030
Weight of Impinger Content Organic(g):	0.0020	0.0020	0.0020
Total Weight of Particulate(g):	0.0067	0.0062	0.0056

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Sampling Data for - *TEST 1*
Pinnacle Renewable Energy Inc
Dryer1 Stack 1
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
A-12	0.27	1.38	33	33	64	2.96	1.06
A-11	0.26	1.43	63	54	56	4.81	0.99
A-10	0.28	1.53	72	55	65	6.61	1.00
A-9	0.27	1.48	74	57	65	8.49	1.03
A-8	0.27	1.48	79	55	62	10.40	1.02
A-7	0.30	1.65	80	58	65	12.30	0.92
A-6	0.30	1.65	74	57	63	14.11	0.94
A-5	0.29	1.60	77	59	64	15.96	0.91
A-4	0.29	1.60	79	63	66	17.72	1.01
A-3	0.28	1.55	81	64	65	19.68	0.90
A-2	0.27	1.50	83	64	65	21.41	0.91
A-1	0.27	1.47	65	64	68	23.12	1.04
B-12	0.24	1.31	73	62	68	25.04	0.92
B-11	0.25	1.37	76	62	67	26.65	0.94
B-10	0.26	1.42	74	62	66	28.34	0.93
B-9	0.27	1.49	78	63	67	30.04	0.99
B-8	0.28	1.55	81	66	69	31.90	0.92
B-7	0.27	1.49	84	65	65	33.65	0.92
B-6	0.29	1.62	84	70	65	35.39	1.00
B-5	0.30	1.69	88	72	64	37.36	0.97
B-4	0.29	1.64	88	73	64	39.32	0.99
B-3	0.28	1.58	89	75	64	41.28	0.92
B-2	0.27	1.53	90	74	64	43.08	0.97
B-1	0.26	1.46	91	74	65	44.94	0.94
						46.71	

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Sampling Data for - *TEST 2*
Pinnacle Renewable Energy Inc
Dryer1 Stack 1
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
B-12	0.25	1.40	69	73	66	46.84	1.00
B-11	0.26	1.47	74	70	64	48.65	0.98
B-10	0.28	1.58	79	70	65	50.46	0.93
B-9	0.27	1.54	87	72	65	52.24	0.93
B-8	0.27	1.54	84	71	63	54.02	0.95
B-7	0.29	1.66	91	73	65	55.82	0.94
B-6	0.30	1.73	91	79	64	57.69	0.97
B-5	0.30	1.73	93	75	65	59.66	0.97
B-4	0.28	1.62	94	75	64	61.62	0.91
B-3	0.28	1.62	94	76	64	63.40	0.92
B-2	0.27	1.56	97	77	67	65.20	1.04
B-1	0.27	1.57	96	80	64	67.21	1.03
A-12	0.25	1.46	99	81	65	69.20	0.96
A-11	0.25	1.45	97	79	64	70.99	0.93
A-10	0.26	1.52	101	83	65	72.72	0.90
A-9	0.27	1.58	101	82	64	74.45	1.00
A-8	0.26	1.58	102	84	64	76.39	0.98
A-7	0.29	1.70	102	85	64	78.27	0.96
A-6	0.29	1.70	103	85	65	80.22	0.95
A-5	0.30	1.76	103	86	65	82.14	0.97
A-4	0.29	1.71	105	86	65	84.14	1.03
A-3	0.28	1.65	105	87	66	86.23	1.03
A-2	0.27	1.59	104	88	65	88.28	0.96
A-1	0.25	1.47	105	89	64	90.17	0.96
						91.99	

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Sampling Data for - *TEST 3*
Pinnacle Renewable Energy Inc
Dryer1 Stack 1
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^oF)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^oF)	TEMP OUT (^oF)			
A-12	0.24	1.28	44	45	67	92.34	1.04
A-11	0.26	1.39	46	44	67	94.09	1.02
A-10	0.29	1.54	49	43	68	95.87	1.02
A-9	0.28	1.50	51	44	68	97.75	1.03
A-8	0.27	1.45	52	44	67	99.63	1.03
A-7	0.3	1.61	53	45	67	101.48	0.96
A-6	0.3	1.62	55	45	66	103.29	0.93
A-5	0.29	1.57	56	46	66	105.06	0.99
A-4	0.28	1.51	57	46	67	106.91	0.96
A-3	0.27	1.46	58	47	68	108.68	1.00
A-2	0.26	1.40	59	47	69	110.49	1.05
A-1	0.26	1.41	59	48	68	112.35	1.04
B-12	0.25	1.35	58	49	68	114.20	1.01
B-11	0.26	1.41	59	48	67	115.96	1.05
B-10	0.26	1.41	60	49	67	117.83	0.99
B-9	0.28	1.52	61	50	68	119.60	0.99
B-8	0.29	1.57	62	50	68	121.43	0.95
B-7	0.29	1.58	63	51	69	123.22	0.95
B-6	0.30	1.64	65	52	68	125.01	0.98
B-5	0.29	1.59	67	53	68	126.89	0.96
B-4	0.28	1.54	70	54	67	128.72	0.96
B-3	0.27	1.49	72	55	67	130.51	1.00
B-2	0.26	1.44	73	55	66	132.36	0.96
B-1	0.25	1.39	73	56	66	134.10	1.00
						135.88	

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Pinnacle Renewable Energy Inc
Dryer1 Stack 1
Pinnacle Renewable Energy Inc

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 0.965**

Delta P:	**0.275**	**"H_2O**	**Us avg:**	**30.09**	**ft/sec**
Delta H:	**1.520**		**ACFM:**	**59905**	**ft^3/min**
Tm avg:	**529.9**	**^oR**	**SDCFM:**	**56413**	**ft^3/min**
Ts avg:	**524.8**	**^oR**	**Vm std:**	**41.16**	**ft^3**
Bwo:	**0.005**		**Vm corr:**	**43.74**	**ft^3**
Md:	**28.84**		**Vm:**	**43.75**	**ft^3**
Ms:	**28.79**		**MF:**	**0.9997**	
Pb:	**28.15**	**"Hg**	**PCON:**	**5.75**	**mg/m^3**
Pm:	**28.26**	**"Hg**	**ERAT:**	**0.55**	**kg/hr**
Ps:	**28.14**	**"Hg**			

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 0.967**

Delta P:	**0.274**	**"H_2O**	**Us avg:**	**30.02**	**ft/sec**
Delta H:	**1.591**		**ACFM:**	**59770**	**ft^3/min**
Tm avg:	**547.1**	**^oR**	**SDCFM:**	**56240**	**ft^3/min**
Ts avg:	**524.7**	**^oR**	**Vm std:**	**41.15**	**ft^3**
Bwo:	**0.006**		**Vm corr:**	**45.14**	**ft^3**
Md:	**28.84**		**Vm:**	**45.15**	**ft^3**
Ms:	**28.78**		**MF:**	**0.9997**	
Pb:	**28.15**	**"Hg**	**PCON:**	**5.32**	**mg/m^3**
Pm:	**28.27**	**"Hg**	**ERAT:**	**0.51**	**kg/hr**
Ps:	**28.14**	**"Hg**			

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 0.996**

Delta P:	**0.274**	**"H_2O**	**Us avg:**	**30.10**	**ft/sec**
Delta H:	**1.486**		**ACFM:**	**59919**	**ft^3/min**
Tm avg:	**513.9**	**^oR**	**SDCFM:**	**56099**	**ft^3/min**
Ts avg:	**527.4**	**^oR**	**Vm std:**	**42.24**	**ft^3**
Bwo:	**0.006**		**Vm corr:**	**43.53**	**ft^3**
Md:	**28.84**		**Vm:**	**43.54**	**ft^3**
Ms:	**28.78**		**MF:**	**0.9997**	
Pb:	**28.15**	**"Hg**	**PCON:**	**4.68**	**mg/m^3**
Pm:	**28.26**	**"Hg**	**ERAT:**	**0.45**	**kg/hr**
Ps:	**28.14**	**"Hg**			

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Pinnacle Renewable Energy Inc **13-Feb-25**
Dryer1 Stack 2 **Permit Number: RA-6099**
Smithers BC

AVERAGE OF AIR EMISSION TESTS 1 TO 3

Gas Temperature:	81 ^{o} F	27 ^{o} C
Moisture Content (by volume):	0.73 %	
Average Stack Gas Velocity:	28.5 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	56814 ACFM	
Dry Gas flow Rate at Reference Conditions:	51747 SCFM	24.4 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.004 gr/ft^3	8.3 mg/m^3
Front Half Particulate	0.003 gr/ft^3	6.5 mg/m^3
Back Half Condensibles	0.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	1.61 lbs/hr	0.73 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	81 ^{o} F	27 ^{o} C
Moisture Content (by volume):	.7 %	
Average Stack Gas Velocity:	28.6 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	56949 ACFM	
Dry Gas flow Rate at Reference Conditions:	51852 SCFM	24.5 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.003 gr/ft^3	7.0 mg/m^3
Front Half Particulate	.002 gr/ft^3	5.1 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.9 mg/m^3
Mass Emission Rate	1.36 lbs/hr	0.62 kg/hr

TEST 2:

Gas Temperature:	83 ^{o} F	28 ^{o} C
Moisture Content (by volume):	.7 %	
Average Stack Gas Velocity:	28.6 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	56908 ACFM	
Dry Gas flow Rate at Reference Conditions:	51656 SCFM	24.4 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.003 gr/ft^3	6.6 mg/m^3
Front Half Particulate	.002 gr/ft^3	4.8 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	1.28 lbs/hr	0.58 kg/hr

TEST 3:

Gas Temperature:	79 ^{o} F	26 ^{o} C
Moisture Content (by volume):	.7 %	
Average Stack Gas Velocity:	28.4 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	56586 ACFM	
Dry Gas flow Rate at Reference Conditions:	51732 SCFM	24.4 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.005 gr/ft^3	11.3 mg/m^3
Front Half Particulate	.004 gr/ft^3	9.5 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	2.18 lbs/hr	0.99 kg/hr

DATA FOR TESTS 1 TO 3

Client:	Pinnacle Renewable Energy Inc		
Plant Location:	Smithers BC		
Process:	Dryer1 Stack 2		
Permit Number:	RA-6099		
Job Number:	ME2425-152		
Pollution Control Permit:	15.0 mg/m3	49.5	m3/sec
Number of Tests:	3 tests		
Minutes per Point:	2.5 minutes		

	TEST 1	TEST 2	TEST 3
Filter Number:	P93	P94	P95
Date of Test:	13-Feb-25	13-Feb-25	13-Feb-25
Start Time:	10:46	12:21	14:00
Stop Time:	11:48	13:23	15:02
On-line Sampling Time:	60	60	60
Testing Personnel:	CB/CB	CB/CB	CB/CB
Sampler Model:	1021	1021	1021
Barometric Pressure("Hg):	28.15	28.15	28.15
Static Pressure("H_2O):	-0.19	-0.19	-0.19
%CO_2:	0.0	0.0	0.0
%O_2:	21.0	21.0	21.0
%CO:	0.0	0.0	0.0
%N_2:	79.0	79.0	79.0
Diameter of Nozzle(inches):	0.275	0.275	0.275
Meter Factor:	0.9972	0.9972	0.9972
Type-S Pitot Tube Coefficient:	0.84182	0.84182	0.84182
Cross Sectional Area of Stack(ft^2):	33.18	33.18	33.18
Impinger Condensate(g):	5	5	5
Weight of Moisture in Silica Gel(g):	1.0	1.0	1.0
Weight of Filter Particulate(g):	0.0002	0.0003	0.0001
Weight of Probe Washings(g):	0.0053	0.0049	0.0105
Weight of Impinger Content Organic(g):	0.0020	0.0020	0.0020
Total Weight of Particulate(g):	0.0075	0.0072	0.0126

