Pinnacle Pellet Inc- Williams Lake
Permit 17557
Williams Lake, BC

Our Job Number: ME2021-188
Testing Date(s): May 19, 2021

Report Author: Matt McCall
McCall Environmental

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June 10, 2021

Pinnacle Pellet Inc.
1160 South Lakeside Dr.
Williams Lake, B.C.
V2J 6K9

Attention: **Mr. Bill Carson**

Reference: **Parameters Tested –** Total Particulate & Cond. Organics
Test Date(s) – May 19, 2021
Permit – PA-17557
McCall File Number – ME2021-188

As requested our firm has performed a series of air emission tests at your facility in Williams Lake BC.

Testing Parameters

Dryer Stacks 1-4

- Total Particulate and Condensable Organics State of Oregon Method

Key Personnel

- Report Generation: Matt McCall 250-542-5118
- Sr Field Tech: Danny Lawrence 250-857-5713
- Field Tech: Dave Brandle and Nick Angus 250-564-9106
- Plant Personnel: Bill Carson 250-267-7580

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.

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Matt McCall

Digitally signed by Matt McCall
Date: 2021.06.11 09:37:41 -07'00'

Matt McCall

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Summary of Test Results

Dryer Results May 19, 2021

Total Particulate **Average of Triplicate Tests**

Parameter	Stack 1	Stack2	Stack 3	Stack 4	Average/ Total	Permit
Test Date	19-May-21	19-May-21	19-May-21	19-May-21	N/A	
Gas Temperature (°C)	27.5	28.4	31.0	34.5	30.4	
% Moisture	2.67	3.11	2.91	4.16	3.21	
Velocity (m/sec)	8.68	8.24	7.88	7.30	8.02	
ACFM	53811	51065	48852	45286	199013	
Std. Dry Flow Rate (m^3/sec)	22.75	21.42	20.37	18.42	82.97	90.00
Tot Part. Dry Basis ref. Cond. (mg/m^3)	10.40	8.10	12.08	15.75	11.58	15.00
Front Half Particulate (mg/m^3)	6.63	6.27	7.92	11.76	8.14	
Back Half Condensibles (mg/m^3)	3.77	1.83	4.17	3.99	3.44	
Mass Emission Rate (kg/hr)	0.85	0.62	0.89	1.05	3.41	

* Mass Emission Rates (Flow, kg/hr are a total combined value, concentration, temp etc is averaged)

Discussion Of Test Results

Test results are all in compliance with permitted limits.

Last time this sources was tested in January of 2021 the average velocity was 84.8 m^3/sec and at a concentration of 4.04 mg/m^3.

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Pinnacle Pellet **19-May-21**
Dryer Stack 1 **Permit Number: RA-17557**
Williams Lake **AVERAGE OF AIR EMISSION TESTS 1 TO 3**

Gas Temperature:	82 ^{o} F	28 ^{o} C
Moisture Content (by volume):	2.67 %	
Average Stack Gas Velocity:	28.5 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	53811 ACFM	
Dry Gas flow Rate at Reference Conditions:	48204 SCFM	22.7 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.005 gr/ft^3	10.40 mg/m^3
Front Half Particulate	0.003 gr/ft^3	6.6 mg/m^3
Back Half Condensibles	0.002 gr/ft^3	3.8 mg/m^3
Mass Emission Rate	1.88 lbs/hr	0.85 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	75 ^{o} F	24 ^{o} C
Moisture Content (by volume):	2.6 %	
Average Stack Gas Velocity:	28.4 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	53714 ACFM	
Dry Gas flow Rate at Reference Conditions:	48717 SCFM	23.0 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.005 gr/ft^3	11.0 mg/m^3
Front Half Particulate	.003 gr/ft^3	7.3 mg/m^3
Back Half Condensibles	.002 gr/ft^3	3.7 mg/m^3
Mass Emission Rate	2.00 lbs/hr	0.91 kg/hr

TEST 2:

Gas Temperature:	83 ^{o} F	28 ^{o} C
Moisture Content (by volume):	2.5 %	
Average Stack Gas Velocity:	28.4 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	53761 ACFM	
Dry Gas flow Rate at Reference Conditions:	48119 SCFM	22.7 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.005 gr/ft^3	10.7 mg/m^3
Front Half Particulate	.003 gr/ft^3	6.0 mg/m^3
Back Half Condensibles	.002 gr/ft^3	4.7 mg/m^3
Mass Emission Rate	1.93 lbs/hr	0.88 kg/hr

TEST 3:

Gas Temperature:	86 ^{o} F	30 ^{o} C
Moisture Content (by volume):	3.0 %	
Average Stack Gas Velocity:	28.5 ft/sec	8.7 m/sec
Total Actual Gas Flow Rate:	53958 ACFM	
Dry Gas flow Rate at Reference Conditions:	47776 SCFM	22.5 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.004 gr/ft^3	9.5 mg/m^3
Front Half Particulate	.003 gr/ft^3	6.6 mg/m^3
Back Half Condensibles	.001 gr/ft^3	2.9 mg/m^3
Mass Emission Rate	1.70 lbs/hr	0.77 kg/hr

DATA FOR TESTS 1 TO 3

Client:	Pinnacle Pellet		
Plant Location:	Williams Lake		
Process:	Dryer Stack 1		
Permit Number:	RA-17557		
Job Number:	ME2021-188		
Pollution Control Permit:	**15.0** **mg/m3**	22.5	**m3/sec**
Number of Tests:	**3** **tests**		
Minutes per Point:	**2.5** **minutes**		

	TEST 1	TEST 2	TEST 3
Filter Number:	I18	I17	I19
Date of Test:	19-May-21	19-May-21	19-May-21
Start Time:	9:00	10:10	11:15
Stop Time:	10:05	11:13	12:18
On-line Sampling Time:	60	60	60
Testing Personnel:	DL/NA	DL/NA	DL/NA
Sampler Model:	1013	1013	1013
Barometric Pressure("Hg):	28.25	28.25	28.25
Static Pressure("H_2O):	-0.10	-0.10	-0.10
%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:	0.991	0.991	0.991
Type-S Pitot Tube Coefficient:	0.83446	0.83446	0.83446
Cross Sectional Area of Stack(ft^2):	31.5	31.5	31.5
Impinger Condensate(g):	18	16	20
Weight of Moisture in Silica Gel(g):	3.3	4.1	3.9
Weight of Filter Particulate(g):	0.0002	0.0001	0.0002
Weight of Probe Washings(g):	0.0076	0.0063	0.0067
Weight of Impinger Content Organic(g):	0.0040	0.0050	0.0030
Total Weight of Particulate(g):	0.0118	0.0114	0.0099

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Sampling Data for - *TEST 1*
Pinnacle Pellet
Dryer Stack 1
Williams Lake

19-May-21

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	0.18	1.09	38	38	80	0.00	1.02
A-11	0.19	1.18	38	36	65	1.41	1.01
A-10	0.20	1.24	42	42	68	2.86	0.97
A-9	0.18	1.12	44	44	67	4.30	1.01
A-8	0.20	1.25	44	44	67	5.73	0.95
A-7	0.21	1.31	46	46	70	7.15	0.99
A-6	0.23	1.44	50	50	70	8.66	0.98
A-5	0.24	1.51	53	53	73	10.25	0.97
A-4	0.20	1.26	54	54	72	11.86	1.04
A-3	0.18	1.14	57	57	75	13.43	1.01
A-2	0.18	1.14	59	59	76	14.89	1.01
A-1	0.18	1.14	62	62	77	16.35	1.00
B-12	0.21	1.34	63	63	77	17.81	1.02
B-11	0.21	1.34	64	64	78	19.42	1.00
B-10	0.23	1.47	67	67	79	21.00	1.02
B-9	0.26	1.66	69	69	80	22.69	0.91
B-8	0.28	1.79	69	69	78	24.30	0.98
B-7	0.30	1.93	71	71	79	26.10	0.95
B-6	0.30	1.93	72	72	81	27.90	1.00
B-5	0.31	2.00	74	74	81	29.80	0.98
B-4	0.32	2.07	72	72	79	31.70	1.00
B-3	0.35	2.27	75	75	79	33.67	0.98
B-2	0.34	2.21	74	74	80	35.70	0.99
B-1	0.34	2.21	75	75	78	37.72	0.99
						39.74	

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Sampling Data for - *TEST 2*
Pinnacle Pellet
Dryer Stack 1
Williams Lake

19-May-21

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	0.20	1.30	79	79	86	0.00	0.99
B-11	0.21	1.36	75	76	82	1.56	0.99
B-10	0.22	1.44	75	76	79	3.15	0.94
B-9	0.25	1.62	74	74	80	4.70	0.99
B-8	0.26	1.69	75	76	81	6.43	0.99
B-7	0.30	1.96	78	78	81	8.20	0.98
B-6	0.30	1.96	78	78	82	10.08	1.02
B-5	0.32	2.09	80	79	82	12.04	0.99
B-4	0.33	2.15	79	78	82	14.02	1.01
B-3	0.32	2.10	81	80	82	16.07	1.01
B-2	0.34	2.22	80	80	83	18.09	1.00
B-1	0.34	2.23	82	82	83	20.14	0.99
A-12	0.21	1.37	82	82	84	22.19	1.04
A-11	0.22	1.44	83	82	83	23.88	0.99
A-10	0.25	1.50	82	82	84	25.52	1.01
A-9	0.21	1.38	84	83	84	27.30	0.98
A-8	0.20	1.31	84	83	84	28.90	1.00
A-7	0.19	1.25	84	84	84	30.48	0.98
A-6	0.18	1.18	85	85	85	32.00	0.99
A-5	0.18	1.18	84	84	85	33.49	1.00
A-4	0.19	1.25	85	84	84	34.99	1.01
A-3	0.18	1.18	85	86	85	36.55	1.03
A-2	0.17	1.12	86	86	86	38.10	0.97
A-1	0.18	1.18	85	85	85	39.52	0.98
						41.00	

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Sampling Data for - *TEST 3*
Pinnacle Pellet
Dryer Stack 1
Williams Lake

19-May-21

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	0.17	1.12	90	90	90	0.00	1.02
A-11	0.19	1.25	83	87	84	1.50	0.97
A-10	0.19	1.25	83	87	84	3.00	0.97
A-9	0.2	1.32	82	86	83	4.50	0.99
A-8	0.21	1.38	84	84	84	6.07	1.01
A-7	0.2	1.31	84	86	84	7.70	0.99
A-6	0.23	1.51	89	85	86	9.27	1.02
A-5	0.22	1.45	87	88	87	11.00	1.00
A-4	0.22	1.45	88	88	86	12.67	1.04
A-3	0.18	1.19	87	90	87	14.40	1.06
A-2	0.17	1.12	88	89	87	16.00	1.02
A-1	0.18	1.18	86	88	86	17.50	0.99
B-12	0.20	1.31	88	90	89	18.99	0.95
B-11	0.22	1.44	89	90	89	20.50	0.89
B-10	0.23	1.51	90	90	90	21.99	0.95
B-9	0.24	1.58	89	89	87	23.61	0.93
B-8	0.27	1.78	89	89	85	25.23	0.92
B-7	0.30	1.98	90	90	88	26.93	0.96
B-6	0.34	2.24	90	90	86	28.80	1.01
B-5	0.24	1.58	90	90	86	30.89	0.96
B-4	0.33	2.17	90	89	87	32.56	0.97
B-3	0.33	2.17	91	90	85	34.55	0.98
B-2	0.35	2.31	89	90	84	36.56	0.99
B-1	0.34	2.24	90	90	84	38.64	0.94
						40.60	

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Pinnacle Pellet
Dryer Stack 1
Pinnacle Pellet

