Stantec

Appendix D

Field data sheets

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: LIME KILN
Test: PM-1
Date: Aug 21/2014
Analyst: NGM

Stantec

0516-5

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	873.7	630.2	243.5
2	100 mL H2O	774.0	702.5	71.5
3	Blank	643.8	633.8	10
4	200g Silica Gel	1012.0	1000.6	11.4
		Total Weight Gain (g)		336.4
		Moisture Volume (mL)		336.4

Volume H_2O Collected: 336.4 ml
X 0.048 = 16.15 ft^3 H_2O (Vwc)

DGM Final 744.55 ft^3
DGM Initial 714.29 ft^3
Final - Initial = 30.26 ft^3 (Vmc)

Moisture = $\frac{Vwc}{(Vwc + Vmc)}$

Moisture = $\frac{16.15}{16.15 + 30.26}$

Moisture = 0.35 %

1/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 1215112.69
Client: Northern Pulp
Plant: Pictou, NS
Location: Lime Kiln
Test: PM-1
Date: Aug 21, 2014
Operators: TDJ / FS
Gamma: 1.040
Delta H@: 1.766
Pitot Coeff.: 0.817
Start: 8:15
Finish: 10:20

Static Pressure (In.H2O): 0.51
Port Length (in): 6"
Stack Dia. (in.): 43"
Probe Length (ft): 8'
Nozzle ID (in.): 8-6 (0.177)
Console S/N: 1448

Pre-Test Leak Check: 0
Vacuum Pressure: -18
Post-Test Leak Check: 0
Vacuum Pressure: -18

K': 0.54

	Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (In.H2O)	Orifice dH (In.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (In.Hg)
		0				744.70						
-20	1	2.5	165	0.69	0.32	745.43	285	210	61	64	64	-1
		5	164	0.68	0.31	746.17	294	225	62	66	64	-1
-15	2	7.5	164	0.65	0.29	746.90	299	226	60	65	64	-1
		10	165	0.64	0.27	747.58	298	225	60	65	64	-1
-10	3	12.5	165	0.60	0.27	748.29	298	227	60	65	64	-1
		15	166	0.58	0.26	748.97	299	229	61	65	64	-1
-5	4	17.5	166	0.53	0.24	749.66	299	226	61	65	69	-1
		20	166	0.51	0.23	750.29	299	227	61	65	69	-1
0	5	22.5	166	0.45	0.20	750.86	298	210	60	70	64	-1
		25	166	0.44	0.20	751.46	298	225	60	65	64	-1
0	6	27.5	166	0.40	0.18	752.03	300	225	60	65	64	-1
		30	165	0.38	0.17	752.58	300	226	59	65	64	-1
5°	7	32.5	166	0.49	0.22	753.21	300	228	59	65	64	-1
		35	166	0.49	0.22	753.84	301	227	59	65	64	-1
8°	8	37.5	166	0.50	0.23	754.60 *	299	228	59	65	64	-1
		40	165	0.49	0.22	755.11	300	227	57	65	64	-1
+10	9	42.5	165	0.45	0.20	755.70	300	225	56	66	65	-1
		45	165	0.44	0.20	756.26	301	227	56	66	65	-1
+15	10	47.5	165	0.35	0.16	756.82	300	224	57	66	65	-1
		50	165	0.38	0.17	757.35	299	225	56	66	64	-1
+20	11	52.5	165	0.35	0.16	757.90	301	226	57	66	66	-1
		55	165	0.35	0.16	758.42	300	227	57	66	65	-1
+25	12	57.5	165	0.38	0.17	758.97	300	229	57	66	66	-1
		60	164	0.37	0.16	759.51	300	229	55	68	66	-1

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Lime Kiln
Test: PM-1
Date: Aug 21, 2-141
Operators: TRH / ES
Gamma: 1.040
Delta H@: 1.766
Pitot Coeff.: 0.817
Start: 10:30
Finish:

Static Pressure (in.H2O): 0.51
Port Length (in): 6"
Stack Dia. (in.): 48"
Probe Length (ft): 8'
Nozzle ID (in.): E6 (0.473)
Console S/N: 1348

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 0.54

	Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
.22	1	2.5	164	0.59	0.31	760.22	300	231	58	69	66	-1
		5	164	0.63	0.29	760.93	298	234	58	68	66	-1
-15	2	7.5	164	0.60	0.27	761.64	299	231	59	67	67	-1
		10	164	0.61	0.28	762.33	300	230	59	68	67	-1
-8	3	12.5	164	0.59	0.27	763.04	300	231	59	69	67	-1
		15	164	0.57	0.27	763.73	301	231	59	69	67	-1
-5	4	17.5	164	0.56	0.26	764.42	301	231	59	69	67	-2
		20	166	0.55	0.25	765.11	299	233	60	69	69	-2
0	5	22.5	166	0.49	0.21	765.77	300	231	60	69	68	-2
		25	167	0.46	0.21	766.33	301	231	60	69	68	-2
0	6	27.5	165	0.40	0.18	766.92	300	232	61	70	68	-2
		30	165	0.39	0.17	767.460	300	231	62	70	68	-2
5°	7	32.5	165	0.35	0.16	768.00	300	233	62	70	69	-2
		35	165	0.35	0.16	768.55	300	233	63	71	70	-2
10°	8	37.5	165	0.49	0.22	769.16	300	232	59	73	69	-2
		40	165	0.49	0.22	769.79	300	234	57	72	70	-2
10°	9	42.5	165	0.47	0.21	770.40	300	232	54	72	70	-2
		45	165	0.48	0.20	771.01	300	232	53	72	70	-3
15°	10	47.5	166	0.42	0.19	771.60	301	233	52	73	70	-3
		50	165	0.41	0.18	772.19	302	233	54	72	71	-3
19°	11	52.5	164	0.42	0.19	772.89	300	236	53	73	71	-3
		55	165	0.35	0.16	773.37	300	235	54	73	71	-3
25°	12	57.5	165	0.30	0.14	773.87	301	236	54	73	71	-3
		60	165	0.33	0.15	774.34	300	235	55	74	72	-3

COMBUSTION GAS ANALYSIS
CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Project No.: 121511269
Client: Northern Pulp
Plant: Lime kiln
Location: Pictou, NS

Fuel Type: Nat gas

Time Start: 11:00
Time Finish: 11:30

Test No.: Gas # 1
Date: Aug 21, 2014

Personnel: TBH

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_x (ppm)	NO_2 (ppm)	NO (ppm)	THC (%)
0	6.6	11.5	0	0	99			
5	5.9	11.2	0	0	104			
10	5.8	11.2	0	0	104			
15	5.6	11.3	0	0	109			
20	5.6	11.3	0	0	108			
25	5.6	11.4	0	0	111			
30	5.6	11.4	0	0	110			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Lime Kiln
Test: PM-2
Date: Aug 22, 2014
Analyst: TBH

Stantec

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	965.3	620.0	
2	100 mL H2O	731.3	709.7	
3	Blank	635.9	634.2	
4	200g Silica Gel	1017.8	1011.8	
		Total Weight Gain (g)		
		Moisture Volume (mL)		

Volume H_2O Collected: _____ ml
X 0.048 = _____ ft^3 H_2O (Vwc)

DGM Final _____ ft^3
DGM Initial _____ ft^3
Final - Initial = _____ ft^3 (Vmc)

Moisture = $\frac{Vwc}{(Vwc + Vmc)}$

Moisture = _____

Moisture = _____

1/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Lime Kiln
Test: PM-2
Date: Aug 21, 2014
Operators: TBH / ES
Gamma: 1.040
Delta H@: 1.766
Pitot Coeff.: 0.817
Start: 9:20
Finish: 11:30

Static Pressure (in.H2O): 0.51
Port Length (in): 6"
Stack Dia. (in.): 48"
Probe Length (ft): 8'
Nozzle ID (in.): 2-6 (0.177)
Console S/N: 1648

Pre-Test Leak Check: ✓
Vacuum Pressure: -13
Post-Test Leak Check:
Vacuum Pressure:

K': 0.54

	Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
		0				714.29						
20°	1	2.5	163	0.67	0.31	715.03	299	237	68	68	67	-1
		5	168	0.68	0.31	715.75	299	241	68	70	67	-1
15°	2	7.5	163	0.65	0.30	716.48	298	242	67	74	67	-1
		10	161	0.66	0.30	717.19	300	246	67	71	68	-1
10°	3	12.5	161	0.63	0.29	717.92	300	248	67	73	68	-1
		15	161	0.60	0.28	718.60	299	258	67	73	71	-1
5°	4	17.5	161	0.58	0.27	719.27	300	258	68	75	70	-1
		20	161	0.55	0.25	719.95	300	254	68	75	70	-1
0°	5	22.5	161	0.50	0.23	720.57	299	256	56	77	72	-1
		25	162	0.50	0.23	721.20	299	257	56	78	72	-1
5°	6	27.5	162	0.45	0.21	721.81	301	259	52	79	73	-1
		30	162	0.45	0.21	722.40	296	259	52	79	73	-1
14°	7	32.5	162	0.43	0.20	723.01	297	260	52	79	75	-1
		35	162	0.40	0.19	723.55	296	260	52	79	75	-1
18°	8	37.5	162	0.39	0.18	724.12	298	260	51	79	76	-1
		40	161	0.39	0.18	724.70	299	261	52	80	76	-1
20°	9	42.5	162	0.50	0.24	725.30	298	259	53	80	76	-1
		45	163	0.50	0.24	725.96	299	261	53	82	76	-1
22°	10	47.5	163	0.52	0.24	726.67	300	263	53	82	76	-1
		50	162	0.51	0.24	727.26	300	263	54	83	77	-1
25°	11	52.5	161	0.45	0.21	727.87	299	263	55	83	78	-1
		55	161	0.43	0.21	728.48	300	263	55	85	78	-1
	12	57.5	161	0.43	0.20	729.08	301	264	56	84	79	-1
		60	159	0.43	0.20	729.68	300	265	56	84	79	-1

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 12.5112.69
Client: Northern Pulp
Plant: Pictou, NS
Location: Lime Kiln
Test: PM-2
Date: Aug 21, 2014
Operators: TBH/ES
Gamma: 1.040
Delta H@: 1.766
Pitot Coeff.: 0.917
Start: 9:20
Finish: 11:30

Static Pressure (In.H2O): 0.51
Port Length (in): 6"
Stack Dia. (in.): 48"
Probe Length (ft): 8'
Nozzle ID (in.): 6 (0.173)
Console S/N: 1848

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 0.54

	Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (In.H2O)	Orifice dH (In.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (In.Hg)
		0				729.63						
20	1	2.5	159	0.65	0.31	730.38	301	257	68	84	82	-1
		5	160	0.66	0.31	731.15	301	261	65	75	82	-1
15	2	7.5	162	0.64	0.30	731.88	300	264	63	87	84	-1
		10	160	0.65	0.30	732.60	298	263	61	78	83	-1
16	3	12.5	161	0.60	0.28	733.30	298	261	61	88	83	-1
		15	161	0.58	0.27	733.99	298	263	60	89	84	-1
5	4	17.5	162	0.54	0.25	734.65	299	261	59	89	84	-2
		20	163	0.52	0.24	735.29	298	261	59	89	85	-2
0	5	22.5	162	0.52	0.24	735.93	297	261	59	88	85	-2
		25	162	0.50	0.23	736.58	296	260	59	89	85	-2
0	6	27.5	162	0.43	0.20	737.17	297	259	60	71	85	-2
		30	164	0.40	0.19	737.78	295	261	60	88	85	-2
5	7	32.5	164	0.41	0.19	738.35	301	261	61	89	85	-2
		35	164	0.42	0.19	738.93	298	260	61	88	85	-2
15	8	37.5	163	0.41	0.19	739.53	295	258	61	88	86	-2
		40	163	0.40	0.19	740.11	291	260	61	88	86	-2
18	9	42.5	161	0.43	0.20	740.71	292	260	61	88	86	-2
		45	162	0.44	0.21	741.30	302	260	62	87	85	-2
20	10	47.5	161	0.40	0.19	741.91	298	260	62	87	85	-2
		50	159	0.35	0.16	742.47	300	259	59	87	85	-2
22	11	52.5	156	0.29	0.13	742.85	299	261	60	87	85	-2
		55	161	0.33	0.16	743.40	300	260	59	89	85	-2
25	12	57.5	163	0.35	0.17	743.95	294	266	60	88	85	-2
		60	161	0.36	0.17	744.55	290	259	60	88	85	-2

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Project No.: 121511209
Client: Northern Pulp
Plant: Lime kiln
Location: Pictou, NS

Fuel Type: Nat. gas

Time Start: 9:00
Time Finish: 9:30

Test No.: Gas # 2
Date: Aug 22, 2014

Personnel: TJH

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)	NO_2 (ppm)	NO (ppm)	THC (%)
0	5.8	8.4	0	0	112			
5	5.8	8.4	0	0	111			
10	5.8	8.4	0	0	111			
15	5.8	8.4	0	0	110			
20	5.8	8.4	0	0	109			
25	5.8	8.4	0	0	112			
30	5.8	8.4	0	0	110			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: NORTHERN PULP
Plant: PICTOU NS
Location: LIME KILN
Test: PM-3
Date: AUG 22/2014
Analyst: NGM

Stantec

FILTER ID
0516-8

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	1023.9	714.5	
2	100 mL H2O	751.7	734.1	
3	Blank	633.9	632.1	
4	200g Silica Gel	952.7	944.4	
		Total Weight Gain (g)		
		Moisture Volume (mL)		

Volume H_2O Collected: _____ ml

X 0.048 = _____ ft^3 H_2O (Vwc)

DGM Final _____ ft^3

DGM Initial _____ ft^3

Final - Initial = _____ ft^3 (Vmc)

$$\text{Moisture} = \frac{Vwc}{(Vwc + Vmc)}$$

Moisture = _____

Moisture = _____

SOURCE TESTING FIELD DATA SHEET

Job No.: 1215112269
Client: Northco
Plant: Pictou, NS
Location: Lime Kiln
Test: PM-3
Date: Aug 22 2014
Operators: TBH/FS
Gamma: 1.040
Delta H@: 1.766
Pitot Coeff.: 0.817
Start: 11:05
Finish: 11:80

Static Pressure (in.H2O): 0.51
Port Length (in): 6"
Stack Dia. (in.): 42"
Probe Length (ft): 8'
Nozzle ID (in.): 2-6 (0.177)
Console S/N: 1343

Pre-Test Leak Check: 0
Vacuum Pressure: -19
Post-Test Leak Check: 0
Vacuum Pressure: -18

K': 0.34

	Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
		0										
-13	1	2.5	161	0.66	0.30	774.53						
		5	165	0.64	0.30	775.26	225	225	67	71	71	-1
-12	2	7.5	165	0.60	0.28	775.85	248	226	66	71	70	-1
		10	165	0.59	0.27	776.700	258	225	60	72	71	-1
-10	3	12.5	162	0.58	0.29	778.54	264	227	59	72	71	-1
		15	164	0.57	0.26	778.10	266	228	59	72	71	-1
-5	4	17.5	167	0.58	0.27	778.89	269	225	58	72	71	-1
		20	165	0.56	0.26	779.58	273	227	58	72	72	-1
0	5	22.5	164	0.52	0.24	780.158 ?	273	226	58	72	72	-1
		25	163	0.47	0.22	780.74	275	230	57	72	72	-1
0	6	27.5	164	0.45	0.21	781.36	270	231	56	71	71	-1
		30	163	0.44	0.20	781.98	266	229	57	71	71	-1
0	7	32.5	163	0.47	0.22	782.57	262	226	57	72	71	-1
		35	162	0.48	0.22	783.19	266	226	57	72	71	-1
5	8	37.5	163	0.45	0.21	783.82	266	228	57	73	73	-1
		40	165	0.44	0.20	784.42	264	230	59	73	73	-1
10	9	42.5	162	0.41	0.19	785.02	264	231	60	74	73	-1
		45	162	0.38	0.18	785.58	264	233	61	74	73	-1
12	10	47.5	162	0.35	0.16	786.16	264	235	61	74	73	-1
		50	163	0.37	0.17	786.67	265	235	61	75	73	-1
15	11	52.5	163	0.30	0.14	787.20	269	237	62	74	74	-1
		55	163	0.29	0.13	787.68	267	237	63	74	74	-1
20	12	57.5	164	0.32	0.15	788.17	265	238	59	73	73	-1
		60	161	0.35	0.16	788.69	265	239	51	73	73	-1
						789.26	266	239	51	73	73	-1

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511265
Client: Northern P-IP
Plant: Pictou NS
Location: Lime kiln
Test: PM-3
Date: Aug 22, 2014
Operators: TSH/AS
Gamma: 1.040
Delta H@: 1.764
Pitot Coeff.: 0.817
Start: 11:05
Finish: 1:10

Static Pressure (in.H2O): 0.51
Port Length (in): 6"
Stack Dia. (in.): 43"
Probe Length (ft): 8'
Nozzle ID (in.): 2-6 (0.172)
Console S/N: 1648

Pre-Test Leak Check: 0
Vacuum Pressure: -18
Post-Test Leak Check: 0
Vacuum Pressure: -8

K': 0.54

	Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
-15	1	2.5	163	0.65	0.30	789.80	263	241	49	72	73	-1
		5	162	0.65	0.30	790.43	264	240	49	72	73	-1
-10	2	7.5	163	0.60	0.28	791.14	268	239	50	72	72	-1
		10	161	0.59	0.27	791.81	261	239	48	72	72	-1
-8	3	12.5	161	0.57	0.26	792.48	259	238	48	72	71	-1
		15	162	0.56	0.26	793.10	257	238	48	72	71	-2
-5	4	17.5	162	0.49	0.23	793.79	257	252	50	72	71	-2
		20	163	0.50	0.23	794.20*	254	238	50	72	72	-2
0	5	22.5	164	0.45	0.21	794.83	255	236	51	72	73	-2
		25	164	0.43	0.20	795.61	257	239	53	73	72	-2
0	6	27.5	163	0.40	0.18	796.18	260	237	54	74	72	-2
		30	163	0.38	0.17	796.75	261	239	54	74	73	-2
0	7	32.5	163	0.35	0.16	797.24*	262	240	54	74	73	-2
		35	163	0.40	0.18	797.81	264	241	55	76	74	-2
5	8	37.5	163	0.47	0.22	798.42	269	243	55	76	74	-2
		40	163	0.47	0.22	799.05	270	243	54	76	74	-2
8	9	42.5	163	0.45	0.21	799.66	270	244	54	76	76	-2
		45	163	0.44	0.20	800.23	271	245	54	76	76	-2
12	10	47.5	163	0.42	0.19	800.80	269	246	54	76	76	-2
		50	163	0.41	0.19	801.37	267	245	54	75	75	-2
15	11	52.5	163	0.39	0.18	801.96	268	247	54	75	75	-2
		55	163	0.38	0.17	802.44	268	247	54	75	75	-2
20	12	57.5	164	0.35	0.16	802.97	267	248	57	76	76	-2
		60	164	0.39	0.18	803.53	266	247	57	76	75	-2

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Project No.: 121811269
Client: Northern Pulp
Plant: Pictou, NS
Location: Lime kiln

Fuel Type: Nat. gas
Time Start: 11:32
Time Finish: 12:00

Test No.: Gas # 3
Date: Aug 22, 2014

Personnel: TBH

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)	NO_2 (ppm)	NO (ppm)	THC (%)
0	5.7	8.4	0	0	85			
5	5.7	8.4	0	0	84			
10	5.8	8.4	0	0	85			
15	5.7	8.4	0	0	85			
20	5.7	8.4	0	0	86			
25	5.7	8.4	0	0	80			
30	5.7	8.4	0	0	88			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Recovery Boiler
Test: PM-1
Date: Aug 19, 2014
Analyst: C.M

Stantec

FILTER
0128-14

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	907.9	626.7	281.2
2	100 mL H2O	974.0	737.3	236.7
3	Blank	662.6	632.0	30.6
4	200g Silica Gel	1028.8	995.7	33.1
		Total Weight Gain (g)		581.6
		Moisture Volume (mL)		581.6

Volume H_2O Collected: 581.6 ml
X 0.048 = 27.92 ft^3 H_2O (Vwc)

DGM Final 530.75 ft^3
DGM Initial 470.18 ft^3
Final - Initial = 60.57 ft^3 (Vmc)

$$\text{Moisture} = \frac{Vwc}{(Vwc + Vmc)}$$

$$\text{Moisture} = \frac{27.92}{27.92 + 60.57}$$

Moisture = 0.31.5

#2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121811269
Client: Northern Pulp
Plant: Pictou, NS
Location: Recovery Boiler
Test: PM-1
Date: Aug 19, 2014
Operators: TB/T / M.M
Gamma: 1.040
Delta H@: 1.805
Pitot Coeff.: 0.838
Start: 11:10
Finish: 1:30

Static Pressure (in.H2O): 1.10
Port Length (in): 6"
Stack Dia. (in.): 138
Probe Length (ft): 21
Nozzle ID (in.): 1-8 (0.235)
Console S/N: 168468

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 1.68

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0				470.18						
1	2.5	154	0.64	0.91	471.43	275	225	73	62	61	-1
	5	159	0.70	0.99	473.00	275	230	73	62	62	-1
2	7.5	157	0.60	0.94	473.95	278	237	68	64	63	-1
	10	162	0.70	0.99	475.11	279	243	68	64	63	-1
3	12.5	157	0.65	0.93	476.45	278	247	68	65	63	-1
	15	158	0.63	0.90	477.67	273	246	65	66	63	-1
4	17.5	156	0.61	0.87	478.91	271	248	65	66	63	-1
	20	157	0.63	0.90	480.15	267	249	65	66	63	-1
5	22.5	157	0.64	0.91	481.97 *	257	250	69	67	64	-1
	25	157	0.64	0.91	482.68	251	252	69	67	64	-1
6	27.5	157	0.61	0.87	483.87	248	254	69	68	64	-1
	30	156	0.62	0.88	485.10	248	255	70	69	64	-2
1	32.5	157	0.61	0.87	486.95	245	256	70	71	66	-2
	35	160	0.64	0.92	487.60	247	258	70	71	66	-2
2	37.5	160	0.63	0.90	488.85	246	259	70	71	66	-3
	40	160	0.63	0.90	490.09	260	260	69	72	67	-3
3	42.5	160	0.62	0.89	491.31	267	260	69	72	67	-3
	45	160	0.65	0.93	492.61	270	260	69	72	67	-3
4	47.5	156	0.64	0.92	493.90	273	260	65	73	68	-3
	50	157	0.66	0.95	495.17	273	262	69	74	68	-3
5	52.5	157	0.64	0.93	496.50 *	276	262	69	74	69	-4
	55	157	0.63	0.91	497.72	273	263	65	74	69	-4
6	57.5	156	0.61	0.88	498.93	264	264	61	75	69	-4
	60	154	0.60	0.87	500.12	260	264	61	75	69	-4

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121811269
Client: Northern Pulp
Plant: Pictou, NS
Location: Recovery Boiler
Test: RM-1
Date: Aug 12, 2014
Operators: TBH/MM
Gamma: 1.040
Delta H@: 1.305
Pitot Coeff.: 0.838
Start: 11:10
Finish: 1:30

Static Pressure (in.H2O): 1.10
Port Length (in): 6"
Stack Dia. (in.): 138
Probe Length (ft): 21
Nozzle ID (in.): 1-8 (0.238)
Console S/N: 1248

Pre-Test Leak Check: ✓
Vacuum Pressure: -10
Post-Test Leak Check:
Vacuum Pressure:

K': 468

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
1	2.5	159	0.65	0.94	501.41	250	263	59	75	70	-4
	5	159	0.66	0.95	502.72	250	263	59	75	72	-4
2	7.5	159	0.65	0.94	504.00	255	263	59	76	71	-4
	10	160	0.63	0.91	505.27	268	264	58	76	71	-5
3	12.5	158	0.65	0.94	506.60	277	264	58	76	71	-5
	15	158	0.63	0.91	507.95 *	281	265	59	75	72	-5
4	17.5	158	0.64	0.93	509.11	284	265	58	76	72	-5
	20	157	0.61	0.88	510.28	276	266	58	76	72	-5
5	22.5	158	0.62	0.90	511.49	275	265	58	77	72	-5
	25	157	0.61	0.89	512.90 *	272	268	59	77	73	-5
6	27.5	157	0.64	0.93	514.11	272	268	60	77	73	-5
	30	157	0.62	0.92	515.39	265	269	59	77	74	-5
1	32.5	156	0.64	0.93	516.65	268	272	60	77	74	-6
	35	161	0.64	0.93	517.92	276	275	60	77	74	-6
2	37.5	158	0.65	0.95	519.22	287	277	60	77	74	-6
	40	159	0.62	0.90	520.46	294	279	60	77	75	-7
3	42.5	162	0.65	0.94	521.76	298	281	60	77	75	-7
	45	161	0.64	0.93	523.03	299	281	60	78	75	-7
4	47.5	159	0.62	0.90	524.26	300	283	61	78	75	-7
	50	154	0.65	0.95	525.56	294	284	62	78	75	-7
5	52.5	158	0.66	0.96	526.89	292	285	63	77	76	-7
	55	154	0.64	0.93	528.17	275	284	63	78	76	-7
6	57.5	154	0.64	0.94	529.43	267	285	64	77	76	-7
	60	155	0.65	0.95	530.75	264	284	64	77	76	-8

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Recovery Boiler

Fuel Type:

Time Start: 12:15
Time Finish: 12:45

Test No.: Gas #1
Date: Aug 19, 2014

Personnel: TBH

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_x (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
0	5.8	11.2	2495	15	53			
5	5.7	11.7	1138	17	56			
10	6.1	11.0	1629	15	54			
15	6.0	11.1	1271	24	50			
20	6.6	10.6	1313	18	48			
25	6.5	10.7	1310	21	50			
30	6.3	10.9	1200	21	51			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: RECOVERY BOILER
Test: PM-2
Date: AUG. 19/2014
Analyst: NGM

Stantec

FILTER ID
0120-17

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	918.2	622.5	295.7
2	100 mL H2O	976.8	701.8	275
3	Blank	645.2	634.6	10.6
4	200g Silica Gel	1047.8	1028.7	19.1
		Total Weight Gain (g)		600.4
		Moisture Volume (mL)		

Volume H_2O Collected: 600.4 ml
X 0.048 = 28.82 ft^3 H_2O (Vwc)

DGM Final 590.42 ft^3
DGM Initial 530.97 ft^3
Final - Initial = 59.45 ft^3 (Vmc)

$$\text{Moisture} = \frac{Vwc}{(Vwc + Vmc)}$$

$$\text{Moisture} = \frac{28.82}{(28.82 + 59.45)} \rightarrow \frac{28.82}{88.27}$$

Moisture = 32.6 %

$\Delta H = K' \times \frac{T_m}{T_s} \times \Delta P \quad 1/2$

SOURCE TESTING FIELD DATA SHEET

Job No.: 121811269
Client: Northern Pulp
Plant: Pictou, NS
Location: Recovery Boiler
Test: PM-2
Date: Aug 19, 2014
Operators: JHT/MM
Gamma: 1.0410
Delta H@: 1.805
Pitot Coeff.: 0.838
Start: 3:00
Finish:

Static Pressure (in.H2O): 1.10
Port Length (in): 6"
Stack Dia. (in.): 132
Probe Length (ft): 2
Nozzle ID (in.): 1-8 (0.238)
Console S/N: 1648

Pre-Test Leak Check: ✓
Vacuum Pressure: -12
Post-Test Leak Check:
Vacuum Pressure:

K': 1.68

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	Ø				530.97						
1	2.5	157	0.61	0.89	532.25	274	222	69	75	75	-1
	5	157	0.64	0.94	533.50	299	231	62	73	75	-1
2	7.5	158	0.62	0.90	534.69	298	232	65	75	75	-1
	10	158	0.60	0.87	535.92	300	234	62	75	75	-1
3	12.5	158	0.64	0.93	537.24	298	242	59	74	75	-2
	15	157	0.63	0.91	538.45	299	247	58	74	75	-2
4	17.5	157	0.60	0.87	539.62	300	257	58	75	74	-2
	20	157	0.63	0.92	540.89	301	260	58	75	74	-2
5	22.5	156	0.61	0.89	542.13	298	264	59	76	75	-3
	25	155	0.61	0.89	543.35	299	266	60	76	75	-3
6	27.5	157	0.60	0.87	544.57	298	266	62	76	75	-3
	30	157	0.60	0.87	545.78	299	266	62	76	75	-3
1	32.5	158	0.62	0.90	547.03	298	268	62	76	75	-3
	35	156	0.61	0.89	548.26	298	266	63	75	73	-3
2	37.5	157	0.58	0.85	549.48 *	297	269	63	75	75	-3
	40	154	0.61	0.89	550.68	296	268	64	76	78	-3
3	42.5	157	0.59	0.86	551.92	294	269	64	75	74	-4
	45	158	0.50	0.73	552.96	294	267	64	76	74	-4
4	47.5	157	0.53	0.77	554.07	294	268	65	76	75	-4
	50	160	0.60	0.87	555.29	295	270	65	76	74	-5
5	52.5	157	0.60	0.87	556.52	291	297	68	75	75	-5
	55	158	0.61	0.89	557.78	290	271	67	76	74	-5
6	57.5	160	0.62	0.90	559.04	291	270	66	80	74	-5
	60	159	0.64	0.93	560.29	291	269	65	75	74	-5

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121811269
Client: Northern Pulp
Plant: Pictou, NS
Location: Recovery Boiler
Test: PM-2
Date: Aug 19, 2014
Operators: TBH/ES
Gamma: 1.040
Delta H@: 1.905
Pitot Coeff.: 0.838
Start: 1100
Finish:

Static Pressure (in.H2O): 1.10
Port Length (in): 6"
Stack Dia. (in.): 139
Probe Length (ft): 2'
Nozzle ID (in.): 1-9 (0.235)
Console S/N: 18448

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 1.68

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F)		Pump Vacuum. (in.Hg)
									In	Out	
1	2.5	157	0.67	0.97	561.59	283	271	59	76	74	-6
	5	159	0.64	0.93	562.33	286	271	57	76	74	-6
2	7.5	159	0.68	0.99	564.13	282	269	57	76	74	-6
	10	159	0.72	1.07	565.44	281	269	57	77	75	-6
3	12.5	160	0.68	0.99	566.73	286	267	57	77	75	-6
	15	158	0.67	0.97	567.96	284	266	57	77	76	-6
4	17.5	155	0.65	0.94	569.25	267	264	58	78	75	-6
	20	159	0.60	0.87	570.40	272	263	58	78	76	-6
5	22.5	158	0.60	0.87	571.60	273	263	58	78	76	-6
	25	156	0.63	0.92	572.53	274	263	58	78	76	-6
6	27.5	158	0.62	0.91	573.12	280	261	59	79	76	-6
	30	159	0.61	0.89	575.36	281	261	59	79	76	-6
1	32.5	158	0.61	0.89	576.59	283	260	60	78	76	-6
	35	159	0.61	0.89	577.84	285	260	60	78	76	-7
2	37.5	159	0.62	0.91	579.10	286	259	60	78	76	-7
	40	158	0.62	0.91	580.35	287	260	60	78	76	-7
3	42.5	159	0.63	0.92	581.64	284	259	60	77	76	-8
	45	160	0.61	0.89	582.89	284	259	62	77	76	-8
4	47.5	157	0.64	0.94	584.13	282	257	62	77	76	-8
	50	157	0.63	0.92	585.46	282	256	62	77	76	-8
5	52.5	159	0.60	0.88	586.74	282	256	65	78	76	-8
	55	157	0.60	0.88	587.93	280	256	66	76	77	-8
6	57.5	156	0.63	0.92	589.18	280	256	66	76	77	-8
	60	157	0.60	0.88	590.42	279	255	66	76	76	-9

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 1215 11269
Client: Northern Pulp
Plant: Pictou, NS
Location: Recovery Boiler

Fuel Type:

Time Start: 4:30
Time Finish: 5:00

Test No.: Gas # 2
Date: Aug 19, 2014

Personnel: TBH/ES

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
0	4.4	12.2	129	53	65			
5	4.5	12.1	140	56	65			
10	4.7	12.1	118	57	65			
15	4.4	12.2	132	61	66			
20	4.7	12.1	117	63	65			
25	4.5	12.2	130	67	65			
30	4.3	12.1	150	65	62			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: NORTHERN PULP
Plant: PICTOU NS
Location: RECOVERY BOILER
Test: PM-3
Date: AUG 20/2014
Analyst: NGM

Stantec

FILTER ID # 0516-20

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	905.4	620.0	285.4
2	100 mL H2O	993.6	696.8	296.8
3	Blank	655.9	634.7	21.2
4	200g Silica Gel	991.9	973.5	18.4
		Total Weight Gain (g)		621.8
		Moisture Volume (mL)		

Volume H_2O Collected: 621.8 ml
X 0.048 = 29.85 ft^3 H_2O (Vwc)

DGM Final 714.08 ft^3
DGM Initial 653.81 ft^3
Final - Initial = 60.27 ft^3 (Vmc)

$$\text{Moisture} = \frac{Vwc}{(Vwc + Vmc)}$$

$$\text{Moisture} = \frac{29.85}{(29.85 + 60.27)} \quad \frac{29.85}{90.12}$$

Moisture = 0.331 → 33.1%

1/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 1215112.69
Client: NORTHERN PULP
Plant: PICTON N/S
Location: RECOVERY BOILER
Test: PM
Date: AUG 20/2014
Operators: TAH / KS
Gamma: 1.040
Delta H@: 1.845
Pitot Coeff.: 0.830
Start: 1:00
Finish: 2:10

Static Pressure (in.H2O): 1.15
Port Length (in): 6"
Stack Dia. (in.): 134"
Probe Length (ft): 2'
Nozzle ID (in.): 1-8 (0.237)
Console S/N: 1848

Pre-Test Leak Check: 0
Vacuum Pressure: -18
Post-Test Leak Check:
Vacuum Pressure:

K': 1.044

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0										
1	2.5	159	0.65	0.93	653.81						
	5	160	0.64	0.92	655.07	225	225	68	84	84	-1
2	7.5	159	0.65	0.94	656.30	232	234	58	83	84	-1
	10	158	0.66	0.95	657.57	268	244	48	85	84	-1
3	12.5	154	0.61	0.88	658.84	286	254	45	86	85	-2
	15	159	0.65	0.94	660.06	289	258	44	87	85	-2
4	17.5	160	0.63	0.91	661.35	291	261	48	88	85	-2
	20	159	0.61	0.89	662.59	292	267	43	89	86	-2
5	22.5	159	0.61	0.89	663.81	291	270	43	89	86	-2
	25	158	0.60	0.87	665.04	287	275	43	91	86	-2
6	27.5	158	0.64	0.93	666.26	289	277	44	90	86	-1
	30	159	0.62	0.90	667.53	285	280	45	90	86	-3
1	32.5	159	0.64	0.93	668.74	285	284	46	91	87	-3
	35	158	0.60	0.87	669.99	289	284	46	91	87	-3
2	37.5	157	0.65	0.95	671.19	291	286	47	91	87	-4
	40	158	0.62	0.90	672.416	288	288	47	92	88	-4
3	42.5	157	0.62	0.90	673.70	289	288	47	92	88	-4
	45	158	0.63	0.92	674.94	280	289	48	92	88	-5
4	47.5	158	0.65	0.95	676.17	286	290	47	93	90	-5
	50	157	0.65	0.95	677.44	289	290	48	93	90	-5
5	52.5	158	0.62	0.91	678.77	293	290	48	93	90	-5
	55	155	0.62	0.91	679.95	294	291	47	94	89	-5
6	57.5	159	0.64	0.94	681.18	290	292	48	95	90	-5
	60	158	0.64	0.94	682.44	289	294	48	95	90	-5
					683.69	285	296	49	95	90	-7

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 12511269
Client: NORBRIDGE PULP
Plant: PICTON NS
Location: RECOVERY BOILER
Test: PM-3B
Date: AUG 20/2014
Operators: TBH / RS
Gamma: 0.1040
Delta H@: 1.405
Pitot Coeff.: 0.838
Start: 2:10
Finish: 3:20

Static Pressure (in.H2O): 1.10
Port Length (in): 6
Stack Dia. (in.): 134
Probe Length (ft): 2
Nozzle ID (in.): 1/4 (0.25)
Console S/N: 1044

Pre-Test Leak Check: 0
Vacuum Pressure:
Post-Test Leak Check: 0
Vacuum Pressure: -14