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Sampling Data for - *TEST 1*
Pinnacle Renewable Energy Inc
Dryer1 Stack 2
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
A-12	0.28	1.88	61	61	69	39.12	1.01
A-11	0.36	2.38	64	63	81	41.00	0.91
A-10	0.26	1.70	57	51	72	42.90	0.99
A-9	0.28	1.83	60	52	81	44.65	0.98
A-8	0.25	1.63	61	53	81	46.43	0.98
A-7	0.25	1.67	80	55	81	48.11	0.92
A-6	0.24	1.58	66	57	81	49.72	0.99
A-5	0.23	1.52	69	61	82	51.41	0.99
A-4	0.20	1.33	74	58	82	53.07	0.98
A-3	0.20	1.32	69	60	82	54.61	0.97
A-2	0.17	1.12	69	60	82	56.13	0.93
A-1	0.16	1.04	66	64	88	57.47	1.01
B-12	0.27	1.77	67	65	86	58.87	0.91
B-11	0.32	2.11	70	65	85	60.52	0.93
B-10	0.27	1.79	73	65	83	62.36	0.98
B-9	0.28	1.87	73	66	80	64.15	1.04
B-8	0.26	1.74	75	67	82	66.09	0.94
B-7	0.25	1.67	75	67	81	67.79	0.98
B-6	0.23	1.54	76	69	82	69.53	1.00
B-5	0.23	1.54	77	69	81	71.23	1.00
B-4	0.20	1.34	76	70	82	72.94	1.04
B-3	0.21	1.41	77	72	81	74.59	0.97
B-2	0.17	1.14	77	71	83	76.17	1.07
B-1	0.16	1.15	76	71	83	77.74	1.03
						79.20	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 2*
Pinnacle Renewable Energy Inc
Dryer1 Stack 2
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
B-12	0.29	1.97	70	72	84	79.85	1.01
B-11	0.30	2.04	76	71	83	81.77	0.94
B-10	0.26	1.77	75	71	82	83.60	0.97
B-9	0.27	1.85	77	72	81	85.35	1.04
B-8	0.26	1.78	79	72	83	87.27	0.94
B-7	0.25	1.71	80	73	83	88.97	1.10
B-6	0.23	1.58	82	74	83	90.93	0.91
B-5	0.23	1.58	82	75	83	92.49	1.07
B-4	0.20	1.39	85	86	82	94.33	1.06
B-3	0.20	1.40	85	87	82	96.06	1.00
B-2	0.18	1.25	87	78	82	97.68	0.93
B-1	0.16	1.10	88	81	83	99.10	1.01
A-12	0.28	1.95	89	82	83	100.57	0.94
A-11	0.33	2.30	89	82	83	102.38	1.02
A-10	0.29	2.02	90	81	83	104.50	1.03
A-9	0.28	1.96	94	85	83	106.52	0.97
A-8	0.26	1.82	95	85	83	108.40	1.06
A-7	0.25	1.76	95	87	84	110.37	0.97
A-6	0.22	1.55	96	88	83	112.14	0.99
A-5	0.22	1.56	96	89	83	113.85	0.96
A-4	0.20	1.41	95	89	83	115.50	0.92
A-3	0.22	1.55	97	90	85	117.01	1.08
A-2	0.17	1.20	97	91	84	118.88	0.97
A-1	0.15	1.06	98	92	84	120.35	1.05
						121.85	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 3*
Pinnacle Renewable Energy Inc
Dryer1 Stack 2
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^oF)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^oF)	TEMP OUT (^oF)			
A-12	0.3	1.98	55	54	82	22.14	1.01
A-11	0.29	1.92	57	53	81	24.04	1.01
A-10	0.27	1.79	58	53	80	25.90	1.02
A-9	0.26	1.72	59	52	80	27.72	1.01
A-8	0.26	1.72	60	52	79	29.49	1.01
A-7	0.25	1.66	61	52	79	31.26	1.01
A-6	0.23	1.54	62	53	78	33.01	1.02
A-5	0.23	1.53	62	53	79	34.71	1.09
A-4	0.2	1.33	63	54	80	36.52	1.09
A-3	0.21	1.40	63	54	80	38.21	1.01
A-2	0.18	1.21	64	55	79	39.81	1.04
A-1	0.16	1.07	65	55	78	41.34	1.03
B-12	0.28	1.88	65	56	78	42.78	1.01
B-11	0.33	2.22	66	56	77	44.63	0.97
B-10	0.30	2.02	67	57	78	46.57	1.00
B-9	0.28	1.89	68	57	78	48.48	0.99
B-8	0.26	1.75	69	58	79	50.31	1.00
B-7	0.25	1.69	69	58	79	52.10	1.05
B-6	0.22	1.48	70	59	80	53.93	1.06
B-5	0.22	1.49	71	60	80	55.67	1.06
B-4	0.19	1.28	72	61	81	57.42	0.99
B-3	0.20	1.36	73	62	80	58.94	1.06
B-2	0.16	1.09	73	63	79	60.61	1.01
B-1	0.15	1.02	74	63	78	62.04	1.04
						63.46	

MCCALL ENVIRONMENTAL

Pinnacle Renewable Energy Inc
Dryer1 Stack 2
Pinnacle Renewable Energy Inc

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 0.981**

Delta P:	**0.236**	**"H_2O**	**Us avg:**	**28.61**	**ft/sec**
Delta H:	**1.586**		**ACFM:**	**56949**	**ft^3/min**
Tm avg:	**526.7**	**^oR**	**SDCFM:**	**51852**	**ft^3/min**
Ts avg:	**541.3**	**^oR**	**Vm std:**	**37.85**	**ft^3**
Bwo:	**0.007**		**Vm corr:**	**39.97**	**ft^3**
Md:	**28.84**		**Vm:**	**40.08**	**ft^3**
Ms:	**28.76**		**MF:**	**0.9972**	
Pb:	**28.15**	**"Hg**	**PCON:**	**7.00**	**mg/m^3**
Pm:	**28.27**	**"Hg**	**ERAT:**	**0.62**	**kg/hr**
Ps:	**28.14**	**"Hg**			

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 0.997**

Delta P:	**0.235**	**"H_2O**	**Us avg:**	**28.59**	**ft/sec**
Delta H:	**1.648**		**ACFM:**	**56908**	**ft^3/min**
Tm avg:	**544.4**	**^oR**	**SDCFM:**	**51656**	**ft^3/min**
Ts avg:	**543.0**	**^oR**	**Vm std:**	**38.38**	**ft^3**
Bwo:	**0.007**		**Vm corr:**	**41.88**	**ft^3**
Md:	**28.84**		**Vm:**	**42.00**	**ft^3**
Ms:	**28.76**		**MF:**	**0.9972**	
Pb:	**28.15**	**"Hg**	**PCON:**	**6.62**	**mg/m^3**
Pm:	**28.27**	**"Hg**	**ERAT:**	**0.58**	**kg/hr**
Ps:	**28.14**	**"Hg**			

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 1.025**

Delta P:	**0.234**	**"H_2O**	**Us avg:**	**28.42**	**ft/sec**
Delta H:	**1.585**		**ACFM:**	**56586**	**ft^3/min**
Tm avg:	**520.8**	**^oR**	**SDCFM:**	**51732**	**ft^3/min**
Ts avg:	**539.3**	**^oR**	**Vm std:**	**39.47**	**ft^3**
Bwo:	**0.007**		**Vm corr:**	**41.20**	**ft^3**
Md:	**28.84**		**Vm:**	**41.32**	**ft^3**
Ms:	**28.76**		**MF:**	**0.9972**	
Pb:	**28.15**	**"Hg**	**PCON:**	**11.27**	**mg/m^3**
Pm:	**28.27**	**"Hg**	**ERAT:**	**0.99**	**kg/hr**
Ps:	**28.14**	**"Hg**			

MCCALL ENVIRONMENTAL

Pinnacle Renewable Energy Inc **13-Feb-25**
Dryer1 Stack 3 **Permit Number: RA-6099**
Smithers BC

AVERAGE OF AIR EMISSION TESTS 1 TO 3

Gas Temperature:	81 ^{o} F	27 ^{o} C
Moisture Content (by volume):	1.65 %	
Average Stack Gas Velocity:	30.2 ft/sec	9.2 m/sec
Total Actual Gas Flow Rate:	60119 ACFM	
Dry Gas flow Rate at Reference Conditions:	54304 SCFM	25.6 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.005 gr/ft^3	10.9 mg/m^3
Front Half Particulate	0.004 gr/ft^3	8.5 mg/m^3
Back Half Condensibles	0.001 gr/ft^3	2.4 mg/m^3
Mass Emission Rate	2.21 lbs/hr	1.00 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	80 ^{o} F	27 ^{o} C
Moisture Content (by volume):	1.9 %	
Average Stack Gas Velocity:	29.8 ft/sec	9.1 m/sec
Total Actual Gas Flow Rate:	59342 ACFM	
Dry Gas flow Rate at Reference Conditions:	53482 SCFM	25.2 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.006 gr/ft^3	13.1 mg/m^3
Front Half Particulate	.005 gr/ft^3	10.3 mg/m^3
Back Half Condensibles	.001 gr/ft^3	2.8 mg/m^3
Mass Emission Rate	2.63 lbs/hr	1.19 kg/hr

TEST 2:

Gas Temperature:	84 ^{o} F	29 ^{o} C
Moisture Content (by volume):	1.3 %	
Average Stack Gas Velocity:	30.5 ft/sec	9.3 m/sec
Total Actual Gas Flow Rate:	60627 ACFM	
Dry Gas flow Rate at Reference Conditions:	54638 SCFM	25.8 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.004 gr/ft^3	10.2 mg/m^3
Front Half Particulate	.003 gr/ft^3	7.5 mg/m^3
Back Half Condensibles	.001 gr/ft^3	2.7 mg/m^3
Mass Emission Rate	2.09 lbs/hr	0.95 kg/hr

TEST 3:

Gas Temperature:	78 ^{o} F	25 ^{o} C
Moisture Content (by volume):	1.7 %	
Average Stack Gas Velocity:	30.3 ft/sec	9.2 m/sec
Total Actual Gas Flow Rate:	60388 ACFM	
Dry Gas flow Rate at Reference Conditions:	54791 SCFM	25.9 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.004 gr/ft^3	9.4 mg/m^3
Front Half Particulate	.003 gr/ft^3	7.6 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	1.93 lbs/hr	0.88 kg/hr

DATA FOR TESTS 1 TO 3

Client:	Pinnacle Renewable Energy Inc		
Plant Location:	Smithers BC		
Process:	Dryer1 Stack 3		
Permit Number:	RA-6099		
Job Number:	ME2425-152		
Pollution Control Permit:	**15.0** mg/m3	49.5	m3/sec
Number of Tests:	**3** tests		
Minutes per Point:	**2.5** minutes		

	TEST 1	TEST 2	TEST 3
Filter Number:	Q2	Q3	Q4
Date of Test:	13-Feb-25	13-Feb-25	13-Feb-25
Start Time:	11:10	12:45	14:20
Stop Time:	12:12	13:48	15:23
On-line Sampling Time:	60	60	60
Testing Personnel:	DL/DB	DL/DB	DL/DB
Sampler Model:	955	955	955
Barometric Pressure("Hg):	28.15	28.15	28.15
Static Pressure("H_2O):	-0.23	-0.23	-0.23
%CO_2:	0.0	0.0	0.0
%O_2:	21.0	21.0	21.0
%CO:	0.0	0.0	0.0
%N_2:	79.0	79.0	79.0
Diameter of Nozzle(inches):	0.270	0.270	0.270
Meter Factor:	0.9973	0.9973	0.9973
Type-S Pitot Tube Coefficient:	0.83867	0.83867	0.83867
Cross Sectional Area of Stack(ft^2):	33.18	33.18	33.18
Impinger Condensate(g):	14	10	13
Weight of Moisture in Silica Gel(g):	1.6	1.4	1.5
Weight of Filter Particulate(g):	0.0018	0.0014	0.0010
Weight of Probe Washings(g):	0.0092	0.0070	0.0075
Weight of Impinger Content Organic(g):	0.0030	0.0030	0.0020
Total Weight of Particulate(g):	0.0140	0.0114	0.0105

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 1*
Pinnacle Renewable Energy Inc
Dryer1 Stack 3
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
A-12	0.23	1.31	21	21	68	55.93	0.92
A-11	0.23	1.30	38	23	80	57.30	0.90
A-10	0.24	1.37	41	25	81	58.65	0.95
A-9	0.25	1.42	40	26	81	60.10	0.94
A-8	0.23	1.31	42	29	82	61.57	0.95
A-7	0.24	1.38	44	33	81	63.00	0.97
A-6	0.25	1.45	48	34	81	64.50	0.94
A-5	0.27	1.56	53	35	80	66.00	1.02
A-4	0.29	1.70	58	39	80	67.70	1.04
A-3	0.30	1.77	62	40	80	69.50	0.98
A-2	0.30	1.78	67	46	83	71.24	1.00
A-1	0.27	1.62	72	49	82	73.03	0.98
B-12	0.24	1.45	75	51	79	74.70	1.01
B-11	0.24	1.45	81	54	80	76.35	1.02
B-10	0.25	1.51	82	56	82	78.02	0.95
B-9	0.24	1.47	84	58	82	79.61	1.00
B-8	0.23	1.41	88	62	80	81.25	0.98
B-7	0.24	1.48	90	63	81	82.85	0.99
B-6	0.24	1.49	92	66	81	84.50	1.02
B-5	0.26	1.62	93	67	80	86.20	0.94
B-4	0.27	1.68	94	69	81	87.85	0.98
B-3	0.29	1.82	96	71	81	89.60	0.99
B-2	0.30	1.88	96	73	81	91.43	1.01
B-1	0.30	1.88	97	74	81	93.33	1.00
						95.23	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 2*
Pinnacle Renewable Energy Inc
Dryer1 Stack 3
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
B-12	0.24	1.47	71	71	82	95.90	1.00
B-11	0.24	1.48	79	70	81	97.56	1.01
B-10	0.25	1.54	80	70	82	99.25	0.94
B-9	0.26	1.62	87	72	82	100.85	1.06
B-8	0.26	1.63	88	75	80	102.70	1.02
B-7	0.27	1.69	91	77	83	104.50	0.98
B-6	0.26	1.63	93	78	81	106.26	1.06
B-5	0.28	1.75	94	79	82	108.13	0.96
B-4	0.29	1.83	95	81	82	109.90	1.01
B-3	0.30	1.90	96	83	82	111.80	0.97
B-2	0.28	1.77	97	85	83	113.65	0.94
B-1	0.29	1.85	101	84	81	115.40	1.06
A-12	0.25	1.59	103	85	84	117.40	0.99
A-11	0.25	1.59	104	86	84	119.14	1.02
A-10	0.27	1.72	108	88	83	120.94	0.98
A-9	0.25	1.61	110	91	84	122.75	1.04
A-8	0.25	1.61	111	93	85	124.60	1.07
A-7	0.26	1.68	112	96	86	126.50	0.95
A-6	0.26	1.68	110	95	85	128.23	1.01
A-5	0.28	1.80	110	96	86	130.07	0.97
A-4	0.29	1.86	111	95	89	131.90	1.05
A-3	0.30	1.92	112	96	86	133.92	1.01
A-2	0.28	1.79	112	95	85	135.90	1.01
A-1	0.28	1.79	112	95	86	137.81	1.00
						139.70	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 3*
Pinnacle Renewable Energy Inc
Dryer1 Stack 3
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^oF)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^oF)	TEMP OUT (^oF)			
A-12	0.24	1.42	55	56	83	41.70	1.08
A-11	0.24	1.45	60	59	78	43.43	0.94
A-10	0.25	1.51	62	60	78	44.95	1.05
A-9	0.26	1.57	63	61	80	46.70	0.98
A-8	0.26	1.57	68	62	79	48.36	0.96
A-7	0.27	1.65	75	62	80	50.00	0.95
A-6	0.27	1.67	82	64	79	51.66	0.99
A-5	0.27	1.67	85	66	79	53.40	0.98
A-4	0.28	1.75	90	68	77	55.14	0.97
A-3	0.29	1.83	93	69	75	56.90	1.01
A-2	0.3	1.89	93	70	77	58.78	1.04
A-1	0.3	1.90	96	73	78	60.75	0.97
B-12	0.23	1.45	99	75	78	62.60	1.02
B-11	0.23	1.45	101	78	78	64.30	0.98
B-10	0.25	1.58	101	78	78	65.95	1.00
B-9	0.26	1.67	103	82	78	67.70	1.00
B-8	0.26	1.67	105	83	77	69.50	1.00
B-7	0.27	1.73	105	84	78	71.30	0.98
B-6	0.28	1.81	106	86	77	73.10	1.03
B-5	0.28	1.81	109	87	76	75.03	1.01
B-4	0.30	1.94	109	88	78	76.94	1.01
B-3	0.29	1.88	110	89	77	78.90	1.00
B-2	0.29	1.88	108	86	76	80.82	1.04
B-1	0.28	1.82	108	86	75	82.80	1.01
						84.70	