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 0.991**

Delta P:	**0.239**	**"H_2O**	**Us avg:**	**28.42**	**ft/sec**
Delta H:	**1.543**		**ACFM:**	**53714**	**ft^3/min**
Tm avg:	**519.6**	**^oR**	**SDCFM:**	**48717**	**ft^3/min**
Ts avg:	**535.4**	**^oR**	**Vm std:**	**37.94**	**ft^3**
Bwo:	**0.026**		**Vm corr:**	**39.38**	**ft^3**
Md:	**28.84**		**Vm:**	**39.74**	**ft^3**
Ms:	**28.56**		**MF:**	**0.9910**	
Pb:	**28.25**	**"Hg**	**PCON:**	**10.98**	**mg/m^3**
Pm:	**28.36**	**"Hg**	**ERAT:**	**0.91**	**kg/hr**
Ps:	**28.24**	**"Hg**			

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 0.995**

Delta P:	**0.236**	**"H_2O**	**Us avg:**	**28.44**	**ft/sec**
Delta H:	**1.561**		**ACFM:**	**53761**	**ft^3/min**
Tm avg:	**541.0**	**^oR**	**SDCFM:**	**48119**	**ft^3/min**
Ts avg:	**543.2**	**^oR**	**Vm std:**	**37.59**	**ft^3**
Bwo:	**0.025**		**Vm corr:**	**40.63**	**ft^3**
Md:	**28.84**		**Vm:**	**41.00**	**ft^3**
Ms:	**28.57**		**MF:**	**0.9910**	
Pb:	**28.25**	**"Hg**	**PCON:**	**10.71**	**mg/m^3**
Pm:	**28.36**	**"Hg**	**ERAT:**	**0.88**	**kg/hr**
Ps:	**28.24**	**"Hg**			

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 0.980**

Delta P:	**0.236**	**"H_2O**	**Us avg:**	**28.55**	**ft/sec**
Delta H:	**1.577**		**ACFM:**	**53958**	**ft^3/min**
Tm avg:	**548.1**	**^oR**	**SDCFM:**	**47776**	**ft^3/min**
Ts avg:	**546.2**	**^oR**	**Vm std:**	**36.74**	**ft^3**
Bwo:	**0.030**		**Vm corr:**	**40.23**	**ft^3**
Md:	**28.84**		**Vm:**	**40.60**	**ft^3**
Ms:	**28.52**		**MF:**	**0.9910**	
Pb:	**28.25**	**"Hg**	**PCON:**	**9.52**	**mg/m^3**
Pm:	**28.37**	**"Hg**	**ERAT:**	**0.77**	**kg/hr**
Ps:	**28.24**	**"Hg**			

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Pinnacle Pellet **19-May-21**
Dryer Stack 2 **Permit Number: RA-17557**
Williams Lake, BC **AVERAGE OF AIR EMISSION TESTS 1 TO 3**

Gas Temperature:	83 ^{o} F	28 ^{o} C
Moisture Content (by volume):	3.11 %	
Average Stack Gas Velocity:	27.0 ft/sec	8.2 m/sec
Total Actual Gas Flow Rate:	51065 ACFM	
Dry Gas flow Rate at Reference Conditions:	45393 SCFM	21.4 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.004 gr/ft^3	8.10 mg/m^3
Front Half Particulate	0.003 gr/ft^3	6.3 mg/m^3
Back Half Condensibles	0.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	1.38 lbs/hr	0.62 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	79 ^{o} F	26 ^{o} C
Moisture Content (by volume):	3.0 %	
Average Stack Gas Velocity:	27.1 ft/sec	8.3 m/sec
Total Actual Gas Flow Rate:	51199 ACFM	
Dry Gas flow Rate at Reference Conditions:	45939 SCFM	21.7 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.004 gr/ft^3	8.1 mg/m^3
Front Half Particulate	.003 gr/ft^3	6.3 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	1.39 lbs/hr	0.63 kg/hr

TEST 2:

Gas Temperature:	84 ^{o} F	29 ^{o} C
Moisture Content (by volume):	3.1 %	
Average Stack Gas Velocity:	26.9 ft/sec	8.2 m/sec
Total Actual Gas Flow Rate:	50899 ACFM	
Dry Gas flow Rate at Reference Conditions:	45212 SCFM	21.3 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.003 gr/ft^3	7.4 mg/m^3
Front Half Particulate	.002 gr/ft^3	5.5 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	1.24 lbs/hr	0.56 kg/hr

TEST 3:

Gas Temperature:	87 ^{o} F	31 ^{o} C
Moisture Content (by volume):	3.2 %	
Average Stack Gas Velocity:	27.0 ft/sec	8.2 m/sec
Total Actual Gas Flow Rate:	51096 ACFM	
Dry Gas flow Rate at Reference Conditions:	45028 SCFM	21.3 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.004 gr/ft^3	8.8 mg/m^3
Front Half Particulate	.003 gr/ft^3	7.0 mg/m^3
Back Half Condensibles	.001 gr/ft^3	1.8 mg/m^3
Mass Emission Rate	1.49 lbs/hr	0.68 kg/hr

DATA FOR TESTS 1 TO 3

Client:	**Pinnacle Pellet**		
Plant Location:	**Williams Lake, BC**		
Process:	**Dryer Stack 2**		
Permit Number:	**RA-17557**		
Job Number:	**ME2021-188**		
Pollution Control Permit:	**15.0**	**mg/m3**	22.5 **m3/sec**
Number of Tests:	**3**	**tests**	
Minutes per Point:	**2.5**	**minutes**	

	TEST 1	TEST 2	TEST 3
Filter Number:	L20	21	22
Date of Test:	19-May-21	19-May-21	19-May-21
Start Time:	8:48	9:54	11:32
Stop Time:	9:49	10:55	11:00
On-line Sampling Time:	60	60	12:01
Testing Personnel:	DB	DB	DB
Sampler Model:	1021	1021	1021
Barometric Pressure("Hg):	28.25	28.25	28.25
Static Pressure("H_2O):	-0.21	-0.21	-0.21
%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):	0.285	0.285	0.285
Meter Factor:	1.0124	1.0124	1.0124
Type-S Pitot Tube Coefficient:	0.83829	0.83829	0.83829
Cross Sectional Area of Stack(ft^2):	31.5	31.5	31.5
Impinger Condensate(g):	21	21	22
Weight of Moisture in Silica Gel(g):	4.4	5.2	5.1
Weight of Filter Particulate(g):	0.0002	0.0002	0.0001
Weight of Probe Washings(g):	0.0067	0.0058	0.0075
Weight of Impinger Content Organic(g):	0.0020	0.0020	0.0020
Total Weight of Particulate(g):	0.0089	0.0080	0.0096

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Sampling Data for - *TEST 1*

Pinnacle Pellet

Dryer Stack 2

Williams Lake, BC

19-May-21

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	0.21	1.50	45	45	77	39.23	1.04
A-11	0.19	1.37	53	47	77	40.90	1.00
A-10	0.17	1.23	56	51	77	42.44	1.07
A-9	0.17	1.24	63	51	77	44.00	1.02
A-8	0.18	1.31	64	52	77	45.51	0.92
A-7	0.20	1.46	66	52	79	46.90	1.00
A-6	0.20	1.46	69	55	78	48.50	0.99
A-5	0.21	1.55	72	56	78	50.10	1.01
A-4	0.22	1.62	73	59	78	51.77	1.00
A-3	0.23	1.71	74	60	78	53.48	1.00
A-2	0.24	1.78	76	61	78	55.22	0.96
A-1	0.24	1.78	77	62	78	56.94	0.96
B-12	0.24	1.78	79	64	78	58.66	1.02
B-11	0.26	1.96	84	67	78	60.50	0.98
B-10	0.26	1.96	85	68	79	62.35	0.93
B-9	0.26	1.96	86	69	79	64.10	1.01
B-8	0.25	1.89	87	71	80	66.00	1.02
B-7	0.24	1.82	88	73	80	67.90	1.00
B-6	0.20	1.52	90	74	80	69.72	1.01
B-5	0.20	1.52	91	76	80	71.40	1.02
B-4	0.18	1.37	89	77	80	73.11	1.01
B-3	0.18	1.37	89	78	81	74.72	0.98
B-2	0.19	1.45	89	79	81	76.28	1.05
B-1	0.23	1.75	89	79	81	78.00	0.99
						79.78	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 2*

Pinnacle Pellet

Dryer Stack 2

Williams Lake, BC

19-May-21

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (° F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (° F)	TEMP OUT (° F)			
A-12	0.20	1.53	80	75	81	80.01	1.00
A-11	0.19	1.45	86	79	81	81.66	0.99
A-10	0.18	1.39	87	79	81	83.27	1.02
A-9	0.17	1.32	89	80	82	84.88	1.00
A-8	0.17	1.32	91	80	82	86.43	1.02
A-7	0.19	1.48	92	81	82	88.00	1.07
A-6	0.19	1.47	93	81	83	89.75	0.99
A-5	0.20	1.55	93	82	83	91.37	0.98
A-4	0.20	1.55	92	82	83	93.02	1.01
A-3	0.21	1.63	93	83	83	94.71	0.98
A-2	0.22	1.71	94	83	83	96.39	1.03
A-1	0.24	1.87	94	84	84	98.21	1.03
B-12	0.23	1.79	95	85	85	100.11	1.05
B-11	0.23	1.79	97	85	85	102.00	1.02
B-10	0.25	1.95	99	86	85	103.84	1.02
B-9	0.26	2.03	100	87	84	105.76	0.98
B-8	0.25	1.96	100	87	84	107.66	0.98
B-7	0.25	1.96	101	88	84	109.52	0.96
B-6	0.24	1.89	101	89	84	111.35	1.00
B-5	0.21	1.65	102	89	85	113.22	1.02
B-4	0.20	1.57	102	89	85	115.00	1.01
B-3	0.19	1.49	102	90	85	116.71	1.00
B-2	0.18	1.42	102	91	85	118.37	1.02
B-1	0.19	1.49	102	91	85	120.02	1.01
						121.70	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 3*

Pinnacle Pellet

Dryer Stack 2

Williams Lake, BC

19-May-21

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (° F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (° F)	TEMP OUT (° F)			
A-12	0.21	1.62	86	83	85	22.50	1.00
A-11	0.19	1.47	89	84	85	24.21	1.01
A-10	0.18	1.39	92	85	86	25.85	1.02
A-9	0.18	1.39	95	86	86	27.48	1.00
A-8	0.17	1.32	96	87	86	29.07	1.00
A-7	0.19	1.48	97	88	86	30.62	0.98
A-6	0.2	1.56	98	89	86	32.24	1.04
A-5	0.21	1.64	98	90	86	34.00	1.02
A-4	0.22	1.71	99	90	86	35.77	1.00
A-3	0.22	1.71	100	90	87	37.55	0.98
A-2	0.23	1.80	101	90	87	39.29	1.07
A-1	0.24	1.87	102	91	89	41.23	1.01
B-12	0.25	1.96	104	92	89	43.11	0.98
B-11	0.25	1.96	103	92	88	44.98	0.99
B-10	0.25	1.96	103	92	88	46.87	0.98
B-9	0.24	1.88	103	92	88	48.74	1.04
B-8	0.24	1.88	103	93	89	50.68	0.97
B-7	0.21	1.64	104	93	89	52.49	1.05
B-6	0.19	1.49	105	94	88	54.33	1.02
B-5	0.19	1.50	107	94	88	56.02	1.07
B-4	0.18	1.42	108	94	88	57.80	1.00
B-3	0.18	1.42	108	95	88	59.42	1.01
B-2	0.20	1.58	109	95	88	61.07	0.99
B-1	0.22	1.74	110	95	87	62.77	0.99
						64.55	

MCCALL ENVIRONMENTAL

Pinnacle Pellet
Dryer Stack 2
Pinnacle Pellet

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 1.001**

Delta P:	**0.214**	**"H_2O**	**Us avg:**	**27.09 ft/sec**
Delta H:	**1.598**		**ACFM:**	**51199 ft^3/min**
Tm avg:	**530.0**	**^oR**	**SDCFM:**	**45939 ft^3/min**
Ts avg:	**538.7**	**^oR**	**Vm std:**	**38.78 ft^3**
Bwo:	**0.030**		**Vm corr:**	**41.05 ft^3**
Md:	**28.84**		**Vm:**	**40.55 ft^3**
Ms:	**28.52**		**MF:**	**1.0124**
Pb:	**28.25**	**"Hg**	**PCON:**	**8.11 mg/m^3**
Pm:	**28.37**	**"Hg**	**ERAT:**	**0.63 kg/hr**
Ps:	**28.23**	**"Hg**		