K: 1.64

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
1	2.5	159	0.63	0.92	685.00	280	295	49	96	91	-7
	5	159	0.65	0.95	686.21	280	295	50	95	91	-7
2	7.5	158	0.64	0.94	687.50	282	293	50	95	91	-7
	10	159	0.61	0.89	688.70	283	295	50	95	91	-8
3	12.5	160	0.64	0.93	689.95	278	294	52	95	91	-8
	15	160	0.64	0.93	691.21	280	293	53	94	91	-8
4	17.5	158	0.65	0.95	692.59	281	294	53	94	91	-8
	20	159	0.63	0.93	693.75	279	293	53	95	92	-8
5	22.5	159	0.65	0.95	695.01	281	294	54	95	91	-8
	25	160	0.63	0.93	696.27	284	292	54	95	92	-9
6	27.5	158	0.64	0.94	697.54	286	294	54	97	92	-9
	30	159	0.64	0.94	698.80	286	294	54	97	92	-9
1	32.5	160	0.64	0.93	700.06	284	294	55	97	93	-9
	35	158	0.65	0.95	701.34	278	293	56	97	93	-10
2	37.5	158	0.65	0.95	702.63	276	292	57	96	93	-10
	40	159	0.61	0.89	703.89	274	290	58	97	93	-10
3	42.5	157	0.64	0.94	705.16	275	292	58	99	94	-10
	45	157	0.64	0.94	706.41	279	292	60	98	94	-10
4	47.5	158	0.64	0.94	707.68	281	292	61	98	94	-10
	50	158	0.64	0.94	708.96	279	292	62	98	94	-10
5	52.5	159	0.64	0.94	710.24	279	292	62	98	95	-10
	55	157	0.64	0.94	711.53	277	291	60	98	95	-11
6	57.5	158	0.65	0.95	712.80	276	291	59	98	95	-11
	60	158	0.64	0.94	714.08	277	291	61	98	95	-12

COMBUSTION GAS ANALYSIS
CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Project No.: 121311269
Client: Northern Pulp
Plant: Recovery Boiler
Location: Pictou, NS

Fuel Type: _____

Time Start: ~~8:00~~ 1:10 PM
Time Finish: ~~8:30~~ 1:40 PM

Test No.: Gas # 3
Date: Aug 20, 2014

Personnel: TBH

Time	Concentrations							
	CO_2 (%)	SO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_x (ppm)	NO_2 (ppm)	NO (ppm)	THC (%)
0	13.4	5.5	75	5	34			
5	13.4	5.5	119	6	34			
10	13.8	5.2	82	7	34			
15	13.7	5.3	184	7	35			
20	13.5	5.5	318	8	35			
25	13.2	5.7	440	8	36			
30	13.4	5.5	265	9	36			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: DISSOLVING TANK
Test: PM-1
Date: AUG 20/2014
Analyst: NGM

Stantec

0516-19

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	~~BLANK 100 mL H2O~~	~~665.4~~	~~615.3~~	~~50.10~~
		1049.6	720.0	329.6
2	100 mL H2O	1022.6	699.2	323.4
3	Blank	719.1	621.4	97.7
4	200g Silica Gel	1015.1	1007.0	8.1
		Total Weight Gain (g)		808.9
		Moisture Volume (mL)		51k

Volume H_2O Collected: 808.9 ml
X 0.048 = 38.8 ft^3 H_2O (Vwc)

DGM Final 349.34 ft^3
DGM Initial 312.24 ft^3
Final - Initial = 37.1 ft^3 (Vmc)

Moisture = $\frac{Vwc}{(Vwc + Vmc)}$

Moisture = .52

Moisture = ~~42%~~ 52%

1/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 12511269
Client: Northern Pulp
Plant: Dissolving tank
Location: Pictou, NS
Test: PM-1
Date: Aug 20, 2004
Operators: CM / FS
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: 0.836
Start: 2:50
Finish: 4:30

Static Pressure (in.H2O): -0.20
Port Length (in): 6"
Stack Dia. (in.): 48"
Probe Length (ft): 5'
Nozzle ID (in.): 2-10 (0.391)
Console S/N: VES MS-002

Pre-Test Leak Check: -15
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 2.56

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0				312.24						
1	2.5	216	.1	.21	312.90	230	240	68	98	97	
	5	213	.19	.40	313.77	230	240	68	98	97	
2	7.5	220	.15	.31	314.65	230	240	68	98	97	
	10	219	.21	.44	315.68	230	240	67	98	97	
3	12.5	219	.21	.44	316.76	230	240	68	99	98	
	15	204	.18	.39	317.72	230	240	68	99	98	-1.5
4	17.5	217	.21	.44	318.70	230	241	68	100	98	
	20	218	.19	.40	319.66	230	240	67	100	98	
5	22.5	213	.19	.40	320.63	230	239	67	100	98	
	25	215	.17	.36	321.58	230	239	67	101	98	
6	27.5	215	.17	.36	322.53	230	240	66	101	98	-2.5
	30	207	.17	.36	323.51	230	240	66	101	98	
7	32.5	215	.15	.32	324.40	230	239	67	102	99	
	35	195	.13	.28	325.30	230	240	66	102	99	
8	37.5	198	.15	.33	326.25	230	240	67	102	99	
	40	200	.17	.37	327.20	230	240	67	102	99	
9	42.5	211	.16	.34	328.17	230	241	67	102	99	
	45	168	.20	.40	329.20	230	240	67	102	99	
10	47.5	126	.15	.32	330.07	230	240	67	103	99	2.5
	50	197	.18	.39	331.05	230	241	67	103	99	

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 12511269
Client: Northern Pulp
Plant: Dissolving tank
Location: Pictou, NS
Test: PM-1
Date: Aug 20, 2014
Operators: CM / MA
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: 0.836
Start: 3:50
Finish: 4:30

Static Pressure (In.H2O): -0.20
Port Length (In): 6"
Stack Dia. (In.): 48"
Probe Length (ft): 7
Nozzle ID (In.): 2-10 (0.3118)
Console S/N: VES MS-002

Pre-Test Leak Check: -15
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 2.56

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (In.H2O)	Orifice dH (In.H2O)	Gas Meter Volume 331.05 (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (In.Hg)
1	2.5	214	.13	.27	331.95	230	240	66	101	100	
	5	198	.14	.31	332.75	230	239	67	102	100	
2	7.5	200	.18	.39	333.62	230	239	67	102	100	-3
	10	196	.16	.35	334.48	230	241	67	102	100	
3	12.5	198	.18	.39	335.30	230	241	67	103	100	
	15	201	.17	.37	336.17	230	239	68	103	100	
4	17.5	205	.17	.37	337.12	230	240	68	103	100	-5
	20	205	.17	.37	338.10	230	240	67	103	100	
5	22.5	204	.17	.37	339.03	230	240	67	104	100	-5
	25	206	.17	.37	339.99	230	240	67	104	101	
6	27.5	201	.08	.17	340.70	230	238	66	104	101	
	30	198	.16	.35	341.81	230	240	66	104	101	
7	32.5	196	.14	.31	342.46	230	239	66	104	101	
	35	198	.19	.42	343.44	230	239	67	104	101	
8	37.5	209	.19	.41	344.44	230	240	67	104	101	
	40	204	.19	.41	345.42	230	240	67	104	101	-6
9	42.5	209	.18	.39	346.44	230	240	67	104	101	
	45	212	.18	.39	347.41	230	240	67	105	101	
10	47.5	213	.18	.38	348.38	230	240	67	104	101	-7
	50	215	.18	.38	349.34	230	240	67	104	101	

COMBUSTION GAS ANALYSIS
CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou NS
Location: Dissolving Tank

Fuel Type: NA

Time Start: 3:00
Time Finish: 3:30

Test No.: Gas #1
Date: Aug 20th, 2014

Personnel: CAM

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
0	20.9	0	0	0	0			
5	20.9	0	0	0	0			
10	21.0	0	0	0	0			
15	20.9	0	0	0	0			
20	20.9	0	0	0	0			
25	20.9	0	0	0	0			
30	20.9	0	0	0	0			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Dissolving Tank
Test: PM-2
Date: ~~M.C.M~~ Aug 20, 2014
Analyst: M.C.M

Stantec

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	~~Blank~~ 100 mL H2O	684.2	614.4	70.0
		1050.2	721.7	328.5
2	100 mL H2O	1033.4	717.3	316.1
3	Blank	701.8	622.6	75.2
4	200g Silica Gel	1022.7	1015.0	7.7
		Total Weight Gain (g)		801.3
		Moisture Volume (mL)		801.3

Volume H_2O Collected: 801.3 ml
X 0.048 = 38.5 ft^3 H_2O (Vwc)

DGM Final 388.76 ft^3
DGM Initial 349.53 ft^3
Final - Initial = 39.23 ft^3 (Vmc)

Moisture = $\frac{Vwc}{(Vwc + Vmc)}$

Moisture = $\frac{38.5}{38.5 + 39.23}$

Moisture = 50%

1/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 12511269
Client: Northern Pulp
Plant: Pictou N.S
Location: Dissolving Tank
Test: PM-2
Date: Aug 21 2014
Operators: GM MA
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: 0.836
Start: 8:20
Finish: 10:20

Static Pressure (in.H2O): -0.20
Port Length (in): 6"
Stack Dia. (in.): 48"
Probe Length (ft): 5'
Nozzle ID (in.): (2-10) (0.3115)
Console S/N: VES MS-002

Pre-Test Leak Check: -15
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 3.26

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	Ø				349.53						
1	2.5	184	.16	.45	350.54	204	198	68	90	90	-1
	5	187	.19	.55	351.66	224	206	68	91	90	
2	7.5	184	.20	.52	352.54	232	218	68	91	90	
	10	194	.19	.52	353.89	231	229	67	92	90	
3	12.5	144	.17	.47	354.92	230	236	67	93	91	
	15	203	.18	.44	355.48	230	239	67	94	91	
4	17.5	211	.18	.48	357.00	230	242	67	95	91	
	20	214	.21	.56	358.00	230	241	68	95	92	-2
5	22.5	215	.19	.51	359.17	230	241	67	96	92	
	25	215	.18	.48	360.12	230	242	68	97	93	
6	27.5	207	.16	.43	361.10	230	240	68	97	93	
	30	213	.18	.48	362.17	230	242	68	97	93	
7	32.5	203	.15	.41	363.14	230	242	68	97	93	
	35	192	.13	.22	363.89	230	241	68	98	93	-3
8	37.5	196	.10	.20	364.58	230	240	67	98	94	
	40	201	.18	.24	365.25	230	240	67	98	94	
9	42.5	211	.20	.24	366.03	230	238	68	98	94	
	45	211	.19	.51	367.13	230	240	68	98	94	
10	47.5	205	.18	.49	368.18	230	240	68	99	95	-4
	50	210	.18	.49	369.23	230	240	68	99	95	

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511269
Client: Northern Pulp
Plant: Pictou
Location: Dissolving Tank
Test: PM-2
Date: Aug 20, 2014
Operators: CM MM
Gamma: 1.007
Delta H@: 1.724
Pitot Coeff.: 0.836
Start: 8:20
Finish: 10:16

Static Pressure (in.H2O): -0.20
Port Length (in): 6"
Stack Dia. (in.): 42"
Probe Length (ft): 5'
Nozzle ID (in.): 2-10 (0.2410)
Console S/N: WFS MS-002

Pre-Test Leak Check: -15
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 3.26

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume 369.55 (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
1	2.5	197	.14	.39	370.18	230	241	68	98	95	
	5	203	.15	.41	371.10	230	240	68	98	96	
2	7.5	198	.16	.28	371.80	230	240	68	99	96	-4
	10	199	.18	.50	372.83	230	240	68	99	96	
3	12.5	208	.14	.52	373.89	230	240	68	100	96	
	15	213	.20	.54	374.99	230	238	68	100	97	-5
4	17.5	199	.19	.50	376.07	230	240	66	101	97	
	20	203	.18	.49	377.13	230	241	67	101	96	
5	22.5	206	.17	.47	378.17	230	239	68	102	97	
	25	209	.17	.44	379.21	230	238	68	102	98	-6
6	27.5	203	.17	.42	380.25	230	240	68	103	98	
	30	200	.14	.37	381.19	230	239	67	102	98	
7	32.5	205	.15	.41	382.12	230	240	67	102	98	
	35	216	.16	.42	383.16	230	239	68	102	98	-6
8	37.5	190	.12	.34	383.90	230	240	68	102	98	
	40	205	.18	.40	384.56	230	240	68	102	98	-7
9	42.5	208	.16	.44	385.66	230	240	68	102	98	
	45	204	.17	.47	386.77	230	240	67	103	99	
10	47.5	199	.18	.47	387.79	230	242	67	103	99	-6
	50	197	.14	.39	388.76	230	240	67	103	99	

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 1215 11269
Client: Northern Pulp
Plant: Pictou NS
Location: Dissolving Tank

Fuel Type:

Time Start: 8:30
Time Finish: 9:00

Test No.: Gas # 2
Date: Aug 21st

Personnel:

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_x (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
0	20.9	0	0	0	0			
5	20.9	0	0	0	0			
10	20.9	0	0	0	0			
15	20.9	0	0	0	0			
20	21.0	0	0	0	0			
25	20.9	0	0	0	0			
30	20.9	0	0	0	0			

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Dissolving Tank
Test: PM-3
Date: Aug 22, 2014
Analyst: C.M M.M

Stantec

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	973.0	614.8	358.2
		1019.2	737.4	281.8
2	100 mL H2O	963.4	718.9	244.5
3	Blank	676.0	622.9	53.1
4	200g Silica Gel	997.6	991.6	6
		Total Weight Gain (g)		943.6
		Moisture Volume (mL)		943.6

Volume H_2O Collected: 943.6 ml
X 0.048 = 45.2928 ft^3 H_2O (Vwc)

DGM Final 424.56 ft^3
DGM Initial 388.93 ft^3
Final - Initial = 36.63 ft^3 (Vmc)

Moisture = $\frac{Vwc}{(Vwc + Vmc)}$ 80.9228

Moisture = .5597

Moisture = 56%

SOURCE TESTING FIELD DATA SHEET

Job No.: 1215 11269
Client: Northern Poly
Plant: Pictou N.S.
Location: Dissolving Tank
Test: NPM-3
Date: Aug 02, 202-
Operators: CH M.H
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: 0.836
Start: 8:10
Finish:

Static Pressure (In.H2O): -0.20
Port Length (In): 6"
Stack Dia. (In.): 48"
Probe Length (ft): 5'
Nozzle ID (In.): 2-10 (0.311)
Console S/N: VES MS-002

Pre-Test Leak Check: -10
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K: 2.56

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (In.H2O)	Orifice dH (In.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (In.Hg)
	0				388.93						
1	2.5	193	.13	.28	389.80	200	239	67	93	93	
	5	192	.12	.26	390.45	216	241	67	93	93	
2	7.5	185	.13	.29	391.46	222	241	67	94	93	-1
	10	191	.16	.35	392.16	230	241	66	94	93	
3	12.5	197	.19	.41	392.90	230	240	66	95	93	
	15	206	.20	.42	393.87	230	240	65	95	93	
4	17.5	199	.20	.42	394.85	230	239	65	96	93	
	20	198	.17	.37	395.78	230	240	65	96	94	
5	22.5	198	.18	.34	396.72	230	240	63	97	94	
	25	193	.18	.35	397.67	230	241	63	97	94	
6	27.5	203	.16	.34	398.58	230	240	62	98	94	-2
	30	209	.18	.38	399.51	230	237	63	98	94	
7	32.5	213	.17	.36	400.39	230	238	63	98	95	
	35	209	.18	.38	401.32	230	243	64	99	95	
8	37.5	203	.08	.17	402.23	230	237	63	99	95	
	40	199	.19	.41	402.94	230	242	64	99	95	
9	42.5	199	.19	.41	403.91	230	242	66	99	96	
	45	196	.19	.41	404.41	230	241	65	100	96	
10	47.5	196	.18	.39	405.90	230	238	66	100	96	-3
	50	202	.19	.39	406.23	230	240	66	100	96	

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511269
Client: Northern Pulp
Plant: Pictou N.S
Location: Dissolving Tank
Test: PM-3
Date: Aug 22
Operators: CA, H.A
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: .836
Start:
Finish:

Static Pressure (in.H2O): -.20
Port Length (in): 6
Stack Dia. (in.): 48
Probe Length (ft): 5'
Nozzle ID (in.): 2-10 (0.31)
Console S/N:

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K: 2.56

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume 406.83 (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
1	2.5	205	.14	.28	407.66	230	240	67	98	97	
	5	201	.13	.28	409.42	230	239	67	100	97	
2	7.5	204	.14	.30	409.16	230	238	66	100	97	
	10	216	.18	.38	410.04	230	241	67	101	97	-3
3	12.5	198	.15	.33	410.86	230	243	66	101	98	
	15	195	.16	.33	411.64	230	238	66	101	98	
4	17.5	201	.18	.39	412.41	230	242	65	101	98	
	20	213	.20	.43	413.30	230	249	66	101	98	
5	22.5	211	.19	.41	414.26	230	241	66	101	98	-4
	25	211	.19	.41	415.24	230	238	66	101	98	
6	27.5	209	.19	.41	416.22	230	241	67	102	98	
	30	218	.19	.41	417.18	230	238	67	102	99	
7	32.5	202	.19	.41	418.14	230	238	67	102	99	
	35	200	.17	.37	419.01	230	243	67	102	99	-4
8	37.5	218	.18	.38	419.92	230	238	67	102	97	
	40	214	.18	.38	420.87	230	245	66	102	99	-5
9	42.5	218	.19	.40	421.77	230	239	66	102	99	
	45	204	.14	.30	422.73	230	243	66	102	99	
10	47.5	202	.21	.45	423.58	230	241	66	103	99	
	50	223	.23	.48	424.56	230	236	66	103	99	-6

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou NS
Location: Dissolving Tank

Fuel Type: NA

Time Start: 8:30
Time Finish: 9:00

Test No.: Gas # 3
Date: Aug 22, 2014

Personnel: CAM

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
6	21.9	0	0	0	0			
9	20.9	0	0	0	0			
10	20.9	0	0	0	0			
15	20.9	0	0	0	0			
20	20.9	0	0	0	0			
25	20.9	0	0	0	0			
30	20.9	0	0	0	0			

MOISTURE FIELD DATA SHEET

Stantec

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Power Boiler
Test: PM-1
Date: Aug 19th
Analyst: CM

FILTER ID
0508-24

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	935.7	717.8	217.9
2	100 mL H2O	741.1	705.1	36
3	Blank	626.0	620.7	5.3
4	200g Silica Gel	956.9	944.5	12.4
		Total Weight Gain (g)		271.6
		Moisture Volume (mL)		271.6

Volume H_2O Collected: 271.6 ml
X 0.048 = 13.04 ft^3 H_2O (Vwc)

DGM Final 210.47 ft^3
DGM Initial 155.93 ft^3
Final - Initial = 54.56 ft^3 (Vmc)

Moisture = $\frac{Vwc}{(Vwc + Vmc)}$ 67.6

Moisture = 19.3

Moisture = 19%

Ts
Tf

SOURCE TESTING FIELD DATA SHEET

1/2

Job No.: 121511269
Client: Northern Air
Plant: Power Boiler
Location: Victor NY
Test: PM 1
Date: Aug 19 2014
Operators: BH/FS
Gamma: 1.003
Delta H@: 1.794
Pitot Coeff.: 0.817
Start: 11:00
Finish: 1:00

Static Pressure (in.H2O): 0.20
Port Length (in): 6"
Stack Dia. (in.): 72"
Probe Length (ft): 8-2
Nozzle ID (in.): 1-6 (0.173)
Console S/N: NGS.M5-002

Pre-Test Leak Check: ✓
Vacuum Pressure: -18
Post-Test Leak Check:
Vacuum Pressure:

K': 0.64

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0				155.92						
1	2.5	141	0.80	0.45	156.90	230	243	67	70	69	-1
	5	144	.78	.44	157.97	229	236	67	69	69	
2	7.5	138	.69	.39	158.93	225	239	65	69	69	
	10	142	.72	.40	159.99	232	239	64	68	69	
3	12.5	142	.60	.34	160.77	231	240	63	68	68	
	15	139	.59	.35	161.69	232	242	62	69	68	
4	17.5	142	.59	.34	162.57	231	245	61	69	68	
	20	142	.58	.34	163.37	230	235	60	69	68	
5	22.5	142	.61	.34	164.37	230	234	61	69	68	
	25	142	.61	.34	165.26	230	238	61	69	68	
6	27.5	142	.84	.47	166.28	229	237	61	70	69	-1
	30	142	.87	.49	167.32	230	242	61	70	69	
7	32.5	144	1.7	.95	168.74	230	243	61	70	69	
	35	143	1.7	.96	170.18	229	240	62	71	69	
8	37.5	143	1.7	.96	171.63	230	231	61	71	69	-2
	40	148	1.8	1.00	173.10	229	224	61	71	69	
9	42.5	142	1.8	1.02	174.73	231	226	61	72	69	
	45	143	1.8	1.01	176.27	230	230	62	72	69	
10	47.5	142	1.8	1.01	177.76	229	230	62	72	69	-3
	50	143	1.8	1.01	179.27	230	235	62	72	69	
11	52.5	142	1.7	.96	180.69	230	229	62	73	69	-3
	55	140	.94	.53	181.81	230	232	64	73	69	
12	57.5	141	1.5	.85	183.16	230	232	64	73	69	-2
	60	139	1.7	.96	184.60	229	238	65	73	70	

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 12151269
Client: Northern Pulp
Plant: Pictou, NS
Location: Power Boiler
Test: RM-1
Date: Aug 12 2014
Operators: TDH/FS
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: 0.817
Start: 11:00
Finish: 1:00

Static Pressure (in.H2O): 0.20
Port Length (in): 6"
Stack Dia. (in.): 72"
Probe Length (ft): 8-7
Nozzle ID (in.): F6 (0.173)
Console S/N: VES MS-002

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K: 0.64

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0				184.60						
1	2.5	139	1.3	.74	185.92	232	237	67	70	70	-1
	5	137	1.2	.68	187.16	229	239	66	71	70	
2	7.5	142	1.2	.68	188.39	230	242	63	71	70	
	10	140	1.1	.62	189.46	230	241	62	72	70	
3	12.5	141	1.1	.62	190.64	230	242	60	73	70	-2
	15	143	1	.56	191.79	231	240	60	73	70	
4	17.5	143	1.2	.68	192.99	230	242	59	74	70	
	20	141	1.1	.62	193.91	230	238	58	75	71	-2
5	22.5	141	1.2	.68	195.36	231	242	59	76	71	
	25	141	1.2	.68	196.55	221	238	59	76	71	
6	27.5	143	1.2	.68	197.76	232	241	60	77	73	
	30	142	1.2	.68	199.00	230	242	61	77	73	
7	32.5	143	1.2	.68	200.23	230	240	62	77	72	-2.5
	35	142	.79	.45	201.25	230	238	62	78	72	
8	37.5	142	.60	.34	202.15	229	241	63	78	73	
	40	142	.59	.34	203.05	229	236	63	78	73	
9	42.5	143	.60	.34	203.95	229	241	65	78	74	
	45	143	.60	.34	204.83	230	237	65	79	74	
10	47.5	146	.72	.41	205.80	230	238	65	79	74	-2
	50	144	.72	.41	206.78	230	237	65	79	75	
11	52.5	147	.68	.39	207.73	230	238	65	79	75	
	55	145	.64	.36	208.65	230	238	64	79	75	-2.5
12	57.5	143	.61	.35	209.56	230	238	65	80	75	
	60	142	.68	.39	210.47	230	242	65	80	75	

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Power Boiler

Fuel Type:

Time Start: 11:44
Time Finish: 12:15

Test No.: Gas #1
Date: Aug 19, 2013

Personnel: TBH/CM

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_x (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
0	13.4	5.6	727	0	30			
5	13.5	5.5	1033	0	30			
10	13.6	5.4	948	0	29			
15	14.1	5.0	917	0	27			
20	14.2	5.0	948	0	27			
25	13.6	5.4	823	0	28			
30	13.5	5.5	780	0	30			

MOISTURE FIELD DATA SHEET

Project No.: 1215 11269
Client: Northern Pulp
Plant: Pictou, NS
Location: Power Boiler
Test: PM-3
Date: Aug 19, 2014
Analyst: C.M

Stantec

FILTER ID
01 28-15

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	965.3	739.7	225.6
2	100 mL H2O	735.6	711.5	24.1
3	Blank	625.2	621.7	3.5
4	200g Silica Gel	966.6	956.6	10
		Total Weight Gain (g)		263.2
		Moisture Volume (mL)		263.2

Volume H_2O Collected: 263.2 ml
X 0.048 = 12.67 ft^3 H_2O (Vwc)

DGM Final 261.62 ft^3
DGM Initial 210.76 ft^3
Final - Initial = 50.86 ft^3 (Vmc)

$$\text{Moisture} = \frac{\text{Vwc}}{(\text{Vwc} + \text{Vmc})}$$

$$\text{Moisture} = \frac{12.67}{12.67 + 50.86}$$

Moisture = 19.8 %

1/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511269
Client: Northern Poly
Plant: Picton NS
Location: Power Boiler
Test: DM-2
Date: Aug 19, 2014
Operators: C.A
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: 0.817
Start: 5:00
Finish: 5:10

Static Pressure (in.H2O): 0.20
Port Length (in): 1.11
Stack Dia. (in.): 72.4
Probe Length (ft): 8-2
Nozzle ID (in.): 1-6 (0.175)
Console S/N: VES MS-002

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': 0.64

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0				210.76						
1	2.5	143	1.1	.63	211.95	231	244	75	78	79	-1
	5	143	1	.57	213.09	230	239	73	78	78	
2	7.5	143	1	.57	214.20	230	236	71	78	78	
	10	142	.99	.63	215.29	229	239	67	77	78	
3	12.5	145	.97	.55	216.81	229	239	65	77	78	
	15	144	.95	.54	217.49	230	243	62	78	78	
4	17.5	140	.97	.56	218.61	230	240	60	78	78	
	20	141	.97	.56	219.74	230	241	59	78	78	
5	22.5	142	1	.57	220.88	230	239	58	78	77	
	25	140	.97	.56	222.00	228	240	58	78	77	
6	27.5	137	1	.57	222.92	232	240	57	78	77	-2
	30	144	.96	.55	224.28	229	242	57	79	77	
7	32.5	142	.52	.30	225.13	230	239	57	79	77	-1.5
	35	142	.52	.30	225.80	228	239	58	79	78	
8	37.5	145	.44	.25	226.76	229	238	59	78	77	
	40	145	.44	.25	227.54	229	239	60	78	78	
9	42.5	138	.49	.28	228.33	230	243	60	78	77	-1.5
	45	141	.49	.28	229.15	230	237	61	78	77	
10	47.5	144	.54	.31	229.98	230	237	61	78	77	
	50	143	.54	.31	230.64	230	237	62	78	77	-1.5
11	52.5	145	.58	.33	231.40	230	240	62	78	77	
	55	144	.59	.34	232.15	230	242	62	78	77	
12	57.5	145	.50	.28	232.97	230	240	62	78	77	
	60	144	.50	.29	233.78	230	238	63	78	77	-2

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511269
Client: Northern Pulp
Plant: Pictou N.S
Location: Power Boiler
Test: PM-2
Date: Aug 19, 2014
Operators: CM
Gamma: 1.003
Delta H@: 1.724
Pitot Coeff.: 0.819
Start: 4:08PM
Finish: 5:08 PM

Static Pressure (in.H2O): 0.20
Port Length (in): 6"
Stack Dia. (in.): 72"
Probe Length (ft):
Nozzle ID (in.):
Console S/N:

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': .64

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0				233.78	188					
1	2.5	152	.87	.46	234.82	189	233	73	77	77	
	5	152	.85	.48	235.88	213	237	69	78	77	
2	7.5	151	.63	.36	236.80	227	237	58	79	77	
	10	151	.63	.36	237.69	211	235	54	80	78	
3	12.5	153	.53	.30	238.51	227	240	53	80	78	
	15	156	.56	.31	239.34	231	235	53	80	78	-1.5
4	17.5	147	.55	.31	240.20	230	241	53	81	78	
	20	147	.55	.31	241.06	231	240	53	81	78	
5	22.5	147	.61	.35	241.91	231	241	53	82	79	
	25	144	.59	.38	242.69	231	235	53	82	79	-1.5
6	27.5	145	.60	.34	243.65	230	245	54	82	79	
	30	144	.79	.45	244.69	230	238	54	83	79	
7	32.5	147	.80	.46	245.67	230	235	55	83	80	
	35	147	1.6	.91	247.03	230	238	55	83	80	-1.5
8	37.5	146	1.7	.97	248.49	228	226	55	84	80	
	40	147	1.7	.97	249.94	229	238	54	84	80	
9	42.5	147	1.7	.97	251.39	230	231	54	85	81	-2.5
	45	146	1.7	.97	252.87	230	232	54	85	81	
10	47.5	145	1.7	.98	254.33	230	237	55	85	81	
	50	145	1.7	.98	255.79	230	225	55	85	81	
11	52.5	147	1.7	.98	257.26	230	231	55	86	81	-4
	55	147	1.7	.98	258.81	230	242	55	86	81	
12	57.5	147	1.7	.98	260.17	230	240	55	86	81	
	60	148	1.3	.74	261.62	231	237	56	86	81	

MOISTURE FIELD DATA SHEET

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou NS
Location: Power Boiler
Test: DM3
Date: Aug 20/2014
Analyst: BS

Stantec

1 / 0128-11
2 / 0128-10

Moisture Data

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	923.5	724.3	199.2
2	100 mL H2O	720.2	696.5	23.7
3	Blank	624.1	621.5	2.6
4	200g Silica Gel	975.8	966.5	9.3
		Total Weight Gain (g)		234.8
		Moisture Volume (mL)		234.8

Volume H_2O Collected: 234.8 ml
X 0.048 = 11.2704 $ft^3 H_2O$ (Vwc)

DGM Final 311.76 ft^3
DGM Initial 262.03 ft^3
Final - Initial = 49.73 ft^3 (Vmc)

Moisture = $\frac{Vwc}{(Vwc + Vmc)}$

Moisture = .18476

Moisture = 18%

1/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121511269
Client: Northern Pulp
Plant: Pictou NS
Location: Power Boiler
Test: PM-3
Date: Aug 20, 2014
Operators: C.K
Gamma: 1.002
Delta H@: 1.324
Pitot Coeff.: 0.817
Start: 9:17
Finish: 11:20

Static Pressure (in.H2O):
Port Length (in):
Stack Dia. (in.):
Probe Length (ft):
Nozzle ID (in.):
Console S/N:

Pre-Test Leak Check:
Vacuum Pressure:
Post-Test Leak Check:
Vacuum Pressure:

K': .64

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F)		Pump Vacuum (in.Hg)
									In	Out	
	0				262.03						
1	2.5	144	.66	.37	262.98	233	242	64	73	83	
	5	146	.65	.37	263.92	233	244	62	72	72	
2	7.5	148	.57	.32	264.81	229	240	61	73	73	
	10	145	.57	.32	265.70	229	240	60	73	72	-1
3	12.5	145	.46	.26	266.51	231	241	59	73	72	
	15	146	.46	.26	267.29	231	242	59	74	73	
4	17.5	146	.41	.23	268.04	230	238	58	74	73	
	20	147	.42	.24	268.90	230	239	58	74	73	
5	22.5	146	.46	.26	269.82	230	245	59	75	73	
	25	149	.49	.27	270.45	229	242	59	75	73	-1
6	27.5	146	.65	.37	271.40	229	236	59	75	73	
	30	146	.66	.37	272.31	230	239	59	76	73	
7	32.5	143	1.4	.79	273.53	230	240	59	76	73	
	35	145	1.4	.79	274.91	228	229	59	77	74	
8	37.5	144	1.4	.80	276.20	229	233	58	78	74	-2
	40	144	1.5	.85	277.53	231	230	58	78	74	
9	42.5	144	1.5	.85	278.87	231	229	58	79	74	
	45	145	1.5	.85	280.17	230	230	58	80	75	
10	47.5	144	1.6	.91	281.56	229	231	58	80	75	-2
	50	144	1.6	.91	282.94	230	241	59	80	74	
11	52.5	146	1.5	.85	284.27	230	236	59	81	75	
	55	146	1.5	.85	285.59	231	238	60	81	75	
12	57.5	145	1.4	.80	286.98	230	235	60	81	76	-2
	60	143	1.3	.74	288.20	230	234	60	82	77	-2.5

2/2

SOURCE TESTING FIELD DATA SHEET

Job No.: 121811269
Client: Northern Pulp
Plant: Pictou N.S
Location: Power Boiler
Test: PM-3
Date: Aug 20, 2014
Operators: C.M
Gamma: 1.002
Delta H@: 1.724
Pitot Coeff.: 0.817
Start: 9:12
Finish: 11:10

Static Pressure (in.H2O):
Port Length (in):
Stack Dia. (in.):
Probe Length (ft):
Nozzle ID (in.):
Console S/N:

Pre-Test Leak Check:
Vacuum Pressure: -17
Post-Test Leak Check:
Vacuum Pressure:

K': .64

Traverse Point	Time (min)	Stack Gas Temp., Ts (F)	Velocity Head, dP (in.H2O)	Orifice dH (in.H2O)	Gas Meter Volume (cu.ft)	Probe Temp. (F)	Oven Temp. (F)	Impinger Outlet Temp. (F)	Gas Meter Temp. (F) In	Gas Meter Temp. (F) Out	Pump Vacuum (in.Hg)
	0										
1	2.5	146			288.20						
	5	146	1	.57	289.42	233	242	64	77	76	
2	7.5	145	1	.57	290.70	231	228	68	78	77	-5
	10	141	1	.57	291.74	231	230	65	78	77	
3	12.5	144	.97	.56	292.83	230	232	59	80	77	
	15	141	.96	.55	293.95	231	239	57	81	77	
4	17.5	144	.98	.56	294.09	230	241	56	81	77	-1
	20	145	.98	.56	296.23	230	236	56	81	78	
5	22.5	144	.90	.51	297.31	230	239	55	82	78	
	25	144	.89	.51	298.41	230	246	52	82	78	
6	27.5	142	.96	.55	299.56	219	243	56	83	78	
	30	142	.99	.57	300.70	232	242	56	83	78	
7	32.5	143	.96	.55	301.84	232	241	56	83	79	-1.5
	35	143	.67	.38	302.78	230	242	56	83	79	
8	37.5	144	.60	.34	303.67	232	237	56	84	79	
	40	144	.46	.26	304.55	229	241	57	83	79	
9	42.5	144	.46	.26	305.37	229	239	58	84	79	-1.5
	45	145	.46	.26	306.16	230	240	59	84	79	
10	47.5	143	.53	.30	306.94	230	242	60	84	80	
	50	143	.47	.27	307.73	229	241	60	84	80	
11	52.5	142	.47	.27	308.50	231	241	60	85	81	
	55	141	.47	.27	309.32	230	236	68	85	81	
12	57.5	142	.46	.27	310.15	231	241	61	85	81	
	60	142	.47	.27	310.95	231	245	61	86	80	
			.47	.27	311.76	230	241	61	86	81	

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 121511269
Client: Northern Pulp
Plant: Pictou, NS
Location: Power Boiler

Fuel Type:

Time Start: 4:00
Time Finish: 4:30

Test No.: Gas #2
Date: Aug 19, 2014

Personnel: TBH/CM

Time	Concentrations							
	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_x (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
0	12.4	6.3	448	0	36			
5	12.4	6.1	473	0	37			
10	12.5	6.2	541	0	36			
15	12.7	6.0	666	0	37			
20	12.0	6.7	734	0	40			
25	11.7	6.8	665	0	41			
30	10.8	7.4	560	0	46			
0	14.2	5.0	857	0	25		7:00 – 7:30	
5	13.7	5.3	1003	0	28			
10	13.7	5.6	853	0	31			
15	13.8	5.3	1432	0	30			
20	14.2	4.9	1291	0	29			
25	13.5	5.6	633	0	35			
30	13.1	5.8	484	0	35			

Gas # 3

VOLUMETRIC FLOWRATE DETERMINATION
FIELD SHEET

Project No.: 12511269
Client: Northern Pulp
Location: HLRV
Personnel: C.M

Barometric Press. (in. Hg): _____
Static Press. (in. H_2O): _____
Gas Moisture (%): _____
CO2 (%) _____
O2 (%) _____

Stack Diameter (in.) _____
Pitot Coefficient, Cp: _____

Date: Aug 20th
Time: 11:58 AM

Point	Test: 1	
	ΔP (in. H_2O)	Temp Ts (°F)
1	0.8	134
2	0.77	140
3	0.79	142
4	0.77	142
5	0.78	142
6	0.79	142
7	.81	141
8	.79	140
9	.78	139
10	.75	147
11	.75	137
12	.77	137

Date: Aug 20th
Time: 12:00

Point	Test: 2	
	ΔP (in. H_2O)	Temp Ts (°F)
1	.72	129
2	.76	137
3	.79	139
4	.79	141
5	.79	142
6	.80	142
7	.81	142
8	.81	141
9	.80	140
10	.79	139
11	.77	139
12	.76	138

Date: Aug 20th
Time: 12:05

Point	Test: 3	
	ΔP (in. H_2O)	Temp Ts (°F)
1	.8	135
2	.78	137
3	.79	140
4	.81	141
5	.8	141
6	.8	143
7	.81	144
8	.82	147
9	.8	146
10	.79	144
11	.77	142
12	.76	141