MCCALL ENVIRONMENTAL

Pinnacle Renewable Energy Inc
Dryer1 Stack 3
Pinnacle Renewable Energy Inc

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 0.978**

Delta P:	**0.258**	**"H_2O**	**Us avg:**	**29.81**	**ft/sec**
Delta H:	**1.546**		**ACFM:**	**59342**	**ft^3/min**
Tm avg:	**518.7**	**^oR**	**SDCFM:**	**53482**	**ft^3/min**
Ts avg:	**540.3**	**^oR**	**Vm std:**	**37.69**	**ft^3**
Bwo:	**0.019**		**Vm corr:**	**39.19**	**ft^3**
Md:	**28.84**		**Vm:**	**39.30**	**ft^3**
Ms:	**28.63**		**MF:**	**0.9973**	
Pb:	**28.15**	**"Hg**	**PCON:**	**13.12**	**mg/m^3**
Pm:	**28.26**	**"Hg**	**ERAT:**	**1.19**	**kg/hr**
Ps:	**28.13**	**"Hg**			

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 1.005**

Delta P:	**0.268**	**"H_2O**	**Us avg:**	**30.45**	**ft/sec**
Delta H:	**1.700**		**ACFM:**	**60627**	**ft^3/min**
Tm avg:	**552.1**	**^oR**	**SDCFM:**	**54638**	**ft^3/min**
Ts avg:	**543.5**	**^oR**	**Vm std:**	**39.48**	**ft^3**
Bwo:	**0.013**		**Vm corr:**	**43.68**	**ft^3**
Md:	**28.84**		**Vm:**	**43.80**	**ft^3**
Ms:	**28.69**		**MF:**	**0.9973**	
Pb:	**28.15**	**"Hg**	**PCON:**	**10.20**	**mg/m^3**
Pm:	**28.28**	**"Hg**	**ERAT:**	**0.95**	**kg/hr**
Ps:	**28.13**	**"Hg**			

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 1.001**

Delta P:	**0.268**	**"H_2O**	**Us avg:**	**30.33**	**ft/sec**
Delta H:	**1.690**		**ACFM:**	**60388**	**ft^3/min**
Tm avg:	**542.5**	**^oR**	**SDCFM:**	**54791**	**ft^3/min**
Ts avg:	**537.9**	**^oR**	**Vm std:**	**39.45**	**ft^3**
Bwo:	**0.017**		**Vm corr:**	**42.88**	**ft^3**
Md:	**28.84**		**Vm:**	**43.00**	**ft^3**
Ms:	**28.66**		**MF:**	**0.9973**	
Pb:	**28.15**	**"Hg**	**PCON:**	**9.40**	**mg/m^3**
Pm:	**28.27**	**"Hg**	**ERAT:**	**0.88**	**kg/hr**
Ps:	**28.13**	**"Hg**			

MCCALL ENVIRONMENTAL

Pinnacle Renewable Energy Inc. **13-Feb-25**
Dryer1 Stack 4 **Permit Number: RA-6099**
Smithers BC **AVERAGE OF AIR EMISSION TESTS 1 TO 3**

Gas Temperature:	103 ^{o} F	39 ^{o} C
Moisture Content (by volume):	1.16 %	
Average Stack Gas Velocity:	27.9 ft/sec	8.5 m/sec
Total Actual Gas Flow Rate:	55551 ACFM	
Dry Gas flow Rate at Reference Conditions:	48451 SCFM	22.9 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.005 gr/ft^3	10.6 mg/m^3
Front Half Particulate	0.003 gr/ft^3	7.6 mg/m^3
Back Half Condensibles	0.001 gr/ft^3	3.0 mg/m^3
Mass Emission Rate	1.92 lbs/hr	0.87 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	97 ^{o} F	36 ^{o} C
Moisture Content (by volume):	1.1 %	
Average Stack Gas Velocity:	27.6 ft/sec	8.4 m/sec
Total Actual Gas Flow Rate:	54988 ACFM	
Dry Gas flow Rate at Reference Conditions:	48514 SCFM	22.9 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.003 gr/ft^3	6.4 mg/m^3
Front Half Particulate	.002 gr/ft^3	4.4 mg/m^3
Back Half Condensibles	.001 gr/ft^3	2.0 mg/m^3
Mass Emission Rate	1.17 lbs/hr	0.53 kg/hr

TEST 2:

Gas Temperature:	103 ^{o} F	40 ^{o} C
Moisture Content (by volume):	1.2 %	
Average Stack Gas Velocity:	27.9 ft/sec	8.5 m/sec
Total Actual Gas Flow Rate:	55465 ACFM	
Dry Gas flow Rate at Reference Conditions:	48317 SCFM	22.8 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.005 gr/ft^3	11.7 mg/m^3
Front Half Particulate	.004 gr/ft^3	8.7 mg/m^3
Back Half Condensibles	.001 gr/ft^3	3.1 mg/m^3
Mass Emission Rate	2.12 lbs/hr	0.96 kg/hr

TEST 3:

Gas Temperature:	108 ^{o} F	42 ^{o} C
Moisture Content (by volume):	1.2 %	
Average Stack Gas Velocity:	28.2 ft/sec	8.6 m/sec
Total Actual Gas Flow Rate:	56199 ACFM	
Dry Gas flow Rate at Reference Conditions:	48522 SCFM	22.9 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.006 gr/ft^3	13.6 mg/m^3
Front Half Particulate	.004 gr/ft^3	9.6 mg/m^3
Back Half Condensibles	.002 gr/ft^3	4.0 mg/m^3
Mass Emission Rate	2.48 lbs/hr	1.12 kg/hr

DATA FOR TESTS 1 TO 3

Client:	Pinnacle Renewable Energy Inc.		
Plant Location:	Smithers BC		
Process:	Dryer1 Stack 4		
Permit Number:	RA-6099		
Job Number:	ME2425-152		
Pollution Control Permit:	15.0 mg/m3	49.5	m3/sec
Number of Tests:	3 tests		
Minutes per Point:	2.5 minutes		

	TEST 1	TEST 2	TEST 3
Filter Number:	Q5	Q6	Q7
Date of Test:	13-Feb-25	13-Feb-25	13-Feb-25
Start Time:	11:11	12:45	14:20
Stop Time:	12:13	13:47	15:22
On-line Sampling Time:	60	60	60
Testing Personnel:	DB/DL	DB/DL	DB/DL
Sampler Model:	1039	1039	955
Barometric Pressure("Hg):	28.15	28.15	28.15
Static Pressure("H_2O):	-0.16	-0.16	-0.16
%CO_2:	0.0	0.0	0.0
%O_2:	21.0	21.0	21.0
%CO:	0.0	0.0	0.0
%N_2:	79.0	79.0	79.0
Diameter of Nozzle(inches):	0.270	0.270	0.270
Meter Factor:	1.0043	1.0043	0.9994
Type-S Pitot Tube Coefficient:	0.83829	0.83829	0.83829
Cross Sectional Area of Stack(ft^2):	33.18	33.18	33.18
Impinger Condensate(g):	7	8	8
Weight of Moisture in Silica Gel(g):	1.0	1.0	1.0
Weight of Filter Particulate(g):	0.0001	0.0002	0.0003
Weight of Probe Washings(g):	0.0042	0.0083	0.0092
Weight of Impinger Content Organic(g):	0.0020	0.0030	0.0040
Total Weight of Particulate(g):	0.0063	0.0115	0.0135

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 1*
Pinnacle Renewable Energy Inc.
Dryer1 Stack 4
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
A-12	0.26	1.00	40	40	96	30.01	0.95
A-11	0.28	1.11	48	40	93	31.52	1.00
A-10	0.24	0.96	52	40	93	33.20	1.03
A-9	0.18	0.72	58	42	93	34.81	0.96
A-8	0.16	0.65	64	43	92	36.11	0.97
A-7	0.16	0.65	69	45	93	37.36	0.99
A-6	0.16	0.66	73	46	92	38.64	0.98
A-5	0.17	0.70	79	50	93	39.92	1.02
A-4	0.24	1.00	83	52	95	41.30	1.05
A-3	0.26	1.10	87	54	96	43.00	1.01
A-2	0.26	1.10	90	59	97	44.71	1.00
A-1	0.25	1.05	91	63	98	46.42	0.99
B-12	0.25	1.05	92	67	99	48.08	0.97
B-11	0.27	1.14	93	68	100	49.72	0.98
B-10	0.25	1.06	94	69	100	51.43	0.98
B-9	0.19	0.81	96	71	99	53.09	0.98
B-8	0.17	0.72	97	72	99	54.54	0.97
B-7	0.16	0.68	98	73	99	55.90	0.99
B-6	0.16	0.68	99	74	99	57.25	1.02
B-5	0.18	0.77	100	75	99	58.64	1.00
B-4	0.22	0.94	101	76	99	60.09	0.96
B-3	0.26	1.12	101	78	99	61.63	0.97
B-2	0.25	1.07	102	80	99	63.32	1.02
B-1	0.25	1.07	103	80	100	65.07	0.97
						66.73	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 2*
Pinnacle Renewable Energy Inc.
Dryer1 Stack 4
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^{o} F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^{o} F)	TEMP OUT (^{o} F)			
B-12	0.27	1.15	84	84	98	66.96	1.00
B-11	0.28	1.20	89	86	99	68.72	0.97
B-10	0.24	1.03	94	87	99	70.48	1.00
B-9	0.22	0.95	104	88	101	72.17	0.99
B-8	0.17	0.74	105	89	102	73.78	0.97
B-7	0.17	0.74	106	90	102	75.16	1.02
B-6	0.16	0.70	107	91	101	76.62	1.00
B-5	0.17	0.74	108	92	101	78.01	0.99
B-4	0.22	0.96	109	93	101	79.43	1.00
B-3	0.25	1.09	111	94	102	81.07	1.00
B-2	0.25	1.09	112	95	102	82.82	0.99
B-1	0.26	1.14	113	96	103	84.55	1.02
A-12	0.27	1.18	113	96	102	86.38	1.00
A-11	0.27	1.18	114	97	103	88.20	1.00
A-10	0.25	1.10	114	98	104	90.02	0.97
A-9	0.23	1.01	115	99	104	91.73	0.99
A-8	0.19	0.83	116	100	105	93.40	0.99
A-7	0.18	0.79	117	101	106	94.92	1.00
A-6	0.18	0.79	118	102	106	96.41	0.99
A-5	0.17	0.75	118	102	106	97.89	0.99
A-4	0.16	0.70	119	103	107	99.33	0.99
A-3	0.20	0.88	119	103	107	100.73	1.06
A-2	0.24	1.06	120	103	107	102.41	1.01
A-1	0.25	1.10	120	104	107	104.16	0.99
						105.91	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 3*
Pinnacle Renewable Energy Inc.
Dryer1 Stack 4
Smithers BC

13-Feb-25

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (^oF)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (^oF)	TEMP OUT (^oF)			
A-12	0.26	1.07	77	81	110	6.04	0.98
A-11	0.28	1.17	85	84	109	7.71	1.00
A-10	0.25	1.05	89	85	109	9.50	1.00
A-9	0.22	0.93	90	86	109	11.20	0.99
A-8	0.18	0.76	93	87	109	12.78	0.99
A-7	0.17	0.72	94	88	109	14.22	1.01
A-6	0.17	0.72	95	89	109	15.65	1.00
A-5	0.16	0.68	96	90	110	17.06	0.98
A-4	0.23	0.98	98	91	110	18.41	0.99
A-3	0.25	1.07	101	92	110	20.04	0.99
A-2	0.26	1.11	102	92	109	21.75	0.99
A-1	0.26	1.11	103	93	109	23.50	0.98
B-12	0.25	1.07	104	94	109	25.24	1.01
B-11	0.27	1.16	107	95	109	27.00	0.99
B-10	0.26	1.12	110	96	110	28.79	0.99
B-9	0.23	0.99	1111	97	110	30.55	1.10
B-8	0.21	0.91	112	98	108	34.03	1.10
B-7	0.19	0.83	113	99	107	35.80	0.99
B-6	0.16	0.70	114	100	106	37.32	1.01
B-5	0.16	0.70	114	101	105	38.75	1.00
B-4	0.18	0.79	115	102	105	40.17	0.95
B-3	0.23	1.01	116	103	104	41.60	0.98
B-2	0.25	1.10	117	104	106	43.27	0.97
B-1	0.26	1.14	118	106	107	45.00	0.98
						46.77	

MCCALL ENVIRONMENTAL

Pinnacle Renewable Energy Inc.
Dryer1 Stack 4
Pinnacle Renewable Energy Inc.