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 1.008**

Delta P:	**0.209**	**"H_2O**	**Us avg:**	**26.93 ft/sec**
Delta H:	**1.636**		**ACFM:**	**50899 ft^3/min**
Tm avg:	**549.9**	**^oR**	**SDCFM:**	**45212 ft^3/min**
Ts avg:	**543.5**	**^oR**	**Vm std:**	**38.43 ft^3**
Bwo:	**0.031**		**Vm corr:**	**42.21 ft^3**
Md:	**28.84**		**Vm:**	**41.69 ft^3**
Ms:	**28.50**		**MF:**	**1.0124**
Pb:	**28.25**	**"Hg**	**PCON:**	**7.35 mg/m^3**
Pm:	**28.37**	**"Hg**	**ERAT:**	**0.56 kg/hr**
Ps:	**28.23**	**"Hg**		

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 1.010**

Delta P:	**0.209**	**"H_2O**	**Us avg:**	**27.03 ft/sec**
Delta H:	**1.641**		**ACFM:**	**51096 ft^3/min**
Tm avg:	**555.7**	**^oR**	**SDCFM:**	**45028 ft^3/min**
Ts avg:	**547.2**	**^oR**	**Vm std:**	**38.35 ft^3**
Bwo:	**0.032**		**Vm corr:**	**42.57 ft^3**
Md:	**28.84**		**Vm:**	**42.05 ft^3**
Ms:	**28.49**		**MF:**	**1.0124**
Pb:	**28.25**	**"Hg**	**PCON:**	**8.84 mg/m^3**
Pm:	**28.37**	**"Hg**	**ERAT:**	**0.68 kg/hr**
Ps:	**28.23**	**"Hg**		

MCCALL ENVIRONMENTAL

Pinnacle Pellet **19-May-21**
Dryer Stack 3 **Permit Number: RA-17557**
Williams Lake **AVERAGE OF AIR EMISSION TESTS 1 TO 3**

Gas Temperature:	88 ^{o} F	31 ^{o} C
Moisture Content (by volume):	2.91 %	
Average Stack Gas Velocity:	25.8 ft/sec	7.9 m/sec
Total Actual Gas Flow Rate:	48852 ACFM	
Dry Gas flow Rate at Reference Conditions:	43169 SCFM	20.4 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.005 gr/ft^3	12.08 mg/m^3
Front Half Particulate	0.003 gr/ft^3	7.9 mg/m^3
Back Half Condensibles	0.002 gr/ft^3	4.2 mg/m^3
Mass Emission Rate	1.97 lbs/hr	0.89 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	80 ^{o} F	26 ^{o} C
Moisture Content (by volume):	2.9 %	
Average Stack Gas Velocity:	26.6 ft/sec	8.1 m/sec
Total Actual Gas Flow Rate:	50275 ACFM	
Dry Gas flow Rate at Reference Conditions:	45110 SCFM	21.3 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.006 gr/ft^3	14.6 mg/m^3
Front Half Particulate	.004 gr/ft^3	9.5 mg/m^3
Back Half Condensibles	.002 gr/ft^3	5.0 mg/m^3
Mass Emission Rate	2.46 lbs/hr	1.12 kg/hr

TEST 2:

Gas Temperature:	91 ^{o} F	33 ^{o} C
Moisture Content (by volume):	2.7 %	
Average Stack Gas Velocity:	25.8 ft/sec	7.9 m/sec
Total Actual Gas Flow Rate:	48790 ACFM	
Dry Gas flow Rate at Reference Conditions:	42901 SCFM	20.2 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.005 gr/ft^3	12.5 mg/m^3
Front Half Particulate	.004 gr/ft^3	8.3 mg/m^3
Back Half Condensibles	.002 gr/ft^3	4.2 mg/m^3
Mass Emission Rate	2.01 lbs/hr	0.91 kg/hr

TEST 3:

Gas Temperature:	93 ^{o} F	34 ^{o} C
Moisture Content (by volume):	3.1 %	
Average Stack Gas Velocity:	25.1 ft/sec	7.7 m/sec
Total Actual Gas Flow Rate:	47492 ACFM	
Dry Gas flow Rate at Reference Conditions:	41495 SCFM	19.6 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.004 gr/ft^3	9.2 mg/m^3
Front Half Particulate	.003 gr/ft^3	5.9 mg/m^3
Back Half Condensibles	.001 gr/ft^3	3.3 mg/m^3
Mass Emission Rate	1.43 lbs/hr	0.65 kg/hr

DATA FOR TESTS 1 TO 3

Client:	**Pinnacle Pellet**		
Plant Location:	**Williams Lake**		
Process:	**Dryer Stack 3**		
Permit Number:	**RA-17557**		
Job Number:	**ME2021-188**		
Pollution Control Permit:	**15.0**	**mg/m3**	22.5 **m3/sec**
Number of Tests:	**3**	**tests**	
Minutes per Point:	**2.5**	**minutes**	

	TEST 1	TEST 2	TEST 3
Filter Number:	L26	27	28
Date of Test:	19-May-21	19-May-21	19-May-21
Start Time:	13:13	14:20	15:33
Stop Time:	14:17	15:23	16:36
On-line Sampling Time:	60	60	60
Testing Personnel:	DL/NA	DL/NA	DL/NA
Sampler Model:	1013	1013	1013
Barometric Pressure("Hg):	28.25	28.25	28.25
Static Pressure("H_2O):	-0.11	-0.11	-0.11
%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:	0.991	0.991	0.991
Type-S Pitot Tube Coefficient:	0.83446	0.83446	0.83446
Cross Sectional Area of Stack(ft^2):	31.5	31.5	31.5
Impinger Condensate(g):	18	16	17
Weight of Moisture in Silica Gel(g):	4.1	3.9	5.2
Weight of Filter Particulate(g):	0.0003	0.0002	0.0004
Weight of Probe Washings(g):	0.0092	0.0077	0.0050
Weight of Impinger Content Organic(g):	0.0050	0.0040	0.0030
Total Weight of Particulate(g):	0.0145	0.0119	0.0084

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 1*

Pinnacle Pellet

Dryer Stack 3

Williams Lake

19-May-21

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP ($^{\circ}$ F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN ($^{\circ}$ F)	TEMP OUT ($^{\circ}$ F)			
A-12	0.22	1.44	68	69	70	0.00	0.99
A-11	0.20	1.30	64	68	72	1.62	1.03
A-10	0.19	1.24	64	69	70	3.22	1.03
A-9	0.20	1.30	65	69	73	4.78	0.97
A-8	0.18	1.16	66	68	75	6.29	0.99
A-7	0.21	1.37	68	69	73	7.75	0.98
A-6	0.20	1.30	70	70	74	9.31	1.00
A-5	0.18	1.18	72	72	75	10.87	1.01
A-4	0.19	1.24	72	72	75	12.36	0.98
A-3	0.20	1.30	74	73	77	13.85	1.02
A-2	0.21	1.38	77	77	78	15.45	0.96
A-1	0.21	1.38	78	78	79	17.00	1.03
B-12	0.22	1.44	79	79	81	18.66	1.05
B-11	0.18	1.18	80	80	82	20.40	0.94
B-10	0.20	1.31	81	84	84	21.80	0.95
B-9	0.18	1.18	81	80	83	23.30	1.00
B-8	0.19	1.24	84	83	86	24.80	0.98
B-7	0.20	1.31	84	83	85	26.31	0.97
B-6	0.21	1.38	86	86	86	27.85	1.02
B-5	0.22	1.44	85	86	86	29.50	1.06
B-4	0.25	1.64	86	86	86	31.26	0.92
B-3	0.25	1.64	86	86	86	32.89	0.96
B-2	0.24	1.58	87	87	86	34.59	0.98
B-1	0.27	1.77	87	87	86	36.30	0.98
						38.11	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 2*

Pinnacle Pellet

Dryer Stack 3

Williams Lake

19-May-21

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (° F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (° F)	TEMP OUT (° F)			
B-12	0.21	1.37	90	90	93	0.00	1.02
B-11	0.21	1.37	85	87	91	1.66	1.00
B-10	0.20	1.30	86	87	90	3.28	1.01
B-9	0.19	1.24	86	86	90	4.88	0.99
B-8	0.18	1.18	86	87	89	6.41	0.99
B-7	0.18	1.18	86	87	88	7.90	1.05
B-6	0.19	1.24	88	89	92	9.48	0.99
B-5	0.20	1.31	89	89	91	11.01	1.02
B-4	0.19	1.24	89	89	91	12.63	1.01
B-3	0.18	1.18	89	90	91	14.20	0.99
B-2	0.18	1.18	90	90	91	15.70	0.99
B-1	0.17	1.12	91	90	91	17.20	0.99
A-12	0.18	1.18	90	91	91	18.66	1.12
A-11	0.20	1.31	89	91	91	20.35	0.92
A-10	0.19	1.25	91	91	91	21.81	1.02
A-9	0.18	1.18	91	92	93	23.40	0.95
A-8	0.20	1.31	92	92	93	24.84	0.98
A-7	0.21	1.38	92	92	93	26.41	0.98
A-6	0.21	1.38	92	93	92	28.01	0.99
A-5	0.20	1.31	93	94	93	29.63	0.99
A-4	0.20	1.31	93	93	94	31.22	0.99
A-3	0.19	1.25	93	94	92	32.80	1.00
A-2	0.18	1.18	93	95	93	34.37	1.00
A-1	0.18	1.19	92	94	91	35.89	0.97
						37.37	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 3*

Pinnacle Pellet

Dryer Stack 3

Williams Lake

19-May-21

SAMPLE POINT	VELOCITY HEAD ("H_2O)	ORIFICE PRESSURE ("H_2O)	DRY GAS METER		STACK GAS TEMP (° F)	GAS SAMPLE VOLUME (ft^3)	ISOKINETICS
			TEMP IN (° F)	TEMP OUT (° F)			
A-12	0.19	1.25	96	96	95	0.00	0.98
A-11	0.18	1.18	90	94	94	1.53	0.98
A-10	0.16	1.05	89	93	91	3.01	1.05
A-9	0.16	1.06	90	93	91	4.51	0.93
A-8	0.18	1.18	90	92	93	5.83	1.00
A-7	0.19	1.25	92	94	93	7.33	0.99
A-6	0.2	1.31	92	92	92	8.86	1.00
A-5	0.2	1.31	92	90	92	10.45	0.99
A-4	0.19	1.25	92	92	92	12.03	0.97
A-3	0.17	1.11	91	91	92	13.54	1.02
A-2	0.18	1.18	91	92	93	15.04	1.00
A-1	0.17	1.11	90	91	92	16.55	0.99
B-12	0.16	1.05	91	93	91	18.00	1.03
B-11	0.16	1.05	90	92	91	19.47	0.97
B-10	0.19	1.25	91	93	93	20.85	0.94
B-9	0.21	1.38	92	93	92	22.31	1.01
B-8	0.23	1.51	93	95	92	23.96	0.98
B-7	0.21	1.37	94	95	94	25.64	0.98
B-6	0.18	1.18	94	95	94	27.24	0.98
B-5	0.17	1.11	93	95	96	28.72	0.99
B-4	0.18	1.18	93	94	93	30.17	0.98
B-3	0.17	1.12	94	94	92	31.65	0.98
B-2	0.16	1.05	93	92	91	33.09	0.98
B-1	0.16	1.05	93	93	91	34.49	0.99
						35.91	