Date: Aug 20th
Time: 12:10

Point	Test: 4	
	ΔP (in. H_2O)	Temp Ts (°F)
1	.7	136
2	.87	138
3	.85	135
4	.8	140
5	.81	141
6	.8	141
7	.83	145
8	.83	144
9	.8	141
10	.81	142
11	.8	141
12	.79	139

VOLUMETRIC FLOWRATE DETERMINATION FIELD SHEET

Project No.: 12151269
Client: Northern Pulp
Location: HLRV
Personnel: C.M

Barometric Press. (in. Hg): _____
Static Press. (in. H_2O): _____
Gas Moisture (%): _____
CO2 (%) _____
O2 (%) _____

Stack Diameter (in.) _____
Pitot Coefficient, Cp: _____

Date: Aug 20th
Time: 12:15

Point	Test: 5 ΔP (in. H_2O)	Temp Ts (°F)
1	.78	134
2	.78	135
3	.79	136
4	.8	140
5	.8	141
6	.81	145
7	.83	145
8	.8	144
9	.81	144
10	.78	141
11	.77	140
12	.76	139

Date: Aug 20th
Time: 12:20

Point	Test: 6 ΔP (in. H_2O)	Temp Ts (°F)
1	.8	143
2	.81	144
3	.82	145
4	.81	144
5	.8	143
6	.79	142
7	.78	141
8	.77	140
9	.77	140
10	.77	141
11	.79	142
12	.8	143

Date: Aug 20th
Time: 12:25

Point	Test: 7 ΔP (in. H_2O)	Temp Ts (°F)
1	0.79	140
2	0.80	139
3	0.81	140
4	0.82	139
5	0.81	141
6	0.83	142
7	0.79	145
8	0.78	145
9	0.78	142
10	0.77	142
11	0.77	140
12	0.76	140

Date: Aug 20th
Time: 12:30

Point	Test: 8 ΔP (in. H_2O)	Temp Ts (°F)
1	0.8	142
2	0.79	143
3	0.81	145
4	0.81	141
5	0.82	141
6	0.81	145
7	0.81	144
8	0.79	143
9	0.79	144
10	0.78	144
11	0.76	145
12	0.76	141

VOLUMETRIC FLOWRATE DETERMINATION FIELD SHEET

Project No.: 12151269
Client: Northern Pulp
Location: HLRV
Personnel: C.M

Barometric Press. (In. Hg): _____
Static Press. (In. H_2O): _____
Gas Moisture (%): _____
CO2 (%) _____
O2 (%) _____

Stack Diameter (In.) _____
Pitot Coefficient, Cp: _____

Date: Aug 20th
Time: 12:35

Point	Test: ΔP (In. H_2O)	Temp Ts (°F)
1	0.79	141
2	0.80	142
3	0.81	144
4	0.82	145
5	0.81	145
6	0.83	144
7	0.80	141
8	0.79	144
9	0.78	142
10	0.77	143
11	0.77	142
12	0.76	140

Date: Aug 20th
Time: 12:40

Point	Test: ΔP (In. H_2O)	Temp Ts (°F)
1	0.78	142
2	0.75	141
3	0.80	143
4	0.81	141
5	0.82	142
6	0.81	141
7	0.83	142
8	0.81	143
9	0.79	143
10	0.79	144
11	0.77	145
12	0.76	141

Date: Aug 20th
Time: 12:45

Point	Test: ΔP (In. H_2O)	Temp Ts (°F)
1	0.79	141
2	0.80	142
3	0.81	143
4	0.81	144
5	0.82	145
6	0.83	142
7	0.82	143
8	0.81	144
9	0.79	144
10	0.79	144
11	0.77	144
12	0.76	141

Date: Aug 20th
Time: 12:50

Point	Test: ΔP (In. H_2O)	Temp Ts (°F)
1	0.80	142
2	0.79	141
3	0.80	142
4	0.81	141
5	0.82	141
6	0.81	142
7	0.80	143
8	0.80	144
9	0.79	144
10	0.79	145
11	0.79	142
12	0.77	141

COMBUSTION GAS ANALYSIS CONCENTRATION FIELD SHEET

Sampling Methodology: Environment Canada EPS 1/RM/15

Stantec

Project No.: 121511769
Client: Northern Pulp
Plant: HLRV -
Location: Pictou, NS
Test No.: NOx 1, 2, 3
Date: Aug 20th, 2014

Fuel Type: natural
Time Start:
Time Finish:
Personnel: TB

Time	12:00-12:30 1:00-1:30 2:00-2:30 Concentrations							
	NOx (%)	NOx (%)	NOx (ppm)	SO_2 (ppm)	NO_x (ppm)	NO (ppm)	NO_2 (ppm)	THC (%)
0	0	0	0					
5	0	0	0					
10	0	0	0					
15	0	0	0					
20	0	0	0					
25	0	0	0					
30	0	0	0					

Stantec

Appendix E

Calculations

Raw Data for: Northern Pulp Summer Source Testing
Test #1

Client: Northern Pulp
Job Number: [illegible]

Plant: Pictou
Location: Lane [illegible]
Test: PM-1
Date: 11-Aug-11
Personnel: [illegible]

Test Start: 8:11 AM
Test Finish: 10:20 AM

Particulate Collected from Filter (mg):	184.8
Particulate Collected from Probe Wash (mg):	28.6
Particulate Collected from Impinger Wash (mg):	7.0
Total Particulate Collected (mg):	220.4

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	873.7	630.2	243.5
2	100 mL H2O	774.0	702.5	71.5
3	Blank	943.5	933.5	10.0
4	200g Silica Gel	1012.0	1000.6	11.4
			Total Weight Gain (g)	336.4
			Moisture Volume (mL)	336.4

Parameters

Barometric Pressure, Pbar (in. Hg)	30.00	O2, (%)	5.81	Stack Diameter, (in.)	48
Stack Static Pressure, Pstatic (in. H2O)	0.41	CO2, (%)	11.33	Stack Area, (sq. ft.)	12.57
Ambient Temp, (°F)	70	N2, (%)	82.9	Probe Length, (in.)	96
H2O Volume Collected, Vw (mL)	336.4			Nozzle Diameter, (in.)	0.177
Total # Sampling Points,	24			Pitot Coefficient, (Cp)	0.817
Sampling Time per Point, (min)	5			Gamma, meter constant	1.040
Readings Taken Every __ mins	2.5				
Regulatory Agency	NSENV				

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)	Nozzle Angle (Cyclonic Flow) (deg. from vert.) (+ clockwise)
						746.700			
Traverse 1	1	2.5	163	0.69	0.23	746.910	64	64	-10
		5	164	0.68	0.23	746.970	66	64	-10
	2	7.5	164	0.65	0.25	746.960	63	64	-13
		10	163	0.64	0.28	747.180	65	64	-13
	3	12.5	165	0.60	0.27	748.290	65	64	-10
		15	166	0.58	0.26	748.910	65	64	-10
	4	17.5	166	0.57	0.24	749.460	65	64	-5
		20	166	0.51	0.23	750.290	64	64	-5
	5	22.5	166	0.45	0.22	750.940	63	64	0
		25	166	0.44	0.20	751.160	64	64	0
	6	27.5	166	0.40	0.18	752.030	65	64	0
		30	165	0.38	0.17	752.180	64	64	0
	7	32.5	166	0.48	0.22	751.230	63	64	5
		35	166	0.48	0.22	753.040	63	64	5
	8	37.5	165	0.50	0.23	753.670	65	64	5
		40	165	0.49	0.22	754.180	64	64	5
	9	42.5	165	0.45	0.20	755.770	64	65	10
		45	165	0.44	0.20	756.160	64	65	10
	10	47.5	165	0.39	0.16	756.880	64	65	15
		50	165	0.38	0.17	757.510	64	64	15
	11	52.5	165	0.33	0.16	757.900	66	66	10
		55	165	0.35	0.16	758.120	66	65	10
	12	57.5	165	0.38	0.17	758.970	66	66	25
		60	164	0.37	0.16	759.220	66	66	25
Traverse 2	1	62.5	164	0.69	0.31	760.220	67	66	-12
		65	165	0.62	0.29	760.990	66	66	-12
	2	67.5	164	0.60	0.27	761.630	68	67	-13
		70	165	0.61	0.28	762.310	68	67	-13
	3	72.5	164	0.59	0.27	763.010	69	67	-8
		75	164	0.59	0.27	763.730	69	67	-8
	4	77.5	164	0.56	0.26	764.450	69	67	-5
		80	166	0.55	0.26	765.110	69	67	-5
	5	82.5	166	0.50	0.23	765.720	69	68	0
		85	167	0.46	0.21	766.330	69	68	0
	6	87.5	165	0.40	0.18	766.920	70	68	0
		90	165	0.38	0.17	767.460	70	68	0
	7	92.5	165	0.35	0.15	768.004	70	69	5
		95	165	0.34	0.16	768.510	71	70	5
	8	97.5	165	0.48	0.22	769.160	71	69	10
		100	165	0.49	0.23	769.790	71	70	10
	9	102.5	165	0.47	0.21	770.400	71	70	10
		105	165	0.45	0.20	771.030	72	70	10
	10	107.5	166	0.42	0.19	771.680	71	70	15
		110	165	0.41	0.18	772.190	72	71	15
	11	112.5	165	0.41	0.19	772.770	72	71	18
		115	167	0.35	0.16	773.280	73	71	18
	12	117.5	165	0.30	0.14	773.820	73	72	25
		120	165	0.33	0.15	774.240	74	72	25

Calculations for: Northern Pulp Cummer Source Testing
Test #1

Client: Northern Pulp
Job Number: 11131.269

Plant: Pictou
Location: Lime Kiln
Test: PM 1
Date: 21-Aug-14
Personnel: TB-HF's

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.04
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	30.01
Volume of Water Vapour Collected, Vwc (cu.ft)	16.147
Stack Gas Moisture Content (% as decimal)	0.523
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	28.87

Isokinetic Checks

Check average — Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Measured Stack Gas Velocity, Us (f/s)	Vertical Stack Gas Velocity, Us (f/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	625	0.68	0.32	51.83	48.71	30.02	524	0.730	0.781	102.97
		5	624	0.68	0.31	51.42	48.32	30.02	525	0.740	0.790	104.66
	2	7.5	624	0.65	0.29	50.27	48.58	30.02	523	0.730	0.780	105.90
		10	625	0.64	0.29	49.82	48.22	30.02	526	0.640	0.727	98.48
	3	12.5	625	0.60	0.27	48.34	47.60	30.02	526	0.710	0.759	107.29
		15	626	0.58	0.26	47.98	46.84	30.02	525	0.680	0.727	104.69
	4	17.5	626	0.53	0.24	45.47	45.29	30.02	527	0.690	0.734	110.48
		20	626	0.51	0.23	44.60	44.43	30.02	527	0.630	0.670	107.04
	5	22.5	626	0.45	0.20	41.89	41.89	30.01	527	0.570	0.606	98.05
		25	626	0.44	0.20	41.43	41.43	30.01	525	0.600	0.640	105.84
	6	27.5	626	0.40	0.18	38.50	38.50	30.01	525	0.570	0.608	105.85
		30	625	0.38	0.17	38.47	38.47	30.01	525	0.550	0.588	104.41
	7	32.5	626	0.46	0.22	43.27	43.10	30.02	525	0.630	0.673	105.51
		35	626	0.48	0.22	43.27	43.10	30.02	525	0.630	0.673	105.51
	8	37.5	626	0.50	0.23	44.16	43.73	30.02	525	0.630	0.673	104.36
		40	626	0.50	0.23	44.16	43.73	30.02	525	0.630	0.673	104.36
	9	42.5	625	0.49	0.22	43.68	43.02	30.02	525	0.630	0.673	105.33
		45	625	0.46	0.20	41.86	41.22	30.01	526	0.630	0.672	108.70
	10	47.5	625	0.44	0.20	41.39	39.96	30.01	526	0.630	0.672	110.84
		50	625	0.35	0.16	36.92	36.66	30.01	526	0.460	0.480	90.81
	11	52.5	625	0.38	0.17	38.47	38.15	30.01	525	0.530	0.568	100.51
		55	625	0.35	0.16	36.92	34.69	30.01	526	0.550	0.588	108.47
	12	57.5	625	0.36	0.16	36.92	33.46	30.01	526	0.520	0.564	102.86
		60	625	0.38	0.17	38.47	34.85	30.01	526	0.550	0.598	104.11
Traverse 2	1	62.5	624	0.66	0.31	51.42	47.87	30.02	527	0.700	0.745	98.91
		65	624	0.63	0.29	49.49	46.80	30.02	527	0.710	0.756	104.12
	2	67.5	624	0.60	0.27	48.30	46.85	30.02	528	0.710	0.754	105.88
		70	624	0.61	0.28	48.70	47.04	30.02	528	0.690	0.733	102.74
	3	72.5	624	0.59	0.27	47.89	47.43	30.02	528	0.710	0.754	107.39
		75	624	0.59	0.27	47.89	47.43	30.02	528	0.690	0.732	104.36
	4	77.5	624	0.56	0.26	46.69	46.48	30.02	528	0.690	0.732	107.12
		80	626	0.55	0.25	46.32	46.14	30.02	528	0.690	0.732	108.28
	5	82.5	626	0.46	0.21	43.27	43.27	30.02	529	0.610	0.647	102.34
		85	627	0.46	0.21	42.38	42.38	30.02	529	0.610	0.647	104.83
	6	87.5	625	0.40	0.18	38.47	38.47	30.01	529	0.590	0.625	108.24
		90	625	0.38	0.17	36.92	36.78	30.01	529	0.540	0.572	101.83
	7	92.5	625	0.35	0.16	36.92	36.78	30.01	530	0.540	0.571	105.80
		95	625	0.35	0.16	36.92	36.78	30.01	531	0.500	0.501	107.55
	8	97.5	625	0.45	0.22	43.23	42.64	30.02	531	0.610	0.644	101.78
		100	625	0.48	0.22	43.86	43.02	30.02	531	0.630	0.665	104.04
	9	102.5	625	0.47	0.21	42.78	42.13	30.02	531	0.610	0.644	102.85
		105	625	0.46	0.20	41.86	41.22	30.01	531	0.610	0.644	105.11
	10	107.5	626	0.42	0.19	40.47	39.09	30.01	532	0.590	0.622	105.22
		110	625	0.41	0.18	39.98	38.59	30.01	532	0.590	0.622	106.41
	11	112.5	624	0.42	0.19	40.41	39.43	30.01	532	0.580	0.611	103.17
		115	625	0.36	0.16	36.92	35.11	30.01	532	0.550	0.579	107.28
	12	117.5	625	0.30	0.14	34.18	30.88	30.01	532	0.500	0.527	105.31
		120	625	0.33	0.15	35.85	32.49	30.01	533	0.520	0.547	104.29
		Total 120	Average 625	Average 0.48	Average 0.22	Average 42.98	Average 41.82	Average 30.02	Average 527.40	Total 29.720	Total 31.583	Average 104.84

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Lime Kiln
Test: PM-1
Date: 22-Aug-14
Personnel: TBH/FS

Test Start: 11 00
Test Finish: 11 30

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	5.63	11.50	0	0	98
5	5.98	11.20	0	0	104
10	5.60	11.29	0	0	104
15	5.60	11.30	0	0	109
20	5.60	11.30	0	0	108
25	5.68	11.40	0	0	111
30	5.60	11.40	0	0	110
Average:	5.81	11.33	0	0	106

Raw Data for Test #2 — Northern Pulp Summer Source Testing

Client: Northern Pulp
Job Number: 121511309

Plant: Pictou
Location: Lime Kiln
Test: PM-2
Date: 23-Aug-14
Personnel: TB/DT/

Test Start: 9:20 AM
Test Finish: 11:30 AM

Particulate Collected from Filter (mg):	183.9
Particulate Collected from Probe Wash (mg):	28.0
Particulate Collected from Impinger Wash (mg):	6.7
Total Particulate Collected (mg):	218.5

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	966.3	620.0	346.3
2	100 mL H2O	731.4	709.7	21.8
3	Blank	636.9	634.2	1.7
4	200g Silica Gel	1017.2	1011.2	6.0
			Total Weight Gain (g)	374.8
			Moisture Volume (mL)	374.8

Parameters

Barometric Pressure, Pbar (in. Hg)	30.00
Stack Static Pressure, Pstatic (in. H2O)	0.91
Ambient Temp, (°F)	74
H2O Volume Collected, Vw (mL)	374.6
Total # Sampling Points,	24
Sampling Time per Point, (min)	1
Readings Taken Every __ mins	2.5
Regulatory Agency	NSENV

O2, (%)	5.8
CO2, (%)	8.3
N2, (%)	85.9

Stack Diameter, (in.)	48
Stack Area, (sq. ft.)	12.57
Probe Length, (in.)	48
Nozzle Diameter, (in.)	0.177
Pitot Coefficient, (Cp)	0.84
Gamma, meter constant	1.04

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)	Nozzle Angle (Cyclonic Flow) (deg. from vert.)
Traverse 1	1	2.5	165	0.67	0.31	714.290			
		5	160	0.64	0.31	715.050	68	65	-28
	2	7.5	161	0.61	0.30	715.790	70	67	-26
		10	161	0.66	0.30	716.530	74	67	-15
	3	12.5	161	0.63	0.29	717.190	71	64	-13
		15	161	0.60	0.28	717.920	71	68	-10
	4	17.5	161	0.58	0.27	718.600	74	71	-10
		20	161	0.61	0.27	719.270	73	70	-5
	5	22.5	161	0.60	0.23	719.940	75	70	-1
		25	162	0.50	0.23	720.570	75	72	0
	6	27.5	162	0.53	0.23	721.190	75	72	0
		30	161	0.49	0.21	721.810	75	72	0
	7	32.5	161	0.51	0.21	722.400	74	72	0
		35	162	0.48	0.20	722.610	75	73	0
	8	37.5	162	0.48	0.19	723.190	75	73	1
		40	162	0.33	0.15	723.770	75	74	26
	9	42.5	163	0.49	0.16	724.280	75	76	16
		45	163	0.38	0.14	724.780	80	76	11
	10	47.5	161	0.30	0.13	725.260	80	78	16
		50	163	0.31	0.14	725.740	82	78	15
	11	52.5	162	0.31	0.14	726.210	82	78	20
		55	161	0.35	0.14	726.680	80	77	20
	12	57.5	161	0.46	0.21	727.170	81	76	23
		60	161	0.42	0.22	727.620	83	78	22
			159	0.40	0.20	728.080	84	79	22
					0.20	728.600	84	79	23
Traverse 2	1	62.5	159	0.64	0.31	730.150	84	82	20
		65	160	0.66	0.31	731.130	87	82	20
	2	67.5	161	0.54	0.30	731.630	87	83	17
		70	160	0.60	0.30	732.140	88	83	17
	3	72.5	161	0.68	0.26	732.640	88	83	18
		75	161	0.76	0.27	733.140	88	83	18
	4	77.5	162	0.44	0.25	733.640	89	84	18
		80	163	0.52	0.24	734.140	89	84	2
	5	82.5	162	0.52	0.24	734.640	87	84	4
		85	162	0.50	0.22	735.140	88	83	6
	6	87.5	162	0.49	0.20	735.630	89	83	8
		90	161	0.36	0.20	736.130	91	83	8
	7	92.5	164	0.41	0.19	736.630	88	83	9
		95	164	0.43	0.19	737.130	89	83	7
	8	97.5	165	0.51	0.19	737.630	88	83	7
		100	162	0.50	0.19	738.130	89	84	11
	9	102.5	161	0.51	0.19	738.630	87	84	13
		105	162	0.41	0.18	739.130	88	84	13
	10	107.5	161	0.40	0.21	739.630	87	85	18
		110	159	0.39	0.19	740.130	87	85	18
	11	112.5	156	0.35	0.16	740.630	87	85	20
		115	161	0.37	0.17	741.130	87	85	20
	12	117.5	161	0.33	0.16	741.630	87	85	22
		120	161	0.31	0.17	742.150	87	85	22
			161	0.36	0.17	742.650	88	85	23
						743.190	88	85	21

Calculations for: Northern Pulp Turnover Source Testing
Test #2

Client: Northern Pulp
Job Number: 121511769

Plant: Pictou
Location: Lime kiln
Test: PM 2
Date: 24-Aug-14
Personnel: TBM/PR

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.04
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.87
Volume of Water Vapour Collected, Vwc (cu.ft)	17.891
Stack Gas Moisture Content (% as decimal)	9.3e4
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	25.16

Isokineticity Checks

Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Measured Stack Gas Velocity, Us (ft/s)	Vertical Stack Gas Velocity, Us (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Vol. @ Std., Vmc (std. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	621	0.67	0.31	51.81	48.50	30.02	528	0.740	0.786	108.08
		5	620	0.68	0.31	52.21	49.08	30.02	529	0.720	0.764	104.58
	2	7.5	623	0.65	0.30	50.84	48.11	30.02	531	0.730	0.771	107.81
		10	621	0.66	0.30	51.14	48.40	30.02	530	0.719	0.752	103.80
	3	12.5	621	0.63	0.29	49.97	48.21	30.02	531	0.730	0.771	109.13
		15	621	0.60	0.28	48.78	48.02	30.02	532	0.690	0.716	103.87
	4	17.5	621	0.58	0.27	47.95	47.78	30.02	533	0.670	0.705	103.89
		20	621	0.55	0.25	46.69	46.51	30.02	533	0.680	0.718	108.34
	5	22.5	621	0.50	0.23	44.92	44.92	30.02	536	0.620	0.650	103.24
		25	622	0.50	0.23	44.86	44.86	30.02	536	0.630	0.660	104.89
	6	27.5	622	0.46	0.21	42.27	42.27	30.02	536	0.610	0.638	106.85
		30	622	0.46	0.21	42.27	42.27	30.02	536	0.590	0.617	103.35
	7	32.5	622	0.43	0.20	41.32	41.18	30.01	537	0.610	0.638	109.10
		35	622	0.40	0.19	39.85	39.28	30.01	537	0.540	0.563	100.14
	8	37.5	622	0.39	0.18	38.35	38.18	30.01	538	0.570	0.594	106.86
		40	622	0.38	0.18	38.35	38.18	30.01	538	0.580	0.604	108.72
	9	42.5	622	0.50	0.24	44.56	42.37	30.02	538	0.600	0.625	99.24
		45	623	0.50	0.24	44.59	42.41	30.02	539	0.960	0.986	109.18
	10	47.5	623	0.52	0.24	45.47	42.73	30.02	539	0.980	0.986	107.04
		50	622	0.51	0.24	45.00	42.29	30.02	540	0.640	0.664	104.64
	11	52.5	621	0.45	0.21	42.23	39.18	30.02	542	0.610	0.631	105.68
		55	621	0.49	0.22	43.62	40.44	30.02	542	0.610	0.631	102.33
	12	57.5	621	0.43	0.20	41.29	37.41	30.01	542	0.590	0.621	108.34
		60	618	0.43	0.20	41.22	37.36	30.01	542	0.600	0.621	108.17
Traverse 2	1	62.5	618	0.66	0.31	50.87	47.52	30.02	543	0.700	0.723	100.48
		65	620	0.66	0.31	51.10	48.02	30.02	544	0.770	0.794	108.69
	2	67.5	622	0.64	0.30	50.40	48.08	30.02	546	0.730	0.750	105.38
		70	620	0.65	0.30	50.72	48.39	30.02	546	0.720	0.740	102.87
	3	72.5	621	0.60	0.28	48.78	48.02	30.02	546	0.700	0.719	104.28
		75	621	0.58	0.27	47.86	47.22	30.02	547	0.680	0.698	104.35
	4	77.5	622	0.54	0.25	46.30	46.12	30.02	547	0.660	0.677	103.52
		80	623	0.52	0.24	45.47	45.30	30.02	547	0.640	0.656	102.28
	5	82.5	622	0.52	0.24	45.43	45.43	30.02	547	0.640	0.656	102.28
		85	622	0.50	0.23	44.56	44.56	30.02	547	0.690	0.696	105.85
	6	87.5	622	0.43	0.20	41.32	41.32	30.01	548	0.590	0.603	103.41
		90	624	0.40	0.19	39.91	39.91	30.01	547	0.610	0.625	111.33
	7	92.5	624	0.41	0.19	40.41	40.25	30.01	547	0.570	0.584	102.65
		95	624	0.42	0.19	40.90	40.74	30.01	547	0.580	0.595	103.30
	8	97.5	623	0.41	0.18	40.38	39.99	30.01	547	0.600	0.615	107.98
		100	623	0.40	0.18	39.86	39.52	30.01	547	0.580	0.594	106.67
	9	102.5	621	0.43	0.20	41.28	39.28	30.01	547	0.600	0.615	106.27
		105	622	0.44	0.21	41.78	39.78	30.02	548	0.590	0.605	102.80
	10	107.5	621	0.40	0.19	38.82	37.42	30.01	548	0.610	0.628	111.16
		110	619	0.36	0.18	37.18	34.94	30.01	548	0.510	0.523	99.19
	11	112.5	618	0.29	0.13	33.77	31.31	30.01	548	0.430	0.441	91.95
		115	621	0.33	0.16	36.18	33.53	30.01	547	0.550	0.563	110.14
	12	117.5	623	0.36	0.17	37.30	33.81	30.01	547	0.560	0.564	107.22
		120	621	0.36	0.17	37.77	34.23	30.01	547	0.600	0.615	115.15
		Total 120	Average 622	Average 0.49	Average 0.23	Average 43.85	Average 42.06	Average 30.02	Average 540.96	Total 30.290	Total 31.385	Average 105.23

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Lime Kiln
Test: PM-2
Date: 22-Aug-14
Personnel: TBH/FS

Test Start: 9:00
Test Finish: 9:30

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	5.80	8.40	0	0.0	112
5	5.80	8.60	0	0.0	111
10	5.80	8.40	0	0.0	111
15	5.80	8.40	0	0.0	110
20	5.80	8.40	0	0.0	109
25	5.80	8.40	0	0.0	112
30	5.80	8.40	0	0.0	110
Average:	5.8	8.3	0.0	0.0	111

Raw Data for: Northern Pulp Summer Source Testing
Test #3

Client: Northern Pulp
Job Number: [illegible]

Plant: Pritou
Location: Lime Kiln
Test: PM-3
Date: [illegible]-aug-11
Personnel: [illegible]

Test Start: 11:[illegible] AM
Test Finish: 1:[illegible] PM

Particulate Collected from Filter (mg):	164.2
Particulate Collected from Probe Wash (mg):	7.4
Particulate Collected from Impinger Wash (mg):	0.9
Total Particulate Collected (mg):	171.4

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	1023.9	714.5	309.4
2	100 mL H2O	781.7	734.1	17.6
3	Blank	636.9	302.1	1.8
4	200g Silica Gel	982.9	944.1	0.5
			Total Weight Gain (g)	337.3
			Moisture Volume (mL)	337.3

Parameters

Barometric Pressure, Pbar (in. Hg)	30.00
Stack Static Pressure, Pstatic (in. H2O)	0.51
Ambient Temp, (°F)	70
H2O Volume Collected, Vw (mL)	337.30
Total # Sampling Points,	24
Sampling Time per Point, (min)	5
Readings Taken Every ___ mins	2.5
Regulatory Agency	NSENV

O2, (%)	8.71
CO2, (%)	8.40
N2, (%)	82.9

Stack Diameter, (in.)	44
Stack Area, (sq. ft.)	12.57
Probe Length, (in.)	96
Nozzle Diameter, (in.)	0.177
Pitot Coefficient, (Cp)	0.841
Gamma, meter constant	1.04

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)	Nozzle Angle (Cyclonic Flow) (deg. from vert.)
Traverse 1	1	2.5	161	0.66	0.20	774.140			
		5	163	0.61	0.20	775.260	71	71	16
	2	7.5	163	0.64	0.28	775.990	71	70	-16
		10	165	0.59	0.27	776.700	72	71	-17
	3	12.5	161	0.58	0.27	777.400	72	71	-13
		15	164	0.57	0.26	778.100	72	71	-16
	4	17.5	161	0.55	0.27	778.800	72	72	-10
		20	164	0.56	0.26	779.500	72	72	-5
	5	22.5	161	0.52	0.24	780.150	72	71	-5
		25	161	0.47	0.22	780.790	72	71	0
	6	27.5	164	0.55	0.21	781.360	71	71	0
		30	163	0.44	0.20	781.900	71	71	0
	7	32.5	167	0.47	0.22	782.570	71	71	0
		35	161	0.48	0.21	783.190	72	71	0
	8	37.5	162	0.45	0.21	783.790	72	72	0
		40	165	0.44	0.21	784.460	71	72	0
	9	42.5	161	0.41	0.20	785.020	71	72	0
		45	162	0.38	0.19	785.580	71	72	3
	10	47.5	165	0.35	0.18	786.160	71	72	10
		50	163	0.37	0.16	786.670	71	71	10
	11	52.5	163	0.30	0.17	787.200	71	72	12
		55	167	0.29	0.14	787.690	71	71	12
	12	57.5	164	0.31	0.13	788.110	71	34	15
		60	164	0.31	0.15	788.690	72	72	15
				0.37	0.16	789.160	72	72	20
							72	72	20
Traverse 2	1	62.5	162	0.65	0.18	789.900	72	73	-15
		65	162	0.67	0.18	790.430	72	71	-17
	2	67.5	162	0.60	0.28	791.110	72	71	-17
		70	161	0.59	0.27	791.810	72	72	-18
	3	72.5	161	0.57	0.26	792.520	72	71	-8
		75	163	0.55	0.24	793.100	72	71	-8
	4	77.5	167	0.49	0.23	793.740	71	71	-5
		80	164	0.50	0.19	794.400	72	72	-5
	5	82.5	164	0.46	0.21	795.050	71	72	0
		85	164	0.43	0.20	795.610	72	72	0
	6	87.5	162	0.40	0.18	796.160	74	72	0
		90	167	0.38	0.17	796.790	74	72	0
	7	92.5	167	0.33	0.16	797.310	75	72	0
		95	169	0.30	0.14	797.810	76	72	0
	8	97.5	168	0.32	0.22	798.420	76	74	0
		100	165	0.47	0.22	799.050	76	76	5
	9	102.5	163	0.43	0.21	799.640	76	71	5
		105	161	0.44	0.20	800.210	76	76	5
	10	107.5	163	0.42	0.19	800.800	75	75	8
		110	165	0.41	0.19	801.370	73	74	12
	11	112.5	164	0.39	0.18	801.910	73	73	12
		115	163	0.38	0.17	802.440	73	72	15
	12	117.5	161	0.35	0.16	803.000	73	71	15
		120	164	0.33	0.18	803.590	76	72	20
							76	73	20

Calculations for Northern Pulp Incinerator Source Testing
Test #3

Client: Northern Pulp
Job Number: 171511207

Plant: Pictou
Location: Lime Kiln
Test: RM-5
Date: 22-Aug-11
Personnel: TBI-NFS

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	29.94
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.97
Volume of Water Vapour Collected, Vwc (cu.ft)	16.190
Stack Gas Moisture Content (% as decimal)	0.247
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	25.88

Isokinetic Checks

Check average

Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Measured Stack Gas Velocity, Us (ft/s)	Vertical Stack Gas Velocity, Us (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Std., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	621	0.66	0.30	50.84	48.44	30.02	531	0.730	0.770	104.08
		5	625	0.64	0.30	50.32	47.86	30.02	531	0.730	0.771	108.13
	2	7.5	625	0.60	0.28	48.72	47.86	30.02	532	0.710	0.749	106.40
		10	625	0.58	0.27	48.32	47.29	30.02	532	0.700	0.738	105.78
	3	12.5	622	0.58	0.27	47.79	47.06	30.02	532	0.700	0.738	106.44
		15	624	0.57	0.26	47.45	46.73	30.02	532	0.700	0.737	107.44
	4	17.5	623	0.56	0.27	47.83	46.85	30.02	532	0.700	0.737	106.43
		20	625	0.56	0.26	47.07	46.89	30.02	532	0.850	0.885	100.73
	5	22.5	624	0.52	0.24	45.32	46.32	30.02	532	0.590	0.821	94.80
		25	623	0.47	0.22	43.05	43.05	30.02	531	0.820	0.854	104.80
	6	27.5	624	0.45	0.21	42.18	42.16	30.02	531	0.826	0.854	107.28
		30	623	0.44	0.20	41.88	41.88	30.01	532	0.580	0.822	103.07
	7	32.5	623	0.47	0.22	43.05	43.05	30.02	532	0.820	0.854	104.80
		35	622	0.48	0.22	43.47	43.47	30.02	533	0.630	0.862	104.99
	8	37.5	623	0.45	0.21	42.13	41.97	30.02	533	0.690	0.831	103.35
		40	625	0.44	0.20	41.72	41.57	30.01	534	0.600	0.830	104.99
	9	42.5	622	0.41	0.19	40.18	39.97	30.01	534	0.590	0.588	100.88
		45	622	0.36	0.18	38.66	38.09	30.01	534	0.580	0.608	104.53
	10	47.5	622	0.35	0.18	37.12	36.31	30.01	534	0.510	0.535	99.34
		50	623	0.37	0.17	38.20	37.37	30.01	534	0.530	0.556	100.49
	11	52.5	623	0.30	0.14	34.40	33.23	30.01	534	0.480	0.504	101.09
		55	623	0.29	0.13	33.82	32.67	30.01	533	0.490	0.515	105.12
	12	57.5	624	0.32	0.15	35.55	33.41	30.01	533	0.520	0.547	108.29
		60	621	0.35	0.16	37.09	34.86	30.01	533	0.470	0.494	91.84
Traverse 2	1	62.5	623	0.65	0.30	50.83	48.81	30.02	533	0.640	0.674	91.84
		65	622	0.65	0.30	50.59	48.57	30.02	533	0.630	0.663	90.33
	2	67.5	622	0.60	0.28	48.81	47.87	30.02	532	0.710	0.748	108.05
		70	621	0.59	0.27	48.16	47.43	30.02	532	0.670	0.706	100.84
	3	72.5	621	0.57	0.26	47.34	46.88	30.02	532	0.670	0.706	102.86
		75	622	0.56	0.26	46.86	46.50	30.02	532	0.620	0.654	95.84
	4	77.5	622	0.49	0.23	43.83	43.78	30.02	532	0.630	0.664	104.21
		80	623	0.50	0.23	44.41	44.24	30.02	532	0.670	0.706	108.70
	5	82.5	624	0.45	0.21	42.18	42.16	30.02	533	0.630	0.663	108.71
		85	624	0.43	0.20	41.21	41.21	30.01	533	0.580	0.610	102.36
	6	87.5	623	0.40	0.18	39.72	39.72	30.01	533	0.570	0.569	104.14
		90	623	0.38	0.17	38.71	38.71	30.01	534	0.570	0.586	108.74
	7	92.5	623	0.36	0.16	37.15	37.15	30.01	535	0.490	0.514	95.43
		95	623	0.40	0.18	39.72	38.72	30.01	535	0.570	0.587	103.75
	8	97.5	623	0.47	0.22	43.05	42.86	30.02	536	0.610	0.630	102.44
		100	623	0.47	0.22	43.05	42.69	30.02	535	0.630	0.650	105.78
	9	102.5	623	0.45	0.21	42.13	41.72	30.02	536	0.610	0.638	104.49
		105	623	0.44	0.20	41.88	41.25	30.01	536	0.570	0.588	98.74
	10	107.5	623	0.42	0.19	40.70	39.81	30.01	536	0.570	0.588	101.08
		110	623	0.41	0.19	40.21	39.33	30.01	535	0.570	0.587	102.48
	11	112.5	623	0.39	0.18	39.22	37.88	30.01	535	0.540	0.556	99.54
		115	623	0.38	0.17	38.71	37.39	30.01	536	0.530	0.555	98.97
	12	117.5	624	0.36	0.16	37.18	34.94	30.01	536	0.530	0.568	103.11
		120	624	0.38	0.18	38.25	36.86	30.01		0.560		103.21
		Total 120	Average 623	Average 0.47	Average 0.22	Average 42.72	Average 41.99	Average 30.02	Average 533.08	Total 29.000	Total 30.490	Average 102.85

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Lime Kiln
Test: PM-3
Date: 4-Jul-13
Personnel: TBH/FS

Test Start: 11 30
Test Finish: 12 00

All gases except Nox are obtained from the 24 hr TRS testing

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	5 70	8 40	0	0	86
5	5 70	8 40	0	0	84
10	5 80	8 40	0	0	85
15	5 70	8 40	0	0	85
20	5 70	8 40	0	0	86
25	5 70	8 40	0	0	80
30	5 70	8 40	0	0	88
Average:	5.7	8.4	0.0	0.0	85

DATA ENTRY

Northern Pulp
Lime Kiln
Stack Height from Grade: 37 m
Stack Diameter: 1.22 m

Standard Temperature, Tstd (F):	77
(K):	298
Standard Pressure, Pstd (in.Hg):	29.92
(Bar):	1.0