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 0.989**

Delta P:	**0.216**	**"H_2O**	**Us avg:**	**27.62**	**ft/sec**
Delta H:	**0.909**		**ACFM:**	**54988**	**ft^3/min**
Tm avg:	**532.2**	**^oR**	**SDCFM:**	**48514**	**ft^3/min**
Ts avg:	**556.8**	**^oR**	**Vm std:**	**34.50**	**ft^3**
Bwo:	**0.011**		**Vm corr:**	**36.88**	**ft^3**
Md:	**28.84**		**Vm:**	**36.72**	**ft^3**
Ms:	**28.72**		**MF:**	**1.0043**	
Pb:	**28.15**	**"Hg**	**PCON:**	**6.45**	**mg/m^3**
Pm:	**28.22**	**"Hg**	**ERAT:**	**0.53**	**kg/hr**
Ps:	**28.14**	**"Hg**			

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 0.997**

Delta P:	**0.217**	**"H_2O**	**Us avg:**	**27.86**	**ft/sec**
Delta H:	**0.954**		**ACFM:**	**55465**	**ft^3/min**
Tm avg:	**562.9**	**^oR**	**SDCFM:**	**48317**	**ft^3/min**
Ts avg:	**563.1**	**^oR**	**Vm std:**	**34.61**	**ft^3**
Bwo:	**0.012**		**Vm corr:**	**39.12**	**ft^3**
Md:	**28.84**		**Vm:**	**38.95**	**ft^3**
Ms:	**28.71**		**MF:**	**1.0043**	
Pb:	**28.15**	**"Hg**	**PCON:**	**11.73**	**mg/m^3**
Pm:	**28.22**	**"Hg**	**ERAT:**	**0.96**	**kg/hr**
Ps:	**28.14**	**"Hg**			

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 0.999**

Delta P:	**0.221**	**"H_2O**	**Us avg:**	**28.23**	**ft/sec**
Delta H:	**0.954**		**ACFM:**	**56199**	**ft^3/min**
Tm avg:	**579.3**	**^oR**	**SDCFM:**	**48522**	**ft^3/min**
Ts avg:	**568.3**	**^oR**	**Vm std:**	**34.99**	**ft^3**
Bwo:	**0.012**		**Vm corr:**	**40.71**	**ft^3**
Md:	**28.84**		**Vm:**	**40.73**	**ft^3**
Ms:	**28.71**		**MF:**	**0.9994**	
Pb:	**28.15**	**"Hg**	**PCON:**	**13.62**	**mg/m^3**
Pm:	**28.22**	**"Hg**	**ERAT:**	**1.12**	**kg/hr**
Ps:	**28.14**	**"Hg**			

Air Emission Monitoring Procedure
State Of Oregon Method 7

Particulate Sampling (Napp-Baldwin Model 31 Sampler)

Particulate sampling and gas velocity measurements were conducted using a Napp-Baldwin Model 31 stack sampler in accordance with the methods specified in State of Oregon Method 7 (See Figure 1). The State of Oregon Method 7 sampling train is a modified Method 5 sample train with the addition of a non heated filter in-between the third and fourth impinger.

The air discharge was sampled isokinetically at the centroid of a series of equal area segments across the duct or stack. The stack gas velocity and temperature were recorded during the sample collection period with a calibrated pitot tube and thermocouple mounted on the sampling probe. The sample was delivered from the probe to a cyclone and a filter holder containing a 110mm Type A glass fiber filter. The gas sample was then drawn in through a series of four glass impingers which condensed and absorbed the water from the gas. A leakless vacuum pump carried the sampled gas through a dry gas test meter where the volume, temperature, and pressure were measured; and finally through a flow indicating orifice which allowed for the rapid adjustment to isokinetic sampling rates.

At the end of each test, the probe interior, cyclone and connecting tubing from the probe to the filter housing were rinsed with distilled water and acetone. These washings were evaporated to dryness and the resulting solids were weighed. The weight of the cyclone flask and the filter was used together with the weight of solids in the washings to calculate the filterable particulate concentration. The moisture content of the stack gas was determined from the quantity of water condensed in the impingers and absorbed in the silica gel.

Condensable Organics are collected in the impinger train and a rinsing procedure is employed utilizing solvents such as Hexane or Methylene Chloride in between tests. The rinsings and condensate are forwarded to a laboratory accredited to perform the analysis in accordance with the method and a copy of that report is included in the Appendix of any report issued.

O_2, CO_2, CO (where applicable)

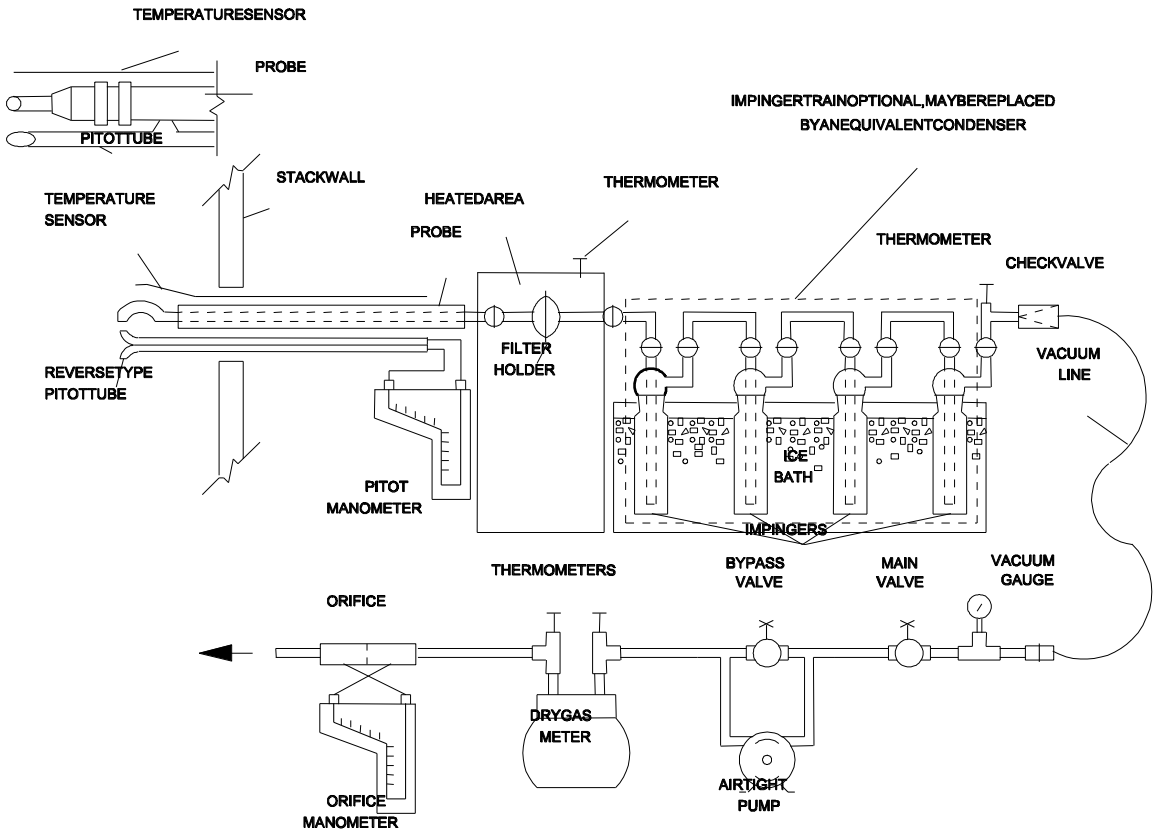
O_2, CO_2, and CO were found using either Fuji Analytical Analyzer by means of infrared and paramagnetic technology (EPA 3A) or by fyrite (EPA Method 3).

NOx (where applicable)

NOx was found using and API Model 252 NOx analyzer that utilizes chemiluminescent technology. Stack gas was Samples were taken over a minimum period of three hours.

VOC's (where applicable)

Hydrocarbons were measured in accordance with EPA method 25A. Samples were drawn in one hour test runs using a total hydrocarbon analyzer that utilizes Flame Ionization Technology.



Modified EPA Method 5 Diagram (State of Oregon Method 7)- Figure 1

GENERAL CALCULATIONS

Carry out calculations, retaining at least one extra decimal figure beyond that of the acquired data. Round off figures after the final calculation. Other forms of the equations may be used as long as they give equivalent results.

Nomenclature.

A_n = Cross-sectional area of nozzle, m^2 (ft^2).
B_{ws} = Water vapor in the gas stream, proportion by volume.
C_a = Acetone blank residue concentration, mg/g.
c_s = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, g/dscm (g/dscf).
I = Percent of isokinetic sampling.
L_a = Maximum acceptable leakage rate for either a pretest leak check or for a leak check following a component change; equal to 0.00057 m^3/min (0.02 cfm) or 4 percent of the average sampling rate, whichever is less.
L_i = Individual leakage rate observed during the leak check conducted prior to the "i^{th}" component change (i = l, 2, 3...n), m^3/min (cfm).
L_p = Leakage rate observed during the post-test leak check, m^3/min (cfm).
m_a = Mass of residue of acetone after evaporation, mg.
m_n = Total amount of particulate matter collected, mg.
M_w = Molecular weight of water, l8.0 g/g-mole (l8.0 lb/lb-mole).
P_{bar} = Barometric pressure at the sampling site, mm Hg (in. Hg).
P_s = Absolute stack gas pressure, mm Hg (in. Hg).
P_{std} = Standard absolute pressure, 760 mm Hg (29.92 in. Hg).
R = Ideal gas constant, 0.06236 [(mmHg)(m^3)]/[(°K)(g-mole)] {2l.85 [(in. Hg)(ft^3)]/[(°R)(lb-mole)]}.
T_m = Absolute average DGM temperature (see Figure 5-2), °K (°R).
T_s = Absolute average stack gas temperature (see Figure 5-2), °K (°R).
T_{std} = Standard absolute temperature, 293°K (528°R).
V_a = Volume of acetone blank, ml.
V_{aw} = Volume of acetone used in wash, ml.
V_{lc} = Total volume liquid collected in impingers and silica gel (see Figure 5-3), ml.
V_m = Volume of gas sample as measured by dry gas meter, dcm (dcf).
$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter, corrected to standard conditions, dscm (dscf).
$V_{w(std)}$ = Volume of water vapor in the gas sample, corrected to standard conditions, scm (scf).
v_s = Stack gas velocity, calculated by Method 2, Equation 2-9, using data obtained from Method 5, m/sec (ft/sec).
W_a = Weight of residue in acetone wash, mg.
Y = Dry gas meter calibration factor.
ΔH = Average pressure differential across the orifice meter (see Figure 5-2), mm H_20 (in. H_20).
ρ_a = Density of acetone, mg/ml (see label on bottle).
ρ_w = Density of water, 0.9982 g/ml (0.00220l lb/ml).
θ = Total sampling time, min.
θ_l = Sampling time interval, from the beginning of a run until the first component change, min.
θ_i = Sampling time interval, between two successive component changes, beginning with the interval between the first and second changes, min.
θ_p = Sampling time interval, from the final (n^{th}) component change until the end of the sampling run, min.
l3.6 = Specific gravity of mercury.
60 = Sec/min.
l00 = Conversion to percent.

Average Dry Gas Meter Temperature and Average Orifice Pressure Drop.

Dry Gas Volume. Correct the sample volume measured by the dry gas meter to standard conditions (20°C, 760 mm Hg or 68°F, 29.92 in. Hg) by using Equation 5-l.

$$V_{m(std)} = V_m Y \left(\frac{T_{std}}{T_m} \right) \left[\frac{P_{bar} + \frac{\Delta H}{13.6}}{P_{std}} \right] \qquad \text{Eq. 5-1}$$

$$= K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6} \right)}{T_m}$$

where:

K_1 = 0.3858 °K/mm Hg for metric units,

= l7.64 °R/in. Hg for English units.

NOTE: Equation 5-l can be used as written unless leakage rate observed during any of the mandatory leak checks (i.e., the post-test leak check or leak checks conducted prior to component changes) exceeds L_a. If L_p or L_i exceeds L_a, Equation 5-l must be modified as follows:

(a) Case I. No component changes made during sampling run. In this case, replace V_m in Equation 5-l with the expression:

$$[V_m - (L_p - L_a)\,\theta]$$

(b) Case II. One or more component changes made during the sampling run. In this case, replace V_m in Equation 5-l by the expression:

$$\left[V_m - (L_1 - L_a)\theta_1 - \sum_{i=2}^{n} (L_i - L_a)\theta_i - (L_p - L_a)\theta_p \right]$$

and substitute only for those leakage rates (L_i or L_p) which exceed L_a.