MCCALL ENVIRONMENTAL

Pinnacle Pellet
Dryer Stack 3
Pinnacle Pellet

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 0.993**

Delta P:	**0.208**	**"H_2O**	**Us avg:**	**26.60 ft/sec**
Delta H:	**1.363**		**ACFM:**	**50275 ft^3/min**
Tm avg:	**537.2**	**^oR**	**SDCFM:**	**45110 ft^3/min**
Ts avg:	**539.5**	**^oR**	**Vm std:**	**35.17 ft^3**
Bwo:	**0.029**		**Vm corr:**	**37.77 ft^3**
Md:	**28.84**		**Vm:**	**38.11 ft^3**
Ms:	**28.53**		**MF:**	**0.9910**
Pb:	**28.25**	**"Hg**	**PCON:**	**14.56 mg/m^3**
Pm:	**28.35**	**"Hg**	**ERAT:**	**1.12 kg/hr**
Ps:	**28.24**	**"Hg**		

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 0.999**

Delta P:	**0.191**	**"H_2O**	**Us avg:**	**25.81 ft/sec**
Delta H:	**1.256**		**ACFM:**	**48790 ft^3/min**
Tm avg:	**550.2**	**^oR**	**SDCFM:**	**42901 ft^3/min**
Ts avg:	**551.5**	**^oR**	**Vm std:**	**33.67 ft^3**
Bwo:	**0.027**		**Vm corr:**	**37.03 ft^3**
Md:	**28.84**		**Vm:**	**37.37 ft^3**
Ms:	**28.55**		**MF:**	**0.9910**
Pb:	**28.25**	**"Hg**	**PCON:**	**12.48 mg/m^3**
Pm:	**28.34**	**"Hg**	**ERAT:**	**0.91 kg/hr**
Ps:	**28.24**	**"Hg**		

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 0.988**

Delta P:	**0.181**	**"H_2O**	**Us avg:**	**25.13 ft/sec**
Delta H:	**1.189**		**ACFM:**	**47492 ft^3/min**
Tm avg:	**552.5**	**^oR**	**SDCFM:**	**41495 ft^3/min**
Ts avg:	**552.5**	**^oR**	**Vm std:**	**32.21 ft^3**
Bwo:	**0.031**		**Vm corr:**	**35.59 ft^3**
Md:	**28.84**		**Vm:**	**35.91 ft^3**
Ms:	**28.50**		**MF:**	**0.9910**
Pb:	**28.25**	**"Hg**	**PCON:**	**9.21 mg/m^3**
Pm:	**28.34**	**"Hg**	**ERAT:**	**0.65 kg/hr**
Ps:	**28.24**	**"Hg**		

MCCALL ENVIRONMENTAL

Pinnacle Pellet **19-May-21**
Dryer Stack 4 **Permit Number: RA-17557**
Williams Lake **AVERAGE OF AIR EMISSION TESTS 1 TO 3**

Gas Temperature:	94 ^{o} F	35 ^{o} C
Moisture Content (by volume):	4.16 %	
Average Stack Gas Velocity:	24.0 ft/sec	7.3 m/sec
Total Actual Gas Flow Rate:	45286 ACFM	
Dry Gas flow Rate at Reference Conditions:	39031 SCFM	18.4 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	0.007 gr/ft^3	15.75 mg/m^3
Front Half Particulate	0.005 gr/ft^3	11.8 mg/m^3
Back Half Condensibles	0.002 gr/ft^3	4.0 mg/m^3
Mass Emission Rate	2.30 lbs/hr	1.05 kg/hr

SUMMARY OF AIR EMISSION TESTS

TEST 1:

Gas Temperature:	86 ^{o} F	30 ^{o} C
Moisture Content (by volume):	5.7 %	
Average Stack Gas Velocity:	23.7 ft/sec	7.2 m/sec
Total Actual Gas Flow Rate:	44727 ACFM	
Dry Gas flow Rate at Reference Conditions:	38474 SCFM	18.2 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.006 gr/ft^3	14.4 mg/m^3
Front Half Particulate	.005 gr/ft^3	10.5 mg/m^3
Back Half Condensibles	.002 gr/ft^3	3.9 mg/m^3
Mass Emission Rate	2.08 lbs/hr	0.94 kg/hr

TEST 2:

Gas Temperature:	97 ^{o} F	36 ^{o} C
Moisture Content (by volume):	3.9 %	
Average Stack Gas Velocity:	23.9 ft/sec	7.3 m/sec
Total Actual Gas Flow Rate:	45257 ACFM	
Dry Gas flow Rate at Reference Conditions:	38907 SCFM	18.4 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.007 gr/ft^3	15.1 mg/m^3
Front Half Particulate	.005 gr/ft^3	11.1 mg/m^3
Back Half Condensibles	.002 gr/ft^3	4.0 mg/m^3
Mass Emission Rate	2.20 lbs/hr	1.00 kg/hr

TEST 3:

Gas Temperature:	99 ^{o} F	37 ^{o} C
Moisture Content (by volume):	2.9 %	
Average Stack Gas Velocity:	24.3 ft/sec	7.4 m/sec
Total Actual Gas Flow Rate:	45872 ACFM	
Dry Gas flow Rate at Reference Conditions:	39711 SCFM	18.7 m^3/sec
Total Particulate Concentration:		
Dry Basis Actual at Reference Conditions	.008 gr/ft^3	17.7 mg/m^3
Front Half Particulate	.006 gr/ft^3	13.7 mg/m^3
Back Half Condensibles	.002 gr/ft^3	4.0 mg/m^3
Mass Emission Rate	2.63 lbs/hr	1.19 kg/hr

DATA FOR TESTS 1 TO 3

Client:	Pinnacle Pellet		
Plant Location:	Williams Lake		
Process:	Dryer Stack 4		
Permit Number:	RA-17557		
Job Number:	ME2021-188		
Pollution Control Permit:	**15.0** mg/m3	22.5	m3/sec
Number of Tests:	**3** tests		
Minutes per Point:	**2.5** minutes		

	TEST 1	TEST 2	TEST 3
Filter Number:	L23	24	25
Date of Test:	19-May-21	19-May-21	19-May-21
Start Time:	12:30	14:03	15:09
Stop Time:	14:00	15:04	16:10
On-line Sampling Time:	60	60	60
Testing Personnel:	DB	DB	DB
Sampler Model:	1021	1021	1021
Barometric Pressure("Hg):	28.25	28.25	28.25
Static Pressure("H_2O):	-0.15	-0.15	-0.15
%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):	0.295	0.295	0.295
Meter Factor:	1.0124	1.0124	1.0124
Type-S Pitot Tube Coefficient:	0.83829	0.83829	0.83829
Cross Sectional Area of Stack(ft^2):	31.5	31.5	31.5
Impinger Condensate(g):	41	26	17
Weight of Moisture in Silica Gel(g):	5.2	3.9	5.7
Weight of Filter Particulate(g):	0.0002	0.0003	0.0004
Weight of Probe Washings(g):	0.0105	0.0107	0.0133
Weight of Impinger Content Organic(g):	0.0040	0.0040	0.0040
Total Weight of Particulate(g):	0.0147	0.0150	0.0177

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 1*
Pinnacle Pellet
Dryer Stack 4
Williams Lake

19-May-21

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	0.17	1.46	81	81	96	65.00	1.06
A-11	0.18	1.55	81	81	95	66.68	1.00
A-10	0.14	1.21	82	81	95	68.32	1.05
A-9	0.14	1.21	83	81	94	69.83	1.04
A-8	0.15	1.30	83	81	94	71.33	1.06
A-7	0.16	1.39	84	81	91	72.91	1.03
A-6	0.15	1.33	81	75	78	74.50	1.05
A-5	0.12	1.06	82	76	78	76.08	1.01
A-4	0.14	1.24	84	76	80	77.44	1.07
A-3	0.14	1.24	86	76	80	79.00	1.01
A-2	0.13	1.15	86	76	81	80.48	1.08
A-1	0.13	1.15	86	76	82	82.00	1.05
B-12	0.21	1.85	88	78	84	83.47	1.02
B-11	0.20	1.77	90	80	82	85.29	1.02
B-10	0.20	1.78	91	81	83	87.07	1.05
B-9	0.17	1.52	93	82	82	88.91	1.02
B-8	0.19	1.70	97	82	84	90.57	1.03
B-7	0.16	1.44	97	84	84	92.35	1.04
B-6	0.16	1.44	97	88	83	94.00	1.03
B-5	0.14	1.26	98	88	83	95.63	1.01
B-4	0.15	1.39	97	87	88	97.14	1.03
B-3	0.15	1.39	97	88	90	98.71	1.05
B-2	0.17	1.53	97	88	91	100.32	1.03
B-1	0.19	1.68	97	89	94	102.00	1.02
						103.75	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 2*
Pinnacle Pellet
Dryer Stack 4
Williams Lake

19-May-21

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	0.19	1.57	85	84	100	4.00	1.00
A-11	0.19	1.57	89	85	99	5.70	1.00
A-10	0.15	1.25	91	87	99	7.42	1.03
A-9	0.14	1.18	94	88	98	9.00	0.97
A-8	0.15	1.27	97	88	98	10.44	1.01
A-7	0.16	1.36	99	89	98	12.00	0.99
A-6	0.15	1.27	99	89	98	13.58	1.00
A-5	0.13	1.11	100	90	98	15.12	0.97
A-4	0.13	1.11	101	90	98	16.52	0.98
A-3	0.14	1.19	101	91	97	17.93	0.99
A-2	0.13	1.11	101	91	97	19.41	0.97
A-1	0.13	1.11	100	90	96	20.82	1.00
B-12	0.20	1.71	99	91	96	22.26	0.99
B-11	0.20	1.71	98	91	96	24.03	0.98
B-10	0.19	1.63	103	93	96	25.79	1.00
B-9	0.18	1.54	103	93	96	27.54	1.00
B-8	0.19	1.63	104	94	97	29.25	1.00
B-7	0.17	1.46	104	94	98	31.00	1.01
B-6	0.17	1.46	105	94	98	32.67	1.00
B-5	0.15	1.29	106	95	98	34.33	1.00
B-4	0.14	1.21	105	95	96	35.90	1.00
B-3	0.15	1.29	105	95	96	37.41	1.01
B-2	0.17	1.46	105	98	96	39.00	0.99
B-1	0.18	1.55	105	98	96	40.66	1.03
						42.44	

MCCALL ENVIRONMENTAL

Sampling Data for - *TEST 3*
Pinnacle Pellet
Dryer Stack 4
Williams Lake

19-May-21

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	0.18	1.12	91	92	89	42.64	1.00
A-11	0.19	1.63	94	93	91	44.36	0.97
A-10	0.16	1.38	97	94	92	46.07	0.98
A-9	0.15	1.30	100	94	92	47.66	0.95
A-8	0.15	1.30	101	94	93	49.15	1.00
A-7	0.16	1.38	102	93	94	50.72	0.99
A-6	0.16	1.38	103	94	95	52.33	1.04
A-5	0.15	1.29	103	94	96	54.03	0.96
A-4	0.14	1.20	104	94	96	55.54	0.96
A-3	0.14	1.20	104	96	97	57.00	0.97
A-2	0.17	1.44	104	97	97	58.48	1.07
A-1	0.17	1.44	103	97	99	60.28	1.04
B-12	0.20	1.70	103	97	100	62.02	0.95
B-11	0.19	1.62	103	96	101	63.74	1.00
B-10	0.19	1.62	103	96	101	65.50	0.97
B-9	0.19	1.62	103	97	104	67.21	0.92
B-8	0.18	1.53	104	97	105	68.83	0.96
B-7	0.17	1.44	106	97	105	70.47	0.96
B-6	0.17	1.44	107	97	104	72.08	0.92
B-5	0.16	1.37	107	97	103	73.62	0.94
B-4	0.15	1.28	107	97	104	75.15	0.99
B-3	0.14	1.19	107	97	104	76.70	1.05
B-2	0.15	1.28	107	98	104	78.30	1.02
B-1	0.17	1.45	107	98	104	79.91	1.03
						81.63	