Parameter	Symbol	Units	Test 1	Test 2	Test 3	Average
Test ID	-	-	PM-1	PM-2	PM-3	-
Date	-	-	21-Aug-14	22-Aug-14	22-Aug-14	n/a
Start Time	-	-	8:15 AM	9:20 AM	11:48 AM	n/a
End Time	-	-	10:30 AM	11:30 AM	1:48 PM	n/a
Total Sampling Time	-	min	120	120	120	120
Stack Diameter	D	in.	48	48	48	48
Average Stack Gas Temperature	Ts	F	165	162	163	163
Average Dry Gas Meter Temperature	Tm	F	67	81	73	74
Barometric Pressure	Pbar	in.Hg	30.00	30.00	30.00	30.00
Stack Static Pressure	Pstatic	in.H2O	0.51	0.51	0.51	0.51
Average Pressure Drop (Head)	dP	in.H2O	0.48	0.49	0.47	0.48
Average deltaH Orifice	dH	in.H2O	0.22	0.23	0.22	0.22
Average Meter Temperature	Tm	F	67	81	73	74
Gas Sample Volume	Vm	cu.ft	29.7	30.3	29.0	29.7
Average Isokinetics	I	%	104.6	105.2	102.6	104.2
Nozzle Diameter	Dn	in.	0.177	0.177	0.177	0.177
Pitot Coefficient	Cp	-	0.817	0.817	0.817	0.817
Gamma, meter constant	y	-	1.040	1.040	1.040	1.040
Reference Temperature	Tref	R	537	537	537	537
Reference Pressure	Pref	in.Hg	29.92	29.92	29.92	29.92
Stack Gas Oxygen Content	Co2	%	5.81	5.80	5.71	5.78
Stack Gas Carbon Dioxide Content	Cco2	%	11.3	8.3	8.4	9.4
Stack Gas Nitrogen Content	Cn2	%	82.9	85.9	85.9	84.9
Stack Gas Sulphur Dioxide Content	Cso2	ppm	0.0	0.0	0.0	0.0
Stack Gas Nitrogen Oxides Content	Cnox	ppm	106.4	110.7	84.7	100.6
Stack Gas Carbon Monoxide Content	Cco	ppm	0.0	0.0	0.0	0.0
Volume of Water Collected	Vw	mL	336	375	337	349
Particulate Collected from Filter	-	mg	185	184	163	177
Particulate Collected from Probe Wash	-	mg	28.6	29.0	7.35	21.6
Particulate Collected from Impinger Wash	-	mg	7.03	5.73	0.87	4.54
Total Particulate Collected (excl. impingers)	Mp	mg	213	213	171	199

Legend:
F - degrees Fahrenheit
K - degrees Kelvin
Bar - bars
in.Hg - inches of mercury
in. - inches
in.H2O - inches of water
cu.ft - cubic feet
R - degrees Rankin
NOx - as NO2

CALCULATIONS

Northern Pulp
Lime Kiln
Stack Height from Grade: 37 m
Stack Diameter: 1.22 m

Variable	Symbol	Units	Calculation	Test 1	Test 2	Test 3	Average
Stack Area	As	sq.ft	As = PI x ((D/12)^2) / 4	12.57	12.57	12.57	12.57
		sq.m	As (sq m) = As (sq ft) x 0.0929	1.17	1.17	1.17	1.17
Barometric Pressure	Pbar	kPa	Pbar (kPa) = Pbar (in.Hg) x 3.386	102	102	102	102
Stack Static Pressure	Pstatic	kPa	Pstatic (kPa) = Pstatic (in.H2O) x 0.249	0.13	0.13	0.13	0.13
Avg. Stack Temperature	Ts	R	Ts (R) = Ts (F) + 460	625	622	623	623
Avg. Meter Temperature	Tm	R	Tm (R) = Tm (F) + 460	527	541	533	534
Nozzle Diameter	Dn	mm	Dn (mm) = Dn (in.) x 25.4	4	4	4	4
Gas Meter Pressure	Pm	in.Hg	Pm = Pbar + (dH / 13.6)	30.0	30.0	30.0	30.0
Sample Volume at STP	Vmc	cu.ft	Vmc = Tref/Pref x (Vm x Pm x Y) / Tm	31.6	31.3	30.5	31.1
		cu.m	Vmc (cu.m) = 0.02832 x Vmc (cu.ft)	0.89	0.89	0.86	0.88
Volume of Water Vapour	Vwc	cu.ft	Vwc = 0.0468 x Vs	16.1	18.0	16.2	16.8
Water Fraction	Bwo	-	Bwo = Vwc / (Vwc + Vmc)	0.34	0.36	0.35	0.35
Molecular Weight, Dry	Md	lb/lb-mol	Md = 0.44 (Co2) + 0.32 (Co2) + 0.28 (Ch4)	30.0	29.8	29.8	29.7
Molecular Weight, Wet	Ms	lb/lb-mol	Ms = Md (1 - Bwo) + (18 x Bwo)	26.0	25.4	25.6	25.8
Stack Pressure	Ps	in.Hg	Ps = Pbar + (Pstatic / 13.6)	30.0	30.0	30.0	30.0
Stack Gas Velocity	Us	ft/s	Us = 85.33 x Cp x (dP x Ts)/(Ps x Ms))^0.5	41.8	42.1	42.0	42.0
		m/s	Us (m/s) = 0.3048 x Us (ft/s)	12.7	12.8	12.8	12.8
Actual Stack Gas Flow Rate	Q	acfm	Q = 60 x Us x As	31,533	31,715	31,658	31,636
Dry Stack Gas Flow Rate	Qs	dscfm	Qs = Q x (1-Bwo) x (Tref/Ts) x (Ps/Pref)	17,893	17,476	17,891	17,787
		dscmm	Qs (dscmm) = 0.000-72 x Qs (dscfm)	8.49	8.25	8.44	8.40
Sulphur Dioxide - SO2							
SO2 Measured Concentration	Cso2	ppm	Measurement from Flue Gas Analyzer	0.0	0.0	0.0	ND
Uncorrected @ Ref Cond	Cso2	mg/Rcm	Cso2 (mg/Rcm) = Cso2 (ppm) x 2.62	0	0	0	ND
SO2 Emission Rate	ESo2	g/s	ESo2 = Cso2/1000 x Qs	0.00	0.00	0.00	ND
		kg/hr	ESo2 (kg/hr) = 3.6 x ESo2 (g/s)	0.00	0.00	0.00	ND
SO2 Concentration							
Corrected to 11% O2	Cso2	mg/Rcm	Cso2 (11% O2) = Cso2 (mg/Rcm) x (20.9-11) / (20.9-Co2)	0	0	0	ND
Corrected to 3% O2	Cso2	mg/Rcm	Cso2 (3% O2) = Cso2 (mg/Rcm) x (20.9-3) / (20.9-Co2)	0	0	0	ND
Corrected to 12% CO2	Cso2	mg/Rcm	Cso2 (12% CO2) = Cso2 (mg/Rcm) x (12/Co2)	0	0	0	ND
Nitrogen Oxides - NOx							
NOx Measured Concentration	Cnox	ppm	Measurement from Flue Gas Analyzer	108.4	110.7	84.7	100.6
Uncorrected @ Ref Cond	Cnox	mg/Rcm	Cnox (mg/Rcm) = Cnox (ppm) x 1.882	200	208	159	189
NOx Emission Rate	ENox	g/s	ENox = Cnox/1000 x Qs	1.70	1.72	1.35	1.59
		kg/hr	ENox (kg/hr) = 3.6 x ENox (g/s)	6.12	6.19	4.85	5.72
NOx Concentration							
Corrected to 11% O2	Cnox	mg/Rcm	Cnox (11% O2) = Cnox (mg/Rcm) x (20.9-11) / (20.9-Co2)	131	137	104	124
Corrected to 3% O2	Cnox	mg/Rcm	Cnox (3% O2) = Cnox (mg/Rcm) x (20.9-3) / (20.9-Co2)	238	247	188	224
Corrected to 12% CO2	Cnox	mg/Rcm	Cnox (12% CO2) = Cnox (mg/Rcm) x (12/Co2)	212	300	228	247
Carbon Monoxide - CO							
CO Measured Concentration	Cco	ppm	Measurement from Flue Gas Analyzer	0.00	0.00	0.00	0.00
Uncorrected @ Ref Cond	Cco	mg/Rcm	Cco (mg/Rcm) = Cco (ppm) x 1.145	0.00	0.00	0.00	0.00
CO Emission Rate	ECo	g/s	ECo = Cco/1000 x Qs	0.00	0.00	0.00	0.00
		kg/hr	ECo (kg/hr) = 3.6 x ECo (g/s)	0.00	0.00	0.00	0.00
CO Concentration							
Corrected to 11% O2	Cco	mg/Rcm	Cco (11% O2) = Cco (mg/Rcm) x (20.9-11) / (20.9-Co2)	0.00	0.00	0.00	0.00
Corrected to 3% O2	Cco	mg/Rcm	Cco (3% O2) = Cco (mg/Rcm) x (20.9-3) / (20.9-Co2)	0.00	0.00	0.00	0.00
Corrected to 12% CO2	Cco	mg/Rcm	Cco (12% CO2) = Cco (mg/Rcm) x (12/Co2)	0.00	0.00	0.00	0.00
Particulate Concentration	Cp	mg/dscm	Cp = Mp / Vmc	239	240	198	225
Particulate Emission Rate	EPp	g/s	EPp = Cp/1000 x Qs	2.03	1.98	1.67	1.89
		kg/hr	EPp (kg/hr) = 3.6 x EPp (g/s)	7.30	7.12	6.01	6.81
Plant Production		adtons/day		690	831	831	764
Particulate Concentration							
Corrected to 11% O2	Cp	mg/dscm	Cp (11% O2) = Cp x (20.9-11) / (20.9-Co2)	157	157	129	148
Corrected to 3% O2	Cp	mg/dscm	Cp (3% O2) = Cp x (20.9-3) / (20.9-Co2)	283	284	233	267
Corrected to 12% CO2	Cp	mg/dscm	Cp (12% CO2) = Cp x (12/Co2)	253	345	282	293
Emission Metric		kg/adtons		0.25	0.21	0.17	0.21

Legend:

sq.ft - square feet
sq.m - square metre
PI - 3.142
R - degrees Rankin
ppm - parts per million

in.Hg - inches of m mg/dscm - milligrams per dry standard cubic metre
cu.ft - cubic feet g/s - grams per second
cu.m - cubic metres NOx - as NO2
STP - standard ten actm - actual cu's feet per minute
dscfm - dry standard dscmm - dry standard cubic metres per second

OFFICIAL STACK TESTING RESULTS
Northern Pulp
Lime Kiln

Stack Height from Grade: 37 m
Stack Diameter: 1.22 m

Parameter	Test 1	Test 2	Test 3	Average	NSENV Limits
Test ID	PM-1	PM-2	PM-3	-	-
Test Date	21-Aug-14	22-Aug-14	22-Aug-14	-	-
Stack Gas Temperature (C)	74	72	73	73	-
Moisture Content (%)	33.8	36.5	34.7	35.0	-
Velocity (m/s)	12.7	12.8	12.8	12.8	-
Volumetric Flow (dscms)	8.49	8.25	8.44	8.40	-
Oxygen - O2 (%)	5.81	5.80	5.71	5.78	-
Carbon Dioxide - CO2 (%)	11.3	8.34	8.40	8.36	-
Sulphur Dioxide - SO2	ND	ND	ND	ND	-
SO2 Measured Concentration (ppm)	ND	ND	ND	ND	-
Uncorrected at Ref Cond (mg/Rcm)	ND	ND	ND	ND	-
Emission Rate (kg/hr)					
Nitrogen Oxides - NOx	108	111	84.7	101	-
NOx Measured Concentration (ppm)	200	208	159	189	-
Uncorrected at Ref Cond (mg/Rcm)	6.12	6.19	4.85	5.72	-
Emission Rate (kg/hr)					
Carbon Monoxide - CO	ND	ND	ND	ND	-
CO Measured Concentration (ppm)	ND	ND	ND	ND	-
Uncorrected at Ref Cond (mg/Rcm)	ND	ND	ND	ND	-
Emission Rate (kg/hr)					
Particulate Matter - PM	239	240	198	225	-
Particulate Concentration (mg/dscm)	7.30	7.12	6.01	6.81	-
Particulate Emission Rate (kg/hr)	0.25	0.21	0.17	0.21	0.50
Particulate Emission Rate (kg/adubmt)					

Legend:
C - degrees Celsius
m/s - metres per second
dscms - dry standard cubic metres per second
ppm - parts per million
adubmt - air dried unbleached metric tonne (1,059 adubmt/d)
STP - standard temperature and pressure (25 C and 101.3 kPa)
mg/dscm - milligrams per dry standard cubic metre
NOx - as NO2
ND - non-detectable

Particulate Recovery Northern Pulp Summer Source Testing

Client: Northern Pulp
Facility: Abercrombie
Location: Pape Mill
Job Number: 171511(2)

IMPINGER CATCH

Container ID	Beaker Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Recovery Jar + Sample + Rinse (g)	Jar Tare (g)	Sample Collected (g)	Rinse Water (g)	Total Rinse Water (g)	Beaker Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
G3	111.5985	111.6985		111.5985	PM-1	913.2	391.8	431.4	10.1	441.5	111.6072	111.6069		111.6071	0.0085	0.0070
H6	109.4449	109.4451		109.4450	PM-2	851.2	378.9	472.7	11.5	484.2	109.4523	109.4525		109.4524	0.0074	0.0057
H3	109.2027	109.2027		109.2027	PM-3	849.3	377.2	472.1	13.7	485.8	109.2052	109.2053		109.2053	0.0026	0.0009
																Conc (g/mL)
B6	108.0487	108.0482		108.0485	WS	652.7	377.4	275.3		275.3	108.0492	108.0496		108.0494	0.0009	0.000003

PROBE WASH

Container ID	Beaker Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Recovery Jar + Acetone (g)	Jar Tare (g)	Recovered Acetone (g)	Rinse Acetone (g)	Total Acetone (g)	Beaker Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
T2	112.1725	112.1725		112.1725	PM-1	433.1	378.0	55.1	28.4	83.5	112.2010	112.2012		112.2011	0.0286	0.0286
E1	110.0711	110.0716		110.0714	PM-2	460.9	380.7	109.9	36.0	145.9	110.1003	110.1003		110.1003	0.0290	0.0290
L4	109.0878	109.0875		109.0876	PM-3	435.0	378.8	56.2	28.0	87.2	109.0948	109.0950		109.0949	0.0074	0.0074
																Conc (g/mL)
V2	109.1749	109.1744		109.1747	AB	477.7	376.7	101.0		101.0	109.1741	109.1744		109.1744	-0.0003	0.000000

Density of Acetone: 0.7900 g/ml

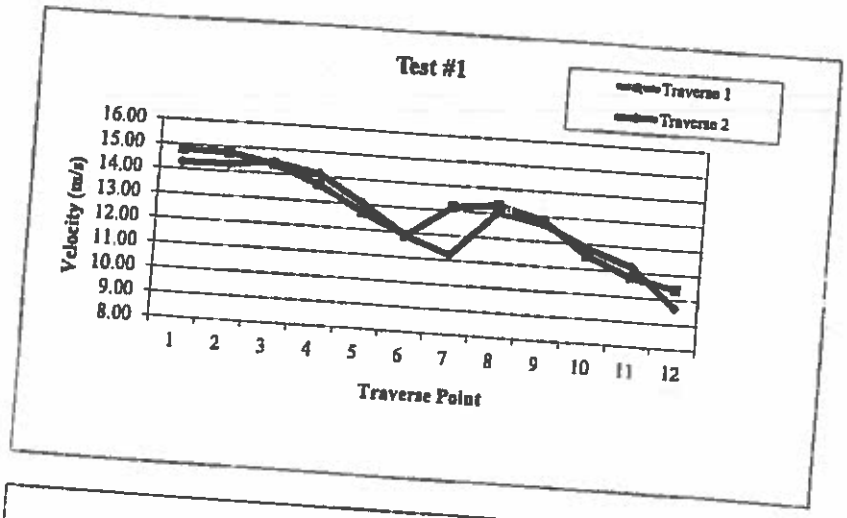
FILTER CATCH

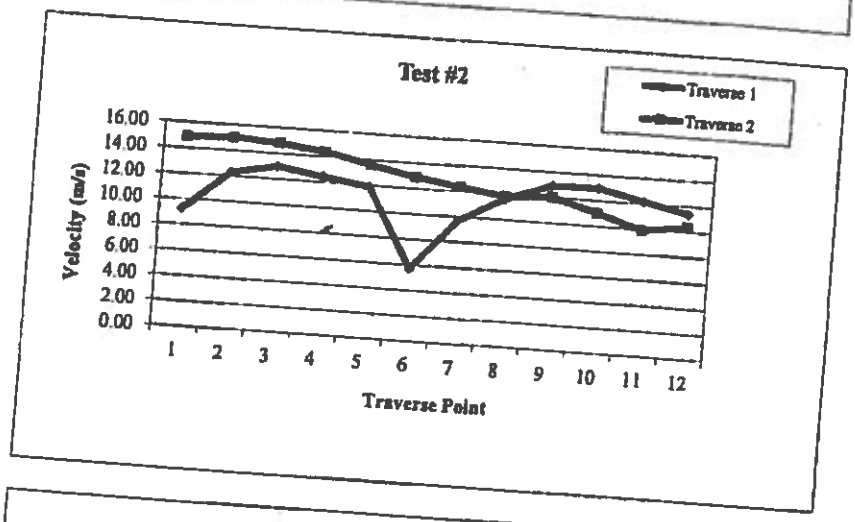
Filter ID	Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Particulate Weight from Filter (g)
0510-5	0.3325	0.3323		0.3324	PM-1	0.5172	0.5172		0.5172	0.1848
0510-2	0.3315	0.3317		0.3316	PM-2	0.5153	0.5156		0.5153	0.1838
0510-8	0.3308	0.3307		0.3307	PM-3	0.5029	0.5031		0.5029	0.1832

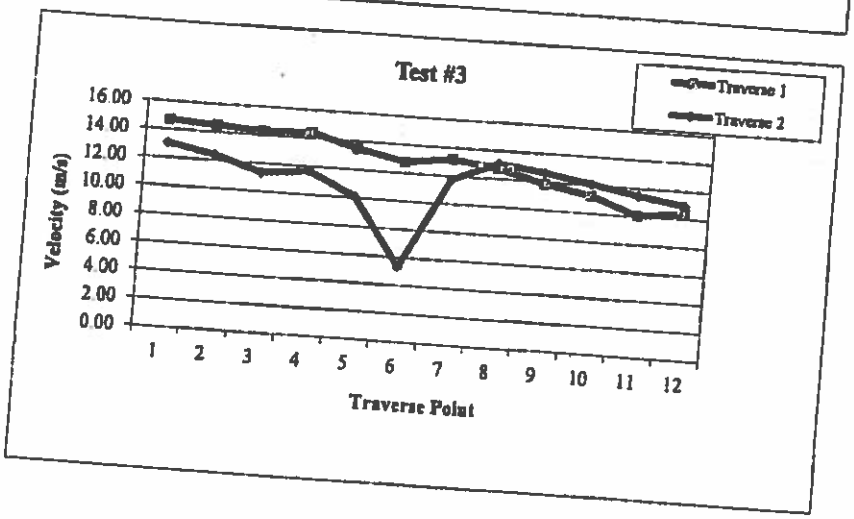
Northern Pulp
Pictou

121511269

Stack Gas Velocity Profiles
Lime Kiln







Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811333
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	237	1435	4.418	21.75	2.834	4.099	1.731	-2.649
2014	237	1436	4.433	21.8	2.83	3.483	1.21	-2.273
2014	237	1437	4.437	21.87	2.838	2.867	1.233	-1.894
2014	237	1438	4.543	21.86	2.83	2.837	0.649	-1.773
2014	237	1439	4.462	21.89	2.888	2.313	0.882	-1.921
2014	237	1440	4.411	22.08	2.489	2.038	0.437	-1.882
2014	237	1441	4.307	22.17	2.494	1.882	0.343	-1.919
2014	237	1442	4.281	22.17	2.385	1.69	0.098	-1.924
2014	237	1443	4.248	22.23	2.314	1.532	-0.033	-1.868
2014	237	1444	4.914	22.08	3.091	1.418	-0.378	-1.485
2014	237	1445	4.525	22.13	2.434	1.313	0.03	-1.283
2014	237	1446	4.547	22.03	2.484	1.224	-0.254	-1.478
2014	237	1447	4.489	22.03	2.487	1.139	-0.289	-1.437
2014	237	1448	4.448	22.11	2.853	1.092	-0.327	-1.408
2014	237	1449	4.425	22.1	2.442	1.018	-0.358	-1.457
2014	237	1450	4.485	22.04	2.434	0.882	-0.635	-1.487
2014	237	1451	4.623	21.94	2.487	0.803	-0.485	-1.513
2014	237	1452	4.889	21.87	2.533	0.844	-0.634	-1.478
2014	237	1453	4.913	21.89	2.487	0.802	-0.557	-1.389
2014	237	1454	4.824	21.88	2.417	0.77	-0.575	-1.348
2014	237	1455	4.913	22.01	2.229	0.728	-0.688	-1.404
2014	237	1456	4.941	22.04	2.053	0.71	-0.612	-1.433
2014	237	1457	4.912	21.98	2.083	0.677	-0.634	-1.377
2014	237	1458	4.885	21.94	2.03	0.658	-0.644	-1.302
2014	237	1459	4.918	21.93	2.071	0.636	-0.664	-1.302
2014	237	1500	4.888	21.92	2.079	0.628	-0.629	-1.287
2014	237	1501	4.878	21.9	2.31	0.673	-0.662	-1.681
2014	237	1502	4.882	21.85	2.5	0.865	-0.672	-1.487
2014	237	1503	4.877	21.87	2.428	0.862	-0.651	-1.443
2014	237	1504	4.837	21.88	2.378	0.84	-0.733	-1.273
2014	237	1505	4.834	21.87	2.45	0.832	-0.647	-1.378
2014	237	1506	4.882	21.8	2.12	0.811	-0.788	-1.287
2014	237	1507	4.744	21.82	2.028	0.805	-0.872	-1.377
2014	237	1508	4.888	21.81	2.048	0.468	-0.711	-1.208
2014	237	1509	4.883	21.82	2.045	0.477	-0.798	-1.278
2014	237	1510	4.835	21.8	2.048	0.474	-0.862	-1.435
2014	237	1511	4.841	22.01	2.021	0.49	-0.834	-1.384
2014	237	1512	4.884	21.94	2.078	0.481	-0.88	-1.431
2014	237	1513	4.818	21.8	2.473	0.435	-1.038	-1.483
2014	237	1514	4.767	21.78	2.48	0.438	-0.82	-1.355
2014	237	1515	4.72	21.78	2.434	0.43	-0.872	-1.302
2014	237	1516	4.757	21.81	2.478	0.417	-0.865	-1.362
2014	237	1517	4.71	21.82	2.438	0.418	-0.741	-1.189
2014	237	1518	4.762	21.74	2.407	0.418	-0.801	-1.218
2014	237	1519	4.88	21.68	2.428	0.401	-0.734	-1.088
2014	237	1520	4.737	21.77	2.478	0.4	-0.843	-1.343
2014	237	1521	4.778	21.72	2.458	0.385	-0.725	-1.116
2014	237	1522	4.58	21.87	2.401	0.382	-0.731	-1.122
2014	237	1523	4.738	21.3	2.087	0.381	-0.68	-1.061
2014	237	1524	4.858	21.81	2.038	0.374	-0.863	-1.237
2014	237	1525	4.81	21.88	2.013	0.371	-0.742	-1.113
2014	237	1526	4.859	21.82	2.013	0.368	-0.768	-1.135
2014	237	1527	4.71	21.81	2.038	0.363	-0.691	-1.059
2014	237	1528	4.773	21.77	2.039	0.356	-0.634	-1.023
2014	237	1529	4.762	21.73	2.071	0.353	-0.788	-1.139
2014	237	1530	4.785	21.71	2.048	0.342	-0.735	-1.047
2014	237	1531	4.795	21.65	2.021	0.339	-0.859	-1.197
2014	237	1532	4.733	21.73	2.038	0.341	-0.759	-1.099
2014	237	1533	4.718	21.71	2.013	0.338	-0.744	-1.079
2014	237	1534	4.773	21.68	2.064	0.345	-0.853	-1.228
2014	237	1535	4.737	21.67	2.021	0.331	-0.749	-1.079
2014	237	1536	4.805	21.65	2.013	0.329	-0.789	-1.118
2014	237	1537	4.813	21.65	2.035	0.334	-0.888	-1.23
2014	237	1538	4.782	21.63	2.013	0.323	-0.874	-1.197
2014	237	1539	4.821	21.8	1.989	0.321	-0.613	-0.934
2014	237	1540	4.765	21.68	1.938	0.32	-0.857	-1.077
2014	237	1541	4.823	21.65	2.005	0.312	-0.891	-1.203
2014	237	1542	4.793	21.65	1.98	0.313	-0.88	-1.073
2014	237	1543	4.882	21.88	2.039	0.311	-0.833	-1.088
2014	237	1544	4.859	21.59	1.98	0.308	-0.83	-1.098
2014	237	1545	4.808	21.63	1.996	0.307	-0.822	-1.005
2014	237	1546	4.762	21.71	1.98	0.307	-0.834	-1.071
2014	237	1547	4.778	21.69	1.98	0.304	-0.72	-1.024
2014	237	1548	4.808	21.69	1.98	0.304	-0.881	-1.085
2014	237	1549	4.759	21.73	1.98	0.303	-0.848	-1.091
2014	237	1550	4.787	21.69	2.021	0.303	-0.69	-1.002
2014	237	1551	4.78	21.73	2.029	0.299	-0.785	-1.036
2014	237	1552	4.789	21.68	2.054	0.299	-0.769	-1.082
2014	237	1553	4.808	21.64	2.021	0.301	-0.715	-0.92
2014	237	1554	4.77	21.68	2.038	0.302	-0.671	-0.973
2014	237	1555	4.842	21.82	1.998	0.297	-0.7	-0.897
2014	237	1556	4.884	21.84	2.013	0.303	-0.785	-1.008
2014	237	1557	4.817	21.87	2.038	0.288	-0.719	-1.001
2014	237	1558	4.828	21.82	2.021	0.288	-0.676	-0.971
2014	237	1559	4.914	21.45	2.013	0.277	-0.704	-0.981
2014	237	1600	4.881	21.44	1.998	0.29	-0.881	-0.991
2014	237	1601	4.882	21.82	2.005	0.277	-0.73	-1.007
2014	237	1602	4.838	21.84	2.013	0.28	-0.674	-0.954
2014	237	1603	4.771	21.39	1.998	0.281	-0.921	-1.202
2014	237	1604	4.914	21.42	1.98	0.288	-0.703	-0.988
2014	237	1605	4.838	21.84	1.998	0.288	-0.777	-1.065
2014	237	1606	4.738	21.83	1.998	0.285	-0.881	-0.988
2014	237	1607	4.738	21.83	1.998	0.28	-0.762	-1.032
2014	237	1608	4.818	21.8	1.998	0.281	-0.808	-1.087
2014	237	1609	4.852	21.87	1.983	0.279	-0.741	-1.017
2014	237	1610	4.828	21.87	2.005	0.283	-0.857	-1.125
2014	237	1611	4.818	21.81	1.998	0.277	-0.888	-1.242
2014	237	1612	4.775	21.81	2.013	0.269	-0.762	-1.031
2014	237	1613	4.786	21.84	1.998	0.276	-0.838	-1.112
2014	237	1614	4.849	21.38	1.83	0.279	-0.881	-1.16
2014	237	1615	4.784	21.82	1.98	0.278	-0.918	-1.184
2014	237	1616	4.712	21.85	1.98	0.27	-0.735	-1.105
2014	237	1617	4.782	21.87	1.98	0.27	-0.857	-1.127
2014	237	1618	4.814	21.81	1.98	0.273	-0.88	-1.203
2014	237	1619	4.815	21.88	1.98	0.271	-0.88	-1.201

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	235	6.808	20.34	3.091	0.372	-0.848	-1.317
2014	238	236	6.41	20.4	3.091	0.378	-0.888	-1.383
2014	238	237	6.701	20.35	3.091	0.38	-1.255	-1.435
2014	238	238	6.808	20.33	3.091	0.366	-0.888	-1.381
2014	238	239	6.808	20.34	3.091	0.361	-1.028	-1.407
2014	238	240	6.783	20.33	3.091	0.367	-0.884	-1.331
2014	238	241	6.782	20.38	3.091	0.368	-1.023	-1.381
2014	238	242	6.744	20.41	3.091	0.376	-0.831	-1.327
2014	238	243	6.733	20.41	3.091	0.374	-0.787	-1.141
2014	238	244	6.782	20.34	3.091	0.374	-0.818	-1.28
2014	238	245	6.781	20.24	3.091	0.37	-0.843	-1.212
2014	238	246	6.804	20.1	3.091	0.371	-0.888	-1.38
2014	238	247	6.803	20.08	3.091	0.371	-0.924	-1.335
2014	238	248	6.784	20.19	3.045	0.372	-0.88	-1.302
2014	238	249	6.808	20.19	3.091	0.372	-1	-1.372
2014	238	250	6.8	20.2	3.045	0.372	-0.773	-1.145
2014	238	251	6.81	20.2	3.068	0.372	-0.818	-1.281
2014	238	252	6.74	20.21	3.045	0.375	-0.873	-1.348
2014	238	253	6.632	20.18	3.045	0.372	-0.918	-1.291
2014	238	254	6.798	20.22	3.091	0.374	-0.879	-1.082
2014	238	255	6.782	20.2	3.091	0.373	-0.789	-1.171
2014	238	256	6.83	20.1	3.091	0.378	-0.928	-1.333
2014	238	257	6.838	20.04	3.091	0.377	-0.763	-1.178
2014	238	258	6.832	20.11	3.091	0.373	-0.77	-1.143
2014	238	259	6.832	20.39	3.091	0.371	-0.901	-1.222
2014	238	300	6.798	20.25	3.091	0.372	-0.717	-1.289
2014	238	301	6.724	20.3	3.091	0.378	-0.81	-0.888
2014	238	302	6.808	20.22	3.091	0.364	-0.88	-0.914
2014	238	303	6.8	20.19	3.091	0.378	-0.879	-1.054
2014	238	304	6.843	20.1	3.091	0.368	-0.839	-1.178
2014	238	305	6.846	20.11	3.091	0.378	-0.88	-1.038
2014	238	306	6.807	20.13	3.091	0.365	-0.752	-1.117
2014	238	307	6.779	20.18	3.063	0.375	-0.848	-1.023
2014	238	308	6.757	20.2	3.091	0.372	-0.77	-1.142
2014	238	309	6.684	20.38	3.091	0.374	-0.898	-1.042
2014	238	310	6.634	20.42	3.091	0.378	-0.884	-0.939
2014	238	311	6.701	20.4	3.091	0.365	-0.828	-0.984
2014	238	312	6.662	20.42	3.091	0.368	-0.879	-0.933
2014	238	313	6.779	20.33	3.091	0.39	-0.828	-0.919
2014	238	314	6.798	20.29	3.091	0.377	-0.48	-0.887
2014	238	315	6.808	20.24	3.091	0.383	-0.812	-0.898
2014	238	316	6.765	20.25	3.091	0.384	-0.878	-0.882
2014	238	317	6.782	20.18	3.053	0.388	-0.843	-0.828
2014	238	318	6.79	20.28	3.091	0.38	-0.446	-0.838
2014	238	319	6.742	20.31	3.091	0.381	-0.447	-0.829
2014	238	320	6.781	20.32	3.091	0.388	-0.885	-0.871
2014	238	321	6.769	20.28	3.091	0.391	-0.419	-0.81
2014	238	322	6.784	20.31	3.091	0.38	-0.365	-0.752
2014	238	323	6.763	20.31	3.091	0.384	-0.439	-0.822
2014	238	324	6.808	20.24	3.091	0.38	-0.489	-0.879
2014	238	325	6.777	20.28	3.091	0.381	-0.814	-0.808
2014	238	326	6.785	20.19	3.091	0.368	-0.829	-0.811
2014	238	327	6.763	20.18	3.091	0.391	-0.85	-0.841
2014	238	328	6.821	20.07	3.091	0.383	-0.433	-0.786
2014	238	329	6.726	20.1	3.046	0.369	-0.373	-0.781
2014	238	330	6.768	20.12	3.091	0.363	-0.344	-0.732
2014	238	331	6.74	20.14	3.091	0.365	-0.359	-0.784
2014	238	332	6.746	20.19	3.091	0.361	-0.231	-0.812
2014	238	333	6.728	20.17	3.091	0.381	-0.381	-0.762
2014	238	334	6.708	20.34	3.091	0.378	-0.384	-0.762
2014	238	335	6.772	20.3	3.091	0.378	-0.503	-0.879
2014	238	336	6.791	20.21	3.091	0.378	-0.437	-0.814
2014	238	337	6.791	20.19	3.091	0.376	-0.403	-0.856
2014	238	338	6.813	20.21	3.091	0.367	-0.913	-0.9
2014	238	339	6.649	20.19	3.076	0.368	-0.304	-0.873
2014	238	340	6.781	20.26	3.091	0.38	-0.227	-0.917
2014	238	341	6.785	20.3	3.091	0.367	-0.238	-0.832
2014	238	342	6.629	20.22	3.091	0.367	-0.328	-0.719
2014	238	343	6.703	20.25	3.091	0.39	-0.178	-0.856
2014	238	344	6.743	20.27	3.091	0.379	-0.319	-0.884
2014	238	345	6.837	20.12	3.071	0.371	-0.308	-0.879
2014	238	346	6.787	20.15	3.091	0.371	-0.306	-0.827
2014	238	347	6.828	20.13	3.091	0.372	-0.28	-0.832
2014	238	348	6.773	20.2	3.091	0.371	-0.276	-0.847
2014	238	349	6.781	20.21	3.091	0.377	-0.318	-0.885
2014	238	350	6.741	20.28	3.091	0.374	-0.225	-0.867
2014	238	351	6.73	20.24	3.053	0.382	-0.039	-0.411
2014	238	352	6.782	20.22	3.091	0.384	-0.102	-0.408
2014	238	353	6.839	20.34	3.091	0.383	-0.131	-0.467
2014	238	354	6.726	20.34	3.091	0.373	-0.099	-0.429
2014	238	355	6.769	20.18	3.091	0.38	-0.108	-0.488
2014	238	356	6.808	20.03	3.091	0.38	-0.177	-0.857
2014	238	357	6.845	20.07	3.091	0.367	-0.208	-0.906
2014	238	358	6.87	20.02	3.053	0.362	-0.218	-0.886
2014	238	359	6.867	19.99	3.068	0.367	-0.231	-0.918
2014	238	400	6.86	20	3.045	0.364	-0.147	-0.831
2014	238	401	6.823	19.83	3.012	0.362	-0.031	-0.383
2014	238	402	6.832	19.83	3.045	0.38	0.091	-0.319
2014	238	403	6.866	20.03	3.003	0.378	0.082	-0.313
2014	238	404	6.877	20.01	3.045	0.371	-0.074	-0.446
2014	238	405	6.712	20.18	3.053	0.368	-0.029	-0.363
2014	238	406	6.753	20.15	3.023	0.366	-0.076	-0.442
2014	238	407	6.728	20.17	3.053	0.362	-0.322	-0.684
2014	238	408	6.798	20.19	3.045	0.358	-0.116	-0.473
2014	238	409	6.709	20.34	3.001	0.359	-0.114	-0.472
2014	238	410	6.723	20.25	3.091	0.372	0.083	-0.307
2014	238	411	6.728	20.34	3.061	0.384	-0.078	-0.442
2014	238	412	6.738	20.28	3.061	0.349	0.04	-0.308
2014	238	413	6.716	20.33	3.091	0.347	0.16	-0.187
2014	238	414	6.688	20.41	3.091	0.362	0.082	-0.28
2014	238	415	6.682	20.44	3.091	0.345	-0.01	-0.396
2014	238	416	6.714	20.38	3.091	0.339	-0.038	-0.342
2014	238	417	6.727	20.36	3.091	0.34	0.016	-0.325
2014	238	418	6.738	20.32	3.091	0.336	-0.171	-0.408
2014	238	419	6.706	20.32	3.091	0.336	-0.01	-0.349