Volume of Water Vapor.

$$V_{w(std)} = \frac{V_{lc}\,\rho_w\,R\,T_{std}}{M_w\,P_{std}} = K_2\,V_{lc} \qquad \text{Eq. 5-2}$$

where:

K_2 = 0.00l333 m^3/ml for metric units,

= 0.04707 ft^3/ml for English units.

Moisture Content.

$$B_{ws} = \frac{V_{w(std)}}{V_{m(std)} + V_{w(std)}} \qquad \text{Eq. 5-3}$$

Acetone Blank Concentration.

$$C_a = \frac{m_a}{V_a \rho_a} \qquad \text{Eq. 5-4}$$

Acetone Wash Blank.

$$W_a = C_a V_{aw} \rho_a \qquad \text{Eq. 5-5}$$

Total Particulate Weight. Determine the total particulate matter catch from the sum of the weights obtained from Containers l and 2 less the acetone blank (see Figure 5-3).

Particulate Concentration.

$$C_s = (0.001\,g/mg)(m_n / V_{m(std)}) \qquad \text{Eq. 5-6}$$

Conversion Factors:

From	To	Multiply by
scf	m^3	0.02832
g/ft^3	gr/ft^3	l5.43
g/ft^3	lb/ft^3	2.205×10^{-3}
g/ft^3	g/m^3	35.3l

Isokinetic Variation.

Calculation from Raw Data.

$$I = \frac{100\,T_s\left[K_3 V_{1c} + (V_m Y / T_m)(P_{bar} + \Delta H/13.6)\right]}{60\theta\, V_s P_s A_n} \qquad \text{Eq. 5-7}$$

where:

K_3 =0.003454 [(mm Hg)(m^3)]/[(ml)(°K)] for metric units,

= 0.002669 [(in. Hg)(ft^3)]/[(ml)(°R)] for English units.

Calculation from Intermediate Values.

$$I = \frac{100\, T_s\, V_{m(std)}\, P_{std}}{60\, T_{std}\, v_s\, \theta\, A_n\, P_s\, (1 - B_{ws})} = \frac{K_4\, T_s\, V_{m(std)}}{P_s\, v_s\, A_n\, \theta (1 - B_{ws})} \qquad \text{Eq.5-8}$$

where:

K_4 = 4.320 for metric units,

= 0.09450 for English units.

Acceptable Results. If 90 percent ≤ I ≤ ll0 percent, the results are acceptable. If the PM results are low in comparison to the standard, and "I" is over 110 percent or less than 90 percent, the Administrator may opt to accept the results. Citation 4 in the Bibliography may be used to make acceptability judgments. If "I" is judged to unacceptable, reject the results, and repeat the test.

Average Stack Gas Velocity.

$$v_s = K_p\, C_p\, (\sqrt{\Delta p})_{avg} \sqrt{\frac{T_{s(avg)}}{P_s\, M_s}}$$

Average Stack Gas Dry Volumetric Flow Rate.

$$Q_{sd} = 3{,}600 (1 - B_{ws})\, v_s\, A\, \frac{T_{std}}{T_{s(avg)}}\, \frac{P_s}{P_{std}}$$

where:

A	=	Cross-sectional area of stack, m^2 (ft^2).
B_{ws}	=	Water vapor in the gas stream (from Method 5 or Reference Method 4), proportion by volume.
C_p	=	Pitot tube coefficient, dimensionless.
K_p	=	Pitot tube constant,
M_d	=	Molecular weight of stack gas, dry basis (see Section 3.6), g/gmole (lb/lb-mole).
M_s	=	Molecular weight of stack gas, wet basis, g/g-mole (lb/lb-mole).

$$= M_d (1 - B_{ws}) + 18.0\, B_{ws} \qquad \text{Eq. 2-5}$$

P_{bar}	=	Barometric pressure at measurement site, mm Hg (in. Hg).
P_g	=	Stack static pressure, mm Hg (in. Hg).
P_s	=	Absolute stack pressure, mm Hg (in. Hg),

$$= P_{bar} + P_g$$

P_{std}	=	Standard absolute pressure, 760 mm Hg (29.92 in. Hg).
Q_{sd}	=	Dry volumetric stack gas flow rate corrected to standard conditions, dsm^3/hr (dscf/hr).
t_s	=	Stack temperature, °C (°F).
T_s	=	Absolute stack temperature, °K (°R).

Calibration Certificate for S-Type Pitot Tube

Date: 12-Jan-25 *Barometric Pressure ("Hg):* 29.78

Pitot I.D.: **200** *Wind Tunnel Temperature (^{O}F):* 70.0

Nozzle: 0.250

Wind Velocity (ft/sec)	*Ref.Pitot ("H_2O)*	*S-Type Pitot ("H_2O)*	*Pitot Factor*
17.53	0.06982	0.10114	0.82249
41.78	0.39667	0.56684	0.82817
50.67	0.58346	0.81271	0.83883
60.32	0.82699	1.14880	0.83997
86.08	1.68407	2.38761	0.83144
101.99	2.36401	3.27573	0.84102

Average= 0.83365

Note: The new pitot tip should be installed so that the serial number engraved is aligned directly into the gas stream.

Calibrating Technician Signature:

Calibration Certificate for S-Type Pitot Tube

Date: 12-Jan-25 *Barometric Pressure ("Hg):* 30.05

Pitot I.D.: **140** *Wind Tunnel Temperature (^{O}F):* 70.0

Nozzle: 0.250

Wind Velocity (ft/sec)	*Ref.Pitot ("H_2O)*	*S-Type Pitot ("H_2O)*	*Pitot Factor*
13.96	0.04470	0.05733	0.87412
19.79	0.08982	0.12082	0.85361
42.36	0.41144	0.58576	0.82971
59.59	0.81441	1.17118	0.82555
80.40	1.48260	2.12088	0.82773
101.66	2.37016	3.46311	0.81901

Average= 0.83829

Note: The new pitot tip should be installed so that the serial number engraved is aligned directly into the gas stream.

Calibrating Technician Signature:

Calibration Certificate for S-Type Pitot Tube

Date: 12-Jan-25 *Barometric Pressure ("Hg):* 29.78

Pitot I.D.: **217** *Wind Tunnel Temperature (^{O}F):* 70.0

Nozzle: 0.250

Wind Velocity (ft/sec)	*Ref.Pitot ("H_2O)*	*S-Type Pitot ("H_2O)*	*Pitot Factor*
13.51	0.04147	0.05467	0.86230
19.93	0.09031	0.12262	0.84962
41.60	0.39339	0.54073	0.84442
62.13	0.87726	1.25293	0.82840
79.94	1.45249	2.09036	0.82524
101.14	2.32467	3.37170	0.82204

Average= 0.83867

Note: The new pitot tip should be installed so that the serial number engraved is aligned directly into the gas stream.

Calibrating Technician Signature:

Calibration Certificate for S-Type Pitot Tube

Date: 12-Jan-25

Pitot I.D.: **107**

Nozzle: 0.250

Barometric Pressure ("Hg): 29.9

Wind Tunnel Temperature (^{O}F): 66.0

Wind Velocity (ft/sec)	*Ref.Pitot ("H_2O)*	*S-Type Pitot ("H_2O)*	*Pitot Factor*
11.72	0.03161	0.04242	0.85459
26.28	0.15880	0.22190	0.83748
42.45	0.41433	0.57741	0.83863
58.04	0.77446	1.06033	0.84609
82.87	1.57900	2.18794	0.84102
98.54	2.23250	3.15269	0.83309

Average= 0.84182

Note: The new pitot tip should be installed so that the serial number engraved is aligned directly into the gas stream.

Calibrating Technician Signature:

CALIBRATION CERTIFICATE
DRY GAS METER

DATE: 13-Jan-25

CONSOLE MANUF.: NAPP MODEL 31

CONSOLE I.D.: C-955

PARAMETER SUMMARY	RUN #1	RUN #2	RUN #3
Ta = Ambient (WTM) Temperature (oF.)	68.0	68.0	68.0
P=Pres. Differential at WTM ("Hg)	0.0699	0.0868	0.1766
Pb= Atmospheric Pressure ("Hg)	28.35	28.35	28.35
Pv= Vapour Pressure Water at Temp. Ta ("Hg)	0.6900	0.6900	0.6900
H=Pres. Differential at Orifice	1.0	2.0	3.0
Ti= Dry Test Meter Inlet Temp. (oF.)	80.0	79.0	82.0
To= Dry Test Meter Outlet Temp. (oF.)	68.0	67.0	72.0
Ri= Initial Dry Test volume (ft3)	6.69	99.87	13.53
Rf= Final Dry Test Volume (ft3)	11.54	104.76	18.40
Vi= Initial Wet Test Volume (ft3)	0.0	0.0	0.0
Vf= Final Wet Test Volume (ft3)	5.000	5.000	5.000
Pw= Pb - (^P/13.59) "Hg	28.2801	28.2632	28.1734
Pd= Pb + (^H/13.59) "Hg	28.4236	28.4972	28.5708
Tw= Ta +460 (oR.)	528.0	528.0	528.0
Td= [(Ti + To)/2] + 460 (oR.)	534.0	533.0	537.0
Bw= Pv/Pb ("Hg)	0.0243	0.0243	0.0243
WET TEST METER FACTOR (WTMF)	0.9922	0.9922	0.9922
(Calculated Y Value)(WTMF)	1.0042	0.9910	0.9968

Y (MEAN)(WTMF) = 0.9973

MCCALL ENVIRONMENTAL

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: 13-Jan-25

CONSOLE I.D. C-955

	RUN 1	RUN 2	RUN 3
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.35	28.35	28.35
Y=gas meter factor	1.0042	1.0042	0.9910
Delta H=	0.5	1	1.5
Ri=int. gas meter vol.	21.3	24.1	27.2
Rf=final gas meter vol.	23.17	26.81	30.56
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.375571	0.544276	0.665952
To=meter outlet Temp (oF)	71	71	72
Tm=meter out temp. (oR)	531	531	532
Pm=Pb + ^H	28.38679	28.42358	28.46038
SQRT(Tm/Pm*H/Md)	0.568228	0.803075	0.983851
Ko=orifice const.	0.660951	0.67774	0.676883

Ko MEAN : 0.671858

Ko*4*144= 386.9903

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: 13-Jan-25

CONSOLE I.D. C-955

	RUN 4	RUN 5	RUN 6
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.35	28.35	28.35
Y=gas meter factor	0.991	0.9968	0.9968
Delta H=	2	2.5	3
Ri=int. gas meter vol.	31.1	35.5	40.6
Rf=final gas meter vol.	34.98	39.78	45.3
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.769016	0.853261	0.936992
Tm=meter out temp. (oF)	72	74	74
Tm=meter out temp. (oR.)	532	534	534
Pm=Pb + ^H	28.49717	28.53396	28.57075
SQRT(Tm/Pm*H/Md)	1.13532	1.27089	1.391293
Ko=orifice const.	0.677356	0.671389	0.673468

Ko MEAN : 0.674071

Ko*4*144= 388.2649

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

CALIBRATION CERTIFICATE
DRY GAS METER

DATE: 13-Jan-25

CONSOLE MANUF.: NAPP MODEL 31

CONSOLE I.D.: C-980

PARAMETER SUMMARY	RUN #1	RUN #2	RUN #3
Ta = Ambient (WTM) Temperature (oF.)	69.8	69.8	69.8
P=Pres. Differential at WTM ("Hg)	0.0809	0.1471	0.2060
Pb= Atmospheric Pressure ("Hg)	28.60	28.60	28.60
Pv= Vapour Pressure Water at Temp. Ta ("Hg)	0.7142	0.7142	0.7142
H=Pres. Differential at Orifice	1.0	2.0	3.0
Ti= Dry Test Meter Inlet Temp. (oF.)	88.0	90.0	94.0
To= Dry Test Meter Outlet Temp. (oF.)	77.0	77.0	77.0
Ri= Initial Dry Test volume (ft3)	28.84	21.97	34.72
Rf= Final Dry Test Volume (ft3)	33.73	26.88	39.67
Vi= Initial Wet Test Volume (ft3)	0.0	0.0	0.0
Vf= Final Wet Test Volume (ft3)	5.000	5.000	5.000
Pw= Pb - (^P/13.59) "Hg	28.5191	28.4529	28.3940
Pd= Pb + (^H/13.59) "Hg	28.6736	28.7472	28.8208
Tw= Ta +460 (oR.)	529.8	529.8	529.8
Td= [(Ti + To)/2] + 460 (oR.)	542.5	543.5	545.5
Bw= Pv/Pb ("Hg)	0.0250	0.0250	0.0250
WET TEST METER FACTOR (WTMF)	0.9922	0.9922	0.9922
ated Y Value)(WTMF)	1.0074	1.0003	0.9913

Y (MEAN)(WTMF) = 0.9997

N.R. MCCALL & ASSOCIATES LTD.