MCCALL ENVIRONMENTAL

Pinnacle Pellet
Dryer Stack 4
Pinnacle Pellet

Data for ***TEST 1*** **OVERALL ISOKINETICS - TEST 1 1.035**

Delta P:	**0.159**	**"H_2O**	**Us avg:**	**23.67 ft/sec**
Delta H:	**1.418**		**ACFM:**	**44727 ft^3/min**
Tm avg:	**545.3**	**^oR**	**SDCFM:**	**38474 ft^3/min**
Ts avg:	**546.3**	**^oR**	**Vm std:**	**35.99 ft^3**
Bwo:	**0.057**		**Vm corr:**	**39.23 ft^3**
Md:	**28.84**		**Vm:**	**38.75 ft^3**
Ms:	**28.22**		**MF:**	**1.0124**
Pb:	**28.25**	**"Hg**	**PCON:**	**14.42 mg/m^3**
Pm:	**28.35**	**"Hg**	**ERAT:**	**0.94 kg/hr**
Ps:	**28.24**	**"Hg**		

Data for ***TEST 2*** **OVERALL ISOKINETICS - TEST 2 0.996**

Delta P:	**0.161**	**"H_2O**	**Us avg:**	**23.95 ft/sec**
Delta H:	**1.377**		**ACFM:**	**45257 ft^3/min**
Tm avg:	**555.7**	**^oR**	**SDCFM:**	**38907 ft^3/min**
Ts avg:	**557.3**	**^oR**	**Vm std:**	**35.04 ft^3**
Bwo:	**0.039**		**Vm corr:**	**38.92 ft^3**
Md:	**28.84**		**Vm:**	**38.44 ft^3**
Ms:	**28.42**		**MF:**	**1.0124**
Pb:	**28.25**	**"Hg**	**PCON:**	**15.12 mg/m^3**
Pm:	**28.35**	**"Hg**	**ERAT:**	**1.00 kg/hr**
Ps:	**28.24**	**"Hg**		

Data for ***TEST 3*** **OVERALL ISOKINETICS - TEST 3 0.984**

Delta P:	**0.165**	**"H_2O**	**Us avg:**	**24.27 ft/sec**
Delta H:	**1.400**		**ACFM:**	**45872 ft^3/min**
Tm avg:	**559.3**	**^oR**	**SDCFM:**	**39711 ft^3/min**
Ts avg:	**558.8**	**^oR**	**Vm std:**	**35.31 ft^3**
Bwo:	**0.029**		**Vm corr:**	**39.47 ft^3**
Md:	**28.84**		**Vm:**	**38.99 ft^3**
Ms:	**28.52**		**MF:**	**1.0124**
Pb:	**28.25**	**"Hg**	**PCON:**	**17.70 mg/m^3**
Pm:	**28.35**	**"Hg**	**ERAT:**	**1.19 kg/hr**
Ps:	**28.24**	**"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)

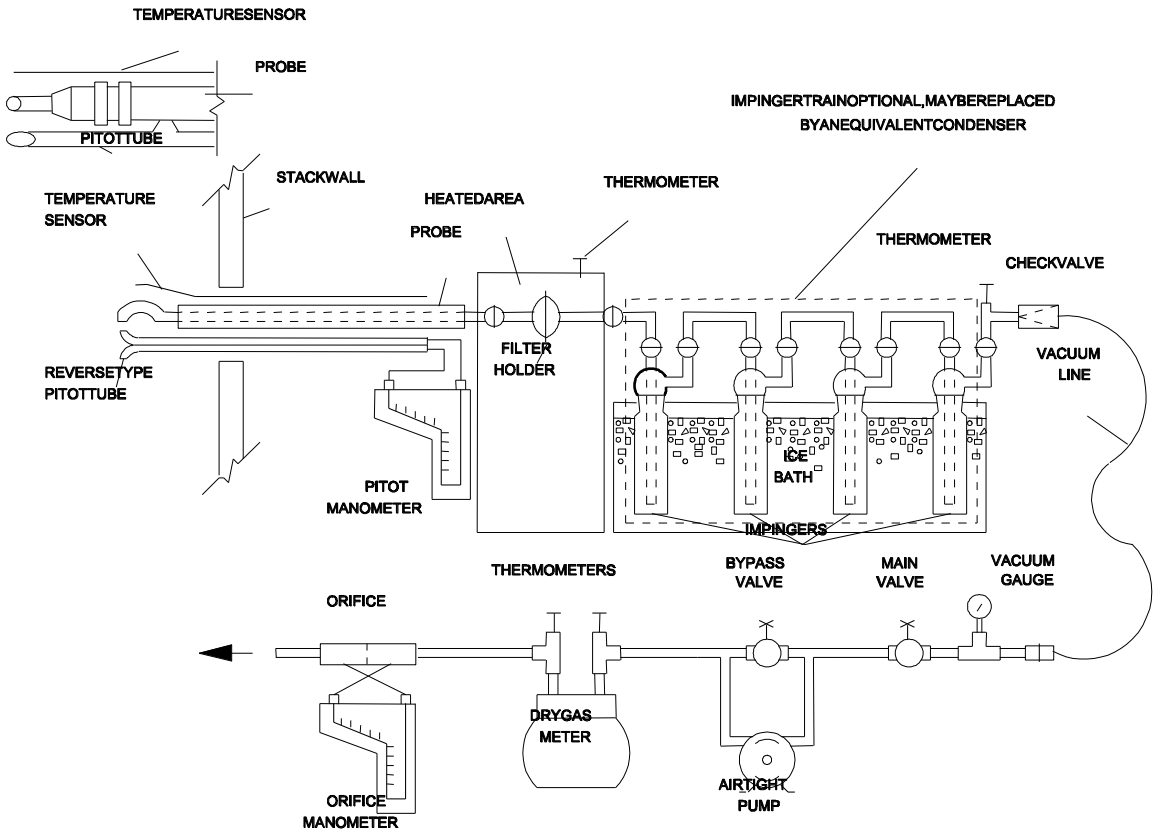
O_2, CO_2, and CO were found using either Fuji Analytical Analyzer by means of infrared and paramagnetic technology (EPA 3A) or by fyrite (EPA Method 3).

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

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_l = 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: 05-Jan-21

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
DRY GAS METER

DATE: 17-Jan-21

CONSOLE MANUF.: NAPP MODEL 31

CONSOLE I.D.: C-1021

PARAMETER SUMMARY	RUN #1	RUN #2	RUN #3
Ta = Ambient (WTM) Temperature (oF.)	62.0	62.0	62.0
P=Pres. Differential at WTM ("Hg)	0.0662	0.1250	0.1839
Pb= Atmospheric Pressure ("Hg)	28.80	28.80	28.80
Pv= Vapour Pressure Water at Temp. Ta ("Hg)	0.5598	0.5598	0.5598
H=Pres. Differential at Orifice	1.0	2.0	3.0
Ti= Dry Test Meter Inlet Temp. (oF.)	89.8	92.0	95.9
To= Dry Test Meter Outlet Temp. (oF.)	79.9	83.0	84.9
Ri= Initial Dry Test volume (ft3)	103.76	97.29	109.79
Rf= Final Dry Test Volume (ft3)	108.72	102.30	114.80
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	28.7338	28.6750	28.6161
Pd= Pb + (^H/13.59) "Hg	28.8736	28.9472	29.0208
Tw= Ta +460 (oR.)	522.0	522.0	522.0
Td= [(Ti + To)/2] + 460 (oR.)	544.9	547.5	550.4
Bw= Pv/Pb ("Hg)	0.0194	0.0194	0.0194
WET TEST METER FACTOR (WTMF)	0.9922	0.9922	0.9922
(Calculated Y Value)(WTMF)	1.0187	1.0088	1.0095

Y (MEAN)(WTMF) = 1.0124

MCCALL ENVIRONMENTAL

Calibrating Technician Signature: 

ORIFICE METER CALIBRATION

DATE: 17-Jan-21

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	28.8	28.8	28.8
Y=gas meter factor	1.0187	1.0187	1.0088
Delta H=	0.5	1	1.5
Ri=int. gas meter vol.	102.11	104.21	107.11
Rf=final gas meter vol.	103.98	106.81	110.31
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.3809938	0.529724	0.645632
To=meter outlet Temp (oF)	84	85	85
Tm=meter out temp. (oR)	544	545	545
Pm=Pb + ^H	28.836792	28.873584	28.910375
SQRT(Tm/Pm*H/Md)	0.5706361	0.8072279	0.9880189
Ko=orifice const.	0.6676651	0.6562261	0.6534612

Ko MEAN = 0.6591175

Ko*4*144= 379.65166

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: 17-Jan-21

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	28.8	28.8	28.8
Y=gas meter factor	1.0088	1.0095	1.0095
Delta H=	2	2.5	3
Ri=int. gas meter vol.	10.51	14.81	19.51
Rf=final gas meter vol.	14.27	19.07	24.17
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.7586176	0.860094	0.940854
To=meter outlet Temp (oF)	91	91	91
Tm=meter out temp. (oR)	551	551	551
Pm=Pb + ^H	28.947167	28.983959	29.020751
SQRT(Tm/Pm*H/Md)	1.1463995	1.2808999	1.4022658
Ko=orifice const.	0.6617393	0.6714764	0.6709527

Ko MEAN = 0.6680561

Ko*4*144= 384.80031

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

Calibration Certificate for S-Type Pitot Tube

Date: 17-Jan-21 *Barometric Pressure ("Hg):* 28.25

Pitot I.D.: **248** *Wind Tunnel Temperature (^{O}F):* 71.0

Nozzle: .

Wind Velocity (ft/sec)	*Ref.Pitot ("H_2O)*	*S-Type Pitot ("H_2O)*	*Pitot Factor*
12.83	0.03545	0.04995	0.83396
20.47	0.09017	0.12459	0.84223
41.56	0.37165	0.53192	0.82753
64.49	0.89496	1.25108	0.83732
83.83	1.51225	2.12472	0.83521
106.66	2.44834	3.47904	0.83050

Average= 0.83446

Note: The new pitot tip should be installed so that the serial number engra

CALIBRATION CERTIFICATE
DRY GAS METER

DATE: Jan 4/21

CONSOLE MANUF.: NAPP/MILLENNIUM MODEL 32

CONSOLE I.D.: MU 1013

PARAMETER SUMMARY	RUN #1	RUN #2	RUN #3
Ta = Ambient (WTM) Temperature (oF.)	52.0	52.0	52.0
P=Pres. Differential at WTM ("Hg)	0.0677	0.1325	0.1840
Pb= Atmospheric Pressure ("Hg)	27.85	27.85	27.85
Pv= Vapour Pressure Water at Temp. Ta ("Hg)	0.3761	0.3761	0.3761
H=Pres. Differential at Orifice	1.0	2.0	3.0
Ti= Dry Test Meter Inlet Temp. (oF.)	75.0	70.0	76.0
To= Dry Test Meter Outlet Temp. (oF.)	76.0	70.0	77.0
Ri= Initial Dry Test volume (ft3)	0.00	0.00	0.00
Rf= Final Dry Test Volume (ft3)	5.15	5.03	5.12
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	27.7823	27.7175	27.6660
Pd= Pb + (^H/13.59) "Hg	27.9236	27.9972	28.0708
Tw= Ta +460 (oR.)	512.0	512.0	512.0
Td= [(Ti + To)/2] + 460 (oR.)	535.5	530.0	536.5
Bw= Pv/Pb ("Hg)	0.0135	0.0135	0.0135
WET TEST METER FACTOR (WTMF)	0.9922	0.9922	0.9922
ated Y Value)(WTMF)	0.9889	0.9971	0.9872

Y (MEAN)(WTMF) = 0.9910

N.R. MCCALL & ASSOCIATES LTD.