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121P11289
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	237	1620	4.663	21.35	1.98	0.264	-0.808	-1.072
2014	237	1621	4.613	21.37	1.98	0.27	-0.828	-1.098
2014	237	1622	4.6	21.31	1.98	0.272	-0.784	-1.056
2014	237	1623	4.713	21.61	1.983	0.269	-0.882	-1.151
2014	237	1624	4.788	21.63	1.1	0.27	-0.918	-1.188
2014	237	1625	4.816	21.69	1.1	0.267	-0.978	-1.245
2014	237	1626	4.813	21.63	1.983	0.272	-1.005	-1.277
2014	237	1627	4.808	21.69	1.98	0.274	-0.923	-1.209
2014	237	1628	4.728	21.69	1.98	0.271	-0.88	-1.281
2014	237	1629	4.673	21.76	1.983	0.27	-1.3	-1.47
2014	237	1630	4.71	21.75	1.98	0.271	-1.004	-1.276
2014	237	1631	4.743	21.71	1.98	0.29	-1.119	-1.388
2014	237	1632	4.768	21.79	1.98	0.29	-1.031	-1.311
2014	237	1633	4.748	21.75	1.98	0.272	-1.149	-1.42
2014	237	1634	4.818	21.81	1.98	0.276	-1.143	-1.419
2014	237	1635	4.676	21.84	1.98	0.27	-1.211	-1.481
2014	237	1636	4.74	21.83	1.98	0.279	-1.164	-1.443
2014	237	1637	4.814	21.82	2.005	0.265	-1.132	-1.397
2014	237	1638	4.801	21.84	1.983	0.27	-1.29	-1.56
2014	237	1639	4.732	21.83	1.98	0.272	-1.33	-1.605
2014	237	1640	4.734	21.79	1.98	0.276	-1.317	-1.593
2014	237	1641	4.773	21.77	1.983	0.273	-1.302	-1.575
2014	237	1642	4.784	21.83	1.98	0.276	-1.313	-1.589
2014	237	1643	4.782	21.83	1.983	0.273	-1.402	-1.697
2014	237	1644	4.808	21.8	1.98	0.267	-1.43	-1.703
2014	237	1645	4.803	21.88	1.98	0.262	-1.332	-1.588
2014	237	1646	4.803	21.83	1.98	0.258	-1.378	-1.64
2014	237	1647	4.812	21.88	1.98	0.263	-1.444	-1.703
2014	237	1648	4.828	21.88	1.98	0.263	-1.468	-1.734
2014	237	1649	4.808	21.84	2.025	0.268	-1.439	-1.729
2014	237	1650	4.771	21.81	1.983	0.273	-1.48	-1.753
2014	237	1651	4.783	21.82	1.98	0.268	-1.5	-1.768
2014	237	1652	4.77	21.78	1.98	0.261	-1.463	-1.724
2014	237	1653	4.788	21.78	1.98	0.264	-1.479	-1.743
2014	237	1654	4.791	21.73	1.98	0.269	-1.528	-1.807
2014	237	1655	4.783	21.74	1.98	0.27	-1.589	-1.863
2014	237	1656	4.759	21.78	1.98	0.268	-1.618	-1.886
2014	237	1657	4.77	21.81	1.98	0.261	-1.636	-1.905
2014	237	1658	4.731	21.78	1.98	0.267	-1.637	-1.903
2014	237	1659	4.743	21.88	1.98	0.261	-1.662	-1.923
2014	237	1700	4.675	21.81	1.98	0.268	-1.729	-1.993
2014	237	1701	4.639	21.73	1.98	0.265	-1.884	-2.149
2014	237	1702	4.684	21.85	1.98	0.28	-1.919	-2.199
2014	237	1703	4.764	21.85	1.98	0.268	-1.853	-2.121
2014	237	1704	4.707	21.82	1.983	0.249	-1.863	-2.112
2014	237	1705	4.742	21.81	1.98	0.254	-1.819	-2.073
2014	237	1706	4.783	21.88	1.98	0.255	-2.031	-2.286
2014	237	1707	4.703	21.78	1.98	0.259	-2.17	-2.429
2014	237	1708	4.785	21.78	1.98	0.268	-2.131	-2.399
2014	237	1709	4.815	21.67	1.98	0.274	-2.14	-2.415
2014	237	1710	4.701	21.63	1.98	0.268	-2.321	-2.577
2014	237	1711	4.803	21.67	1.983	0.268	-2.189	-2.455
2014	237	1712	4.719	21.69	1.983	0.349	-2.303	-2.657
2014	237	1713	4.728	21.63	1.98	0.35	-2.402	-2.752
2014	237	1714	4.777	21.84	1.98	0.348	-2.353	-2.701
2014	237	1715	4.764	21.87	1.98	0.348	-2.62	-2.968
2014	237	1716	4.728	21.83	1.98	0.265	-2.484	-2.749
2014	237	1717	4.748	21.84	1.98	0.348	-2.823	-3.172
2014	237	1718	4.716	21.82	1.98	0.348	-2.638	-2.986
2014	237	1719	4.791	21.8	1.98	0.265	-2.67	-2.935
2014	237	1720	4.747	21.62	1.98	0.264	-2.833	-3.097
2014	237	1721	4.772	21.88	1.98	0.262	-2.846	-3.108
2014	237	1722	4.88	21.84	1.983	0.249	-2.779	-3.028
2014	237	1723	4.623	21.83	1.98	0.243	-2.75	-2.993
2014	237	1724	4.709	21.78	1.98	0.244	-2.693	-2.937
2014	237	1725	4.758	21.78	1.98	0.251	-2.643	-2.894
2014	237	1726	4.788	21.87	1.98	0.248	-2.658	-2.906
2014	237	1727	4.843	21.7	1.98	0.253	-2.918	-3.171
2014	237	1728	4.734	21.88	1.983	0.261	-3.022	-3.283
2014	237	1729	4.838	21.88	1.98	0.247	-3.014	-3.261
2014	237	1730	4.823	21.83	1.98	0.261	-3.129	-3.391
2014	237	1731	4.721	21.74	1.98	0.268	-3.125	-3.393
2014	237	1732	4.884	21.83	1.98	0.249	-3.304	-3.553
2014	237	1733	4.947	21.83	1.98	0.349	-3.132	-3.481
2014	237	1734	4.731	21.83	1.98	0.244	-3.357	-3.601
2014	237	1735	4.716	21.83	1.98	0.259	-3.439	-3.698
2014	237	1736	4.718	21.87	1.98	0.264	-3.417	-3.681
2014	237	1737	4.707	21.83	1.98	0.263	-3.33	-3.593
2014	237	1738	4.763	21.79	1.98	0.253	-3.382	-3.635
2014	237	1739	4.728	21.8	1.98	0.273	-3.441	-3.714
2014	237	1740	4.673	21.83	2.031	0.263	-3.367	-3.630
2014	237	1741	4.772	21.82	2.021	0.269	-3.44	-3.709
2014	237	1742	4.85	21.84	2.048	0.265	-3.629	-3.894
2014	237	1743	4.784	21.84	2.021	0.269	-3.633	-3.902
2014	237	1744	4.774	21.89	2.021	0.265	-3.598	-3.863
2014	237	1745	4.714	21.83	2.028	0.269	-3.723	-3.992
2014	237	1746	4.67	21.83	2.021	0.265	-3.814	-4.079
2014	237	1747	4.657	21.72	2.028	0.268	-3.78	-4.048
2014	237	1748	4.848	21.73	2.021	0.264	-3.791	-4.055
2014	237	1749	4.714	21.78	2.012	0.261	-3.81	-4.078
2014	237	1750	4.681	21.77	2.048	0.265	-3.831	-4.148
2014	237	1751	4.724	21.7	1.98	0.268	-3.798	-4.095
2014	237	1752	4.728	21.79	1.98	0.267	-4.009	-4.279
2014	237	1753	4.692	21.82	1.98	0.273	-4.022	-4.273
2014	237	1754	4.677	21.85	1.98	0.273	-4.034	-4.307
2014	237	1755	4.747	21.84	1.98	0.279	-4.03	-4.309
2014	237	1756	4.714	21.8	1.983	0.28	-4.163	-4.422
2014	237	1757	4.726	21.81	1.98	0.269	-4.107	-4.376
2014	237	1758	4.688	21.84	1.98	0.272	-4.163	-4.434
2014	237	1759	4.628	22	1.98	0.279	-4.222	-4.501
2014	237	1800	4.689	21.88	1.983	0.278	-4.288	-4.564
2014	237	1801	4.584	22.05	1.98	0.28	-4.346	-4.626
2014	237	1802	4.687	22	1.98	0.277	-4.284	-4.571
2014	237	1803	4.383	22	1.98			
2014	237	1804						

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	420	5.623	20.19	3.891	0.337	-0.094	-0.431
2014	238	421	5.782	20.17	3.891	0.329	-0.028	-0.358
2014	238	422	5.771	20.09	3.891	0.329	-0.005	-0.342
2014	238	423	5.78	20.05	3.891	0.329	0.008	-0.329
2014	238	424	5.821	20.02	3.891	0.345	0.062	-0.283
2014	238	425	5.774	20.14	3.891	0.349	0.126	-0.223
2014	238	426	5.75	20.2	3.891	0.341	0.184	-0.157
2014	238	427	5.751	20.22	3.891	0.34	0.225	-0.115
2014	238	428	5.702	20.31	3.891	0.335	0.013	-0.322
2014	238	429	5.648	20.4	3.891	0.339	-0.065	-0.42
2014	238	430	5.657	20.44	3.891	0.336	0.039	-0.299
2014	238	431	5.72	20.44	3.891	0.323	-0.09	-0.413
2014	238	432	5.678	20.45	3.892	0.334	0.018	-0.316
2014	238	433	5.688	20.51	3.891	0.33	0.091	-0.309
2014	238	434	5.686	20.54	3.891	0.332	0.132	-0.2
2014	238	435	5.722	20.63	3.892	0.338	0.213	-0.042
2014	238	436	5.721	20.47	3.891	0.331	0.139	-0.193
2014	238	437	5.638	20.47	3.891	0.334	0.082	-0.233
2014	238	438	5.662	20.48	3.891	0.318	0.208	-0.05
2014	238	439	5.757	20.51	3.891	0.314	0.387	-0.017
2014	238	440	5.774	20.29	3.892	0.33	0.208	-0.114
2014	238	441	5.833	20.24	3.891	0.318	0.162	-0.137
2014	238	442	5.778	20.27	3.891	0.317	-0.024	-0.324
2014	238	443	5.718	20.38	3.891	0.309	0.102	-0.308
2014	238	444	5.711	20.37	3.892	0.307	0.148	-0.161
2014	238	445	5.712	20.38	3.891	0.308	0.208	-0.041
2014	238	446	5.678	20.48	3.891	0.309	0.253	-0.085
2014	238	447	5.73	20.41	3.891	0.318	0.161	-0.169
2014	238	448	5.698	20.48	3.891	0.319	0.402	0.143
2014	238	449	5.658	20.61	3.891	0.317	0.27	-0.047
2014	238	450	5.728	20.43	3.892	0.318	0.309	-0.009
2014	238	451	5.698	20.37	3.891	0.309	0.197	-0.12
2014	238	452	5.714	20.42	3.891	0.308	0.254	-0.072
2014	238	453	5.698	20.31	3.892	0.305	0.118	-0.147
2014	238	454	5.694	20.18	3.891	0.304	0.21	-0.089
2014	238	455	5.632	20.12	3.891	0.307	0.271	-0.033
2014	238	456	5.762	20.23	3.892	0.313	0.347	0.04
2014	238	457	5.721	20.31	3.891	0.316	0.39	0.08
2014	238	458	5.637	20.37	3.891	0.313	0.389	0.083
2014	238	459	5.611	20.45	3.891	0.302	0.523	0.212
2014	238	460	5.613	20.28	3.891	0.309	0.406	0.104
2014	238	461	5.743	20.35	3.891	0.311	0.47	0.162
2014	238	462	5.784	20.27	3.891	0.311	0.421	0.11
2014	238	463	5.803	20.21	3.891	0.307	0.347	0.039
2014	238	464	5.808	20.14	3.891	0.309	0.327	-0.09
2014	238	465	5.848	20.07	3.891	0.308	0.265	-0.03
2014	238	466	5.807	19.97	3.891	0.312	0.316	0.01
2014	238	467	5.738	19.88	3.891	0.304	0.402	0.09
2014	238	468	5.762	20.02	3.891	0.305	0.359	0.054
2014	238	469	5.784	19.84	3.891	0.304	0.573	0.269
2014	238	470	5.788	19.85	3.891	0.302	0.892	0.594
2014	238	471	5.711	20.08	3.891	0.304	0.828	0.528
2014	238	472	5.642	20.17	3.891	0.302	0.809	0.507
2014	238	473	5.634	20.17	3.891	0.304	0.41	0.109
2014	238	474	5.678	20.2	3.891	0.303	0.478	0.177
2014	238	475	5.662	20.28	3.891	0.312	0.39	0.048
2014	238	476	5.739	20.31	3.891	0.314	0.401	0.147
2014	238	477	5.641	20.29	3.891	0.309	0.428	0.183
2014	238	478	5.713	20.13	3.891	0.3	0.359	0.059
2014	238	479	5.722	20.14	3.891	0.299	0.338	0.038
2014	238	480	5.734	20.34	3.891	0.308	0.528	0.228
2014	238	481	5.674	20.28	3.891	0.309	0.45	0.151
2014	238	482	5.687	20.41	3.891	0.307	0.509	0.209
2014	238	483	5.691	20.37	3.891	0.316	0.452	0.152
2014	238	484	5.642	20.43	3.891	0.301	0.19	0.19
2014	238	485	5.687	20.48	3.891	0.309	0.329	0.029
2014	238	486	5.684	20.65	3.891	0.304	0.211	0.2
2014	238	487	5.601	20.69	3.891	0.309	0.3	0.09
2014	238	488	5.629	20.69	3.891	0.307	0.341	0.307
2014	238	489	5.642	20.69	3.891	0.309	0.379	0.069
2014	238	490	5.721	20.6	3.891	0.305	0.393	0.088
2014	238	491	5.65	20.58	3.891	0.304	0.428	0.124
2014	238	492	5.623	20.6	3.892	0.307	0.419	0.112
2014	238	493	5.613	20.62	3.891	0.308	0.278	-0.029
2014	238	494	5.691	20.58	3.891	0.302	0.314	0.012
2014	238	495	5.634	20.6	3.891	0.303	0.369	0.066
2014	238	496	5.703	20.6	3.891	0.303	0.478	0.175
2014	238	497	5.701	20.62	3.891	0.304	0.416	0.112
2014	238	498	5.73	20.58	3.891	0.308	0.379	0.071
2014	238	499	5.747	20.58	3.891	0.304	0.423	0.119
2014	238	500	5.778	20.22	3.891	0.308	0.416	0.108
2014	238	501	5.732	20.21	3.891	0.304	0.478	0.174
2014	238	502	5.777	20.09	3.891	0.308	0.428	0.12
2014	238	503	5.75	20.09	3.891	0.301	0.384	0.083
2014	238	504	5.772	20.09	3.891	0.311	0.422	0.111
2014	238	505	5.759	20.11	3.891	0.298	0.409	0.111
2014	238	506	5.718	20.16	3.891	0.312	0.422	0.109
2014	238	507	5.813	20.22	3.891	0.303	0.422	0.119
2014	238	508	5.784	20.28	3.891	0.305	0.411	0.106
2014	238	509	5.705	20.33	3.891	0.303	0.409	0.106
2014	238	510	5.652	20.37	3.891	0.31	0.409	0.099
2014	238	511	5.69	20.31	3.891	0.304	0.409	0.105
2014	238	512	5.759	20.29	3.891	0.301	0.409	0.108
2014	238	513	5.747	20.33	3.891	0.3	0.409	0.109
2014	238	514	5.761	20.31	3.891	0.3	0.409	0.109
2014	238	515	5.769	20.29	3.891	0.299	0.409	0.109
2014	238	516	5.769	20.31	3.891	0.299	0.409	0.109
2014	238	517	5.79	20.34	3.891	0.294	0.409	0.109
2014	238	518	5.713	20.32	3.891	0.299	0.409	0.109
2014	238	519	5.667	20.48	3.891	0.294	0.409	0.109
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Summary of AMY DATA

Client: Northern Pulp
Project No.: 121011280
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	237	1605	4.611	21.89	1.88	0.313	-4.291	-4.629
2014	237	1606	4.703	22.04	1.890	0.277	-4.279	-4.556
2014	237	1607	4.528	22.16	1.88	0.272	-4.335	-4.61
2014	237	1608	4.594	22.11	1.88	0.284	-4.341	-4.625
2014	237	1609	4.715	21.88	1.88	0.276	-4.439	-4.713
2014	237	1610	4.709	21.9	1.570	0.276	-4.401	-4.677
2014	237	1611	4.682	21.9	1.890	0.276	-4.311	-4.788
2014	237	1612	4.785	21.81	1.88	0.279	-4.387	-4.663
2014	237	1613	4.717	21.8	1.883	0.273	-4.614	-4.887
2014	237	1614	4.676	21.81	1.88	0.272	-4.442	-4.714
2014	237	1615	4.788	21.83	1.88	0.27	-4.575	-4.845
2014	237	1616	4.623	21.83	1.885	0.273	-4.887	-4.87
2014	237	1617	4.623	21.82	1.880	0.269	-4.739	-5.009
2014	237	1618	4.783	21.84	1.88	0.272	-4.887	-4.829
2014	237	1619	4.708	21.72	1.88	0.273	-4.83	-4.833
2014	237	1620	4.634	21.76	1.88	0.273	-4.487	-4.77
2014	237	1621	4.673	21.88	1.88	0.276	-4.738	-5.013
2014	237	1622	4.641	21.82	1.88	0.278	-4.745	-5.024
2014	237	1623	4.81	21.87	1.570	0.278	-4.788	-5.031
2014	237	1624	4.701	21.81	1.88	0.276	-4.834	-4.9
2014	237	1625	4.884	21.49	1.88	0.279	-4.889	-4.957
2014	237	1626	4.73	21.57	1.630	0.276	-4.881	-5.24
2014	237	1627	4.112	21.39	1.88	0.269	-4.889	-4.877
2014	237	1628	4.884	21.86	1.880	0.281	-4.784	-5.045
2014	237	1629	4.852	21.83	1.88	0.284	-4.818	-5.113
2014	237	1630	4.872	21.83	1.880	0.283	-4.781	-5.089
2014	237	1631	4.839	21.47	1.88	0.278	-4.782	-5.027
2014	237	1632	4.767	21.87	1.880	0.28	-4.889	-5.178
2014	237	1633	4.822	21.81	1.88	0.288	-4.782	-5.088
2014	237	1634	4.784	21.88	1.88	0.284	-4.834	-5.239
2014	237	1635	4.791	21.89	1.83	0.281	-4.838	-5.227
2014	237	1636	4.862	21.49	1.88	0.273	-4.826	-5.217
2014	237	1637	4.884	21.8	1.880	0.284	-5.017	-5.301
2014	237	1638	4.731	21.84	1.880	0.28	-4.828	-5.219
2014	237	1639	4.746	21.68	1.883	0.288	-4.783	-5.081
2014	237	1640	4.712	21.71	1.88	0.288	-4.944	-5.13
2014	237	1641	4.731	21.89	1.88	0.28	-4.828	-5.208
2014	237	1642	4.778	21.88	1.88	0.28	-4.139	-5.478
2014	237	1643	4.754	21.72	1.880	0.291	-5.1	-5.391
2014	237	1644	4.771	21.72	1.88	0.287	-4.884	-5.291
2014	237	1645	4.788	21.7	1.88	0.288	-5.089	-5.384
2014	237	1646	4.788	21.7	1.880	0.283	-5.12	-5.412
2014	237	1647	4.884	21.8	1.88	0.284	-5.118	-5.41
2014	237	1648	4.878	21.48	1.88	0.313	-5.578	-5.357
2014	237	1649	4.882	21.47	1.88	0.288	-5.878	-5.313
2014	237	1650	4.789	21.87	1.880	0.284	-5.118	-5.41
2014	237	1651	4.82	21.83	1.88	0.287	-5.385	-5.652
2014	237	1652	4.817	21.47	1.88	0.288	-5.188	-5.451
2014	237	1653	4.808	21.48	1.88	0.287	-5.352	-5.633
2014	237	1654	4.721	21.88	2.000	0.303	-5.258	-5.691
2014	237	1655	4.738	21.74	1.880	0.29	-5.149	-5.439
2014	237	1656	4.818	21.86	1.88	0.288	-5.183	-5.462
2014	237	1657	4.804	21.88	2.021	0.288	-5.185	-5.474
2014	237	1658	4.879	21.88	2.035	0.307	-5.348	-5.639
2014	237	1659	4.859	21.84	1.875	0.285	-5.212	-5.488
2014	237	1700	4.883	21.88	1.880	0.313	-5.443	-5.728
2014	237	1701	4.854	21.86	2.000	0.302	-5.408	-5.69
2014	237	1702	4.721	21.78	2.000	0.313	-5.354	-5.54
2014	237	1703	4.848	21.88	2.000	0.28	-5.351	-5.531
2014	237	1704	4.888	21.48	1.88	0.278	-5.343	-5.522
2014	237	1705	4.916	21.88	1.88	0.288	-5.348	-5.633
2014	237	1706	4.674	21.88	1.88	0.288	-5.338	-5.635
2014	237	1707	4.804	21.85	1.88	0.307	-5.149	-5.456
2014	237	1708	4.828	21.84	1.88	0.288	-5.408	-5.723
2014	237	1709	4.87	21.87	1.630	0.28	-5.334	-5.524
2014	237	1710	4.836	21.48	1.878	0.288	-5.321	-5.616
2014	237	1711	4.882	21.38	1.83	0.283	-5.334	-5.696
2014	237	1712	4.916	21.43	1.880	0.278	-5.088	-5.347
2014	237	1713	4.83	21.48	1.883	0.287	-5.388	-5.696
2014	237	1714	4.858	21.39	1.886	0.284	-5.427	-5.711
2014	237	1715	5.033	21.35	1.88	0.291	-5.343	-5.634
2014	237	1716	5.008	21.28	1.88	0.283	-5.328	-5.611
2014	237	1717	5.033	21.32	1.83	0.278	-5.216	-5.497
2014	237	1718	4.885	21.44	2.030	0.288	-5.302	-5.588
2014	237	1719	4.88	21.28	1.880	0.283	-5.319	-5.489
2014	237	1720	4.825	21.42	1.88	0.281	-5.412	-5.693
2014	237	1721	4.876	21.48	1.88	0.288	-5.208	-5.489
2014	237	1722	4.837	21.63	1.88	0.288	-5.431	-5.719
2014	237	1723	4.818	21.46	1.885	0.281	-5.155	-5.428
2014	237	1724	4.832	21.48	1.83	0.286	-5.313	-5.559
2014	237	1725	5.008	21.38	1.88	0.284	-5.378	-5.68
2014	237	1726	5.021	21.38	1.88	0.278	-5.2	-5.478
2014	237	1727	4.907	21.46	1.88	0.28	-5.431	-5.701
2014	237	1728	4.838	21.8	1.88	0.285	-5.376	-5.571
2014	237	1729	4.911	21.47	1.88	0.285	-5.355	-5.64
2014	237	1730	4.91	21.47	1.88	0.283	-5.368	-5.644
2014	237	1731	4.862	21.83	1.83	0.281	-5.287	-5.559
2014	237	1732	4.829	21.88	1.88	0.283	-5.305	-5.548
2014	237	1733	4.848	21.83	1.88	0.284	-5.328	-5.608
2014	237	1734	4.803	21.88	1.880	0.28	-5.34	-5.53
2014	237	1735	4.803	21.83	1.878	0.284	-5.155	-5.449
2014	237	1736	4.878	21.43	1.880	0.283	-5.163	-5.461
2014	237	1737	5.08	21.31	1.880	0.284	-5.288	-5.682
2014	237	1738	4.882	21.38	1.78	0.287	-5.12	-5.417
2014	237	1739	4.871	21.37	1.88	0.288	-5.117	-5.419
2014	237	1740	4.884	21.47	1.88	0.308	-5.118	-5.435
2014	237	1741	4.794	21.88	1.88	0.313	-5.187	-5.485
2014	237	1742	4.879	21.38	1.88	0.308	-5.348	-5.554
2014	237	1743	5.037	21.28	1.88	0.298	-5.208	-5.384
2014	237	1744	4.883	21.31	1.88	0.308	-5.188	-5.465
2014	237	1745	4.827	21.38	1.88	0.31	-5.148	-5.409
2014	237	1746	5.037	21.33	1.83	0.308	-5.187	-5.602
2014	237	1747	4.808	21.41	1.88	0.316	-5.043	-5.381
2014	237	1748	4.848	21.38	1.88	0.311	-5.038	-5.35
2014	237	1749	5.009	21.34	1.88	0.316	-5.178	-5.494

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	635	5.042	20.52	3.888	0.265	0.918	0.653
2014	238	636	5.031	20.54	3.881	0.267	0.744	0.457
2014	238	637	5.032	20.53	3.881	0.269	0.783	0.474
2014	238	638	5.041	20.8	3.881	0.303	0.859	0.556
2014	238	639	5.053	20.53	3.881	0.289	1.032	0.734
2014	238	640	5.062	20.52	3.878	0.288	1.35	0.984
2014	238	641	5.04	20.54	3.881	0.284	1.084	0.797
2014	238	642	5.066	20.56	3.881	0.281	1.054	0.763
2014	238	643	5.052	20.58	3.881	0.285	0.972	0.677
2014	238	644	5.027	20.59	3.881	0.283	0.81	0.576
2014	238	645	5.034	20.61	3.889	0.303	0.879	0.579
2014	238	646	5.009	20.58	3.881	0.288	0.848	0.65
2014	238	647	5.064	20.49	3.884	0.283	1.018	0.727
2014	238	648	5.045	20.55	3.878	0.289	1.021	0.732
2014	238	649	5.065	20.54	4.003	0.289	1.147	0.858
2014	238	650	5.025	20.47	4.08	0.282	1.004	0.712
2014	238	651	5.086	20.4	4.022	0.286	1.281	0.976
2014	238	652	5.002	20.28	4.002	0.282	1.126	0.844
2014	238	653	5.784	20.18	4.002	0.286	1.124	0.836
2014	238	654	5.789	20.13	3.874	0.284	1.058	0.772
2014	238	655	5.768	20.07	4.044	0.284	0.63	0.358
2014	238	656	5.74	20.14	4.082	0.283	0.863	0.71
2014	238	657	5.786	20.12	4.002	0.276	0.821	0.643
2014	238	658	5.723	20.21	3.884	0.277	1.057	0.78
2014	238	659	5.779	20.19	4.086	0.276	0.873	0.624
2014	238	660	5.694	20.27	4.073	0.285	1.081	0.769
2014	238	661	5.667	20.27	4.12	0.288	1.063	0.809
2014	238	662	5.708	20.3	4.079	0.286	1.225	0.983
2014	238	663	5.784	20.28	4.793	0.276	1.309	1.034
2014	238	664	5.738	20.31	4.805	0.272	1.184	0.862
2014	238	665	5.712	20.32	4.671	0.274	1.116	0.844
2014	238	666	5.643	20.43	4.728	0.274	1.03	0.808
2014	238	667	5.648	20.43	4.654	0.281	0.879	0.614
2014	238	668	5.642	20.46	4.629	0.274	1.122	0.848
2014	238	669	5.602	20.4	4.613	0.279	1.162	0.883
2014	238	940	5.607	20.47	4.72	0.278	0.853	0.579
2014	238	941	5.609	20.44	4.687	0.271	1.107	0.838
2014	238	942	5.628	20.38	4.684	0.264	1.177	0.888
2014	238	943	5.652	20.31	4.621	0.292	1.227	0.935
2014	238	944	5.35	20.5	4.588	0.294	1.21	0.914
2014	238	945	5.729	20.47	4.654	0.283	1.258	0.973
2014	238	946	5.702	20.45	4.654	0.284	1.351	1.037
2014	238	947	5.115	20.51	4.687	0.28	1.288	0.979
2014	238	948	5.494	20.77	4.639	0.304	1.221	0.917
2014	238	949	5.468	20.77	4.586	0.304	0.828	0.522
2014	238	950	5.605	20.63	4.704	0.3	1.025	0.785
2014	238	951	5.84	20.57	4.629	0.302	1.054	0.762
2014	238	952	5.604	20.63	4.848	0.301	1.32	1.018
2014	238	953	5.597	20.68	4.785	0.302	1.318	0.917
2014	238	954	5.635	20.65	5.001	0.308	1.238	0.933
2014	238	955	5.67	20.62	5.128	0.304	1.302	0.988
2014	238	956	5.673	20.57	5.198	0.303	1.342	1.039
2014	238	957	5.668	20.68	5.148	0.308	1.324	1.019
2014	238	958	5.691	20.63	5.113	0.304	1.331	1.027
2014	238	959	5.733	20.47	5.083	0.308	1.199	0.893
2014	238	700	5.749	20.4	5.125	0.301	1.302	1.021
2014	238	701	5.88	20.45	5.168	0.311	1.284	0.983
2014	238	702	5.846	20.45	5.174	0.298	1.161	0.863
2014	238	703	5.702	20.42	5.123	0.312	1.313	0.958
2014	238	704	5.674	20.48	5.076	0.301	1.32	1.018
2014	238	705	5.705	20.45	5.148	0.311	1.32	1.039
2014	238	706	5.782	20.42	5.189	0.288	1.284	0.988
2014	238	707	5.681	20.61	5.017	0.303	1.298	1.358
2014	238	708	5.712	20.6	5.207	0.309	1.28	1.007
2014	238	709	5.695	20.66	5.1	0.309	1.373	1.07
2014	238	710	5.724	20.69	5.188	0.3	1.249	0.946
2014	238	711	5.135	20.6	5.183	0.288	1.29	0.983
2014	238	712	5.669	20.48	5.162	0.303	1.383	1.048
2014	238	713	5.711	20.65	5.158	0.302	1.28	0.946
2014	238	714	5.686	20.4	5.149	0.291	1.271	0.92
2014	238	715	5.695	20.4	5.163	0.289	1.323	0.954
2014	238	716	5.671	20.43	5.191	0.303	1.287	0.984
2014	238	717	5.662	20.43	5.039	0.273	1.288	0.987
2014	238	718	5.668	20.43	5.189	0.304	1.439	1.125
2014	238	719	5.655	20.46	5.152	0.301	1.38	1.058
2014	238	720	5.788	20.41	5.083	0.305	1.408	1.108
2014	238	721	5.773	20.43	5.158	0.3	1.4	1.1
2014	238	722	5.722	20.48	5.198	0.289	1.32	1.034
2014	238	723	5.644	20.63	5.174	0.283	1.219	0.921
2014	238	724	5.638	20.52	5.339	0.298	1.129	0.832
2014	238	725	5.703	20.53	5.783	0.286	1.277	0.942
2014	238	726	5.676	20.51	6.028	0.284	1.288	0.974
2014	238	727	5.657	20.57	6.029	0.286	1.349	1.081
2014	238	728	5.652	20.59	5.943	0.307	1.349	1.039
2014	238	729	5.669	20.55	5.735	0.284	1.43	1.189
2014	238	730	5.68	20.53	5.618	0.294	1.467	1.159
2014	238	731	5.688	20.56	5.943	0.297	1.528	1.231
2014	238	732	5.688	20.51	5.801	0.288	1.377	1.092
2014	238	733	5.705	20.46	5.851	0.284	1.221	0.927
2014	238	734	5.719	20.47	5.777	0.288	1.305	0.997
2014	238	735	5.687	20.46	5.634	0.286	1.278	0.942
2014	238	736	5.682	20.44	5.628	0.279	1.287	0.986
2014	238	737	5.712	20.44	5.634	0.3	1.184	0.854
2014	238	738	5.682	20.48	5.843	0.303	1.328	1.028
2014	238	739	5.687	20.47	5.744	0.303	1.29	0.988
2014	238	740	5.74	20.38	5.671	0.3	1.338	1.059
2014	238	741	5.705	20.47	5.793	0.286	1.438	1.137
2014	238	742	5.64	20.59	5.628	0.302	1.384	1.082
2014	238	743	5.618	20.63	5.728	0.3	1.423	1.122
2014	238	744	5.609	20.68	5.783	0.308	1.341	1.038
2014	238	745	5.618	20.62	5.801	0.288	1.173	0.874
2014	238	746	5.608	20.62	5.777	0.288	1.308	1.008
2014	238	747	5.646	20.71	5.843	0.308	1.32	1.012
2014	238	748	5.632	20.72	5.916	0.308	1.373	1.065
2014	238	749	5.658	20.74	5.801	0.308	1.362	1.058

Summary of RAW DATA

Client: Northern Pole
Project No.: 121211223
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	237	1800	8.11	21.11	1.59	0.302	-1.203	-0.214
2014	237	1801	8.09	21.07	1.59	0.304	-0.116	-0.42
2014	237	1802	8.103	20.98	1.59	0.304	-0.1	-0.401
2014	237	1803	8.033	21.03	1.589	0.307	-0.289	-0.384
2014	237	1804	4.941	21.21	1.59	0.308	-0.073	-0.378
2014	237	1805	4.891	21.29	1.59	0.307	-0.049	-0.369
2014	237	1806	4.903	21.09	1.59	0.312	-0.131	-0.443
2014	237	1807	5.13	21.12	1.59	0.307	-0.085	-0.162
2014	237	1808	5.118	21.19	1.59	0.312	-0.102	-0.409
2014	237	1809	5.058	21.2	1.59	0.304	-0.084	-0.406
2014	237	1810	5.033	21.18	1.59	0.305	-0.022	-0.328
2014	237	1811	5.043	21.32	1.59	0.305	-0.116	-0.42
2014	237	1812	4.736	21.27	1.59	0.311	-0.093	-0.369
2014	237	1813	4.877	21.28	1.59	0.3	-0.087	-0.328
2014	237	1814	4.899	21.3	1.59	0.303	-0.059	-0.299
2014	237	1815	4.971	21.34	1.59	0.302	-0.038	-0.287
2014	237	1816	4.974	21.33	1.59	0.311	-0.032	-0.334
2014	237	1817	4.976	21.29	1.59	0.304	-0.036	-0.346
2014	237	1818	5.002	21.29	1.59	0.309	-1.06	-0.154
2014	237	1819	5.003	21.34	1.589	0.309	-0.989	-0.197
2014	237	1820	5.017	21.27	1.59	0.309	-0.989	-0.3
2014	237	1821	4.926	21.23	1.59	0.307	-0.937	-0.343
2014	237	1822	5	21.14	1.589	0.307	-0.784	-0.101
2014	237	1823	5.053	21.09	1.59	0.314	-0.38	-0.157
2014	237	1824	5.104	21.08	1.59	0.316	-0.885	-0.2
2014	237	1825	5.083	21.03	1.572	0.309	-0.853	-0.195
2014	237	1826	5.123	21.08	1.572	0.309	-0.873	-0.138
2014	237	1827	5.101	20.99	1.59	0.304	-0.763	-0.099
2014	237	1828	5.049	21.18	1.59	0.309	-0.809	-0.114
2014	237	1829	5.132	21.24	1.59	0.304	-0.83	-0.098
2014	237	1830	4.3	21.18	1.59	0.309	-0.719	-0.023
2014	237	1831	4.94	21.16	1.59	0.309	-0.838	-0.149
2014	237	1832	4.877	21.23	1.59	0.309	-0.798	-0.104
2014	237	1833	5.041	21.21	1.59	0.309	-0.81	-0.016
2014	237	1834	5.018	21.16	1.572	0.305	-0.789	-0.084
2014	237	1835	5.072	21.19	1.589	0.3	-0.741	-0.041
2014	237	1836	5.067	21.11	1.59	0.309	-0.878	-0.091
2014	237	1837	5.122	21.13	1.59	0.309	-0.882	-0.088
2014	237	1838	5.097	21.12	1.59	0.309	-0.882	-0.088
2014	237	1839	5.118	21.12	2.005	0.309	-0.481	-0.79
2014	237	1840	5.058	21.1	1.59	0.309	-0.463	-0.77
2014	237	1841	5.08	21.03	1.59	0.309	-0.823	-0.837
2014	237	1842	5.149	20.98	1.589	0.309	-0.823	-0.848
2014	237	1843	5.164	20.99	1.59	0.302	-0.91	-0.812
2014	237	1844	5.131	20.99	1.589	0.312	-0.441	-0.793
2014	237	1845	5.147	21.04	1.59	0.307	-0.889	-0.889
2014	237	1846	5.093	21.11	1.589	0.309	-0.844	-0.882
2014	237	1847	5.08	21.18	1.59	0.302	-0.908	-0.851
2014	237	1848	5.031	21.17	1.59	0.307	-0.904	-0.811
2014	237	1849	5.039	21.19	1.589	0.309	-0.281	-0.884
2014	237	1850	5.042	21.21	1.59	0.309	-0.313	-0.812
2014	237	1851	5.024	21.21	1.59	0.307	-0.363	-0.98
2014	237	1852	5.041	21.23	1.59	0.308	-0.307	-0.812
2014	237	1853	5.049	21.24	1.59	0.308	-0.276	-0.891
2014	237	1854	5.031	21.27	1.59	0.305	-0.277	-0.82
2014	237	1855	5.054	21.27	1.59	0.308	-0.294	-0.8
2014	237	1856	4.977	21.29	1.59	0.305	-0.415	-0.72
2014	237	1857	4.959	21.28	1.59	0.304	-0.33	-0.694
2014	237	1858	4.898	21.28	1.59	0.303	-0.347	-0.891
2014	237	1859	4.944	21.46	1.59	0.307	-0.322	-0.829
2014	237	1860	5.011	21.46	1.573	0.309	-0.313	-0.82
2014	237	1861	4.942	21.47	1.59	0.309	-0.316	-0.814
2014	237	1862	4.913	21.47	1.59	0.307	-0.189	-0.802
2014	237	1863	4.941	21.41	1.59	0.307	-0.232	-0.829
2014	237	1864	5.019	21.35	1.59	0.307	-0.016	-0.313
2014	237	1865	4.975	21.32	1.59	0.307	-0.178	-0.462
2014	237	1866	5.04	21.14	1.59	0.309	-0.138	-0.439
2014	237	1867	5.1	21.12	1.59	0.309	-0.061	-0.38
2014	237	1868	5.123	21.13	1.59	0.307	-0.121	-0.42
2014	237	1869	5.037	21.23	1.59	0.307	-0.267	-0.696
2014	237	1870	5.062	21.19	1.59	0.309	-0.3	-0.837
2014	237	1871	5.043	21.23	1.59	0.309	-0.143	-0.482
2014	237	1872	4.99	21.36	1.59	0.310	-0.081	-0.379
2014	237	1873	5.039	21.27	1.59	0.303	-0.639	-0.211
2014	237	1874	5.022	21.27	1.59	0.309	-0.161	-0.321
2014	237	1875	4.962	21.31	1.59	0.307	-0.032	-0.373
2014	237	1876	4.99	21.25	1.59	0.307	-0.013	-0.378
2014	237	1877	5.005	21.28	1.59	0.3	-0.025	-0.309
2014	237	1878	5.039	21.22	1.59	0.304	-0.062	-0.278
2014	237	1879	5.07	21.13	1.59	0.308	-0.108	-0.39
2014	237	1880	5.091	21.14	1.59	0.304	-0.861	-1.75
2014	237	1881	5.077	21.14	1.59	0.308	-0.848	-1.47
2014	237	1882	4.865	21.24	1.59	0.308	-0.909	-0.234
2014	237	1883	5.009	21.29	1.589	0.305	-0.865	-1.2
2014	237	1884	5.023	21.32	1.589	0.303	-0.39	-0.293
2014	237	1885	4.957	21.42	1.589	0.301	-0.032	-0.363
2014	237	1886	5.044	21.36	1.59	0.305	-0.912	-1.3
2014	237	1887	4.981	21.47	1.59	0.309	-0.713	-1.02
2014	237	1888	4.929	21.53	1.59	0.309	-0.704	-0.812
2014	237	1889	4.934	21.53	1.59	0.304	-0.718	-0.043
2014	237	1890	4.97	21.53	1.589	0.3	-0.918	-0.918
2014	237	1891	5.01	21.44	1.59	0.307	-0.715	-0.023
2014	237	1892	5.021	21.36	1.59	0.307	-0.631	-0.188
2014	237	1893	5.091	21.34	1.59	0.307	-0.885	-0.172
2014	237	1894	5.102	21.16	1.59	0.303	-0.829	-0.133
2014	237	1895	5.109	21.11	1.59	0.303	-0.804	-0.11
2014	237	1896	5.016	21.13	1.59	0.303	-0.83	-0.053
2014	237	1897	4.734	21.28	1.59	0.303	-0.485	-0.804
2014	237	1898	4.988	21.34	1.589	0.303	-0.724	-0.31
2014	237	1899	5.097	21.12	1.59	0.309	-0.787	-0.01
2014	237	1900	5.088	21.19	1.589	0.313	-0.828	-0.821
2014	237	1901	5.085	21.14	1.59	0.316	-0.763	-0.078
2014	237	1902	5.101	21.14	1.59	0.312	-0.732	-0.088
2014	237	1903	4.389	21.28	1.59	0.307	-0.888	-2.007
2014	237	1904	5.049	21.34	1.59	0.309		