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: Jan 13 2025

CONSOLE I.D. C-980

	RUN 1	RUN 2	RUN 3
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.6	28.6	28.6
Y=gas meter factor	1.0074	1.0074	1.0003
Delta H=	0.5	1	1.5
Ri=int. gas meter vol.	45.54	48.3	52
Rf=final gas meter vol.	47.62	51.35	55.7
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.4190784	0.614514	0.740222
To=meter outlet Temp (oF)	77	77	77
Tm=meter out temp. (oR)	537	537	537
Pm=Pb + ^H	28.636792	28.6735835	28.7103753
SQRT(Tm/Pm*H/Md)	0.5689292	0.804071	0.98415064
Ko=orifice const.	0.7366091	0.76425341	0.75214299

Ko MEAN = 0.7510018

Ko*4*144= 432.57705

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: Jan 13 2025

CONSOLE I.D. C-980

	RUN 4	RUN 5	RUN 6
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.6	28.6	28.6
Y=gas meter factor	1.0003	0.9913	0.9913
Delta H=	2	2.5	3
Ri=int. gas meter vol.	56.3	61.5	66.8
Rf=final gas meter vol.	60.48	66.18	71.9
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.8362508	0.9278568	1.011126
Tm=meter out temp. (oF)	76	77	78
Tm=meter out temp. (oR.)	536	537	538
Pm=Pb + ^H	28.747167	28.783959	28.820751
SQRT(Tm/Pm*H/Md)	1.1346139	1.268908	1.3904243
Ko=orifice const.	0.7370356	0.7312247	0.7272068

Ko MEAN = 0.7318223

Ko*4*144= 421.52966

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

CALIBRATION CERTIFICATE
DRY GAS METER

DATE: 12-Jan-25

CONSOLE MANUF.: NAPP MODEL 31

CONSOLE I.D.: C-1021

PARAMETER SUMMARY	RUN #1	RUN #2	RUN #3
Ta = Ambient (WTM) Temperature (oF.)	69.8	69.8	69.8
P=Pres. Differential at WTM ("Hg)	0.0691	0.1250	0.1839
Pb= Atmospheric Pressure ("Hg)	28.60	28.60	28.60
Pv= Vapour Pressure Water at Temp. Ta ("Hg)	0.7142	0.7142	0.7142
H=Pres. Differential at Orifice	1.0	2.0	3.0
Ti= Dry Test Meter Inlet Temp. (oF.)	82.0	81.0	84.0
To= Dry Test Meter Outlet Temp. (oF.)	75.0	75.0	76.0
Ri= Initial Dry Test volume (ft3)	63.95	57.10	69.85
Rf= Final Dry Test Volume (ft3)	68.83	61.98	74.75
Vi= Initial Wet Test Volume (ft3)	0.0	0.0	0.0
Vf= Final Wet Test Volume (ft3)	5.000	5.000	5.000
Pw= Pb - (^P/13.59) "Hg	28.5309	28.4750	28.4161
Pd= Pb + (^H/13.59) "Hg	28.6736	28.7472	28.8208
Tw= Ta +460 (oR.)	529.8	529.8	529.8
Td= [(Ti + To)/2] + 460 (oR.)	538.5	538.0	540.0
Bw= Pv/Pb ("Hg)	0.0250	0.0250	0.0250
WET TEST METER FACTOR (WTMF)	0.9922	0.9922	0.9922
(Calculated Y Value)(WTMF)	1.0025	0.9970	0.9920

Y (MEAN)(WTMF) = 0.9972

MCCALL ENVIRONMENTAL

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: 12-Jan-25

CONSOLE I.D. C-1021

	RUN 1	RUN 2	RUN 3
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.6	28.6	28.6
Y=gas meter factor	1.0025	1.0025	0.9970
Delta H=	0.5	1	1.5
Ri=int. gas meter vol.	75.6	85.6	88.33
Rf=final gas meter vol.	77.5	88.26	91.64
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.38095	0.53333	0.660014
To=meter outlet Temp (oF)	75	75	77
Tm=meter out temp. (oR)	535	535	537
Pm=Pb + ^H	28.636792	28.673584	28.710375
SQRT(Tm/Pm*H/Md)	0.5678687	0.8025723	0.9841506
Ko=orifice const.	0.6708417	0.6645258	0.6706433

Ko MEAN = 0.6686703

Ko*4*144= 385.15407

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: 12-Jan-25

CONSOLE I.D. C-1021

	RUN 4	RUN 5	RUN 6
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.6	28.6	28.6
Y=gas meter factor	0.997	0.9920	0.9920
Delta H=	2	2.5	3
Ri=int. gas meter vol.	95.91	99.8	104.2
Rf=final gas meter vol.	99.72	104.11	108.97
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.759714	0.855104	0.946368
To=meter outlet Temp (oF)	77	78	78
Tm=meter out temp. (oR)	537	538	538
Pm=Pb + ^H	28.747167	28.783959	28.820751
SQRT(Tm/Pm*H/Md)	1.1356718	1.2700889	1.3904243
Ko=orifice const.	0.6689556	0.6732631	0.6806325

Ko MEAN = 0.6742837

Ko*4*144= 388.38743

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

CALIBRATION CERTIFICATE
DRY GAS METER

DATE: 13-Jan-25

CONSOLE MANUF.: NAPP MODEL 31

CONSOLE I.D.: C-1039

PARAMETER SUMMARY	RUN #1	RUN #2	RUN #3
Ta = Ambient (WTM) Temperature (oF.)	69.8	69.8	69.8
P=Pres. Differential at WTM ("Hg)	0.0883	0.1618	0.2428
Pb= Atmospheric Pressure ("Hg)	28.35	28.35	28.35
Pv= Vapour Pressure Water at Temp. Ta ("Hg)	0.7142	0.7142	0.7142
H=Pres. Differential at Orifice	1.0	2.0	3.0
Ti= Dry Test Meter Inlet Temp. (oF.)	96.0	98.0	104.0
To= Dry Test Meter Outlet Temp. (oF.)	81.0	77.0	85.0
Ri= Initial Dry Test volume (ft3)	69.98	63.92	78.89
Rf= Final Dry Test Volume (ft3)	74.83	68.88	83.92
Vi= Initial Wet Test Volume (ft3)	0.0	0.0	0.0
Vf= Final Wet Test Volume (ft3)	5.000	5.000	5.000
Pw= Pb - (^P/13.59) "Hg	28.2617	28.1882	28.1072
Pd= Pb + (^H/13.59) "Hg	28.4236	28.4972	28.5708
Tw= Ta +460 (oR.)	529.8	529.8	529.8
Td= [(Ti + To)/2] + 460 (oR.)	548.5	547.5	554.5
Bw= Pv/Pb ("Hg)	0.0252	0.0252	0.0252
WET TEST METER FACTOR (WTMF)	0.9922	0.9922	0.9922
ated Y Value)(WTMF)	1.0264	0.9967	0.9899

Y (MEAN)(WTMF) = 1.0043

MCCALL ENVIRONMENTAL

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: 13-Jan-25

CONSOLE I.D. C-1039

	RUN 1	RUN 2	RUN 3
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.35	28.35	28.35
Y=gas meter factor	1.0264	1.0264	0.9967
Delta H=	0.5	1	1.5
Ri=int. gas meter vol.	85.1	87.7	91.5
Rf=final gas meter vol.	87.38	90.93	95.43
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.4680384	0.6630544	0.7834062
Tm=meter out temp. (oF)	86	87	89
Tm=meter out temp. (oR.)	546	547	549
Pm=Pb + ^H	28.386792	28.423584	28.460375
SQRT(Tm/Pm*H/Md)	0.5761976	0.8150842	0.9994469
Ko=orifice const.	0.8122881	0.8134796	0.7838397

Ko MEAN = 0.8032025

Ko*4*144= 462.64462

McCALL ENVIRONMENTAL

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: 13-Jan-25

CONSOLE I.D. C-1039

	RUN 4	RUN 5	RUN 6
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	28.35	28.35	28.35
Y=gas meter factor	0.9967	0.9899	0.9899
Delta H=	2	2.5	3
Ri=int. gas meter vol.	95.8	101.1	106.6
Rf=final gas meter vol.	100.32	106.17	112.16
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.9010168	1.0037586	1.1007688
Tm=meter out temp. (oF)	89	89	90
Tm=meter out temp. (oR.)	549	549	550
Pm=Pb + ^H	28.497167	28.533959	28.570751
SQRT(Tm/Pm*H/Md)	1.1533167	1.2886157	1.4119827
Ko=orifice const.	0.7812397	0.7789434	0.7795908

Ko MEAN = 0.7799246

Ko*4*144= 449.23659

McCALL ENVIRONMENTAL

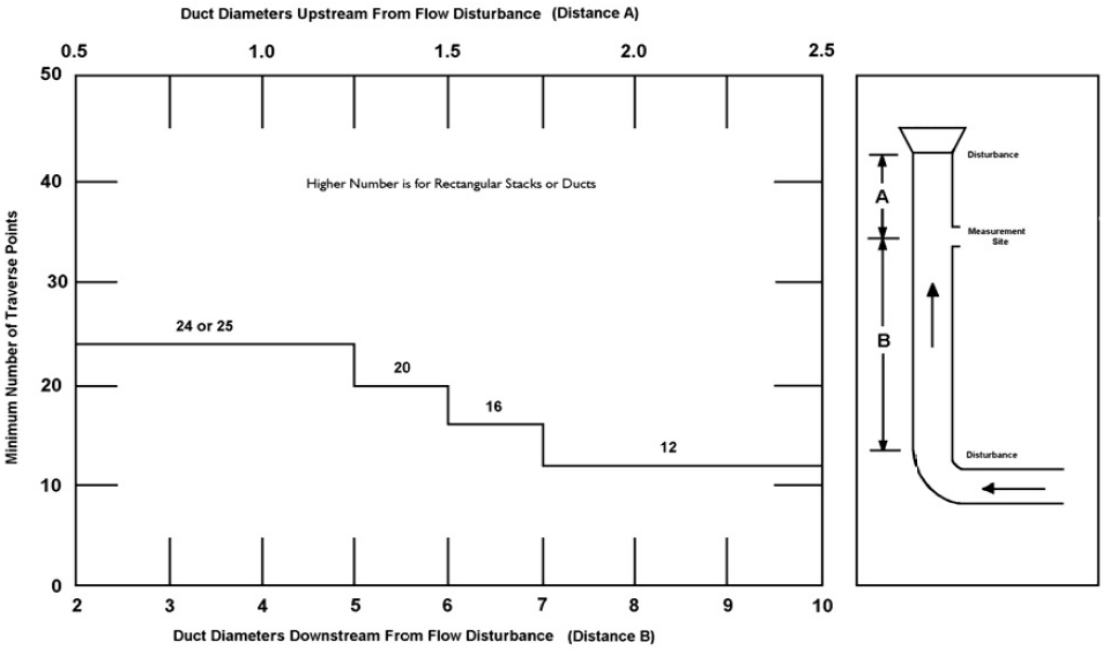
Calibrating Technician Signature:

Smithers Pellet Limited Partnership

Production rate during stack test (Feb 13, 2025)	13.4 MT/hr
Average for the previous calendar month	12.3 MT/hr
90th percentile production rate	14.9 MT/hr
Average hourly dryer exit temperature during testing:	Included in report

MCCALL ENVIRONMENTAL

Site Diagram & Sample Point Selection



Client:	Pinnacle Pellet Smithers	Traverse Points (in):	
Source:	Dryer Stackls 1-4	PT-1	1.64
Pollution Abatement Equipment:		PT-2	5.22
Duct Diameters Up (A):	>2	PT-3	9.21
Duct Diameters Down (B):	4	PT-4	13.8
Area of Stack (ft):	33.18	PT-5	19.5
Stack Diameter (in):	78	PT-6	27.69
Zero (in):	4	PT-7	50.31
Number of Points:	24	PT-8	58.5
		PT-9	64.19
Cyclonic Angle:	5^{0}	PT-10	68.8
		PT-11	70.7
		PT-12	76.36

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W: www.element.com

Analytical Report

Bill To: McCall Environmental
6733 Buchanan Road
Coldstream, BC, Canada
V1B 3C5
Attn: Accounts Payable
Sampled By:
Company: McCall

Project ID:
Project Name: Drax Smithers
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1795228**
Control Number:
Date Received: Feb 18, 2025
Date Reported: Feb 19, 2025
Report Number: 3107302
Report Type: Final Report

Reference Number	1795228-1	1795228-2	1795228-3
Sample Date	Feb 13, 2025	Feb 13, 2025	Feb 13, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Dryer Stack 1 Test 1 / 9.5 °C / Filter: P96	Dryer Stack 1 Test 2 / 9.5 °C / Filter: P97	Dryer Stack 1 Test 3 / 9.5 °C / Filter: P98
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	<2	<2	<2	2
Volume	Sample volume	mL	254	279	285	
pH adjustment	required prior to O&G extraction		Yes	Yes	Yes	

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Analytical Report

Bill To: McCall Environmental
6733 Buchanan Road
Coldstream, BC, Canada
V1B 3C5
Attn: Accounts Payable
Sampled By:
Company: McCall

Project ID:
Project Name: Drax Smithers
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1795228**
Control Number:
Date Received: Feb 18, 2025
Date Reported: Feb 19, 2025
Report Number: 3107302
Report Type: Final Report

Reference Number	1795228-4	1795228-5	1795228-6
Sample Date	Feb 13, 2025	Feb 13, 2025	Feb 13, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Dryer Stack 2 Test 1 / 9.5 °C / Filter: P93	Dryer Stack 2 Test 2 / 9.5 °C / Filter: P94	Dryer Stack 2 Test 3 / 9.5 °C / Filter: P95
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	<2	<2	<2	2
Volume	Sample volume	mL	294	302	264	
pH adjustment	required prior to O&G extraction		Yes	Yes	Yes	

Approved by:

Rachel Eden , B. Sc.
Operations Manager

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

Element
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Methodology and Notes