Calibrating Technician Signature:

ORIFICE METER CALIBRATION

DATE: Jan 5/21

CONSOLE I.D. MU 1012

	RUN 1	RUN 2	RUN 3
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	27.85	27.85	27.85
Y=gas meter factor	0.9819	0.9819	0.9988
Delta H=	0.5	1	1.5
Ri=int. gas meter vol.	0	0	0
Rf=final gas meter vol.	1.9	2.77	3.44
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.373122	0.5439726	0.6871744
To=meter outlet Temp (oF)	75	75	77
Tm=meter out temp. (oR)	535	535	537
Pm=Pb + ^H	27.886792	27.9235835	27.9603753
SQRT(Tm/Pm*H/Md)	0.5754543	0.81327899	0.99726256
Ko=orifice const.	0.6483955	0.66886346	0.68906066

Ko MEAN = 0.6687732

Ko*4*144= 385.21337

McCALL ENVIRONMENTAL LTD

Calibrating Technician Signature 

ORIFICE METER CALIBRATION

DATE: Jan 5/21

CONSOLE I.D. MU 1012

	RUN 4	RUN 5	RUN 6
MD= mol. wt. dry air	28.967	28.967	28.967
Pb=bar. pressure "Hg	27.85	27.85	27.85
Y=gas meter factor	0.9988	1.0061	1.0061
Delta H=	2	2.5	3
Ri=int. gas meter vol.	0	0	0
Rf=final gas meter vol.	3.94	4.36	4.78
min. samp	5	5	5
Qm=Y(Rf-Ri)/^T(FT3/MIN)	0.7870544	0.8773192	0.9618316
To=meter outlet Temp (oF)	77	76	76
Tm=meter out temp. (oR)	537	536	536
Pm=Pb + ^H	27.997167	28.0339588	28.0707506
SQRT(Tm/Pm*H/Md)	1.1507827	1.28457192	1.40625555
Ko=orifice const.	0.6839296	0.6829662	0.68396644

Ko MEAN = 0.6836208

Ko*4*144= 393.76555

McCALL ENVIRONMENTAL LTD.

Calibrating Technician Signature:

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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: NA/DB/DL
Company:

Project ID:
Project Name: Pinnacle Pellet
Project Location: Williams Lake
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1494303**
Control Number:
Date Received: May 25, 2021
Date Reported: May 28, 2021
Report Number: 2625856

Reference Number	1494303-1	1494303-2	1494303-3
Sample Date			
Sample Time			
Sample Location			
Sample Description	Dryer Stack 1 / Test 1	Dryer Stack 1 / Test 2	Dryer Stack 1 / Test 3
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	4	5	3	2
Volume	Sample volume	mL	330	310	320	
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
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Attn: Accounts Payable
Sampled By: NA/DB/DL
Company:

Project ID:
Project Name: Pinnacle Pellet
Project Location: Williams Lake
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1494303**
Control Number:
Date Received: May 25, 2021
Date Reported: May 28, 2021
Report Number: 2625856

Reference Number	1494303-4	1494303-5	1494303-6
Sample Date			
Sample Time			
Sample Location			
Sample Description	Dryer Stack 2 / Test 1	Dryer Stack 2 / Test 2	Dryer Stack 2 / Test 3
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	330	340	280	
pH adjustment	required prior to O&G extraction		Yes	Yes	Yes	

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Analytical Report

Bill To: McCall Environmental
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Coldstream, BC, Canada
V1B 3C5
Attn: Accounts Payable
Sampled By: NA/DB/DL
Company:

Project ID:
Project Name: Pinnacle Pellet
Project Location: Williams Lake
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1494303**
Control Number:
Date Received: May 25, 2021
Date Reported: May 28, 2021
Report Number: 2625856

Reference Number	1494303-7	1494303-8	1494303-9
Sample Date			
Sample Time			
Sample Location			
Sample Description	Dryer Stack 3 / Test 1	Dryer Stack 3 / Test 2	Dryer Stack 3 / Test 3
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	5	4	3	2
Volume	Sample volume	mL	330	320	320	
pH adjustment	required prior to O&G extraction		Yes	Yes	Yes	

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Analytical Report

Bill To: McCall Environmental
6733 Buchanan Road
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V1B 3C5
Attn: Accounts Payable
Sampled By: NA/DB/DL
Company:

Project ID:
Project Name: Pinnacle Pellet
Project Location: Williams Lake
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1494303**
Control Number:
Date Received: May 25, 2021
Date Reported: May 28, 2021
Report Number: 2625856

Reference Number	1494303-10	1494303-11	1494303-12
Sample Date			
Sample Time			
Sample Location			
Sample Description	Dryer Stack 4 / Test 1	Dryer Stack 4 / Test 2	Dryer Stack 4 / Test 3
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Oil and Grease	Total	mg/sample	4	4	4	2
Volume	Sample volume	mL	360	320	320	
pH adjustment	required prior to O&G extraction		Yes	Yes	Yes	

Approved by:

Max Hewitt
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

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

Project ID:
Project Name: Pinnacle Pellet
Project Location: Williams Lake
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1494303**
Control Number:
Date Received: May 25, 2021
Date Reported: May 28, 2021
Report Number: 2625856

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, Oil & Grease	May 25, 2021	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.

This is to verify that

Matthew McCall

has successfully completed

a course of study in

Source Testing for Particulates

(35 hours)

Endorsed by
The B.C. Ministry of Environment

Dated at Burnaby, British Columbia, Canada
December 14, 1990

DEAN

REGISTRAR

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

North Carolina State University

Environmental Programs

This certificate awarded to

Danny Lawrence

for satisfactory completion of course and examination for

SI: 414 Quality Assurance for Source Emission Measurements

Inez F. VanArsdall
Manager

Christine E. Murphy
Registrar

May 22, 2000
Date Completed

3.5 CEUs

Awarded under EPA Assistance Agreement CT - 825724

Environmental Programs
Industrial Extension Service
College of Engineering
North Carolina State University

MOUNT ROYAL COLLEGE

Faculty of Continuing Education and Extension

David Brandle

has successfully completed

The program of studies and is awarded the certificate in

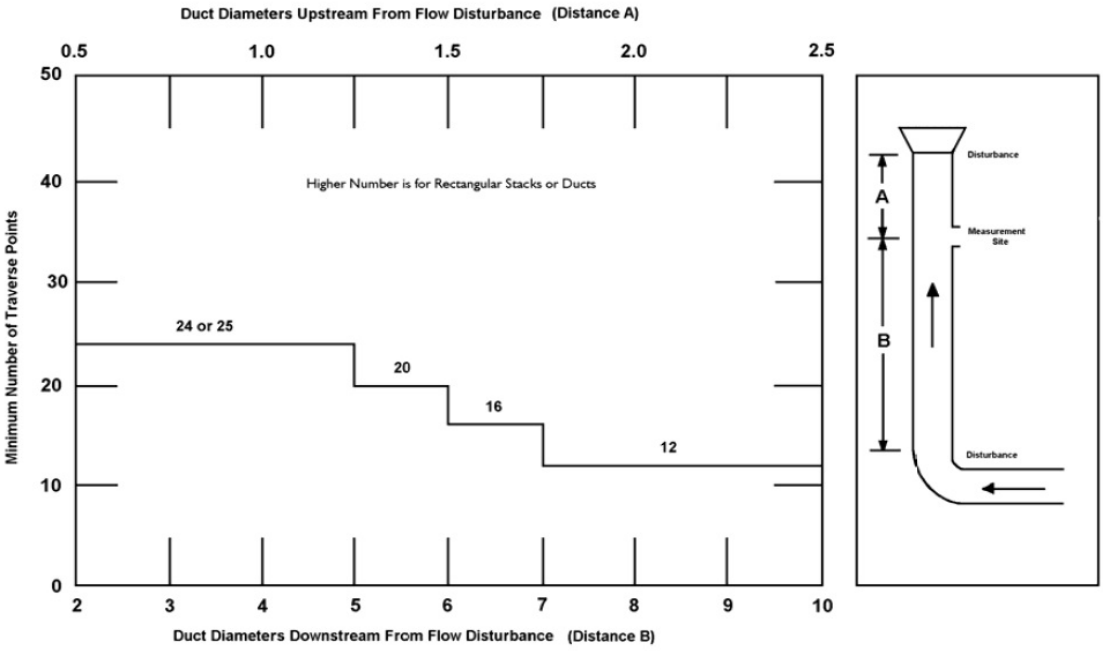
STACK SAMPLING

May 3 – May 7, 2004

May, 2004
Date

Donna Spaulding
Dean
Faculty of Continuing Education and Extension

Site Diagram & Sample Point Selection



Client:	Pinnacle Pellet Williams Lake	Traverse Points (in):	
Source:	Dryer Stacks 1-4	PT-1	1.6
Pollution Abatement Equipment:		PT-2	5.1
Duct Diameters Up (A):	>2	PT-3	8.97
Duct Diameters Down (B):	4	PT-4	13.45
Area of Stack (ft):	31.5	PT-5	19
Stack Diameter (in):	76	PT-6	26.98
Zero (in):	4	PT-7	49.02
Number of Points:	24	PT-8	57
		PT-9	62.55
Cyclonic Angle:	5^{0}	PT-10	67.03
		PT-11	70.91
		PT-12	74.4

Client: P. PELLET @ LAKE			Console: 1013		Pb: 28.25 "Hg		Filter: 18	File:			Date: May 19/21		
Process: DRYER STACK 1			Mf: .9910		Static: -.10 "H_2O		Flask: ✓	+	%CO_2		%O_2	CO	
Test: 1			K_o: .6650		Ps: 28.24		Silica: ✓	+	0		21		
Personnel: DL NA			Pitot: .848		Pm: 28.34		Total Vol: 308 ml						
Start time: 9:00			C_p: .83446		Area: 3.5 ft²		Start Vol: 300 ml						
Stop time: 10:05			Nozzle: .275		Bwo: .04		Plant Type:					Mix:	
Permitt #			Start Leakage Rate@ 15 "Hg .006 ft³/min				Pollution Abatement Equip:						
up strm down strm			Finish Leakage Rate@ 15 "Hg .007 ft³/min				Load: Burner:				Fuel Type:		
SAMPLE POINT	DELTA P ("H_2O)	DELTA H ("H_2O)	GAS METER TEMP (°F) IN	GAS METER TEMP (°F) OUT	STACK (°F)	VOLUME (ft^3)	BOX TEMP (°F)	LAST IMP (°F)	PROBE (°F)	VACUUM ("Hg)	MIN/PT= 2.5 ZERO=		
A-12	.18	1.09	38	38	80	0.00	250	108	457	3			
11	.19	1.18	38	36	63	1.41							
10	.20	1.24	42	37	68	2.86							
9	.18	1.12	44	37	67	4.30				4			
8	.20	1.25	44	39	67	5.73	250						
7	.21	1.31	46	42	70	7.15							
6	.23	1.44	50	44	70	8.66				4			
5	.24	1.51	53	48	73	10.25							
4	.20	1.26	54	49	72	11.86	248						
3	.18	1.14	57	51	75	13.43				4			
2	.18	1.14	59	53	76	14.89							
1	.18	1.14	62	57	77	16.35							
B-12	.21	1.34	63	59	77	17.81				4			
11	.21	1.31	64	59	78	19.42	249						
10	.23	1.47	67	60	79	21.00							
9	.26	1.66	69	64	80	22.69				4			
8	.28	1.79	69	64	78	24.30							
7	.30	1.93	71	67	79	26.10							
6	.30	1.93	72	68	81	27.90	253						
5	.31	2.00	74	69	81	29.80				4			
4	.32	2.07	72	69	79	31.70							
3	.35	2.27	75	72	79	33.67							
2	.34	2.21	74	72	80	35.70							
1	.34	2.21	75	73	78	37.72	255			4			
						39.74							

Client:	P. Pellet	W. Lake	Console:	1013	Pb:	28.25	"Hg	Filter:	17	File:			Date:	May 19/21	
Process:	Dryer Stack 1		Mf:	.9918	Static:	-.10	"H_2O	Flask:		+		%CO_2	%O_2	CO	
Test:	2		K_0:	.66630	Ps:	28.24		Silica:		+		0	21		
Personnel:	DL/NA		Pitot:	.848	Pm:	28.36		Total Vol:	316	ml					
Start time:	10:10		C_P:	.83446	Area:	31.50	ft²	Start Vol:	312	ml					
Stop time:	11:13		Nozzle:	.275	Bwo:			Plant Type:					Mix:		
Permitt #			Start Leakage Rate@	15	"Hg	.006	ft³/min	Pollution Abatement Equip:							
up strm	down strm		Finish Leakage Rate@	15	"Hg	.009	ft³/min	Load:		Burner:			Fuel Type:		