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	700	8.028	20.72	0.916	0.298	1.42	1.132
2014	238	701	8.595	20.79	0.777	0.309	1.12	1.12
2014	238	702	8.597	20.72	0.843	0.309	1.439	1.131
2014	238	703	8.623	20.73	3.783	0.322	1.439	1.108
2014	238	704	8.652	20.74	5.752	0.312	1.43	1.127
2014	238	705	8.652	20.63	6.631	0.309	1.342	1.03
2014	238	706	8.670	20.62	6.81	0.304	1.391	1.046
2014	238	707	8.689	20.63	6.854	0.304	1.33	1.022
2014	238	708	8.683	20.65	6.798	0.304	1.421	1.117
2014	238	709	8.687	20.64	6.818	0.303	1.477	1.172
2014	238	710	8.683	20.68	6.879	0.304	1.457	1.153
2014	238	711	8.628	20.68	6.916	0.304	1.479	1.175
2014	238	712	8.69	20.65	6.798	0.303	1.488	1.181
2014	238	713	8.934	20.61	6.128	0.303	1.34	1.037
2014	238	714	8.488	20.73	6.196	0.305	1.41	1.107
2014	238	715	8.540	20.78	6.352	0.305	1.488	1.183
2014	238	716	8.547	20.73	6.089	0.305	1.383	1.26
2014	238	717	8.478	20.73	6.162	0.305	1.801	1.183
2014	238	718	8.508	20.65	6.125	0.305	1.853	1.349
2014	238	719	8.65	20.79	6.133	0.303	1.819	1.311
2014	238	720	8.657	20.81	6.207	0.307	1.736	1.403
2014	238	721	8.651	20.85	6.195	0.311	1.654	1.347
2014	238	722	8.648	20.8	6.24	0.32	1.622	1.316
2014	238	723	8.637	20.84	6.05	0.308	1.601	1.231
2014	238	724	8.913	20.84	5.174	0.31	1.573	1.285
2014	238	725	8.59	20.82	5.174	0.31	1.571	1.281
2014	238	726	8.652	20.83	5.428	0.322	1.591	1.281
2014	238	727	8.462	20.81	5.195	0.323	1.488	1.143
2014	238	728	8.58	20.88	5.123	0.323	1.623	1.201
2014	238	729	8.585	20.81	4.935	0.308	1.676	1.242
2014	238	730	8.609	20.81	4.913	0.309	1.628	1.189
2014	238	731	8.604	20.85	4.729	0.309	1.435	1.149
2014	238	732	8.64	20.81	4.671	0.324	1.466	1.331
2014	238	733	8.622	20.73	4.629	0.327	1.527	1.233
2014	238	734	8.611	20.85	4.651	0.325	1.488	1.238
2014	238	735	8.588	20.81	4.629	0.314	1.533	1.179
2014	238	736	8.628	20.81	4.617	0.318	1.583	1.238
2014	238	737	8.604	20.85	4.65	0.327	1.489	1.326
2014	238	738	8.64	20.71	4.628	0.316	1.634	1.307
2014	238	739	8.622	20.81	4.613	0.32	1.479	1.18
2014	238	740	8.511	20.8	4.77	0.323	1.624	1.204
2014	238	741	8.588	20.85	4.671	0.316	1.488	1.182
2014	238	742	8.588	20.81	4.648	0.317	1.446	1.13
2014	238	743	8.572	20.84	4.636	0.311	1.447	1.13
2014	238	744	8.488	20.87	4.704	0.311	1.487	1.178
2014	238	745	8.644	20.84	4.652	0.309	1.684	1.273
2014	238	746	8.617	20.8	4.69	0.313	1.548	1.34
2014	238	747	8.625	20.79	4.629	0.307	1.486	1.172
2014	238	748	8.629	20.72	4.629	0.32	1.388	1.062
2014	238	749	8.637	20.7	4.571	0.309	1.409	1.208
2014	238	750	8.593	20.88	4.629	0.308	1.489	1.183
2014	238	751	8.619	20.73	4.656	0.316	1.455	1.217
2014	238	752	8.723	20.73	4.728	0.314	1.534	1.14
2014	238	753	8.728	20.69	4.143	0.309	1.446	1.21
2014	238	754	8.71	20.69	4.044	0.321	1.459	1.127
2014	238	755	8.653	20.84	4.027	0.329	1.384	1.18
2014	238	756	8.67	20.84	4.09	0.322	1.447	1.083
2014	238	757	8.701	20.90	4.035	0.329	1.391	1.129
2014	238	758	8.72	20.62	4.044	0.329	1.341	1.092
2014	238	759	8.709	20.63	4.027	0.322	1.379	1.018
2014	238	760	8.731	20.63	3.984	0.32	1.487	1.099
2014	238	761	8.723	20.89	4.077	0.309	1.399	1.141
2014	238	762	8.748	20.67	4.019	0.308	1.348	1.074
2014	238	763	8.673	20.88	4.032	0.314	1.441	1.036
2014	238	764	8.646	20.48	4.053	0.319	1.383	1.132
2014	238	765	8.703	20.48	4.044	0.318	1.484	1.096
2014	238	766	8.783	20.39	4.032	0.317	1.47	1.14
2014	238	767	8.83	20.38	4.011	0.311	1.488	1.191
2014	238	768	8.723	20.18	4.08	0.324	1.527	1.147
2014	238	769	8.710	20.39	4.053	0.323	1.485	1.141
2014	238	770	8.723	20.28	4.019	0.324	1.477	1.216
2014	238	771	8.732	20.27	4.077	0.31	1.485	1.191
2014	238	772	8.613	20.23	3.984	0.328	1.384	1.144
2014	238	773	8.614	20.13	3.913	0.315	1.273	1.189
2014	238	774	8.65	20.19	3.774	0.318	1.313	1.074
2014	238	775	8.679	20.3	3.679	0.312	1.391	1.047
2014	238	776	8.665	20.19	3.679	0.321	1.391	1.051
2014	238	777	8.634	20.19	3.661	0.316	1.4	1.089
2014	238	778	8.662	20.10	3.684	0.312	1.336	1.039
2014	238	779	8.67	20.29	3.663	0.316	1.387	1.078
2014	238	780	8.639	20.28	3.688	0.319	1.344	1.019
2014	238	781	8.644	20.28	3.688	0.318	1.388	1.082
2014	238	782	8.632	20.38	3.679	0.316	1.358	0.943
2014	238	783	8.701	20.37	3.909	0.327	1.349	1.041
2014	238	784	8.604	20.28	3.911	0.324	1.372	1.028
2014	238	785	8.605	20.2	4.022	0.32	1.323	1.009
2014	238	786	8.648	20.34	3.888	0.319	1.32	0.869
2014	238	787	8.913	20.17	3.879	0.313	1.391	1
2014	238	788	8.64	20.28	3.883	0.322	1.173	1.032
2014	238	789	8.657	20.14	3.884	0.321	1.044	0.88
2014	238	790	8.591	20.18	3.879	0.32	1.19	0.723
2014	238	791	8.667	20.18	3.889	0.332	1.344	0.97
2014	238	792	8.608	20.08	3.884	0.331	1.376	1.013
2014	238	793	8.593	19.27	3.879	0.33	1.234	1.043
2014	238	794	8.631	20	3.884	0.336	1.265	0.833
2014	238	795	8.608	19.87	3.879	0.331	1.307	0.925
2014	238	796	8.623	20.07	3.884	0.331	1.288	0.937
2014	238	797	8.579	20.08	3.879	0.333	1.322	0.881
2014	238	798	8.579	20.07	3.861	0.332	1.252	0.919
2014	238	799					1.177	0.849

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811300
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	237	2136	4.616	21.39	1.000	0.266	-3.35	-3.616
2014	237	2138	4.691	21.44	1.00	0.302	-3.588	-3.871
2014	237	2137	5.005	21.27	1.00	0.304	-3.668	-3.972
2014	237	2139	5.073	21.25	1.00	0.308	-3.618	-3.891
2014	237	2138	5.01	21.29	2.005	0.303	-3.628	-3.932
2014	237	2140	5.016	21.31	1.00	0.288	-3.7	-3.988
2014	237	2141	5.021	21.28	1.03	0.301	-3.617	-3.918
2014	237	2142	5.098	21.22	2.005	0.292	-3.571	-3.864
2014	237	2142	5.102	21.21	1.998	0.289	-3.498	-3.788
2014	237	2144	5.09	21.2	1.998	0.294	-3.535	-3.829
2014	237	2145	5.039	21.37	1.998	0.308	-3.516	-3.824
2014	237	2146	5.094	21.19	1.998	0.297	-3.432	-3.729
2014	237	2147	5.043	21.27	1.998	0.305	-3.554	-3.857
2014	237	2145	5.124	21.17	1.998	0.288	-3.549	-3.848
2014	237	2148	5.117	21.2	1.998	0.304	-3.463	-3.767
2014	237	2150	5.042	21.28	1.998	0.305	-3.472	-3.778
2014	237	2151	5.031	21.37	1.13	0.304	-3.503	-3.807
2014	237	2152	4.973	21.45	1.00	0.308	-3.484	-3.793
2014	237	2153	5.038	21.33	1.00	0.309	-3.432	-3.741
2014	237	2154	5.091	21.27	1.998	0.314	-3.465	-3.779
2014	237	2155	4.983	21.39	1.00	0.33	-3.404	-3.734
2014	237	2156	4.985	21.35	2.013	0.338	-3.467	-3.805
2014	237	2157	5.053	21.34	2.013	0.324	-3.47	-3.794
2014	237	2158	5.07	21.31	2.005	0.321	-3.501	-3.822
2014	237	2159	5.026	21.3	1.998	0.318	-3.391	-3.709
2014	237	2200	5.08	21.34	2.028	0.314	-3.133	-3.447
2014	237	2201	5.067	21.2	2.005	0.32	-3.403	-3.723
2014	237	2202	5.092	21.21	2.013	0.318	-3.388	-3.706
2014	237	2203	5.078	21.38	2.013	0.312	-3.379	-3.691
2014	237	2204	5.004	21.37	1.98	0.318	-3.353	-3.671
2014	237	2205	5.013	21.35	1.99	0.327	-3.416	-3.743
2014	237	2206	4.998	21.46	1.98	0.323	-3.469	-3.792
2014	237	2207	4.959	21.49	1.13	0.322	-3.369	-3.691
2014	237	2208	4.974	21.46	1.98	0.321	-3.468	-3.789
2014	237	2209	5.038	21.49	1.98	0.336	-3.327	-3.663
2014	237	2210	5.021	21.43	1.998	0.317	-3.317	-3.634
2014	237	2211	4.937	21.53	1.98	0.307	-3.415	-3.72
2014	237	2212	5.059	21.44	1.98	0.323	-3.398	-3.721
2014	237	2213	5.059	21.43	1.98	0.321	-3.388	-3.709
2014	237	2214	5.091	21.3	1.998	0.321	-3.31	-3.631
2014	237	2215	5.048	21.38	1.98	0.307	-3.311	-3.618
2014	237	2216	4.991	21.31	2.021	0.314	-3.272	-3.586
2014	237	2217	4.998	21.35	2.021	0.313	-3.134	-3.447
2014	237	2218	5.02	21.38	2.036	0.314	-3.288	-3.6
2014	237	2219	5.133	21.3	2.013	0.309	-3.187	-3.496
2014	237	2220	5.112	21.33	1.998	0.309	-3.264	-3.573
2014	237	2221	5.105	21.38	2.028	0.317	-3.152	-3.469
2014	237	2222	4.947	21.42	2.005	0.321	-3.253	-3.574
2014	237	2223	4.945	21.39	1.998	0.33	-3.147	-3.477
2014	237	2224	5.016	21.35	2.029	0.328	-3.197	-3.525
2014	237	2225	5.059	21.31	2.013	0.323	-3.11	-3.433
2014	237	2226	5.12	21.12	1.998	0.317	-3.122	-3.439
2014	237	2227	5.1	21.18	1.98	0.322	-3.091	-3.413
2014	237	2228	5.013	21.3	1.998	0.309	-3.164	-3.473
2014	237	2229	4.921	21.38	2.021	0.324	-3.146	-3.47
2014	237	2230	4.995	21.39	1.998	0.316	-3.197	-3.513
2014	237	2231	5.147	21.1	2.028	0.313	-3.133	-3.446
2014	237	2232	5.103	21.08	1.136	0.308	-3.187	-3.495
2014	237	2233	5.111	21.03	2.013	0.318	-3.044	-3.36
2014	237	2234	5.053	21.1	2.005	0.313	-3.176	-3.489
2014	237	2235	5.017	21.2	2.021	0.326	-3.046	-3.372
2014	237	2236	5.072	21.17	2.021	0.324	-3.127	-3.451
2014	237	2237	5.058	21.2	2.021	0.32	-3.131	-3.451
2014	237	2238	5.098	21.23	2.021	0.32	-3.044	-3.364
2014	237	2239	5.119	21.19	1.998	0.32	-3.1	-3.42
2014	237	2240	5.127	21.21	2.148	0.32	-3.068	-3.388
2014	237	2241	5.113	21.28	2.05	0.314	-3.02	-3.334
2014	237	2242	5.094	21.3	2.409	0.321	-3.178	-3.219
2014	237	2243	5.091	21.34	2.534	0.32	-2.93	-3.25
2014	237	2244	5.103	21.28	2.409	0.321	-3.047	-3.368
2014	237	2245	5.085	21.3	2.434	0.327	-2.99	-3.317
2014	237	2246	5.152	21.26	2.457	0.324	-3.055	-3.379
2014	237	2247	5.158	21.22	2.401	0.322	-3.132	-3.454
2014	237	2248	5.193	21.18	2.45	0.324	-3.019	-3.343
2014	237	2249	5.172	21.14	2.384	0.324	-2.927	-3.251
2014	237	2250	5.202	21.02	2.369	0.324	-2.835	-3.159
2014	237	2251	5.22	21	2.084	0.329	-2.913	-3.242
2014	237	2252	5.218	20.97	2.084	0.325	-2.885	-3.213
2014	237	2253	5.218	20.91	2.03	0.329	-3.093	-3.422
2014	237	2254	5.202	20.85	2.004	0.329	-3.049	-3.378
2014	237	2255	5.221	20.91	1.997	0.33	-2.954	-3.284
2014	237	2256	5.193	20.87	2.03	0.329	-2.875	-3.204
2014	237	2257	5.208	20.85	2.013	0.331	-2.897	-3.228
2014	237	2258	5.209	21	2.028	0.34	-2.808	-3.148
2014	237	2259	5.178	21.13	2.084	0.329	-2.846	-3.174
2014	237	2300	5.187	21.12	2.028	0.322	-2.78	-3.102
2014	237	2301	5.138	21.22	2.434	0.328	-2.833	-3.161
2014	237	2302	5.085	21.33	2.318	0.328	-2.852	-3.18
2014	237	2303	5.033	21.31	2.403	0.344	-3.01	-3.354
2014	237	2304	5.154	21.23	2.403	0.328	-2.87	-3.198
2014	237	2305	5.143	21.27	2.401	0.325	-2.796	-3.121
2014	237	2306	5.174	21.25	2.403	0.329	-2.86	-3.189
2014	237	2307	5.127	21.1	2.137	0.328	-2.782	-3.117
2014	237	2308	5.127	21.31	2.048	0.337	-2.805	-3.142
2014	237	2309	5.19	21.2	2.05	0.337	-2.938	-3.275
2014	237	2310	5.208	21.25	2.05	0.335	-2.818	-3.153
2014	237	2311	5.209	21	2.005	0.336	-2.807	-3.142
2014	237	2312	5.208	20.95	2.071	0.338	-2.702	-3.039
2014	237	2313	5.231	20.94	2.058	0.338	-2.688	-3.026
2014	237	2314	5.243	20.89	2.088	0.338	-2.465	-2.82
2014	237	2315	5.239	20.81	2.053	0.337	-2.578	-2.916
2014	237	2316	5.412	20.91	2.028	0.336	-2.584	-2.919
2014	237	2317	5.391	20.78	2.05	0.33	-2.72	-3.05
2014	237	2318	5.328	20.88	2.046	0.337	-2.803	-3.13
2014	237	2319	5.337	20.8	2.013	0.331	-2.7	-3.031

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	0.0	5.938	20.12	3.973	0.328	1.341	1.012
2014	238	0.0	5.904	20.14	3.951	0.336	1.357	1.021
2014	238	0.0	5.888	20.20	3.951	0.331	1.334	1.003
2014	238	0.0	5.873	20.22	3.951	0.339	1.363	1.024
2014	238	0.0	5.868	20.14	3.951	0.332	1.273	0.957
2014	238	0.0	5.861	20.23	3.951	0.339	1.303	0.967
2014	238	0.0	5.844	20.16	3.951	0.333	1.238	0.923
2014	238	0.0	5.848	20.16	3.951	0.338	1.322	0.983
2014	238	0.0	5.88	20.17	3.951	0.339	1.32	0.982
2014	238	0.0	5.839	20.11	3.951	0.339	1.365	1.05
2014	238	0.0	5.858	19.95	3.951	0.32	1.342	1.022
2014	238	0.0	5.839	19.92	3.951	0.316	1.151	0.876
2014	238	0.0	5.851	19.9	3.951	0.323	1.081	0.758
2014	238	0.0	5.824	19.92	3.951	0.325	0.986	0.673
2014	238	0.0	5.855	19.93	3.951	0.324	1.169	0.835
2014	238	0.0	5.822	19.95	3.928	0.308	1.203	0.898
2014	238	0.0	5.81	19.88	3.951	0.314	1.248	0.932
2014	238	0.0	5.778	19.85	3.903	0.313	1.17	0.857
2014	238	0.0	5.851	19.81	3.903	0.31	1.098	0.788
2014	238	0.0	5.824	19.73	3.903	0.306	1.19	0.884
2014	238	0.0	5.867	19.88	3.948	0.308	1.032	0.724
2014	238	0.0	5.862	19.8	3.903	0.309	1.172	0.863
2014	238	0.0	5.842	19.74	3.901	0.308	1.065	0.747
2014	238	0.0	5.821	19.8	3.903	0.309	0.929	0.62
2014	238	0.0	5.838	19.79	3.901	0.308	0.972	0.666
2014	238	0.0	5.838	19.8	3.926	0.309	0.929	0.626
2014	238	0.0	5.862	19.83	3.901	0.312	0.936	0.628
2014	238	0.0	5.813	19.78	3.945	0.306	0.908	0.604
2014	238	0.0	5.849	19.81	3.946	0.304	0.901	0.597
2014	238	0.0	5.848	19.81	3.979	0.302	0.882	0.58
2014	238	0.0	5.853	19.8	3.939	0.309	0.885	0.587
2014	238	0.0	5.832	19.83	3.946	0.309	0.812	0.505
2014	238	0.0	5.808	19.84	3.912	0.308	0.817	0.513
2014	238	0.0	5.828	19.84	3.906	0.309	0.863	0.557
2014	238	0.0	5.878	19.81	3.87	0.308	0.821	0.515
2014	238	0.0	5.832	19.83	3.879	0.304	0.888	0.584
2014	238	0.0	5.828	20.01	3.932	0.304	0.804	0.5
2014	238	0.0	5.878	19.89	3.949	0.301	0.843	0.542
2014	238	0.0	5.867	19.98	3.779	0.307	0.847	0.54
2014	238	0.0	5.848	20.05	3.897	0.309	0.88	0.565
2014	238	0.0	5.911	20.03	3.779	0.3	0.779	0.479
2014	238	0.0	5.858	19.98	3.793	0.308	0.78	0.444
2014	238	0.0	5.868	19.97	3.725	0.309	0.866	0.579
2014	238	0.0	5.868	19.88	3.763	0.309	0.779	0.469
2014	238	0.0	5.848	19.9	3.859	0.309	0.897	0.589
2014	238	0.0	5.867	19.9	3.830	0.307	0.86	0.543
2014	238	0.0	5.848	20	3.82	0.312	0.743	0.431
2014	238	0.0	5.88	19.81	3.828	0.309	0.759	0.447
2014	238	0.0	5.867	20.02	3.846	0.302	0.711	0.409
2014	238	0.0	5.867	19.92	3.823	0.31	0.712	0.402
2014	238	0.0	5.848	19.87	3.798	0.304	0.665	0.379
2014	238	0.0	5.844	20.1	3.897	0.306	0.622	0.358
2014	238	0.0	5.799	20.22	3.813	0.309	0.665	0.377
2014	238	0.0	5.801	20.13	3.872	0.309	0.624	0.315
2014	238	0.0	5.852	20.1	3.795	0.304	0.616	0.311
2014	238	0.0	5.852	20.13	3.746	0.308	0.665	0.378
2014	238	0.0	5.84	20.13	3.748	0.305	0.602	0.347
2014	238	0.0	5.83	20.13	3.748	0.305	0.607	0.352
2014	238	0.0	5.865	20.13	3.726	0.309	0.671	0.362
2014	238	0.0	5.865	20.16	3.805	0.309	0.694	0.389
2014	238	0.0	5.89	20	3.653	0.305	0.661	0.376
2014	238	0.0	5.877	20	3.657	0.304	0.653	0.369
2014	238	0.0	5.868	20.08	3.54	0.308	0.684	0.395
2014	238	0.0	5.832	20.05	3.548	0.31	0.66	0.35
2014	238	0.0	5.9	19.91	3.808	0.309	0.686	0.38
2014	238	0.0	5.91	19.77	3.491	0.307	0.652	0.348
2014	238	0.0	5.93	19.7	3.697	0.31	0.718	0.408
2014	238	0.0	5.867	19.67	3.654	0.308	0.669	0.361
2014	238	0.0	5.832	19.73	3.759	0.315	0.703	0.388
2014	238	0.0	5.855	19.68	3.748	0.314	0.612	0.298
2014	238	0.0	5.81	19.61	3.13	0.308	0.607	0.301
2014	238	0.0	5.778	19.58	3.328	0.308	0.653	0.354
2014	238	0.0	5.807	19.57	3.326	0.317	0.696	0.379
2014	238	0.0	5.81	19.53	3.281	0.309	0.658	0.348
2014	238	0.0	5.878	19.8	3.288	0.312	0.67	0.358
2014	238	0.0	5.867	19.88	3.343	0.307	0.653	0.193
2014	238	0.0	5.876	19.88	3.378	0.308	0.684	0.287
2014	238	0.0	5.848	20.01	3.423	0.308	0.66	0.276
2014	238	0.0	5.868	19.97	3.491	0.308	0.616	0.312
2014	238	0.0	5.861	19.97	3.542	0.304	0.703	0.365
2014	238	0.0	5.841	19.93	3.491	0.307	0.678	0.371
2014	238	0.0	5.873	19.93	3.452	0.308	0.604	0.287
2014	238	0.0	5.867	19.89	3.523	0.308	0.619	0.213
2014	238	0.0	5.787	20.07	3.423	0.312	0.459	0.15
2014	238	0.0	5.816	20.07	3.07	0.313	0.455	0.143
2014	238	0.0	5.861	20.05	2.889	0.31	0.613	0.34
2014	238	0.0	5.84	20.07	3.103	0.308	0.505	0.302
2014	238	0.0	5.825	20.01	3.378	0.308	0.455	0.146
2014	238	0.0	5.849	20.01	3.294	0.313	0.453	0.047
2014	238	0.0	5.828	20.03	3.243	0.307	0.604	0.12
2014	238	0.0	5.843	20.08	3.165	0.312	0.479	0.287
2014	238	0.0	5.811	20.03	3.334	0.310	0.478	0.194
2014	238	0.0	5.83	20.05	2.947	0.311	0.491	0.19
2014	238	0.0	5.85	20.08	2.809	0.316	0.488	0.18
2014	238	0.0	5.879	20.03	2.41	0.308	0.51	0.202
2014	238	0.0	5.878	20.03	2.482	0.315	0.307	-0.008
2014	238	0.0	5.841	20.05	2.759	0.310	0.292	-0.027
2014	238	0.0	5.832	20.03	2.68	0.314	0.258	0.044
2014	238	0.0	5.814	19.98	2.88	0.322	0.291	0.009
2014	238	0.0	5.816	19.97	2.88	0.329	0.344	0.078
2014	238	0.0	5.785	20.07	2.821	0.326	0.184	-0.162
2014	238	0.0	5.808	20.13	2.913	0.326	0.241	-0.084
2014	238	0.0	5.804	20.04	2.909	0.323	0.287	-0.061
2014	238	0.0	5.847	20.12	2.822	0.319	0.479	0.1

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811269
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	237	2320	0.335	20.67	2.03	0.328	-2.68	-2.978
2014	237	2321	0.347	20.67	1.98	0.329	-2.639	-2.962
2014	237	2322	0.322	20.9	2.035	0.323	-2.643	-2.975
2014	237	2323	0.347	20.66	1.997	0.312	-2.432	-2.784
2014	237	2324	0.353	20.86	2.013	0.324	-2.432	-2.756
2014	237	2325	0.304	20.90	2.009	0.32	-2.671	-2.991
2014	237	2326	0.307	20.67	2.022	0.326	-2.659	-2.985
2014	237	2327	0.309	20.67	2.022	0.324	-2.474	-2.798
2014	237	2328	0.27	20.89	1.988	0.319	-2.67	-2.989
2014	237	2329	0.463	20.62	2.008	0.322	-2.432	-2.754
2014	237	2330	0.338	20.91	1.98	0.327	-2.649	-2.975
2014	237	2331	0.337	20.67	1.98	0.327	-2.439	-2.766
2014	237	2332	0.333	20.89	1.977	0.328	-2.528	-2.854
2014	237	2333	0.31	20.62	2.036	0.324	-2.462	-2.828
2014	237	2334	0.309	20.9	2.003	0.33	-2.626	-2.959
2014	237	2335	0.369	20.64	2.039	0.328	-2.695	-2.969
2014	237	2336	0.425	20.78	2.036	0.337	-2.397	-2.734
2014	237	2337	0.39	20.62	2.055	0.341	-2.606	-2.947
2014	237	2338	0.381	20.66	2.059	0.339	-2.382	-2.721
2014	237	2339	0.318	20.67	2.047	0.338	-2.362	-2.700
2014	237	2340	0.367	20.9	2.028	0.330	-2.271	-2.61
2014	237	2341	0.301	20.65	2.028	0.338	-2.444	-2.782
2014	237	2342	0.401	20.67	2.005	0.337	-2.457	-2.794
2014	237	2343	0.378	20.68	1.989	0.334	-2.45	-2.784
2014	237	2344	0.349	20.68	2.014	0.333	-2.341	-2.674
2014	237	2345	0.349	20.9	2.014	0.329	-2.392	-2.721
2014	237	2346	0.295	20.65	2.047	0.331	-2.346	-2.678
2014	237	2347	0.287	20.68	2.03	0.341	-2.369	-2.71
2014	237	2348	0.377	20.78	2.047	0.334	-2.313	-2.653
2014	237	2349	0.366	20.78	1.983	0.328	-2.399	-2.727
2014	237	2350	0.429	20.74	2.028	0.334	-2.345	-2.679
2014	237	2351	0.358	20.9	1.971	0.334	-2.287	-2.621
2014	237	2352	0.304	20.69	1.997	0.328	-2.317	-2.645
2014	237	2353	0.324	20.69	2.028	0.328	-2.306	-2.634
2014	237	2354	0.313	21.02	2.014	0.328	-2.169	-2.497
2014	237	2355	0.339	20.67	2.039	0.328	-2.118	-2.491
2014	237	2356	0.344	20.67	1.987	0.327	-2.098	-2.428
2014	237	2357	0.294	20.82	2.014	0.323	-2.169	-2.491
2014	237	2358	0.185	21	2.014	0.328	-2.265	-2.601
2014	237	2359	0.391	20.82	2.028	0.325	-2.29	-2.625
2014	237	2400	0.325	20.82	2.022	0.324	-2.184	-2.516
2014	238	1	0.365	20.78	2.022	0.326	-2.187	-2.513
2014	238	2	0.339	20.84	2.491	0.327	-2.342	-2.669
2014	238	3	0.339	20.81	2.523	0.327	-1.859	-2.186
2014	238	4	0.302	20.86	2.517	0.325	-2.166	-2.491
2014	238	5	0.384	20.86	2.484	0.328	-2.133	-2.461
2014	238	6	0.321	20.86	2.484	0.327	-2.121	-2.448
2014	238	7	0.313	20.84	2.41	0.328	-2.206	-2.534
2014	238	8	0.372	20.77	2.484	0.342	-2.347	-2.689
2014	238	9	0.338	20.81	2.434	0.33	-2.322	-2.652
2014	238	10	0.301	20.84	2.5	0.34C	-2.078	-2.42
2014	238	11	0.369	20.78	2.378	0.343	-2.037	-2.384
2014	238	12	0.348	20.82	2.036	0.337	-2.083	-2.43
2014	238	13	0.308	20.81	2.055	0.340	-2.027	-2.375
2014	238	14	0.303	20.8	2.071	0.348	-2.092	-2.44
2014	238	15	0.423	20.81	2.059	0.342	-2.205	-2.553
2014	238	16	0.327	20.86	2.09	0.345	-2.074	-2.419
2014	238	17	0.309	20.81	2.033	0.341	-2.109	-2.445
2014	238	18	0.381	20.78	2.482	0.342	-2.098	-2.446
2014	238	19	0.344	20.84	2.528	0.347	-2.528	-2.389
2014	238	20	0.381	20.89	2.459	0.342	-2.048	-2.397
2014	238	21	0.33	20.87	2.9	0.348	-1.88	-2.228
2014	238	22	0.372	20.89	2.989	0.342	-2.163	-2.489
2014	238	23	0.38	20.89	2.523	0.341	-2.023	-2.365
2014	238	24	0.313	20.93	2.491	0.343	-2.009	-2.361
2014	238	25	0.379	20.89	2.434	0.343	-1.883	-2.233
2014	238	26	0.34	20.87	2.525	0.34	-1.882	-2.223
2014	238	27	0.339	20.87	2.5	0.339	-1.979	-2.318
2014	238	28	0.322	20.78	2.459	0.341	-1.85	-2.192
2014	238	29	0.413	20.88	2.533	0.343	-2.071	-2.413
2014	238	30	0.442	20.7	2.528	0.348	-1.935	-2.283
2014	238	31	0.488	20.67	2.434	0.353	-1.941	-2.294
2014	238	32	0.474	20.64	2.417	0.345	-1.884	-2.229
2014	238	33	0.488	20.64	2.459	0.348	-1.883	-2.231
2014	238	34	0.488	20.64	2.575	0.348	-1.885	-2.234
2014	238	35	0.3	20.9	2.484	0.342	-1.716	-2.057
2014	238	36	0.339	20.88	2.559	0.338	-1.881	-2.072
2014	238	37	0.425	20.81	2.484	0.341	-1.889	-2.232
2014	238	38	0.428	20.82	2.401	0.349	-1.916	-2.257
2014	238	39	0.388	20.78	2.5	0.365	-1.835	-2.271
2014	238	40	0.369	20.8	2.484	0.374	-1.881	-2.256
2014	238	41	0.383	20.78	2.525	0.371	-1.881	-2.252
2014	238	42	0.412	20.74	2.672	0.371	-1.881	-2.252
2014	238	43	0.49	20.84	2.53	0.369	-1.764	-2.122
2014	238	44	0.478	20.84	2.637	0.374	-1.716	-2.084
2014	238	45	0.427	20.84	2.653	0.371	-1.737	-2.108
2014	238	46	0.444	20.86	2.648	0.37	-1.918	-2.195
2014	238	47	0.467	20.49	2.913	0.368	-1.798	-2.134
2014	238	48	0.513	20.45	2.603	0.368	-1.678	-2.044
2014	238	49	0.503	20.43	2.625	0.364	-1.831	-1.888
2014	238	50	0.488	20.48	2.606	0.379	-1.881	-2.08
2014	238	51	0.42	20.88	2.625	0.377	-1.763	-2.14
2014	238	52	0.381	20.88	2.438	0.362	-1.639	-2.09
2014	238	53	0.383	20.88	2.917	0.379	-1.857	-1.938
2014	238	54	0.39	20.78	2.484	0.379	-1.853	-2.211
2014	238	55	0.372	20.7	2.616	0.378	-1.833	-2.208
2014	238	56	0.319	20.78	2.369	0.38	-1.762	-2.122
2014	238	57	0.376	20.73	2.202	0.371	-1.671	-2.042
2014	238	58	0.337	20.73	2.216	0.372	-1.628	-2
2014	238	59	0.383	20.67	2.316	0.378	-1.868	-1.987
2014	238	100	0.435	20.64	2.316	0.37	-1.828	-1.988
2014	238	101	0.428	20.67	2.316	0.377	-1.727	-2.194
2014	238	102	0.33	20.77	2.316	0.378	-1.693	-2.069
2014	238	103	0.339	20.79	2.334	0.382	-1.541	-2.243
2014	238	104	0.404	20.71	2.227	0.378	-1.781	-2.167