Bill To: McCall Environmental
6733 Buchanan Road
Coldstream, BC, Canada
V1B 3C5
Attn: Accounts Payable
Sampled By:
Company: McCall

Project ID:
Project Name: Drax Smithers
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1795228**
Control Number:
Date Received: Feb 18, 2025
Date Reported: Feb 19, 2025
Report Number: 3107302
Report Type: Final Report

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Oil and Grease in water (VAN)	BCELM	*	Oil & Grease in Water - Direct Hexane Extraction (2023), Oil & Grease	Feb 18, 2025	Element Vancouver

** Reference Method Modified*

References

BCELM B.C. Environmental Laboratory Manual

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

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Analytical Report

Bill To: McCall Environmental
6733 Buchanan Road
Coldstream, BC, Canada
V1B 3C5
Attn: Accounts Payable
Sampled By:
Company: McCall

Project ID:
Project Name: Drax Smithers
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1795230**
Control Number:
Date Received: Feb 18, 2025
Date Reported: Feb 19, 2025
Report Number: 3107304
Report Type: Final Report

Reference Number	1795230-1	1795230-2	1795230-3
Sample Date	Feb 14, 2025	Feb 14, 2025	Feb 14, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Dryer Stack 3 Test 1 / 9.8 °C / Filter: Q2	Dryer Stack 3 Test 2 / 9.8 °C / Filter: Q3	Dryer Stack 3 Test 3 / 9.8 °C / Filter: Q4
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	3	3	<2	2
Volume	Sample volume	mL	310	304	321	
pH adjustment	required prior to O&G extraction		Yes	Yes	Yes	

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

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W: www.element.com

Analytical Report

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Lot ID: **1795230**
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Date Received: Feb 18, 2025
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Report Type: Final Report

Reference Number	1795230-4	1795230-5	1795230-6
Sample Date	Feb 14, 2025	Feb 14, 2025	Feb 14, 2025
Sample Time	NA	NA	NA
Sample Location			
Sample Description	Dryer Stack 4 Test 1 / 9.8 °C / Filter: Q5	Dryer Stack 4 Test 2 / 9.8 °C / Filter: Q6	Dryer Stack 4 Test 3 / 9.8 °C / Filter: Q7
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	2	3	4	2
Volume	Sample volume	mL	289	309	300	
pH adjustment	required prior to O&G extraction		Yes	Yes	Yes	

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Project ID:
Project Name: Drax Smithers
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1795230**
Control Number:
Date Received: Feb 18, 2025
Date Reported: Feb 19, 2025
Report Number: 3107304
Report Type: Final Report

Reference Number	1795230-7
Sample Date	Feb 14, 2025
Sample Time	NA
Sample Location	
Sample Description	Blank Water / 9.8 °C / Blank H2O
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	<2			2
Volume	Sample volume	mL	294			
pH adjustment	required prior to O&G extraction		Yes			

Approved by:

Rachel Eden , B. Sc.
Operations Manager

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

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Methodology and Notes

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Project Name: Drax Smithers
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1795230**
Control Number:
Date Received: Feb 18, 2025
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Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Oil and Grease in water (VAN)	BCELM	*	Oil & Grease in Water - Direct Hexane Extraction (2023), Oil & Grease	Feb 18, 2025	Element Vancouver
Oil and Grease in water (VAN)	BCELM	*	Oil & Grease in Water - Direct Hexane Extraction (2023), Oil & Grease	Feb 18, 2025	Element Vancouver

** Reference Method Modified*

References

BCELM B.C. Environmental Laboratory Manual

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

Client Name:	Dray Smithers
Process:	Dryer Stack 1
Test Number:	1 - Comb.
Date:	FEB 13/25
Start Time	1046
Finish Time	1148
Starting Vol.	300
Final Vol.	303
Flask:	P-96
Console:	980
Stack Diameter	6.5 ft

BP	28.15
DN	.977
CP	.83365
MF	.9997
Moist.	2%
PM	28.26
AS	
Ko	.7510
Pitot	200
Port	
Static	-.20
PS	28.14

CO_2	O_2	CO	N_2
0	20.9		
0	20.9		
0	20.9		
0	20.9		

Duct Diameters Up-Stream

Duct Diameters Downstream

Personnel: DL CB

Mean Yaw Angle

Leakage Rate @ 15 inches Start: .006 Finish: .009

Load:

.27-.38

90

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A12	.27	1.38	33	33	64	2.96	1	270	1Cool	
11	.26	1.43	63	54	56	4.81				
10	.28	1.53	72	55	65	6.61				
9	.27	1.48	74	57	65	8.49				
8	.27	1.48	69	55	62	10.40				
7	.30	1.65	80	58	65	12.30				
6	.30	1.65	74	57	63	14.11	1			
5	.29	1.60	77	59	64	15.96				
4	29	1.60	79	63	66	17.77				
3	.28	1.55	81	64	65	19.68				
2	.27	1.50	83	64	65	21.48				
1	27	1.47	65	64	68	23.12				
B12	.24	1.31	73	62	68	25.04	1			
11	.25	1.37	76	62	68	26.65				
10	.26	1.42	74	62	67	28.34				
9	.27	1.49	78	63	66	30.04				
8	.28	1.55	81	66	67	31.90				
7	.27	1.49	84	65	69	33.65				
6	.29	1.62	84	70	65	35.39	1			
5	.30	1.69	88	72	65	37.36				
4	.29	1.64	88	73	64	39.32				
3	.28	1.58	89	75	64	41.28				
2	.27	1.53	90	74	64	43.08				
1	.26	1.46	91	74	65	44.94				
						46.71				

Client Name:	Drax Smithers
Process:	Dryer Stack 1
Test Number:	2
Date:	Feb 13 2025
Start Time	1221
Finish Time	123
Starting Vol.	300
Final Vol.	509
Flask:	P97
Console:	
Stack Diameter	6.5 ft

BP	28.15
DN	.277
CP	.83365
MF	.9997
Moist.	10%
PM	28.26
AS	
Ko	0.7510
Pitot	200
Port	
Static	-.20
PS	28.14

CO_2	O_2	CO	N_2
0	20.9		
0	20.9		
0	20.9		
0	20.9		

Personnel: CB CB

Leakage Rate @ 15 inches

Load:

Duct Diameters Up-Stream

Duct Diameters Downstream

Mean Yaw Angle

Start: .008 Finish: .017

90

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A12	.25	1.40	69	73	66	46.64	0	270	Ice	
11	.26	1.47	74	70	64	48.65				
10	.28	1.58	79	70	65	50.46				
9	.27	1.54	87	72	65	52.24				
8	.27	1.54	84	71	63	54.02				
7	.29	1.66	91	73	65	55.82	1			
6	.30	1.73	91	79	64	5769				
5	.30	1.73	93	75	65	59.66				
4	.28	1.62	94	75	64	61.68				
3	.28	1.62	94	76	64	63.40				
2	.27	1.56	97	77	67	6520				
1	.27	1.57	96	80	64	67.21				
B12	0.25	1.46	99	81	65	69.20	2			
11	0.25	1.45	97	79	64	70.99				
10	0.26	1.52	101	83	65	72.72				
9	0.27	1.58	101	82	64	74.45				
8	0.26	1.58	102	84	64	76.39				
7	0.29	1.70	102	85	64	78.27				
6	0.29	1.70	103	85	65	80.27	2			
5	.30	1.76	103	86	65	82.14				
4	.29	1.71	105	86	65	84.14				
3	0.28	1.65	105	87	66	86.23				
2	0.27	1.59	104	88	65	88.28				
1	0.25	1.47	105	89	64	90.17				
						91.99				

Client Name:	Dead Smithers
Process:	Dryer Stack 1
Test Number:	3
Date:	Feb 13 2025
Start Time	200
Finish Time	307
Starting Vol.	300
Final Vol.	304
Flask:	998
Console:	980
Stack Diameter	6.5 Ft

BP	28.15
DN	0.877
CP	0.83365
MF	0.0997
Moist.	1%
PM	28.26
AS	~
Ko	0.7516
Pitot	200
Port	~
Static	-.20
PS	28.14

CO_2	O_2	CO	N_2
0	20.9		
0	20.9		
0	20.9		
0	20.9		

Personnel: AF CF

Leakage Rate @ 15 inches

Start: 0.04 Finish: 0.06

Load:

Duct Diameters Up-Stream

Duct Diameters Downstream

Mean Yaw Angle

83

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A12	.24	1.28	44	45	67	92.34	2	270	1Clr	
11	.26	1.39	46	44	67	94.09				
10	.29	1.54	49	43	68	95.87				
9	.28	1.50	51	44	68	97.75				
8	.27	1.45	52	44	67	99.63				
7	.30	1.61	53	45	67	101.48				
6	.30	1.62	55	45	66	103.29	3			
5	.29	1.57	56	46	66	105.06				
4	.28	1.51	57	46	67	106.91				
3	.27	1.46	58	47	68	108.68				
2	.26	1.40	59	47	69	110.49				
1	.26	1.41	59	48	68	112.35				
B12	.25	1.35	58	49	68	114.20	2			
11	.26	1.41	59	48	67	115.96				
10	.26	1.41	60	49	67	117.83				
9	.28	1.52	61	50	68	119.60				
8	.29	1.57	62	50	68	121.43				
7	.29	1.58	63	51	69	123.22				
6	.30	1.64	65	52	68	125.01	2			
5	.29	1.59	67	53	68	126.89				
4	.28	1.54	70	54	67	128.72				
3	.27	1.49	72	55	67	130.51				
2	.26	1.44	73	55	66	132.36				
1	.25	1.39	73	56	66	134.10				
						135.88				

Client Name: DRAY

Process: DRYER ST. 2
Test Number: 1 - COND
Date: FEB 13/25
Start Time 10:46
Finish Time 11:48
Starting Vol. 300
Final Vol. 305
Flask: P-93
Console: 1021
Stack Diameter

BP 28.15
DN .275
CP .84182
MF .9972
Moist. .02
PM 28.26
AS .6686
Ko 0.6686
Pitot 107
Port
Static -0.19
PS 28.13

CO_2	O_2	CO	N_2
0	20.9	0	

Personnel: CB/CS

Leakage Rate @ 15 inches

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Mean Yaw Angle

Start: 0.05 Finish: 0.07

Load:

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	0.28	1.88	61	61	69	39.12	1	270	100	0
11	0.36	2.38	64	63	81	41.00				2.5
10	0.26	1.70	57	51	77	42.90				5
9	0.28	1.83	60	52	81	44.65				7.5
8	0.25	1.63	61	53	81	46.43				10
7	0.25	1.67	80	55	81	48.18				12.5
6	0.24	1.58	66	57	81	49.77	1			15
5	0.23	1.52	69	61	82	51.41				17.5
4	0.21	1.33	74	58	83	53.07				20
3	0.20	1.32	69	60	83	54.61				22.5
2	0.17	1.12	69	60	82	56.13				25
1	0.16	1.04	66	64	88	57.47				27.5
B-12	0.27	1.77	67	65	86	58.87	1			30
11	0.32	2.11	70	65	85	60.52				32.5
10	0.27	1.74	73	65	83	62.36				35
9	0.28	1.87	73	66	80	64.15				37.5
8	0.26	1.74	75	67	82	66.09				40
7	0.25	1.67	75	67	81	67.79				42.5
6	0.23	1.54	76	69	82	69.53	1			45
5	0.23	1.54	77	69	81	71.23				47.5
4	0.20	1.34	76	70	82	72.94				50
3	0.21	1.41	77	72	81	74.59				52.5
2	0.17	1.14	77	71	83	76.17				55
1	0.16	1.15	76	71	83	77.74				57.5
						79.20	1			60

Client Name:	Prax smitos
Process:	Dryer stack 2
Test Number:	2
Date:	Feb. 8 (2023
Start Time	12:24pm
Finish Time	1:23
Starting Vol.	300
Final Vol.	305
Flask:	P 94
Console:	1021
Stack Diameter	

BP	28.15
DN	0.975
CP	0.8418^2
ME	0.9972
Moist.	1%
PM	28.26
AS	2
Ko	0.6686
Pitot	107
Port	2
Static	-0.19
PS	28.17

CO_2	O_2	CO	N_2
0	20.9		

Personnel: AJ/CB

Leakage Rate @ 15 inches

Load:

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Mean Yaw Angle

Start: 0.04 Finish: 0.06

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A12	0.29	1.97	70	72	84	79.85	0	270	Iced	0
11	0.30	2.04	76	71	83	81.77				2.5
10	0.26	1.77	75	71	82	83.60				5
9	0.27	1.85	77	72	81	85.35				7.5
8	0.26	1.78	79	72	83	87.27				10
7	0.25	1.71	86	73	83	88.99				12.5
6	0.23	1.58	82	74	83	90.93				15
5	0.23	1.58	82	75	83	92.49				17.5
4	0.20	1.39	85	86	82	94.33	0			20
3	0.20	1.46	85	87	82	96.06				22.5
2	0.18	1.25	87	78	82	97.68				25
1	0.16	1.11	88	81	83	99.16				27.5
B12	0.28	1.95	89	82	83	100.57				30
11	0.33	2.30	89	82	83	102.38				32.5
10	0.29	2.02	90	81	83	104.50				35
9	0.28	1.96	94	85	83	106.52				37.5
8	0.26	1.82	95	85	84	108.40	0			40
7	0.25	1.76	95	87	83	110.37				42.5
6	0.22	1.55	96	88	83	112.14				45
5	0.22	1.56	96	89	83	113.85				47.5
4	0.20	1.41	95	89	83	115.48				50
3	0.22	1.55	97	90	85	117.01				52.5
2	0.17	1.20	97	91	84	118.88				55
1	0.15	1.06	98	92	84	120.35	0			57.5
						121.85				60