SAMPLE POINT	DELTA P ("H_2O)	DELTA H ("H_2O)	GAS METER TEMP (°F) IN	GAS METER TEMP (°F) OUT	STACK (°F)	VOLUME (ft^3)	BOX TEMP (°F)	LAST IMP (°F)	PROBE (°F)	VACUUM ("Hg)	MIN/PT= 2.15 ZERO=
B-12	.20	1.30	79	79	86	0.00	260	ICE	Hot	2	
11	.21	1.36	75	76	82	1.56					
10	.22	1.44	75	76	79	3.15					
9	.25	1.62	74	74	80	4.70				3	
8	.26	1.69	75	76	81	6.43	255				
7	.30	1.96	78	78	81	8.20					
6	.30	1.96	78	78	82	10.08				3	
5	.32	2.09	80	79	82	12.04					
4	.33	2.15	79	78	82	14.02	251				
3	.32	2.10	81	80	82	16.07				3	
2	.34	2.22	80	80	83	18.09					
1	.34	2.23	82	82	83	20.14					
A-12	.21	1.37	82	82	84	22.19	254			3	
11	.22	1.44	83	82	83	23.88					
10	.23	1.50	82	82	84	25.52					
9	.21	1.38	84	83	84	27.30				3	
8	.20	1.31	84	83	84	28.90					
7	.19	1.25	84	84	84	30.48	256				
6	.18	1.18	85	85	85	32.00				3	
5	.18	1.18	84	84	85	33.49					
4	.19	1.25	85	84	84	34.99					
3	.18	1.18	85	86	85	36.55				3	
2	.17	1.12	86	86	86	38.10	298				
1	.18	1.18	85	85	85	39.52					
						41.00					

Client: P.P. W. LAKE	Console: 1013	Pb: 28.25 "Hg	Filter: 1-17	File:				Date: May 19/21		
Process: DRYER STACK 1	Mf: .9910	Static: -.10 "H_2O	Flask:	+	$\%CO_2$	$\%O_2$	CO			
Test: 3 - COND	K_o: .6650	Ps: 28.24	Silica:	+						
Personnel: DL, NA	Pitot: .848	Pm: 28.36	Total Vol: ~~320~~ ml							
Start time: 16:15	C_P: .83446	Area: 3.50 ft^2	Start Vol: 300 ml							
Stop time: 17:18	Nozzle: .275	Bwo: .03	Plant Type:					Mix:		
Permitt #	Start Leakage Rate@ 15 "Hg .004 ft^3/min		Pollution Abatement Equip:							
up strm down strm	Finish Leakage Rate@ 15 "Hg .007 ft^3/min		Load:	Burner:				Fuel Type:		

SAMPLE POINT	DELTA P ("H_2O)	DELTA H ("H_2O)	GAS METER TEMP (°F) IN	GAS METER TEMP (°F) OUT	STACK (°F)	VOLUME (ft^3)	BOX TEMP (°F)	LAST IMP (°F)	PROBE (°F)	VACUUM ("Hg)	MIN/PT= 2.5 ZERO=
A-12	.17	1.12	90	90	90	0.00	242	100	401	3	
11	.19	1.25	83	87	84	1.50					
10	.19	1.25	83	87	84	3.00					
9	.20	1.32	82	86	83	4.50				3	
8	.21	1.38	84	84	84	6.07	245				
7	.20	1.31	84	86	84	7.70					
6	.23	1.51	89	85	86	9.27				4	
5	.22	1.45	87	88	87	11.00					
4	.22	1.45	88	88	86	12.67					
3	.18	1.19	87	90	87	14.40	253			4	
2	.17	1.12	88	89	87	16.00					
1	.18	1.18	86	88	86	17.50					
B-12	.20	1.31	88	90	89	19.09				4	
11	.22	1.44	89	90	89	20.50					
10	.23	1.51	90	90	90	21.94	255				
9	.24	1.58	89	89	87	23.61				4	
8	.27	1.78	89	89	85	25.23					
7	.30	1.92	90	90	88	26.93					
6	.34	2.24	90	90	86	28.40				4	
5	.34	1.58	90	90	86	30.69					
4	.33	2.17	90	89	87	32.54	256				
3	.33	2.17	91	90	25	34.55				4	
2	.35	2.31	89	90	84	36.56					
1	.34	2.24	90	90	84	38.64					
						40.66					

Client Name: Pinnacle Pellet
Process: Dryer Stack 7
Test Number: 1
Date: May 19/21
Start Time 8:48
Finish Time 9:49
Starting Vol. 300
Final Vol. 321
Flask: L-20
Console: C-1021
Stack Diameter

BP 28.25
DN .285
CP .83829
MF 1.0124
Moist. 4%
PM 28.36
AS
Ko .6680
Pitot 140
Port
Static -.21
PS 28.23

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: .001 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	.21	1.50	45	45	77	39.23	0	270	ICED	
11	.19	1.37	53	47	77	40.90				
10	.17	1.23	56	51	77	42.44				
9	.17	1.24	63	51	77	44.00				
8	.18	1.31	64	52	77	45.51	1			
7	.20	1.46	66	52	79	46.90				
6	.20	1.46	69	55	78	48.50				
5	.21	1.55	72	56	78	50.10				
4	.22	1.62	73	59	78	51.77				
3	.23	1.71	74	60	78	53.48				
2	.24	1.78	76	61	78	55.22	1			
1	.24	1.78	77	62	78	56.94				
B-12	.24	1.78	79	64	78	58.66				
11	.26	1.96	84	67	78	60.50	1			
10	.26	1.96	85	68	79	62.35				
9	.26	1.96	86	69	79	64.10				
8	.25	1.89	87	71	80	66.00	1			
7	.24	1.82	88	73	80	67.90				
6	.20	1.52	90	74	80	69.72	1			
5	.20	1.52	91	76	80	71.40				
4	.18	1.37	89	77	80	73.11				
3	.18	1.37	89	78	81	74.72				
2	.19	1.45	89	79	81	76.28				
1	.23	1.75	89	79	81	78.00	1	270	ICED	
						79.78				

Client Name: Pinnacle Pellet

Process: Dryer Stack 2
Test Number: 2
Date: May 19/21
Start Time 9:54
Finish Time 10:55
Starting Vol. 300
Final Vol. 321
Flask: L-21
Console: C-1021
Stack Diameter

BP 28.25
DN .285
CP .83829
MF 1.0124
Moist. 03%
PM 28.36
AS
Ko .6680
Pitot 140
Port
Static -.21
PS 28.23

CO_2	O_2	CO	N_2
0	21		

Duct Diameters
Up-Stream

Duct Diameters
Downstream

Personnel: DAB

Mean Yaw Angle

Leakage Rate @ 15 inches

Start: .004 Finish: .005

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	.20	1.53	80	75	81	80.01	1	270	ICED	
11	.19	1.45	86	79	81	81.66				
10	.18	1.39	87	79	81	83.27				
9	.17	1.32	89	80	82	84.88				
8	.17	1.32	91	80	82	86.43				
7	.19	1.48	92	81	82	88.00				
6	.19	1.47	93	81	83	89.75				
5	.20	1.55	93	82	83	91.37				
4	.20	1.55	92	82	83	93.02				
3	.21	1.63	93	83	83	94.71				
2	.22	1.71	94	83	83	96.39	1			
1	.24	1.87	94	84	84	98.21				
B 12	.23	1.79	95	85	85	100.11				
11	.23	1.79	97	85	85	102.00				
10	.25	1.95	99	86	85	103.84				
9	.26	2.03	100	87	84	105.76	1			
8	.25	1.96	100	87	84	107.66				
7	.25	1.96	101	88	84	109.52				
6	.24	1.89	101	89	84	111.35				
5	.21	1.65	102	89	85	113.22	1			
4	.20	1.57	102	89	85	115.00				
3	.19	1.49	102	90	85	116.71				
2	.18	1.42	102	91	85	118.37				
1	.19	1.49	102	91	85	120.02				
						121.70		270	ICED	

Client Name: Pinnacle Pellet

Process: Dryer Stack 2
Test Number: 3
Date: May 19/21
Start Time 11:80
Finish Time 12:01
Starting Vol. 300
Final Vol. 327
Flask: L-22
Console: C-1021
Stack Diameter

BP 28.25
DN .285
CP .83829
MF 1.0124
Moist. .031
PM 28.36
AS
Ko .6686
Pitot 140
Port
Static -.21
PS 28.23

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: .003 Finish: 004

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.21	1.62	86	83	85	22.50	1	270	ICED	
11	.19	1.47	89	84	85	24.21				
10	.18	1.39	92	85	86	25.85				
9	.18	1.39	95	86	86	27.48				
8	.17	1.32	96	87	86	29.07				
7	.19	1.48	97	88	86	30.62				
6	.20	1.56	98	89	86	32.24				
5	.21	1.64	98	90	86	34.00				
4	.22	1.71	99	90	86	35.77				
3	.22	1.71	100	90	87	37.55				
2	.23	1.80	101	91	87	39.29				
1	.24	1.87	102	91	89	41.23				
B-12	.25	1.96	104	92	89	43.11				
11	.25	1.96	103	92	88	44.98				
10	.25	1.96	103	92	88	46.87				
9	.24	1.88	103	92	88	48.74				
8	.24	1.88	103	93	89	50.68				
7	.21	1.64	104	93	89	52.49				
6	.19	1.49	105	94	88	54.33				
5	.19	1.50	107	94	88	56.02				
4	.18	1.42	108	94	88	57.80				
3	.19	1.42	108	95	88	59.42				
2	.20	1.58	109	95	88	61.07				
1	.22	1.74	110	95	87	62.77		270	ICED	
						64.55				

Client: P.P W. LAKE	Console: 1013	Pb: 28.25 "Hg	Filter: 1-26	File:		Date: May 19/21	
Process: DRYER ST. 3	Mf: .9910	Static: -.11 "H_2O	Flask: — +		%CO_2	%O_2	CO
Test: 1	K_o: .6630	Ps: 28.24	Silica: — +			2	
Personnel: DL NA	Pitot: .748	Pm: 28.31	Total Vol: 318 ml				
Start time: 1:13	C_p: .83446	Area: 31.50 ft²	Start Vol: 300 ml				
Stop time: 2:17	Nozzle: .275	Bwo: .03	Plant Type:			Mix:	
Permitt #	Start Leakage Rate@ 15 "Hg .006 ft^3/min		Pollution Abatement Equip:				
up strm down strm	Finish Leakage Rate@ 15 "Hg .007 ft^3/min		Load: Burner:			Fuel Type:	

SAMPLE POINT	DELTA P ("H_2O)	DELTA H ("H_2O)	GAS METER TEMP (°F) IN	GAS METER TEMP (°F) OUT	STACK (°F)	VOLUME (ft^3)	BOX TEMP (°F)	LAST IMP (°F)	PROBE (°F)	VACUUM ("Hg)	MIN/PT= 2.5 ZERO=
A-12	.22	1.44	68	69	70	9.00	244	ICED	Hot	2	
11	.20	1.36	64	68	72	1.62					
10	.19	1.24	64	69	70	3.22					
9	.20	1.30	65	69	73	4.78				3	
8	.18	1.16	66	68	75	6.29	253				
7	.21	1.37	68	69	73	7.75					
6	.20	1.30	70	70	74	9.31				3	
5	.18	1.18	72	72	75	10.87					
4	.19	1.24	72	72	75	12.36	255				
3	.20	1.30	74	73	77	13.85				3	
2	.21	1.38	77	77	78	15.45					
1	.21	1.38	78	78	79	17.00					
B-12	.22	1.44	79	79	81	18.66	263			3	
11	.18	1.18	80	80	82	20.40					
10	.20	1.31	81	84	84	21.80					
9	.18	1.18	81	80	83	23.30				3	
8	.19	1.24	84	83	86	24.80					
7	.20	1.31	84	83	85	26.34	266				
6	.21	1.38	86	86	86	27.85					
5	.22	1.44	85	86	86	29.50				3	
4	.25	1.64	86	86	86	31.26					
3	.24	1.64	86	86	86	32.89					
2	.24	1.58	87	87	86	34.59	269				
1	.27	1.77	87	87	86	36.30				3	
						38.11					