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	1120	0.725	20.23	2.022	0.327	0.304	-0.023
2014	238	1121	0.701	20.26	2.053	0.334	0.209	-0.125
2014	238	1122	0.779	20.19	2.072	0.318	0.15	-0.168
2014	238	1123	0.784	20.16	2.028	0.314	0.264	-0.08
2014	238	1124	0.8	20.12	2.072	0.322	0.249	0.028
2014	238	1125	0.805	19.67	2.013	0.323	0.186	-0.137
2014	238	1126	0.804	19.67	2.028	0.322	0.022	-0.3
2014	238	1127	0.823	19.9	2.434	0.328	0.287	-0.042
2014	238	1128	0.849	19.85	2.5	0.333	0.261	-0.072
2014	238	1129	0.859	19.88	2.459	0.326	0.195	-0.131
2014	238	1130	0.82	19.83	2.017	0.334	-0.023	-0.357
2014	238	1131	0.81	19.83	2.443	0.34	0.086	-0.278
2014	238	1132	0.822	19.87	2.428	0.34	0.006	-0.334
2014	238	1133	0.822	19.88	2.443	0.332	0.01	-0.322
2014	238	1134	0.808	20	2.418	0.332	0.055	-0.277
2014	238	1135	0.716	20.07	2.553	0.341	0.204	-0.137
2014	238	1136	0.744	20.09	2.362	0.34	-0.08	-0.39
2014	238	1137	0.735	20.11	1.717	0.345	0.089	-0.256
2014	238	1138	0.783	20.09	2.014	0.338	-0.026	-0.364
2014	238	1139	0.768	20.11	2.047	0.338	0.082	-0.276
2014	238	1140	0.814	20.04	2.055	0.337	0.072	-0.265
2014	238	1141	0.778	20.11	2.014	0.337	-0.01	-0.347
2014	238	1142	0.779	20.16	2.022	0.338	0.015	-0.323
2014	238	1143	0.717	20.21	2.028	0.346	-0.139	-0.487
2014	238	1144	0.768	20.18	2.022	0.344	-0.03	-0.376
2014	238	1145	0.773	20.13	2.028	0.347	-0.021	-0.373
2014	238	1146	0.743	20.13	2.047	0.341	0.028	-0.313
2014	238	1147	0.801	20.16	2.377	0.352	0.033	-0.319
2014	238	1148	0.701	20.22	2.383	0.346	0.014	-0.332
2014	238	1149	0.773	20.13	2.078	0.355	-0.033	-0.388
2014	238	1150	0.769	20.16	2.071	0.346	-0.015	-0.372
2014	238	1151	0.762	20.3	2.419	0.357	-0.14	-0.497
2014	238	1152	0.781	20.11	2.408	0.365	0.032	-0.334
2014	238	1153	0.767	20.18	2.467	0.37	-0.135	-0.505
2014	238	1154	0.728	20.24	2.362	0.364	-0.038	-0.402
2014	238	1155	0.746	20.22	2.459	0.368	-0.108	-0.467
2014	238	1156	0.763	20.24	2.302	0.361	-0.063	-0.424
2014	238	1157	0.774	20.16	2.05	0.368	-0.079	-0.436
2014	238	1158	0.79	20.1	2.03	0.361	-0.231	-0.592
2014	238	1159	0.723	20.18	2.049	0.378	-0.237	-0.615
2014	238	1200	0.805	20.09	1.997	0.369	-0.185	-0.554
2014	238	1201	0.769	20.09	2.054	0.363	-0.108	-0.464
2014	238	1202	0.808	20.07	2.059	0.365	-0.053	-0.398
2014	238	1203	0.824	20.03	1.988	0.363	-0.113	-0.476
2014	238	1204	0.798	20.08	2.03	0.365	-0.135	-0.503
2014	238	1205	0.763	20.07	2.034	0.362	-0.073	-0.436
2014	238	1206	0.79	19.83	2.003	0.362	-0.173	-0.535
2014	238	1207	0.769	19.83	2.03	0.361	-0.32	-0.682
2014	238	1208	0.804	19.88	2.013	0.359	-0.391	-0.622
2014	238	1209	0.821	19.83	2.03	0.373	-0.168	-0.534
2014	238	1210	0.791	20.01	1.983	0.36	-0.288	-0.664
2014	238	1211	0.767	20.01	1.997	0.357	-0.334	-0.694
2014	238	1212	0.862	19.97	1.997	0.363	-0.397	-0.754
2014	238	1213	0.789	20	2.005	0.365	-0.532	-0.897
2014	238	1214	0.793	20.05	1.99	0.363	-0.448	-0.812
2014	238	1215	0.739	20.1	1.98	0.369	-0.355	-0.718
2014	238	1216	0.762	20.08	1.943	0.374	-0.374	-0.743
2014	238	1217	0.801	20.01	1.963	0.372	-0.465	-0.838
2014	238	1218	0.829	20.01	1.998	0.365	-0.428	-0.91
2014	238	1219	0.762	20.13	1.998	0.363	-0.642	-0.807
2014	238	1220	0.769	20.14	2.021	-0.379	-0.422	-0.793
2014	238	1221	0.769	20.19	1.963	0.37	-0.416	-0.786
2014	238	1222	0.784	20.13	1.99	0.361	-0.601	-1.043
2014	238	1223	0.779	20.04	1.98	0.373	-0.659	-1.032
2014	238	1224	0.825	20	1.99	0.374	-0.521	-0.895
2014	238	1225	0.789	20.01	1.99	0.379	-0.659	-1.038
2014	238	1226	0.777	20.04	1.99	0.373	-0.559	-0.935
2014	238	1227	0.738	20.13	1.98	0.372	-0.579	-0.951
2014	238	1228	0.835	20.21	1.98	0.38	-0.557	-0.937
2014	238	1229	0.727	20.14	1.98	0.378	-0.651	-1.029
2014	238	1230	0.772	20.08	1.98	0.379	-0.654	-0.943
2014	238	1231	0.779	20.16	1.98	0.379	-0.774	-1.162
2014	238	1232	0.72	20.3	1.998	0.367	-0.798	-1.173
2014	238	1233	0.718	20.23	1.98	0.38	-0.883	-1.043
2014	238	1234	0.72	20.18	1.98	0.38	-0.879	-1.059
2014	238	1235	0.742	20.12	1.98	0.372	-0.715	-1.051
2014	238	1236	0.823	20.04	1.98	0.378	-0.679	-1.109
2014	238	1237	0.813	20.04	1.98	0.363	-0.731	-1.124
2014	238	1238	0.784	20.04	1.98	0.373	-0.7	-1.073
2014	238	1239	0.801	20.01	1.98	0.377	-0.749	-1.129
2014	238	1240	0.792	19.99	1.98	0.372	-0.632	-1.018
2014	238	1241	0.844	19.99	1.98	0.391	-0.688	-1.248
2014	238	1242	0.845	19.96	1.98	0.392	-0.78	-1.173
2014	238	1243	0.83	19.93	1.98	0.39	-0.83	-1.22
2014	238	1244	0.818	19.94	1.98	0.393	-0.891	-1.274
2014	238	1245	0.871	19.97	1.98	0.388	-0.835	-1.291
2014	238	1246	0.839	19.98	1.98	0.393	-0.81	-1.169
2014	238	1247	0.948	19.79	1.98	0.376	-0.767	-1.18
2014	238	1248	0.84	19.9	1.98	0.386	-0.857	-1.233
2014	238	1249	0.856	19.87	1.98	0.379	-0.718	-1.121
2014	238	1250	0.803	19.86	1.98	0.393	-0.908	-1.301
2014	238	1251	0.83	19.88	1.98	0.388	-0.883	-1.453
2014	238	1252	0.873	20.01	1.98	0.393	-0.576	-1.379
2014	238	1253	0.841	20.02	1.98	0.398	-0.73	-1.368
2014	238	1254	0.844	20.01	1.98	0.381	-0.95	-1.347
2014	238	1255	0.885	19.99	1.98	0.39	-1.078	-1.469
2014	238	1256	0.838	19.89	1.98	0.387	-1.247	-1.634
2014	238	1257	0.943	19.87	1.98	0.383	-1.14	-1.523
2014	238	1258	0.901	19.83	1.98	0.39	-1.132	-1.512
2014	238	1259	0.918	19.88	1.98	0.38	-1.18	-1.54
2014	238	1300	0.857	19.81	1.98	0.36	1.31	-1.69
2014	238	1301	0.858	19.77	1.98	0.373	-1.318	-1.692
2014	238	1302	0.822	19.78	1.98	0.37	-1.269	-1.639
2014	238	1303						
2014	238	1304						

Summary of RAW DATA

Client: Northern Pulp
Project No.: 131911280
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	103	8.413	20.71	2.218	0.377	-1.738	-2.109
2014	238	106	8.43	20.69	2.317	0.378	-1.538	-2.010
2014	238	107	8.38	20.72	2.201	0.377	-1.485	-1.862
2014	238	108	8.276	20.83	2.238	0.308	-1.449	-1.871
2014	238	109	8.318	20.81	2.227	0.384	-1.465	-1.868
2014	238	110	8.33	20.8	2.29	0.378	-1.571	-1.948
2014	238	111	8.354	20.82	2.237	0.384	-1.728	-2.11
2014	238	112	8.371	20.82	2.33	0.378	-1.732	-2.1
2014	238	113	8.314	20.88	2.771	0.385	-1.578	-1.863
2014	238	114	8.339	20.89	2.722	0.39	-1.609	-1.889
2014	238	115	8.28	20.85	2.788	0.391	-1.819	-2.039
2014	238	116	8.378	20.86	2.723	0.39	-1.531	-2.271
2014	238	117	8.288	20.87	2.758	0.383	-1.516	-1.904
2014	238	118	8.182	20.89	2.798	0.387	-1.603	-1.9
2014	238	119	8.309	20.8	2.738	0.400	-1.546	-1.801
2014	238	120	8.386	20.75	2.73	0.398	-1.557	-1.838
2014	238	121	8.369	20.75	2.765	0.401	-1.468	-1.369
2014	238	122	8.382	20.73	2.771	0.391	-1.481	-1.872
2014	238	123	8.336	20.76	2.78	0.383	-1.481	-1.384
2014	238	124	8.4	20.72	2.804	0.408	-1.481	-1.137
2014	238	125	8.362	20.8	2.738	0.383	-1.481	-1.834
2014	238	126	8.33	20.82	2.807	0.4	-1.477	-1.877
2014	238	127	8.371	20.86	2.795	0.387	-1.45	-1.347
2014	238	128	8.374	20.74	2.713	0.388	-1.48	-1.388
2014	238	129	8.402	20.7	2.755	0.383	-1.484	-1.882
2014	238	130	8.415	20.68	2.819	0.395	-1.507	-1.932
2014	238	131	8.383	20.71	2.746	0.382	-1.43	-1.322
2014	238	132	8.391	20.74	2.629	0.389	-1.506	-1.351
2014	238	133	8.376	20.76	2.713	0.389	-1.468	-1.888
2014	238	134	8.419	20.73	2.705	0.386	-1.371	-1.789
2014	238	135	8.39	20.83	2.779	0.403	-1.478	-1.879
2014	238	136	8.378	20.84	2.799	0.399	-1.488	-1.887
2014	238	137	8.309	20.85	2.687	0.412	-1.396	-1.778
2014	238	138	8.311	20.84	2.659	0.414	-1.436	-1.859
2014	238	139	8.302	20.85	2.778	0.409	-1.4	-1.838
2014	238	140	8.371	20.8	2.82	0.412	-1.323	-1.738
2014	238	141	8.374	20.87	2.803	0.413	-1.408	-1.818
2014	238	142	8.371	20.88	2.948	0.414	-1.338	-1.883
2014	238	143	8.376	20.84	3.003	0.398	-1.377	-1.773
2014	238	144	8.387	20.81	3.038	0.404	-1.398	-1.9
2014	238	145	8.439	20.46	3.038	0.403	-1.48	-1.863
2014	238	146	8.546	20.84	3.038	0.412	-1.459	-1.867
2014	238	147	8.381	20.87	3.091	0.403	-1.381	-1.734
2014	238	148	8.408	20.8	3.079	0.408	-1.381	-1.757
2014	238	149	8.408	20.82	3.048	0.399	-1.358	-1.784
2014	238	150	8.464	20.72	3.038	0.407	-1.408	-1.878
2014	238	151	8.438	20.79	3.038	0.405	-1.382	-1.791
2014	238	152	8.439	20.77	3.038	0.387	-1.39	-1.857
2014	238	153	8.465	20.76	3.032	0.399	-1.401	-1.79
2014	238	154	8.39	20.79	3.038	0.408	-1.318	-1.723
2014	238	155	8.387	20.82	3.003	0.408	-1.338	-1.732
2014	238	156	8.332	20.84	3.002	0.404	-1.318	-1.722
2014	238	157	8.462	20.88	3.038	0.4	-1.312	-1.872
2014	238	158	8.398	20.78	3.078	0.403	-1.312	-1.774
2014	238	159	8.187	20.85	3.023	0.403	-1.294	-1.887
2014	238	200	8.287	20.81	3.081	0.418	-1.272	-1.885
2014	238	201	8.341	20.83	3.081	0.408	-1.39	-1.816
2014	238	202	8.385	20.82	3.085	0.407	-1.39	-1.887
2014	238	203	8.434	20.8	3.081	0.412	-1.39	-1.822
2014	238	204	8.477	20.78	3.081	0.408	-1.283	-1.877
2014	238	205	8.388	20.81	3.023	0.414	-1.302	-1.718
2014	238	206	8.438	20.75	3.081	0.416	-1.149	-1.884
2014	238	207	8.317	20.83	3.081	0.402	-1.113	-1.879
2014	238	208	8.387	20.81	3.081	0.401	-1.212	-1.413
2014	238	209	8.35	20.82	3.081	0.401	-1.21	-1.817
2014	238	210	8.344	20.83	3.081	0.406	-1.204	-1.7
2014	238	211	8.71	20.8	3.053	0.399	-1.149	-1.546
2014	238	212	8.398	20.89	3.081	0.4	-1.09	-1.49
2014	238	213	8.082	20.43	3.081	0.399	-1.085	-1.487
2014	238	214	8.718	20.45	3.045	0.392	-0.888	-1.369
2014	238	215	8.633	20.46	3.051	0.389	-1.018	-1.419
2014	238	216	8.67	20.47	3.081	0.386	-1.016	-1.4
2014	238	217	8.683	20.48	3.038	0.388	-1.038	-1.434
2014	238	218	8.648	20.46	3.081	0.389	-1.07	-1.465
2014	238	219	8.723	20.47	3.036	0.382	-1.223	-1.833
2014	238	220	8.627	20.57	3.081	0.389	-1.17	-1.889
2014	238	221	8.688	20.59	3.053	0.382	-1.169	-1.835
2014	238	222	8.641	20.59	3.081	0.384	-0.972	-1.359
2014	238	223	8.611	20.59	3.081	0.368	-0.867	-1.263
2014	238	224	8.657	20.67	3.083	0.379	-0.889	-1.276
2014	238	225	8.623	20.62	3.081	0.377	-0.843	-1.22
2014	238	226	8.65	20.57	3.045	0.379	-1.047	-1.425
2014	238	227	8.698	20.47	3.053	0.376	-1.28	-1.408
2014	238	228	8.778	20.39	3.081	0.379	-0.882	-1.272
2014	238	229	8.824	20.33	3.083	0.375	-1.183	-1.398
2014	238	230	8.803	20.16	3.081	0.386	-1.011	-1.289
2014	238	231	8.794	20.25	3.012	0.384	-0.878	-1.308
2014	238	232	8.773	20.28	3.030	0.382	-0.968	-1.371
2014	238	233	8.738	20.3	3.046	0.376	-0.888	-1.304
2014	238	234	8.713	20.34	2.912	0.374	-0.968	-1.323

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)
2014	238	1305	8.843	19.78	1.13	0.376	-1.372	-1.648
2014	238	1306	8.821	19.71	1.09	0.373	-1.401	-1.774
2014	238	1307	8.813	19.73	1.09	0.373	-1.317	-1.88
2014	238	1308	8.84	19.81	1.09	0.382	-1.477	-1.838
2014	238	1309	8.848	19.8	1.09	0.383	-1.46	-1.846
2014	238	1310	8.888	19.81	1.09	0.386	-1.317	-1.703
2014	238	1311	8.859	19.86	1.073	0.389	-1.359	-1.748
2014	238	1312	8.88	19.83	1.09	0.381	-1.397	-1.778
2014	238	1313	8.883	19.85	1.09	0.377	-1.368	-1.775
2014	238	1314	8.835	19.83	1.09	0.378	-1.488	-1.834
2014	238	1315	8.845	19.88	1.09	0.383	-1.418	-1.804
2014	238	1316	8.846	19.9	1.09	0.385	-1.481	-1.853
2014	238	1317	8.83	19.83	1.09	0.382	-1.444	-1.828
2014	238	1318	8.791	19.82	1.072	0.387	-1.478	-1.862
2014	238	1319	8.823	19.81	1.09	0.39	-1.485	-1.878
2014	238	1320	8.804	19.85	1.09	0.381	-1.449	-1.83
2014	238	1321	8.885	19.91	1.09	0.381	-1.485	-1.878
2014	238	1322	8.848	19.88	1.13	0.383	-1.485	-1.875
2014	238	1323	8.838	19.9	1.09	0.379	-1.315	-1.894
2014	238	1324	8.853	19.85	1.09	0.389	-1.523	-1.908
2014	238	1325	8.882	19.9	1.072	0.39	-1.477	-1.857
2014	238	1326	8.813	19.91	1.09	0.378	-1.347	-1.828
2014	238	1327	8.883	19.87	1.09	0.382	-1.485	-1.887
2014	238	1328	8.838	19.89	1.13	0.37	-1.514	-1.894
2014	238	1329	8.817	20.03	1.093	0.389	-1.561	-1.83
2014	238	1330	8.853	20.01	1.09	0.371	-1.521	-1.882
2014	238	1331	8.811	19.89	1.11	0.373	-1.343	-1.818
2014	238	1332	8.853	19.77	1.09	0.371	-1.514	-1.885
2014	238	1333	8.864	19.88	1.09	0.379	-1.514	-1.882
2014	238	1334	8.867	19.88	1.09	0.373	-1.541	-1.814
2014	238	1335	8.91	19.89	1.09	0.38	-1.863	-2.043
2014	238	1336	8.863	19.75	1.09	0.371	-1.548	-2.017
2014	238	1337	8.838	19.7	1.09	0.372	-1.528	-1.878
2014	238	1338	8.882	19.77	1.09	0.371	-1.788	-2.127
2014	238	1339	8.918	19.74	1.09	0.373	-1.578	-1.849
2014	238	1340	8.88	19.85	1.09	0.383	-1.838	-2.031
2014	238	1341	8.888	19.86	1.09	0.373	-1.637	-1.878
2014	238	1342	8.811	19.8	1.13	0.371	-1.775	-2.148
2014	238	1343	8.838	19.9	1.309	0.385	-1.863	-2.048
2014	238	1344	8.881	19.82	1.072	0.389	-1.738	-2.108
2014	238	1345	8.837	19.86	1.09	0.383	-1.785	-2.127
2014	238	1346	8.837	19.85	1.093	0.384	-1.761	-2.118
2014	238	1347	8.823	19.88	1.309	0.389	-1.637	-2.036
2014	238	1348	8.88	20	1.093	0.388	-1.838	-2.202
2014	238	1349	8.869	19.87	1.047	0.387	-1.785	-2.123
2014	238	1350	8.84	19.88	1.014	0.373	-1.659	-2.252
2014	238	1351	8.831	19.83	1.09	0.377	-1.638	-2.282
2014	238	1352	8.846	20.01	1.047	0.371	-1.631	-2.252
2014	238	1353	8.849	20	1.09	0.39	-1.571	-2.251
2014	238	1354	8.839	20.01	1.09	0.387	-1.627	-2.194
2014	238	1355	8.794	20.03	1.09	0.37	-1.885	-2.225
2014	238	1356	8.882	20	1.047	0.389	-1.853	-2.339
2014	238	1357	8.832	19.98	1.09	0.389	-2.035	-2.394
2014	238	1358	8.872	19.91	1.093	0.358	-2.115	-2.473
2014	238	1359	8.849	19.92	1.093	0.383	-1.844	-2.337
2014	238	1400	8.836	19.94	1.09	0.355	-2.109	-2.48
2014	238	1401	8.832	19.94	1.093	0.386	-2.073	-2.484
2014	238	1402	8.81	19.83	1.09	0.383	-2.087	-2.45
2014	238	1403	8.835	19.94	1.13	0.384	-1.884	-2.318
2014	238	1404	8.784	19.99	1.09	0.387	-2.011	-2.409
2014	238	1405	8.797	20.03	1.09	0.381	-2.184	-2.626
2014	238	1406	8.838	19.79	1.09	0.389	-2.175	-2.544
2014	238	1407	8.844	20.27	1.13	0.386	-2.054	-2.418
2014	238	1408	8.811	20.26	1.09	0.388	-2.113	-2.481
2014	238	1409	8.881	20.18	1.09	0.383	-2.131	-2.483
2014	238	1410	8.721	20.15	1.072	0.381	-2.337	-2.698
2014	238	1411	8.721	20.24	1.09	0.387	-2.189	-2.548
2014	238	1412	8.782	20.17	1.093	0.381	-2.085	-2.448
2014	238	1413	8.783	20.16	1.072	0.381	-2.139	-2.471
2014	238	1414	8.784	20.12	1.09	0.381	-2.15	-2.511
2014	238	1415	8.838	20.09	1.09	0.388	-2.22	-2.576
2014	238	1416	8.824	20.1	1.093	0.381	-2.339	-2.689
2014	238	1417	8.79	20.13	1.09	0.348	-2.389	-2.688
2014	238	1418	8.798	20.13	1.09	0.348	-2.409	-2.707
2014	238	1419	8.781	20.1	1.072	0.386	-2.403	-2.648
2014	238	1420	8.871	20.21	1.09	0.386	-2.434	-2.703
2014	238	1421	8.881	20.18	1.093	0.381	-2.384	-2.646
2014	238	1422	8.804	20.3	1.093	0.388	-2.471	-2.728
2014	238	1423	8.738	20.16	1.093	0.383	-2.383	-2.701
2014	238	1424	8.878	20.24	1.072	0.38	-2.357	-2.617
2014	238	1425	8.881	20.25	1.093	0.387	-2.336	-2.638
2014	238	1426	8.847	20.27	1.047	0.387	-2.522	-2.809
2014	238	1427	8.869	20.28	1.084	0.386	-2.403	-2.688
2014	238	1428	8.718	20.28	1.04	0.389	-2.671	-2.937
2014	238	1429	8.734	20.2	1.015	0.389	-2.574	-2.83
2014	238	1430	8.139	20.05	1.374	0.346	-2.698	-3.041
2014	238	1431	8.88	20	1.78	0.387	-2.389	-2.918
2014	238	1432	8.78	20.07	1.631	0.388	-2.689	-3.022
2014	238	1433	8.812	20.04	1.788	0.388	-2.522	-2.888
2014	238	1434	8.812	20.02	1.718	0.388	-2.573	-2.947
2014	238	1435	8.827	20.03	1.407	0.384	-2.582	-3.036

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121011280
Stack: Lime Kiln
Test No.: 1

Year	Day	Hour	O_2	CO_2	CO	SO_2	SO_2 + TRS	TRS	TRS 4 hour rolling average
	(Julian)		(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	
2014	237	1123	4.10	21.62	3.84	4.13	3.31	0.82	
2014	237	1400	4.33	21.67	3.34	3.23	2.65	0.59	
2014	237	1407	4.31	21.65	3.28	3.04	2.45	0.59	
2014	237	1408	4.32	21.64	3.04	2.99	2.39	0.59	
2014	237	1409	4.34	20.67	3.07	2.94	2.15	0.79	
2014	237	1410	4.13	22.10	3.47	3.09	1.84	0.80	
2014	237	1411	4.10	22.35	3.69	1.98	1.69	0.30	
2014	237	1412	4.13	22.38	3.43	1.71	1.49	0.22	
2014	237	1413	4.13	22.31	3.33	1.53	1.29	0.24	
2014	237	1414	4.38	22.12	4.05	1.42	1.26	0.22	
2014	237	1415	4.30	22.39	3.48	1.33	1.40	0.13	
2014	237	1416	4.33	22.13	3.10	1.34	1.17	0.20	
2014	237	1417	4.38	22.11	3.40	1.14	1.12	0.02	
2014	237	1418	4.10	22.19	3.56	1.18	1.09	0.09	
2014	237	1419	4.10	22.16	3.40	1.03	1.00	0.01	
2014	237	1420	4.33	22.12	3.40	0.97	0.73	0.20	
2014	237	1421	4.33	22.02	3.40	0.91	0.80	0.04	
2014	237	1422	4.44	21.86	4.00	0.88	0.76	0.09	
2014	237	1423	4.30	22.01	3.40	0.81	0.66	0.05	
2014	237	1424	4.40	22.03	3.43	0.77	0.64	0.07	
2014	237	1425	4.34	22.00	3.34	0.74	0.70	0.01	
2014	237	1426	4.32	22.12	3.07	0.71	0.72	0.01	
2014	237	1427	4.30	22.04	3.07	0.69	0.72	0.04	
2014	237	1428	4.34	22.00	3.04	0.68	0.77	0.11	
2014	237	1429	4.30	21.97	3.16	3.64	0.75	0.11	
2014	237	1430	4.34	22.00	3.07	3.03	0.70	0.12	
2014	237	1431	4.30	21.99	3.32	0.92	0.45	0.03	
2014	237	1432	4.40	21.99	3.31	3.00	0.94	0.06	
2014	237	1433	4.40	21.95	3.44	0.98	0.93	0.00	
2014	237	1434	4.40	21.99	3.38	0.64	0.80	0.14	
2014	237	1435	4.41	21.98	3.40	0.39	0.80	0.40	
2014	237	1436	4.47	21.97	3.12	0.31	0.83	0.12	
2014	237	1437	4.40	21.99	3.04	0.30	0.64	0.03	
2014	237	1438	4.40	21.99	3.03	0.30	0.70	0.21	
2014	237	1439	4.30	22.00	3.00	0.40	0.91	0.14	
2014	237	1440	4.41	21.96	3.00	0.47	0.45	0.00	
2014	237	1441	4.32	22.00	3.02	0.40	0.40	0.00	
2014	237	1442	4.30	22.02	3.00	0.40	0.40	0.00	
2014	237	1443	4.40	21.98	3.00	0.40	0.39	0.00	
2014	237	1444	4.40	21.98	3.00	0.40	0.84	0.71	
2014	237	1445	4.40	21.98	3.40	0.41	0.44	0.03	
2014	237	1446	4.40	21.71	3.04	0.41	0.67	0.20	
2014	237	1447	4.40	21.81	3.41	0.41	0.61	0.19	
2014	237	1448	4.34	21.78	3.44	0.40	0.75	0.35	
2014	237	1449	4.31	21.84	3.40	0.40	0.47	0.07	
2014	237	1450	4.40	21.78	3.47	0.33	0.60	0.33	
2014	237	1451	4.32	21.85	3.41	0.39	0.60	0.25	
2014	237	1452	4.47	21.84	3.10	0.38	0.73	0.35	
2014	237	1453	4.43	21.80	3.01	0.37	0.38	0.10	
2014	237	1454	4.34	21.87	3.03	0.37	0.67	0.30	
2014	237	1455	4.40	21.80	3.02	0.37	0.63	0.30	
2014	237	1456	4.31	21.80	3.05	0.38	0.78	0.38	
2014	237	1457	4.40	21.84	2.94	0.38	0.70	0.40	
2014	237	1458	4.40	21.83	3.00	0.35	0.80	0.39	
2014	237	1459	4.38	21.76	3.00	0.34	0.71	0.37	
2014	237	1460	4.40	21.72	3.05	0.35	0.80	0.22	
2014	237	1461	4.31	21.80	3.04	0.34	0.80	0.02	
2014	237	1462	4.40	21.75	3.02	0.33	0.87	0.34	
2014	237	1463	4.45	21.73	3.26	0.34	0.83	0.10	
2014	237	1464	4.31	21.74	3.05	0.33	0.80	0.34	
2014	237	1465	4.40	21.70	3.00	0.32	0.80	0.30	
2014	237	1466	4.40	21.70	3.03	0.33	0.73	0.39	
2014	237	1467	4.37	21.70	3.00	0.34	0.64	0.32	
2014	237	1468	4.31	21.67	3.01	0.32	0.70	0.38	
2014	237	1469	4.34	21.70	3.00	0.32	0.70	0.44	
2014	237	1470	4.40	21.72	3.01	0.31	0.73	0.42	
2014	237	1471	4.37	21.71	3.00	0.31	0.76	0.45	
2014	237	1472	4.40	21.68	3.04	0.31	0.80	0.50	
2014	237	1473	4.34	21.69	3.00	0.30	0.70	0.40	
2014	237	1474	4.40	21.70	3.01	0.30	0.81	0.51	
2014	237	1475	4.40	21.70	3.13	0.30	0.75	0.45	
2014	237	1476	4.40	21.70	3.00	0.30	0.77	0.47	
2014	237	1477	4.40	21.70	3.00	0.30	0.80	0.50	
2014	237	1478	4.40	21.70	3.00	0.30	0.75	0.45	
2014	237	1479	4.42	21.69	2.99	0.30	0.77	0.47	
2014	237	1480	4.40	21.70	3.00	0.30	0.75	0.45	
2014	237	1481	4.40	21.68	3.04	0.30	0.82	0.52	
2014	237	1482	4.40	21.70	3.00	0.30	0.82	0.52	
2014	237	1483	4.40	21.71	3.00	0.30	0.80	0.50	
2014	237	1484	4.40	21.72	3.00	0.30	0.74	0.45	
2014	237	1485	4.40	21.69	3.00	0.30	0.71	0.42	
2014	237	1486	4.40	21.61	3.02	0.30	0.86	0.56	
2014	237	1487	4.40	21.64	3.00	0.30	0.70	0.40	
2014	237	1488	4.40	21.69	3.00	0.30	0.84	0.55	
2014	237	1489	4.40	21.65	3.00	0.27	0.71	0.44	
2014	237	1490	4.40	21.61	3.01	0.30	0.70	0.40	
2014	237	1491	4.44	21.69	3.01	0.27	0.80	0.51	
2014	237	1492	4.42	21.61	3.02	0.27	0.74	0.47	
2014	237	1493	4.38	21.65	3.03	0.28	0.40	0.21	
2014	237	1494	4.38	21.49	2.99	0.28	0.71	0.43	
2014	237	1495	4.42	21.61	3.00	0.26	0.84	0.58	
2014	237	1496	4.30	21.70	3.01	0.29	0.70	0.40	
2014	237	1497	4.31	21.70	3.01	0.27	0.80	0.39	
2014	237	1498	4.32	21.67	3.00	0.29	0.81	0.38	
2014	237	1499	4.30	21.64	3.00	0.27	0.87	0.43	
2014	237	1500	4.30	21.64	3.01	0.28	0.85	0.39	
2014	237	1501	4.40	21.63	3.00	0.27	0.44	0.17	
2014	237	1502	4.35	21.66	3.00	0.30	0.80	0.38	
2014	237	1503	4.37	21.71	3.01	0.27	0.80	0.38	
2014	237	1504	4.40	21.65	2.99	0.27	0.83	0.28	
2014	237	1505	4.34	21.65	2.99	0.27	0.40	0.23	
2014	237	1506	4.40	21.72	3.00	0.30	0.81	0.28	
2014	237	1507	4.34	21.74	2.99	0.30	0.80	0.39	
2014	237	1508	4.40	21.65	2.93	0.27	0.42	0.15	
2014	237	1509	4.38	21.73	3.00	0.27	0.42	0.15	
2014	237	1510	4.40	21.62	3.00	0.26	0.80	0.36	
2014	237	1511	4.37	21.64	3.00	0.27	0.40	0.13	
2014	237	1512	4.34	21.68	3.00	0.26	0.42	0.23	

Year	Day	Hour	O_2	CO_2	CO	SO_2	SO_2 + TRS	TRS	TRS 4 hour rolling average
	(Julian)		(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	
2014	238	206	5.45	20.45	4.00	0.37	0.42	0.05	0.00
2014	238	207	5.45	20.40	4.00	0.30	0.30	0.00	0.00
2014	238	208	5.00	20.30	4.00	0.30	0.40	0.00	0.00
2014	238	209	5.00	20.35	4.00	0.35	0.35	0.00	0.00
2014	238	210	5.04	20.30	4.00	0.30	0.40	0.11	0.01
2014	238	211	5.00	20.44	4.00	0.30	0.30	0.00	0.01
2014	238	212	5.03	20.40	4.00	0.37	0.40	0.11	0.01
2014	238	213	5.32	20.40	4.00	0.37	0.45	0.08	0.01
2014	238	214	5.04	20.30	4.00	0.37	0.40	0.13	0.01
2014	238	215	5.07	20.30	4.00	0.37	0.37	0.00	0.01
2014	238	216	5.70	20.14	4.00	0.37	0.40	0.03	0.01
2014	238	217	5.72	20.13	4.00	0.37	0.40	0.11	0.01
2014	238	218	5.68	20.23	4.07	0.37	0.42	0.08	0.01
2014	238	219	5.62	20.23	4.00	0.37	0.41	0.04	0.01
2014	238	220	5.00	20.24	4.07	0.37	0.34	0.27	0.01
2014	238	221	5.00	20.24	4.07	0.37	0.40	0.12	0.01
2014	238	222	5.00	20.25	4.07	0.37	0.34	0.17	0.01
2014	238	223	5.02	20.22	4.07	0.37	0.40	0.12	0.01
2014	238	224	5.00	20.29	4.00	0.37	0.74	0.37	0.01
2014	238	225	5.00	20.34	4.00	0.37	0.41	0.34	0.01
2014	238	226	5.02	20.14	4.00	0.37	0.45	0.06	0.01
2014	238	227	5.12	20.20	4.00	0.37	0.34	0.34	0.02
2014	238	228	5.00	20.40	4.00	0.37	0.04	0.37	0.03
2014	238	229	5.00	20.37	4.00	0.37	0.10	0.10	0.03
2014	238	230	5.00	20.28	4.00	0.37	0.70	0.33	0.03
2014	238	231	5.01	20.30	4.00	0.37	0.31	0.00	0.03
2014	238	232	5.00	20.28	4.00	0.30	0.07	0.01	0.03
2014	238	233	5.00	20.33	4.00	0.30	0.34	0.38	0.06
2014	238	234	5.00	20.14	4.00	0.37	0.02	0.34	0.00
2014	238	235	5.04	20.19	4.00	0.37	0.70	0.34	0.05
2014	238	236	5.00	20.17	4.00	0.30	0.00	0.30	0.20
2014	238	237	5.07	20.19	4.07	0.37	0.77	0.40	0.20
2014	238	238	5.30	20.34	4.00	0.37	0.04	0.37	0.00
2014	238	239	5.45	20.41	4.00	0.37	0.70	0.33	0.03
2014	238	240	5.42	20.47	4.00	0.37	0.45	0.40	0.04
2014	238	241	5.40	20.40	4.00	0.30	0.91	0.42	0.04
2014	238	242	5.47	20.47	4.00	0.30	0.84	0.33	0.04
2014	238	243	5.07	20.34	4.00	0.30	0.11	0.00	0.04
2014	238	244	5.00	20.37	4.00	0.37	0.30	0.00	0.04
2014	238	245	5.30	20.35	4.00	0.30	0.42	0.05	0.05
2014	238	246	5.00	20.35	4.00	0.30	0.04	0.40	0.05
2014	238	247	5.00	20.37	4.00	0.30	0.40	0.00	0.05
2014	238	248	5.00	20.35	4.00	0.30	0.37	0.07	0.05
2014	238	249	5.00	20.35	4.00	0.30	0.37	0.07	0.05
2014	238	250	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	251	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	252	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	253	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	254	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	255	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	256	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	257	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	258	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	259	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	260	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	261	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	262	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	263	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	264	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	265	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	266	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	267	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	268	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	269	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	270	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	271	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	272	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	273	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	274	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	275	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	276	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	277	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	278	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	279	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	280	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	281	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	282	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	283	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	284	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	285	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	286	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	287	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	288	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	289	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	290	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	291	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	292	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	293	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	294	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	295	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	296	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	297	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	298	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	299	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	300	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	301	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	302	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	303	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	304	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	305	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	306	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	307	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	308	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	309	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	310	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	311	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	312	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	313	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	314	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	315	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	316	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	317	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	318	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	319	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	320	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	321	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	322	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	323	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	324	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	325	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	326	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	327	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	328	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	329	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	330	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	331	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	332	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	333	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	334	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	335	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	336	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	337	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	338	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	339	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	340	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	341	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	342	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	343	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	344	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	345	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	346	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	347	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	348	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	349	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	350	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	351	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	352	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	353	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	354	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	355	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	356	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	357	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	358	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	359	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	360	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	361	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	362	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	363	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	364	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	365	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	366	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	367	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	368	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	369	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	370	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	371	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	372	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	373	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	374	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	375	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	376	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	377	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	378	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	379	5.00	20.35	4.00	0.30	0.40	0.10	0.05
2014	238	380	5.00	20.35