Client Name:	Drax
	smiters
Process:	Dryer Stack 3
Test Number:	3
Date:	Feb 13 2025
Start Time	200
Finish Time	302
Starting Vol.	300
Final Vol.	305
Flask:	P95
Console:	1021
Stack Diameter	

BP	28.15
DN	0.275
CP	0.84182
ME	0.9972
Moist.	1%
PM	28.26
AS	~
Ko	0.6686
Pitot	107
Port	—
Static	−0.19
PS	28.13

CO_2	O_2	CO	N_2
0	20.9		
0	20.9		
0	20.9		
0	20.9		

Personnel: CB CB

Leakage Rate @ 15 inches

Load:

Duct Diameters
Up-Stream

Duct Diameters
Downstream

~~Mean Yaw Angle~~

Start: 1.012 Finish: 1.014

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A 12	0.30	1.98	55	54	82	22.14	1	270	Iced	
11	0.26	1.92	53	53	81	24.04				
10	0.27	1.79	58	53	80	25.90				
9	0.26	1.72	59	52	80	27.72				
8	0.26	1.72	60	52	79	29.49				
7	0.25	1.66	61	52	79	31.26				
6	0.23	1.54	62	53	78	33.01	1			
5	0.23	1.53	62	53	79	34.71				
4	0.20	1.33	63	54	80	36.52				
3	0.21	1.40	63	54	80	38.21				
2	0.18	1.21	64	55	79	39.81				
1	0.16	1.07	65	55	78	41.34				
B 12	0.28	1.88	65	56	78	42.78	1			
11	0.33	2.22	66	56	77	44.63				
10	0.30	2.02	67	57	78	46.57				
9	0.28	1.89	68	57	78	48.48				
8	0.26	1.75	69	58	79	50.31				
7	0.25	1.69	69	58	79	52.10				
6	0.22	1.48	70	59	80	53.93	1			
5	0.22	1.49	71	60	80	55.67				
4	0.19	1.28	72	61	81	57.42				
3	0.21	1.36	73	62	80	58.94				
2	0.16	1.09	73	63	79	60.61				
1	0.15	1.02	74	63	78	62.04				
						63.46				

Client Name: DRAY

Process: DRYER ST. 3

Test Number: 1

Date: Feb 13/25

Start Time 11:10

Finish Time 12:12

Starting Vol. 300

Final Vol. 314

Flask: Q-2

Console: 955

Stack Diameter

BP 28.15

DN 270

CP .83867

MF .9973

Moist. .02

PM 28.26

AS

Ko .6718

Pitot .97

Port

Static -.23

PS 28.13

CO_2	O_2	CO	N_2

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Personnel: DL/DB

Leakage Rate @ 15 inches

Mean Yaw Angle

Start: .007 Finish: .009

Load:

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.23	1.31	21	21	68	55.93	1	250	ICE	
11	.23	1.30	38	23	80	57.30				
10	.24	1.37	41	25	81	58.65				
9	.25	1.42	40	26	81	60.10	1			
8	.23	1.31	42	29	82	61.57				
7	.24	1.38	44	33	81	63.00				
6	.25	1.45	48	34	81	64.50	1			
5	.27	1.56	53	35	80	66.00				
4	.29	1.70	58	39	80	67.70				
3	.30	1.77	62	40	80	69.50	1			
2	.30	1.78	67	46	83	71.24				
1	.27	1.62	72	49	82	73.03				
B-12	.24	1.45	75	51	79	74.70	1			
11	.24	1.45	81	54	80	76.35				
10	.25	1.51	82	56	82	78.02				
9	.24	1.47	84	58	82	79.61	1			
8	.23	1.41	88	62	80	81.25				
7	.24	1.48	90	63	81	82.85				
6	.24	1.49	92	66	81	84.50				
5	.26	1.62	93	67	86	86.20	1			
4	.27	1.68	94	69	81	87.85				
3	.29	1.82	96	71	81	89.60				
2	.30	1.88	96	73	81	91.43	1			
1	.30	1.88	97	74	81	93.33				
						95.23				

Client Name: DEAK

Process: DRYER #3

Test Number: 2 - LOUD

Date: FEB 13/25

Start Time 12:45

Finish Time 1:48

Starting Vol. 300

Final Vol. 310

Flask: Q-3

Console: 953

Stack Diameter

BP	28.15
DN	.270
CP	.83867
MF	.9973
Moist.	.02
PM	28.26
AS	
Ko	.6718
Pitot	217
Port	
Static	-.23
PS	28.13

CO_2	O_2	CO	N_2

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Personnel:

Mean Yaw Angle

Leakage Rate @ 15 inches Start: .01 Finish: .01

Load:

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.24	1.47	71	71	82	95.90		270	ICED	
11	.24	1.48	79	70	81	97.56				
10	.25	1.54	80	70	82	99.25				
9	.26	1.62	87	72	82	100.85				
8	.26	1.63	88	85	80	102.70				
7	.27	1.69	91	77	83	104.50				
6	.26	1.63	93	78	81	106.26				
5	.28	1.75	94	79	82	108.13				
4	.29	1.83	95	81	82	109.90				
3	.30	1.90	96	83	82	111.80				
2	.28	1.77	97	85	83	113.65				
1	.29	1.85	101	84	81	115.40				
B-12	.25	1.59	103	85	84	117.40				
11	.25	1.59	104	86	84	119.14				
10	.27	1.72	108	88	83	120.94				
9	.25	1.61	110	91	84	122.75				
8	.25	1.61	111	93	85	124.60				
7	.26	1.68	112	86	86	126.50				
6	.26	1.68	110	95	85	128.23				
5	.28	1.80	110	96	86	130.07				
4	.29	1.86	111	95	89	131.90				
3	.30	1.92	112	96	86	133.92				
2	.28	1.79	112	95	85	135.90				
1	.28	1.79	112	95	86	137.81		270	ICED	
						139.70				

Client Name:	DRAX
Process:	DRYER ST. 3
Test Number:	3 - COND.
Date:	FEB 13/25
Start Time	2:20
Finish Time	3:23
Starting Vol.	300
Final Vol.	313
Flask:	Q-4
Console:	955
Stack Diameter	

BP	28.15
DN	.270
CP	83867
MF	.9973
Moist.	.102
PM	28.26
AS	
Ko	.6918
Pitot	.217
Port	
Static	-.23
PS	28.13

CO_2	O_2	CO	N_2

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Personnel:

Mean Yaw Angle

Leakage Rate @ 15 inches

Start: .02 Finish: .01

Load:

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.24	1.42	55	56	83	41.70	0	270	ICED	
11	.24	1.43	60	59	78	43.43				
10	.25	1.51	67	60	78	44.95	1			
9	.26	1.57	63	61	80	46.70				
8	.26	1.57	68	62	79	48.36				
7	.27	1.65	75	62	80	50.00				
6	.27	1.67	82	64	79	51.66				
5	.27	1.67	85	66	79	53.40				
4	.28	1.75	90	68	77	55.14				
3	.29	1.83	93	69	75	56.90				
2	.30	1.89	93	70	77	58.78	1			
1	.30	1.90	96	73	78	60.75	1/2			
B-12	.23	1.45	99	75	78	62.60				
11	.23	1.45	101	78	78	64.30				
10	.25	1.58	101	78	78	65.95				
9	.26	1.67	103	82	77	67.70				
8	.26	1.67	105	83	78	69.50				
7	.27	1.73	105	84	77	71.30	2			
6	.28	1.81	106	86	76	73.10				
5	.28	1.81	109	87	78	75.03				
4	.30	1.94	109	88	76	76.94				
3	.29	1.88	110	89	77	78.90				
2	.29	1.88	108	86	76	80.82				
1	.28	1.82	108	86	75	82.80	2	270	MELTED	
						84.70				

Client Name: DR[redacted]

Process: DRYER ST.4
Test Number: 1-COND
Date: FEB 13/25
Start Time 11:41
Finish Time 12:13
Starting Vol. 300
Final Vol. 307
Flask: Q-5
Console: 1039
Stack Diameter

BP 28.15
DN .270
CP .83829
MF 1.0043
Moist. .02
PM 28.29
AS
Ko .8032
Pitot 1.48
Port
Static -.16
PS 28.15

CO_2	O_2	CO	N_2
0	21		

Personnel: [redacted]

Leakage Rate @ 15 inches

Load:

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Mean Yaw Angle

Start: .003 Finish: .001

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
17	.20	1.00	40	40	96	30.01	0	270	1 CFM	
11	.28	1.11	48	40	93	31.32				
10	.24	.96	52	40	93	33.20	1			
9	.18	.72	58	42	93	34.81				
8	.16	.65	64	43	92	36.11				
7	.16	.65	69	45	93	37.36				
6	.16	.66	73	46	92	38.64				
5	.17	.70	79	50	93	39.92				
4	.24	1.00	83	52	95	41.30	1			
3	.26	1.10	87	54	96	43.00				
2	.26	1.10	90	59	97	44.71				
1	.25	1.05	91	63	98	46.42				
B-12	.25	1.05	92	67	99	48.08				
11	.27	1.14	93	68	100	49.72				
10	.25	1.06	94	69	100	51.43	1			
9	.19	.81	96	71	99	53.09				
8	.17	.72	97	72	99	54.54				
7	.16	.68	98	73	99	55.90				
6	.16	.68	99	74	99	57.25	1			
5	.18	.77	100	75	99	58.64				
4	.22	.94	101	76	99	60.09				
3	.26	1.12	101	78	99	61.63				
2	.25	1.07	102	80	99	63.32	1			
1	.25	1.07	103	80	100	65.07	1	278	1 CFM	
						66.73				

Client Name: Drax
Smithers
Process: Dryer Stack 4
Test Number: 2
Date: Feb 13/25
Start Time 12:45
Finish Time 1:47
Starting Vol. 300
Final Vol. 308
Flask: Q-6
Console: 1039
Stack Diameter

BP 28.15
DN .270
CP .83829
MF 1.0043
Moist:
PM 28.26
AS
Ko .8032
Pitot 140
Port
Static -.16
PS 28.15

CO_2	O_2	CO	N_2
0	21		

Personnel: DB

Leakage Rate @ 15 inches

Load:

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Mean Yaw Angle

Start: .002 Finish: .001

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.27	1.15	84	84	98	66.96	0	270	ICED	
11	.28	1.20	89	86	99	68.72				
10	.24	1.03	94	87	99	70.48				
9	.22	0.95	104	89	101	72.17				
8	.17	.74	105	89	102	73.78				
7	.17	.74	106	90	102	75.16	0			
6	.16	.70	107	91	101	76.62				
5	.17	.74	108	92	101	78.01				
4	.22	.96	109	93	101	79.43				
3	.25	1.09	111	94	102	81.07				
2	.25	1.09	112	95	102	82.82				
1	.26	1.14	113	96	103	84.55	1			
B-12	.27	1.18	113	96	102	86.38				
11	.27	1.18	114	97	103	88.20				
10	.25	1.10	114	98	104	90.02	1			
9	.23	1.01	115	99	104	91.73				
8	.19	.83	116	100	105	93.40				
7	.18	.79	117	101	106	94.92				
6	.19	.79	118	102	106	96.41	1			
5	.17	.75	118	102	106	97.89				
4	.16	.70	119	103	107	99.33				
3	.20	.88	119	103	107	100.73				
2	.24	1.06	120	103	107	102.41				
1	.25	1.10	120	104	107	104.16	1	270	ICED	
						105.91				

Client Name: Drax
Smithers
Process: Dryer Stack 4
Test Number: 3
Date: Feb 13/25
Start Time 2:20
Finish Time 3:22
Starting Vol. 300
Final Vol. 308
Flask: Q-7
Console: C-10391
Stack Diameter

BP 28.15
DN .270
CP .83829
MF 1.0043
Moist.
PM 28.26
AS
Ko .8032
Pitot 140
Port
Static -.16
PS 28.15

CO_2	O_2	CO	N_2
0	21		

Personnel: DA3

Leakage Rate @ 15 inches

Load:

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Mean Yaw Angle

Start: .005 Finish: .006

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.26	1.07	77	81	110	6.04	0	270	ICED	
11	.28	1.17	85	84	109	7.71				
10	.25	1.05	89	85	109	9.50				
9	.22	.93	90	86	109	11.20	1			
8	.18	.76	93	87	109	12.78				
7	.17	.72	94	88	109	14.22				
6	.17	.72	95	89	110	15.65				
5	.16	.68	96	90	110	17.06				
4	.23	.98	98	91	110	18.41				
3	.25	1.07	101	92	110	20.04				
2	.26	1.11	102	92	109	21.75				
1	.26	1.11	103	93	109	23.50				
B-12	.25	1.07	104	94	109	25.24				
11	.27	1.16	109	95	109	27.00	1			
10	.26	1.12	110	96	110	28.79				
9	.23	.99	111	97	110	30.55				
8	.21	.91	112	98	108	34.03				
7	.19	.83	113	99	107	35.80				
6	.16	.70	114	100	106	37.32				
5	.16	.70	114	101	105	38.75				
4	.18	.79	115	102	105	40.17	1			
3	.23	1.01	116	103	104	41.60				
2	.25	1.10	117	104	106	43.27				
1	.26	1.14	118	106	107	45.00	1	270	ICED	
						46.97				

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