Client: P.P W. LAKE	Console: 1013	Pb: 28.25 "Hg	Filter: .27	File:			Date: May 9/21				
Process: DRYER ST. 3	Mf: 9910	Static: -.10 "H_2O	Flask:	+	%CO_2	%O_2	CO				
Test: 2	K_o: .6650	Ps: 28.24	Silica:	+	0	21					
Personnel: DL, NA	Pitot: .848	Pm: 28.36	Total Vol: 316 ml								
Start time: 2:20	C_p: .8446	Area: 31.50 ft²	Start Vol: 300 ml								
Stop time: 3:23	Nozzle: .275	Bwo: .03	Plant Type:				Mix:				
Permitt #	Start Leakage Rate@ 15 "Hg .004 ft³/min		Pollution Abatement Equip:								
up strm down strm	Finish Leakage Rate@ 15 "Hg .0062 ft³/min		Load:	Burner:		Fuel Type:					

SAMPLE POINT	DELTA P ("H_2O)	DELTA H ("H_2O)	GAS METER TEMP (°F) IN	GAS METER TEMP (°F) OUT	STACK (°F)	VOLUME (ft^3)	BOX TEMP (°F)	LAST IMP (°F)	PROBE (°F)	VACUUM ("Hg)	MIN/FT= 2.5 ZERO=
B-12	.21	1.37	90	90	93	0.00	244	1081	1101	4	
11	.21	1.37	85	87	91	1.66					
10	.20	1.30	86	87	90	3.28					
9	.19	1.24	86	86	90	4.88				4	
8	.18	1.18	86	87	89	6.41					
7	.18	1.18	86	87	88	7.90	251				
6	.19	1.24	88	89	92	9.48					
5	.20	1.31	84	89	91	11.01				4	
4	.19	1.24	85	89	91	12.63					
3	.18	1.18	87	90	91	14.20					
2	.18	1.18	90	91	91	15.70	253				
1	.17	1.12	91	90	91	17.20					
A-12	.18	1.18	90	91	91	18.66				4	
11	.20	1.31	89	91	91	20.35					
10	.19	1.25	91	91	91	21.81					
9	.18	1.18	91	92	93	23.40	256				
8	.20	1.31	92	92	93	24.84				4	
7	.21	1.38	92	92	93	26.41					
6	.21	1.38	92	93	92	28.01					
5	.20	1.31	93	94	93	29.63					
4	.20	1.31	93	93	94	31.22				4	
3	.19	1.25	93	94	92	32.80	261				
2	.18	1.18	93	95	93	34.36					
1	.18	1.19	92	94	91	35.89					
						37.37					

Client: P.P. WL	Console: 1013	Pb: 28.25 "Hg	Filter:	File:			Date: May 1912'					
Process: DRYER ST. 3	Mf: .9910	Static: -.10 "H_2O	Flask:	+	$\%CO_2$	$\%O_2$	CO					
Test: 3	K_o: .6650	Ps: 28.24	Silica:	+								
Personnel: DL NA	Pitot: .848	Pm: 28.36	Total Vol: 317 ml									
Start time: 3:33	C_P: .83446	Area: 31.50 ft²	Start Vol: ml									
Stop time: 4:36	Nozzle: .275	Bwo: .03	Plant Type: Mix:									
Permitt #	Start Leakage Rate@ 15 "Hg .006 ft³/min		Pollution Abatement Equip:									
up strm down strm	Finish Leakage Rate@ 15 "Hg .009 ft³/min		Load: Burner:				Fuel Type:					

SAMPLE POINT	DELTA P ("H_2O)	DELTA H ("H_2O)	GAS METER TEMP (°F) IN	GAS METER TEMP (°F) OUT	STACK (°F)	VOLUME (ft^3)	BOX TEMP (°F)	LAST IMP (°F)	PROBE (°F)	VACUUM ("Hg)	MIN/PT= ZERO=
A-12	.19	1.25	96	96	95	0.00	249	ICED	HOT	4	
11	.18	1.18	91	94	94	1.53					
10	.16	1.05	89	93	91	3.01					
9	.16	1.06	90	93	91	4.51					
8	.18	1.18	90	92	93	5.83				4	
7	.19	1.25	92	94	93	7.33	251				
6	.20	1.31	92	92	92	8.86					
5	.20	1.31	92	90	92	10.45					
4	.19	1.25	92	92	92	12.03				4	
3	.17	1.11	91	91	92	13.54					
2	.18	1.18	91	92	93	15.04	256				
1	.17	1.11	90	91	92	16.55					
B-12	.16	1.05	91	93	91	18.00				4	
11	.16	1.05	90	92	91	19.47					
10	.19	1.25	91	93	93	20.85					
9	.21	1.38	92	93	92	22.31	260				
8	.23	1.51	93	95	92	23.86					
7	.21	1.37	94	95	94	25.64				4	
6	.18	1.18	94	95	94	27.24					
5	.17	1.11	93	95	96	28.72					
4	.18	1.18	93	94	93	30.17	258				
3	.17	1.12	94	94	92	31.65				4	
2	.16	1.05	93	92	91	33.09					
1	.16	1.04	93	93	91	34.49					
						35.91					

Client Name: Pinnacle Pellet

Process: Dryer Stack 4

Test Number: 1

Date: May 19/21

Start Time 12:30

Finish Time 2:00

Starting Vol. 300

Final Vol. 341

Flask: L-23

Console: C-1021

Stack Diameter

BP 28.25

DN .295

CP .83829

MF 1.0124

Moist. .03

PM 28.36

AS

Ko .6680

Pitot 140

Port

Static -.15

PS 28.23

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: .005 Finish: .006

Paused @ 12'01min

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.17	1.46	81	81	96	65.00	1	270	ICED	
11	.18	1.55	81	81	95	66.68				
10	.14	1.20	82	81	95	68.32				
9	.14	1.20	83	81	94	69.82				
8	.15	1.30	83	81	94	71.33				
7	.16	1.38	84	81	91	72.91				
6	.15	1.33	81	75	78	74.50				
5	.12	1.06	82	76	78	76.08	1			
4	.14	1.24	84	76	80	77.44				
3	.14	1.24	86	76	80	79.00				
2	.13	1.15	86	76	81	80.48				
1	.13	1.15	86	76	82	82.00				
B-12	.21	1.85	88	78	81	83.47	1			
11	.20	1.77	90	80	82	85.29				
10	.20	1.78	91	81	83	87.07				
9	.17	1.52	93	82	82	88.91				
8	.19	1.70	97	82	84	90.57				
7	.16	1.44	97	84	84	92.35	1			
6	.16	1.44	97	88	83	94.00				
5	.14	1.26	98	88	83	95.63				
4	.15	1.35	97	87	88	97.14				
3	.15	1.35	97	88	90	98.71				
2	.17	1.53	97	88	91	100.32	1			
1	.19	1.68	97	89	94	102.00	1	270	ICED	
						103.75				

Client Name: Pinnacle Pellet

Process: Dryer stack #4
Test Number: 2
Date: May 19/21
Start Time 2:03
Finish Time 3:04
Starting Vol. 300
Final Vol. 336
Flask: L-24
Console: C-1021
Stack Diameter

BP 28.25
DN .295
CP .83929
MF 1.0124
Moist. .05%
PM 28.36
AS
Ko .6680
Pitot 1110
Port
Static -.15
PS 28.23

CO_2	O_2	CO	N_2

Personnel: DB

Leakage Rate @ 15 inches

Load: 41

Duct Diameters Up-Stream

Duct Diameters Downstream

Mean Yaw Angle

Start: .002 Finish: .004

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.19	1.57	85	84	100	04.00	1	270	ICED	
11	.19	1.57	89	85	99	5.70				
10	.15	1.25	91	87	99	7.42				
9	.14	1.18	94	88	98	9.00				
8	.15	1.27	97	88	98	10.44				
7	.16	1.36	99	89	98	12.00				
6	.15	1.27	99	89	98	13.58				
5	.13	1.11	100	90	98	15.12				
4	.13	1.11	101	90	98	16.52	1			
3	.14	1.19	101	91	97	17.93				
2	.13	1.11	101	91	97	19.41				
1	.13	1.11	100	90	96	20.82				
B-12	.20	1.71	99	91	96	22.26				
11	.20	1.71	98	91	96	24.03	1			
10	.19	1.63	103	93	96	25.79				
9	.18	1.54	103	93	96	27.54				
8	.19	1.63	104	94	97	29.25				
7	.17	1.46	104	94	98	31.00				
6	.17	1.46	105	94	98	32.67				
5	.15	1.29	106	95	98	34.33	1			
4	.14	1.21	105	95	96	35.90				
3	.15	1.29	105	95	96	37.41				
2	.17	1.46	105	98	96	39.00				
1	.18	1.55	105	98	96	40.66	1	270	ICED	
						42.44				

Client Name: Pinnacle Pellet

Process: Dryer stack 4

Test Number: 3

Date: May 19/21

Start Time 3:09

Finish Time 4:10

Starting Vol. 300

Final Vol. 317

Flask: L-25

Console: C-1021

Stack Diameter

BP 28.25

DN .295

CP .83829

MF 1.0124

Moist. 5%

PM 28.36

AS

Ko 6680

Pitot 140

Port

Static -15

PS 28.23

CO_2	O_2	CO	N_2
0	21		

Personnel: DS

Leakage Rate @ 15 inches

Load:

Duct Diameters Up-Stream

Duct Diameters Downstream

Mean Yaw Angle

Start: .001 Finish: .002

Sample Points	Delta P	Delta H	Temp. In	Temp. Out	Stack Temp.	Gas Volume	Pump Vacuum	Box Temp.	Last Imp. Temp.	Points
A-12	.18	1.12	91	92	89	42.64	1	270	ICE)	
11	.19	1.63	94	93	91	44.36				
10	.16	1.38	97	94	92	46.07				
9	.15	1.30	100	94	92	47.66				
8	.15	1.30	101	94	93	49.15				
7	.16	1.38	102	93	94	50.72				
6	.16	1.38	103	94	95	52.33				
5	.15	1.29	103	94	96	54.03				
4	.14	1.20	104	94	96	55.54	1			
3	.14	1.20	104	96	97	57.00				
2	.17	1.44	104	97	97	58.46				
1	.17	1.44	103	97	99	60.26				
B-12	.20	1.70	103	97	100	62.02				
11	.19	1.62	103	96	101	63.74				
10	.19	1.62	103	96	101	65.50				
9	.19	1.62	103	97	104	67.21	1			
8	.18	1.53	104	97	105	68.83				
7	.17	1.44	106	97	105	70.47				
6	.17	1.44	107	97	104	72.08				
5	.16	1.37	107	97	103	73.62				
4	.15	1.28	107	97	104	75.15	1			
3	.14	1.19	101	97	104	76.70				
2	.15	1.28	107	95	104	78.30				
1	.17	1.45	107	98	104	79.91	1	270	ICE)	
						81.63				

Pinnacle.
RENEWABLE ENERGY INC.
PRINCE GEORGE | VANCOUVER

Pinnacle Renewable Energy Inc.
Williams Lake

Daily production rate May 19th	25.4 MT/hr
Average for the previous calendar month	25.1 MT/hr
90th percentile production rate	29.6 MT/hr
Average Dryer Fan 1 exit gas temperature	24.6 °C
Average Dryer Fan 2 exit gas temperature	24.8 °C
Average Dryer Fan 3 exit gas temperature	23.1 °C
Average Dryer Fan 4 exit gas temperature	24.7 °C

Average Cyclofilter exit gas temperature, [°C]	Included in Stack Test
Volumetric emission flow rates, [m^3/hour]	Included in Stack Test
TPM, [mg/m^3]	Included in Stack Test
PM, [mg/m^3]	Included in Stack Test