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 1218111300
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO_2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	237	1024	4.08	21.73	2.00	0.30	0.40	0.26	
2014	237	1025	4.39	21.70	2.00	0.28	0.43	0.17	
2014	237	1026	4.38	21.68	3.00	0.27	0.40	0.14	
2014	237	1027	4.41	21.73	2.00	0.27	0.40	0.17	
2014	237	1028	4.32	21.75	2.00	0.27	0.42	0.18	
2014	237	1029	4.15	21.68	2.00	0.28	0.33	0.08	
2014	237	1030	4.49	21.66	3.01	0.27	0.40	0.14	
2014	237	1031	4.52	21.62	2.00	0.27	0.39	0.01	
2014	237	1032	4.53	21.76	2.00	0.27	0.36	0.10	
2014	237	1033	4.57	21.68	2.00	0.27	0.38	0.10	
2014	237	1034	4.60	21.62	2.00	0.27	0.36	0.03	
2014	237	1035	4.42	21.60	2.00	0.32	0.39	0.08	
2014	237	1036	4.53	21.67	2.00	0.27	0.33	0.02	
2014	237	1037	4.38	21.61	2.01	0.26	0.28	0.03	
2014	237	1038	4.37	21.66	2.01	0.26	0.11	0.00	
2014	237	1039	4.40	21.63	2.00	0.28	0.07	0.00	
2014	237	1040	4.51	21.60	2.00	0.27	0.00	0.00	
2014	237	1041	4.55	21.60	2.00	0.27	0.10	0.00	
2014	237	1042	4.54	21.64	2.00	0.27	0.01	0.00	
2014	237	1043	4.64	21.60	2.00	0.27	0.00	0.00	
2014	237	1044	4.45	21.60	2.00	0.27	0.00	0.00	
2014	237	1045	4.40	21.65	2.00	0.29	0.27	0.00	
2014	237	1046	4.38	21.67	2.00	0.28	0.02	0.00	
2014	237	1047	4.38	21.67	2.00	0.28	0.00	0.00	
2014	237	1048	4.40	21.68	2.00	0.29	0.20	0.00	
2014	237	1049	4.44	21.62	2.00	0.28	0.00	0.00	
2014	237	1050	4.46	21.62	2.01	0.27	0.00	0.00	
2014	237	1051	4.48	21.60	2.00	0.28	0.05	0.00	
2014	237	1052	4.55	21.60	2.01	0.28	0.00	0.00	
2014	237	1053	4.51	21.63	2.00	0.28	0.00	0.00	
2014	237	1054	4.58	21.60	2.01	0.28	0.00	0.00	
2014	237	1055	4.58	21.63	2.00	0.28	0.00	0.00	
2014	237	1056	4.54	21.61	2.00	0.25	0.00	0.00	
2014	237	1057	4.58	21.63	2.00	0.28	0.00	0.00	
2014	237	1058	4.51	21.58	2.00	0.28	0.00	0.00	
2014	237	1059	4.58	21.60	2.00	0.28	0.00	0.00	
2014	237	1060	4.48	21.64	2.00	0.28	0.00	0.00	
2014	237	1061	4.41	21.59	2.00	0.28	0.00	0.00	
2014	237	1062	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1063	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1064	4.38	21.59	2.00	0.28	0.00	0.00	
2014	237	1065	4.38	21.60	2.00	0.28	0.00	0.00	
2014	237	1066	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1067	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1068	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1069	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1070	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1071	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1072	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1073	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1074	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1075	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1076	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1077	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1078	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1079	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1080	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1081	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1082	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1083	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1084	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1085	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1086	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1087	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1088	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1089	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1090	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1091	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1092	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1093	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1094	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1095	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1096	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1097	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1098	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1099	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1100	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1101	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1102	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1103	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1104	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1105	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1106	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1107	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1108	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1109	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1110	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1111	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1112	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1113	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1114	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1115	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1116	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1117	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1118	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1119	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1120	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1121	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1122	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1123	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1124	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1125	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1126	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1127	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1128	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1129	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1130	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1131	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1132	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1133	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1134	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1135	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1136	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1137	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1138	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1139	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1140	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1141	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1142	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1143	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1144	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1145	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1146	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1147	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1148	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1149	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1150	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1151	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1152	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1153	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1154	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1155	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1156	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1157	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1158	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1159	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1200	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1201	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1202	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1203	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1204	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1205	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1206	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1207	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1208	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1209	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1210	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1211	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1212	4.38	21.57	2.00	0.28	0.00	0.00	
2014	237	1213	4.38	21.57	2.00	0.28	0.00	0.00	

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121211200
Stack: Lime Kiln
Test No.: 1

Year	Day	Hour	O_2	CO_2	CO	SO_2	CO + TRS	TRS	TRS 4 hour rolling average
	(Julian)		(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	
2014	267	1013	4.49	21.67	3.20	0.37	0.00	0.00	
2014	267	1014	4.48	21.68	2.98	0.37	0.00	0.00	
2014	267	1015	4.50	21.76	2.98	0.38	0.00	0.00	
2014	267	1016	4.78	21.62	3.00	0.37	0.00	0.00	
2014	267	1017	4.70	21.69	3.00	0.38	0.00	0.00	
2014	267	1018	4.64	21.71	2.96	0.37	0.00	0.00	
2014	267	1019	4.48	21.73	2.97	0.37	0.00	0.00	
2014	267	1020	4.67	21.63	2.99	0.37	0.00	0.00	
2014	267	1021	4.67	21.66	2.98	0.37	0.00	0.00	
2014	267	1022	4.62	21.68	2.98	0.37	0.00	0.00	
2014	267	1023	4.68	21.7[illegible]	3.01	0.37	0.00	0.00	
2014	267	1024	4.68	21.66	2.99	0.37	0.00	0.00	
2014	267	1025	4.64	21.68	2.98	0.37	0.00	0.00	
2014	267	1026	4.61	21.64	2.99	0.37	0.00	0.00	
2014	267	1027	4.57	21.68	2.98	0.36	0.00	0.00	
2014	267	1028	4.49	21.73	2.99	0.36	0.00	0.00	
2014	267	1029	4.49	21.72	3.01	0.36	0.00	0.00	
2014	267	1030	4.63	21.68	2.99	0.36	0.00	0.00	
2014	267	1031	4.70	21.64	2.98	0.37	0.00	0.00	
2014	267	1032	4.54	21.64	2.91	0.39	0.00	0.00	
2014	267	1033	4.60	21.65	2.98	0.39	0.00	0.00	
2014	267	1034	4.59	21.62	2.99	0.36	0.00	0.00	
2014	267	1035	4.63	21.68	2.99	0.36	0.00	0.00	0.11
2014	267	1036	4.58	21.68	2.99	0.36	0.00	0.00	0.11
2014	267	1037	4.54	21.67	3.00	0.36	0.00	0.00	0.11
2014	267	1038	4.61	21.71	3.00	0.36	0.00	0.00	0.11
2014	267	1039	4.63	21.72	3.00	0.36	0.00	0.00	0.11
2014	267	1040	4.49	21.69	2.98	0.36	0.00	0.00	0.11
2014	267	1041	4.67	21.70	2.97	0.37	0.00	0.00	0.11
2014	267	1042	4.58	21.70	2.98	0.36	0.00	0.00	0.11
2014	267	1043	4.66	21.70	2.91	0.39	0.00	0.00	0.11
2014	267	1044	4.68	21.79	2.99	0.36	0.00	0.00	0.11
2014	267	1045	4.67	21.77	2.97	0.36	0.00	0.00	0.11
2014	267	1046	4.61	21.77	2.91	0.39	0.00	0.00	0.11
2014	267	1047	4.63	21.67	2.97	0.39	0.00	0.00	0.11
2014	267	1048	4.68	21.68	2.98	0.36	0.00	0.00	0.11
2014	267	1049	4.67	21.64	2.98	0.39	0.00	0.00	0.11
2014	267	1050	4.66	21.64	2.98	0.36	0.00	0.00	0.11
2014	267	1051	4.68	21.65	2.98	0.39	0.00	0.00	0.11
2014	267	1052	4.70	21.64	2.99	0.39	0.00	0.00	0.11
2014	267	1053	4.68	21.66	2.98	0.36	0.00	0.00	0.11
2014	267	1054	4.68	21.72	2.91	0.39	0.00	0.00	0.11
2014	267	1055	4.61	21.64	2.91	0.36	0.00	0.00	0.11
2014	267	1056	4.68	21.72	2.98	0.39	0.00	0.00	0.11
2014	267	1057	4.68	21.68	2.98	0.39	0.00	0.00	0.11
2014	267	1058	4.66	21.70	2.91	0.36	0.00	0.00	0.11
2014	267	1059	4.64	21.71	2.97	0.36	0.00	0.00	0.11
2014	267	1060	4.67	21.68	2.98	0.39	0.00	0.00	0.11
2014	267	1061	4.69	21.73	2.91	0.36	0.00	0.00	0.11
2014	267	1062	4.68	21.69	2.91	0.36	0.00	0.00	0.11
2014	267	1063	4.62	21.68	2.91	0.37	0.00	0.00	0.11
2014	267	1064	4.75	21.69	2.98	0.37	0.00	0.00	0.11
2014	267	1065	4.68	21.63	2.99	0.38	0.00	0.00	0.10
2014	267	1066	4.66	21.69	2.98	0.39	0.00	0.00	0.10
2014	267	1067	4.69	21.62	2.98	0.39	0.00	0.00	0.10
2014	267	1068	4.71	21.61	2.98	0.39	0.00	0.00	0.10
2014	267	1069	4.68	21.64	2.98	0.39	0.03	0.00	0.10
2014	267	1070	4.73	21.66	2.91	0.39	0.00	0.00	0.10
2014	267	1071	4.77	21.48	2.98	0.39	0.00	0.00	0.10
2014	267	1072	4.69	21.68	2.98	0.37	0.00	0.00	0.10
2014	267	1073	4.64	21.60	2.99	0.36	0.00	0.00	0.10
2014	267	1074	4.73	21.47	2.91	0.39	0.00	0.00	0.10
2014	267	1075	4.61	21.49	2.99	0.39	0.00	0.00	0.10
2014	267	1076	4.70	21.34	2.97	0.36	0.00	0.00	0.10
2014	267	1077	4.73	21.39	2.99	0.37	0.00	0.00	0.10
2014	267	1078	4.68	21.61	2.94	0.38	0.00	0.00	0.10
2014	267	1079	4.75	21.45	2.98	0.38	0.00	0.00	0.10
2014	267	1080	4.70	21.49	2.99	0.38	0.00	0.00	0.13
2014	267	1081	4.68	21.39	2.99	0.38	0.00	0.00	0.12
2014	267	1082	4.63	21.39	2.98	0.38	0.00	0.00	0.10
2014	267	1083	4.69	21.63	2.99	0.38	0.00	0.00	0.10
2014	267	1084	4.68	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1085	4.68	21.43	2.99	0.37	0.00	0.00	0.09
2014	267	1086	4.68	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1087	4.61	21.39	2.97	0.38	0.00	0.00	0.09
2014	267	1088	4.68	21.39	2.98	0.38	0.00	0.00	0.09
2014	267	1089	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1090	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1091	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1092	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1093	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1094	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1095	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1096	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1097	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1098	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1099	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1100	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1101	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1102	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1103	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1104	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1105	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1106	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1107	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1108	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1109	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1110	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1111	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1112	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1113	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1114	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1115	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1116	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1117	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1118	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1119	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1120	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1121	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1122	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1123	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1124	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1125	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1126	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1127	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1128	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1129	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1130	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1131	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1132	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1133	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1134	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1135	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1136	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1137	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1138	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1139	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1140	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1141	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1142	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1143	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1144	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1145	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1146	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1147	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1148	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1149	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1150	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1151	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1152	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1153	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1154	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1155	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1156	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1157	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1158	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1159	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1160	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1161	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1162	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1163	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1164	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1165	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1166	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1167	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1168	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1169	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1170	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1171	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1172	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1173	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1174	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1175	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1176	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1177	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1178	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1179	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1180	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1181	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1182	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1183	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1184	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1185	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1186	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1187	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1188	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1189	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1190	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1191	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1192	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1193	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1194	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1195	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1196	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1197	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1198	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1199	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1200	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1201	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1202	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1203	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1204	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1205	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1206	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1207	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1208	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1209	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1210	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1211	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1212	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1213	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1214	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1215	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1216	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1217	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1218	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1219	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1220	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1221	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1222	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1223	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1224	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1225	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1226	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1227	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1228	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1229	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1230	4.67	21.39	2.99	0.38	0.00	0.00	0.09
2014	267	1231	4.67	21.39	2.99	0.38	0.00	0.00	0.09

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121311280
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO_2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	297	2002	4.75	21.38	2.99	0.30	0.00	0.00	0.00
2014	297	2003	4.75	21.38	2.98	0.31	0.00	0.00	0.00
2014	297	2004	4.69	21.40	2.98	0.30	0.00	0.00	0.00
2014	297	2005	4.75	21.39	2.97	0.30	0.00	0.00	0.00
2014	297	2006	4.75	21.41	2.99	0.30	0.00	0.00	0.00
2014	297	2007	4.76	21.40	2.97	0.31	0.00	0.00	0.00
2014	297	2008	4.81	21.39	2.99	0.30	0.00	0.00	0.00
2014	297	2009	4.78	21.38	2.97	0.30	0.00	0.00	0.00
2014	297	2010	4.80	21.39	3.00	0.30	0.00	0.00	0.00
2014	297	2011	4.74	21.39	3.00	0.30	0.00	0.00	0.00
2014	297	2012	4.79	21.39	3.00	0.30	0.00	0.00	0.00
2014	297	2013	4.85	21.39	3.01	0.30	0.00	0.00	0.00
2014	297	2014	4.73	21.38	3.00	0.31	0.00	0.00	0.00
2014	297	2015	4.85	21.39	3.00	0.31	0.00	0.00	0.00
2014	297	2016	4.80	21.34	3.00	0.31	0.00	0.00	0.00
2014	297	2017	4.90	21.38	3.00	0.30	0.00	0.00	0.00
2014	297	2018	4.83	21.31	3.00	0.30	0.00	0.00	0.00
2014	297	2019	4.91	21.46	2.99	0.30	0.00	0.00	0.00
2014	297	2020	4.76	21.32	2.98	0.30	0.00	0.00	0.00
2014	297	2021	4.72	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2022	4.79	21.36	2.98	0.30	0.00	0.00	0.00
2014	297	2023	4.92	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2024	4.88	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2025	4.88	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2026	4.88	21.33	2.98	0.30	0.00	0.00	0.00
2014	297	2027	4.88	21.37	2.98	0.30	0.00	0.00	0.00
2014	297	2028	4.87	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2029	4.88	21.18	2.98	0.30	0.00	0.00	0.00
2014	297	2030	4.88	21.18	2.97	0.30	0.00	0.00	0.00
2014	297	2031	4.91	21.18	2.98	0.30	0.00	0.00	0.00
2014	297	2032	4.88	21.09	2.98	0.31	0.00	0.00	0.00
2014	297	2033	4.87	21.01	2.98	0.30	0.00	0.00	0.00
2014	297	2034	4.91	21.08	2.97	0.31	0.00	0.00	0.00
2014	297	2035	4.88	21.08	2.98	0.30	0.00	0.00	0.00
2014	297	2036	4.88	21.18	2.98	0.30	0.00	0.00	0.00
2014	297	2037	4.84	21.17	2.98	0.30	0.00	0.00	0.00
2014	297	2038	4.91	21.23	2.98	0.30	0.00	0.00	0.00
2014	297	2039	4.88	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2040	4.92	21.35	2.98	0.30	0.00	0.00	0.00
2014	297	2041	4.88	21.37	2.98	0.30	0.00	0.00	0.00
2014	297	2042	4.88	21.37	2.98	0.30	0.00	0.00	0.00
2014	297	2043	4.88	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2044	4.81	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2045	4.88	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2046	4.78	21.44	2.98	0.30	0.00	0.00	0.00
2014	297	2047	4.71	21.45	2.98	0.30	0.00	0.00	0.00
2014	297	2048	4.77	21.48	2.98	0.30	0.00	0.00	0.00
2014	297	2049	4.72	21.53	2.98	0.30	0.00	0.00	0.00
2014	297	2050	4.78	21.53	2.98	0.30	0.00	0.00	0.00
2014	297	2051	4.73	21.54	2.98	0.30	0.00	0.00	0.00
2014	297	2052	4.67	21.54	2.98	0.30	0.00	0.00	0.00
2014	297	2053	4.73	21.48	2.98	0.30	0.00	0.00	0.00
2014	297	2054	4.68	21.32	2.98	0.30	0.00	0.00	0.00
2014	297	2055	4.78	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2056	4.68	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2057	4.68	21.18	2.98	0.30	0.00	0.00	0.00
2014	297	2058	4.67	21.18	2.98	0.30	0.00	0.00	0.00
2014	297	2059	4.78	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2060	4.68	21.34	3.01	0.33	0.00	0.00	0.00
2014	297	2061	4.68	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2062	4.74	21.47	2.98	0.31	0.00	0.00	0.00
2014	297	2063	4.68	21.48	2.98	0.31	0.00	0.00	0.00
2014	297	2064	4.68	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2065	4.74	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2066	4.78	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2067	4.79	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2068	4.82	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2069	4.86	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2070	4.87	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2071	4.89	21.39	2.98	0.29	0.00	0.00	0.00
2014	297	2072	4.77	21.39	2.98	0.29	0.00	0.00	0.00
2014	297	2073	4.79	21.34	3.01	0.30	0.00	0.00	0.00
2014	297	2074	4.79	21.39	3.01	0.30	0.00	0.00	0.00
2014	297	2075	4.76	21.40	2.98	0.30	0.00	0.00	0.00
2014	297	2076	4.82	21.40	2.97	0.30	0.00	0.00	0.00
2014	297	2077	4.74	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2078	4.71	21.30	2.98	0.30	0.00	0.00	0.00
2014	297	2079	4.71	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2080	4.75	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2081	4.70	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2082	4.70	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2083	4.69	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2084	4.69	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2085	4.69	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2086	4.77	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2087	4.70	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2088	4.68	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2089	4.68	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2090	4.68	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2091	4.68	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2092	4.74	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2093	4.68	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2094	4.68	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2095	4.74	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2096	4.78	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2097	4.79	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2098	4.82	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2099	4.86	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2100	4.87	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2101	4.89	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2102	4.77	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2103	4.79	21.34	3.01	0.30	0.00	0.00	0.00
2014	297	2104	4.79	21.39	3.01	0.30	0.00	0.00	0.00
2014	297	2105	4.76	21.40	2.98	0.30	0.00	0.00	0.00
2014	297	2106	4.82	21.40	2.97	0.30	0.00	0.00	0.00
2014	297	2107	4.74	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2108	4.71	21.30	2.98	0.30	0.00	0.00	0.00
2014	297	2109	4.71	21.38	2.98	0.30	0.00	0.00	0.00
2014	297	2110	4.75	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2111	4.70	21.31	2.98	0.30	0.00	0.00	0.00
2014	297	2112	4.80	21.40	2.98	0.30	0.00	0.00	0.00
2014	297	2113	4.87	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2114	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2115	4.84	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2116	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2117	4.91	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2118	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2119	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2120	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2121	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2122	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2123	4.87	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2124	4.88	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2125	4.88	21.17	2.98	0.30	0.00	0.00	0.00
2014	297	2126	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2127	4.78	21.33	2.97	0.30	0.00	0.00	0.00
2014	297	2128	4.78	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2129	4.88	21.18	2.98	0.30	0.00	0.00	0.00
2014	297	2130	4.88	21.31	2.98	0.31	0.00	0.00	0.00
2014	297	2131	4.88	21.39	2.98	0.31	0.00	0.00	0.00
2014	297	2132	4.88	21.39	2.98	0.31	0.00	0.00	0.00
2014	297	2133	4.77	21.34	2.98	0.30	0.00	0.00	0.00
2014	297	2134	4.88	21.17	2.98	0.30	0.00	0.00	0.00
2014	297	2135	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2136	4.78	21.33	2.97	0.30	0.00	0.00	0.00
2014	297	2137	4.78	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2138	4.88	21.18	2.98	0.30	0.00	0.00	0.00
2014	297	2139	4.88	21.31	2.98	0.31	0.00	0.00	0.00
2014	297	2140	4.88	21.39	2.98	0.31	0.00	0.00	0.00
2014	297	2141	4.88	21.39	2.98	0.31	0.00	0.00	0.00
2014	297	2142	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2143	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2144	4.87	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2145	4.78	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2146	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2147	4.82	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2148	4.81	21.33	2.98	0.30	0.00	0.00	0.00
2014	297	2149	4.88	21.39	2.98	0.30	0.00	0.00	0.00
2014	297	2150	4.82	21.33	2.98	0.30	0.00	0.00	0.00

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO_2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	298	0000	0.30	20.73	0.10	0.30	2.70	2.50	1.94
2014	298	0001	0.30	20.71	0.10	0.30	2.80	2.57	1.94
2014	298	0002	0.32	20.74	0.30	0.30	2.90	2.60	1.98
2014	298	0003	0.37	20.52	0.20	0.30	3.00	2.72	1.99
2014	298	0004	0.30	20.76	0.31	0.30	2.90	2.60	1.98
2014	298	0005	0.30	20.70	0.10	0.30	2.80	2.71	1.97
2014	298	0006	0.35	20.73	0.10	0.30	3.07	2.77	1.99
2014	298	0007	0.30	20.68	0.10	0.30	3.30	2.90	1.99
2014	298	0008	0.34	20.66	0.24	0.30	3.01	2.71	1.99
2014	298	0009	0.34	20.67	0.30	0.30	3.00	2.70	2.00
2014	298	0010	0.32	20.61	0.30	0.31	3.00	2.77	2.01
2014	298	0011	0.32	20.67	0.37	0.32	3.00	2.68	2.02
2014	298	0012	0.30	20.68	0.35	0.30	3.00	2.70	2.02
2014	298	0013	0.30	20.68	0.30	0.31	3.00	2.72	2.03
2014	298	0014	0.30	20.68	0.30	0.31	3.05	2.74	2.04
2014	298	0015	0.37	20.66	0.34	0.32	3.02	2.70	2.04
2014	298	0016	0.3[illegible]	20.69	0.30	0.32	3.00	2.68	2.03
2014	298	0017	0.30	20.67	0.40	0.40	3.10	2.71	2.03
2014	298	0018	0.30	20.64	0.30	0.30	3.00	2.70	2.02
2014	298	0019	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0020	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0021	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0022	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0023	0.30	20.64	0.30	0.30	3.00	2.68	2.02
2014	298	0024	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0025	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0026	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0027	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0028	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0029	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0030	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0031	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0032	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0033	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0034	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0035	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0036	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0037	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0038	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0039	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0040	0.30	20.67	0.30	0.30	3.00	2.68	2.02
2014	298	0041	0.42	20.77	0.01	0.30	2.90	2.60	2.00
2014	298	0042	0.40	20.78	0.70	0.30	2.91	2.61	2.00
2014	298	0043	0.40	20.71	0.65	0.30	2.90	2.60	2.00
2014	298	0044	0.37	20.74	0.65	0.31	2.91	2.60	2.00
2014	298	0045	0.40	20.73	0.70	0.31	2.90	2.57	2.01
2014	298	0046	0.01	20.63	0.17	0.32	2.80	2.60	2.01
2014	298	0047	0.30	20.64	0.07	0.30	2.91	2.61	2.02
2014	298	0048	0.00	20.39	0.05	0.32	2.94	2.62	2.03
2014	298	0049	0.40	20.4[illegible]	0.00	0.30	2.90	2.60	2.03
2014	298	0050	0.40	20.48	0.33	0.32	2.94	2.61	2.03
2014	298	0051	0.40	20.54	0.30	0.32	2.90	2.57	2.04
2014	298	0052	0.01	20.67	0.07	0.32	2.93	2.60	2.04
2014	298	0053	0.47	20.73	0.00	0.32	2.90	2.58	2.05
2014	298	0054	0.52	20.68	0.03	0.31	2.90	2.60	2.05
2014	298	0055	0.54	20.62	0.10	0.30	2.93	2.60	2.05
2014	298	0056	0.50	20.67	0.04	0.30	2.90	2.54	2.07
2014	298	0057	0.40	20.73	0.02	0.31	2.91	2.60	2.07
2014	298	0058	0.40	20.71	0.00	0.31	2.90	2.61	2.07
2014	298	0059	0.00	20.64	0.07	0.31	2.91	2.60	2.08
2014	298	0060	0.00	20.64	0.07	0.31	2.92	2.61	2.08
2014	298	0061	0.01	20.64	0.04	0.32	2.94	2.63	2.08
2014	298	0062	0.40	20.73	0.02	0.31	2.90	2.60	2.08
2014	298	0063	0.40	20.71	0.00	0.31	2.90	2.61	2.08
2014	298	0064	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0065	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0066	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0067	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0068	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0069	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0070	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0071	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0072	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0073	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0074	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0075	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0076	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0077	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0078	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0079	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0080	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0081	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0082	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0083	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0084	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0085	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0086	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0087	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0088	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0089	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0090	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0091	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0092	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0093	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0094	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0095	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0096	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0097	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0098	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0099	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0100	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0101	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0102	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0103	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0104	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0105	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0106	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0107	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0108	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0109	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0110	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0111	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0112	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0113	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0114	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0115	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0116	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0117	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0118	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0119	0.00	20.64	0.00	0.31	2.90	2.61	2.08
2014	298	0120	0.00	20.64	0.00	0.31	2.90	2.61	2.08

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121411160
Stack: Line 3 KTs
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO_2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	237	2101	4.76	21.44	2.52	0.23	0.00	0.00	0.00
2014	237	2102	4.67	21.52	2.00	0.15	0.03	0.02	0.00
2014	237	2103	4.62	21.48	2.00	0.20	0.00	0.00	0.00
2014	237	2104	4.67	21.38	2.00	0.21	0.00	0.00	0.00
2014	237	2105	4.79	21.48	2.00	0.23	0.00	0.00	0.00
2014	237	2106	4.77	21.48	2.00	0.32	0.00	0.00	0.00
2014	237	2107	4.64	21.41	2.00	0.30	0.00	0.00	0.00
2014	237	2108	4.68	21.38	2.01	0.32	0.00	0.00	0.00
2014	237	2109	4.67	21.38	2.01	0.31	0.00	0.00	0.00
2014	237	2110	4.64	21.38	2.04	0.31	0.00	0.00	0.00
2014	237	2111	4.68	21.37	2.02	0.31	0.00	0.00	0.00
2014	237	2112	4.66	21.38	2.02	0.31	0.00	0.00	0.00
2014	237	2113	4.76	21.44	2.00	0.31	0.00	0.00	0.00
2014	237	2200	4.71	21.42	2.00	0.32	0.00	0.00	0.00
2014	237	2201	4.73	21.42	2.00	0.32	0.00	0.00	0.00
2014	237	2202	4.69	21.40	2.00	0.32	0.00	0.00	0.00
2014	237	2203	4.70	21.38	2.00	0.32	0.00	0.00	0.00
2014	237	2204	4.61	21.35	2.00	0.30	0.00	0.00	0.00
2014	237	2205	4.68	21.38	2.00	0.31	0.00	0.00	0.00
2014	237	2206	4.73	21.38	2.00	0.30	0.00	0.00	0.00
2014	237	2207	4.70	21.41	2.00	0.32	0.00	0.00	0.00
2014	237	2208	4.68	21.38	2.00	0.32	0.00	0.00	0.00
2014	237	2209	4.68	21.38	2.01	0.32	0.00	0.00	0.00
2014	237	2210	4.68	21.38	2.01	0.32	0.00	0.00	0.00
2014	237	2211	4.68	21.38	2.01	0.31	0.00	0.00	0.00
2014	237	2212	4.70	21.41	2.00	0.32	0.00	0.00	0.00
2014	237	2213	4.68	21.38	2.00	0.32	0.00	0.00	0.00
2014	237	2214	4.68	21.38	2.01	0.32	0.00	0.00	0.00
2014	237	2215	4.68	21.38	2.01	0.32	0.00	0.00	0.00
2014	237	2216	4.77	21.38	2.00	0.31	0.00	0.00	0.00
2014	237	2217	4.74	21.38	2.00	0.31	0.00	0.00	0.00
2014	237	2218	4.68	21.42	2.01	0.31	0.00	0.00	0.00
2014	237	2219	4.61	21.38	2.02	0.30	0.00	0.00	0.00
2014	237	2220	4.68	21.38	2.01	0.30	0.00	0.00	0.00
2014	237	2221	4.68	21.38	2.01	0.31	0.00	0.00	0.00
2014	237	2222	4.73	21.40	2.01	0.27	0.00	0.00	0.00
2014	237	2223	4.72	21.40	2.01	0.33	0.00	0.00	0.00
2014	237	2224	4.68	21.34	2.04	0.33	0.00	0.00	0.00
2014	237	2225	4.68	21.37	2.02	0.30	0.00	0.00	0.00
2014	237	2226	4.63	21.16	2.01	0.31	0.00	0.00	0.00
2014	237	2227	4.68	21.34	2.00	0.33	0.00	0.00	0.00
2014	237	2228	4.70	21.38	2.01	0.32	0.00	0.00	0.00
2014	237	2229	4.70	21.41	2.00	0.32	0.00	0.00	0.00
2014	237	2230	4.77	21.36	2.01	0.31	0.00	0.00	0.00
2014	237	2231	4.66	21.16	2.04	0.31	0.00	0.00	0.00
2014	237	2232	4.69	21.16	2.02	0.30	0.00	0.00	0.00
2014	237	2233	4.68	21.09	2.02	0.31	0.00	0.00	0.00
2014	237	2234	4.69	21.16	2.01	0.31	0.00	0.00	0.00
2014	237	2235	4.68	21.16	2.00	0.32	0.00	0.00	0.00
2014	237	2236	4.68	21.20	2.00	0.32	0.00	0.00	0.00
2014	237	2237	4.64	21.20	2.00	0.32	0.00	0.00	0.00
2014	237	2238	4.68	21.21	2.00	0.32	0.00	0.00	0.00
2014	237	2239	4.68	21.20	2.01	0.33	0.00	0.00	0.00
2014	237	2240	4.61	21.37	2.10	0.31	0.00	0.00	0.00
2014	237	2241	4.68	21.36	2.01	0.31	0.00	0.00	0.00
2014	237	2242	4.64	21.36	2.02	0.31	0.00	0.00	0.00
2014	237	2243	4.64	21.41	2.04	0.33	0.00	0.00	0.00
2014	237	2244	4.68	21.34	2.07	0.32	0.00	0.00	0.00
2014	237	2245	4.67	21.30	2.08	0.32	0.00	0.00	0.00
2014	237	2246	4.63	21.32	2.09	0.32	0.00	0.00	0.00
2014	237	2247	4.64	21.29	2.41	0.32	0.00	0.00	0.00
2014	237	2248	4.68	21.34	2.09	0.32	0.00	0.00	0.00
2014	237	2249	4.68	21.32	2.40	0.33	0.00	0.00	0.00
2014	237	2250	4.64	21.08	2.39	0.32	0.00	0.00	0.00
2014	237	2251	4.63	21.29	2.07	0.33	0.00	0.00	0.00
2014	237	2252	4.68	21.30	2.09	0.33	0.00	0.00	0.00
2014	237	2253	4.70	21.37	2.04	0.33	0.00	0.00	0.04
2014	237	2254	4.68	21.37	2.04	0.33	0.00	0.00	0.00
2014	237	2255	4.68	21.37	2.01	0.33	0.00	0.00	0.00
2014	237	2256	4.70	21.38	2.04	0.35	0.00	0.00	0.02
2014	237	2257	4.64	21.41	2.02	0.33	0.00	0.00	0.00
2014	237	2258	4.68	21.38	2.02	0.34	0.00	0.00	0.00
2014	237	2259	4.68	21.16	2.00	0.32	0.00	0.00	0.00
2014	237	2300	4.67	21.16	2.01	0.33	0.00	0.00	0.00
2014	237	2301	4.68	21.38	2.40	0.30	0.00	0.00	0.00
2014	237	2302	4.64	21.40	2.00	0.30	0.00	0.00	0.00
2014	237	2303	4.64	21.38	2.00	0.34	0.00	0.00	0.00
2014	237	2304	4.64	21.38	2.00	0.33	0.00	0.00	0.00
2014	237	2305	4.68	21.38	2.41	0.32	0.00	0.00	0.00
2014	237	2306	4.68	21.71	2.40	0.32	0.00	0.00	0.00
2014	237	2307	4.61	21.38	2.10	0.33	0.00	0.00	0.00
2014	237	2308	4.61	21.38	2.08	0.33	0.00	0.01	0.00
2014	237	2309	4.67	21.38	2.04	0.33	0.00	0.00	0.00
2014	237	2310	4.66	21.11	2.1	0.33	0.00	0.00	0.00
2014	237	2311	4.68	21.08	2.07	0.33	0.00	0.00	0.00
2014	237	2312	4.68	21.41	2.05	0.33	0.00	0.00	0.00
2014	237	2313	4.68	21.40	2.06	0.33	0.00	0.00	0.00
2014	237	2314	4.68	21.37	2.10	0.33	0.00	0.00	0.00
2014	237	2315	4.68	20.67	2.07	0.30	0.00	0.00	0.00
2014	237	2316	4.68	20.67	2.06	0.33	0.00	0.00	0.00
2014	237	2317	4.68	20.68	2.04	0.33	0.00	0.00	0.00
2014	237	2318	4.11	20.68	2.00	0.33	0.00	0.00	0.00
2014	237	2319	4.13	20.68	2.00	0.33	0.00	0.00	0.00
2014	237	2320	4.11	20.83	2.04	0.32	0.00	0.00	0.00
2014	237	2321	4.65	21.36	2.00	0.32	0.00	0.00	0.00
2014	237	2322	4.11	20.68	2.01	0.33	0.00	0.00	0.00
2014	237	2323	4.13	20.82	2.01	0.31	0.00	0.00	0.00
2014	237	2324	4.07	21.34	2.02	0.33	0.00	0.00	0.00
2014	237	2325	4.68	21.34	2.01	0.32	0.00	0.00	0.00
2014	237	2326	4.68	21.83	2.03	0.33	0.00	0.00	0.00
2014	237	2327	4.68	21.83	2.00	0.32	0.00	0.00	0.00
2014	237	2328	4.68	21.84	2.00	0.31	0.00	0.00	0.00
2014	237	2329	4.34	22.08	2.01	0.33	0.00	0.02	0.02
2014	237	2330	4.12	22.07	2.00	0.32	0.00	0.02	0.02
2014	237	2331	4.12	21.85	2.00	0.32	0.00	0.00	0.00
2014	237	2332	4.12	22.08	2.01	0.32	0.00	0.00	0.00
2014	237	2333	4.07	22.08	2.00	0.32	0.00	0.00	0.00
2014	237	2334	4.16	22.08	2.07	0.32	0.00	0.00	0.00
2014	237	2335	4.12	22.07	2.00	0.32	0.00	0.00	0.00
2014	237	2336	4.12	22.08	2.00	0.32	0.00	0.00	0.00
2014	237	2337	4.07	22.08	2.00	0.32	0.00	0.00	0.00
2014	237	2338	4.12	22.08	2.00	0.32	0.00	0.00	0.00
2014	237	2339	4.12	22.08	2.00	0.32	0.00	0.00	0.00

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO_2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	238	0000	4.70	22.08	4.07	0.31	2.02	2.31	2.44
2014	238	0001	4.64	19.98	4.07	0.31	2.05	2.36	2.44
2014	238	0002	4.60	19.87	4.07	0.30	2.04	2.34	2.44
2014	238	0003	4.64	19.82	4.07	0.30	2.10	2.40	2.44
2014	238	0004	4.70	19.84	4.07	0.30	2.02	2.32	2.46
2014	238	0005	4.64	19.86	4.06	0.30	2.05	2.35	2.46
2014	238	0006	4.70	19.84	4.07	0.30	2.07	2.37	2.46
2014	238	0007	4.64	19.86	4.07	0.30	2.07	2.37	2.46
2014	238	0008	4.70	19.84	4.07	0.30	2.07	2.37	2.46
2014	238	0009	4.68	19.86	4.08	0.30	2.03	2.33	2.44
2014	238	0010	4.68	19.84	4.08	0.30	2.07	2.37	2.44
2014	238	0011	4.77	19.87	4.08	0.31	2.09	2.40	2.46
2014	238	0012	4.64	19.87	4.08	0.30	2.09	2.39	2.46
2014	238	0013	4.68	19.87	4.08	0.30	2.09	2.39	2.46
2014	238	0014	4.68	19.87	4.08	0.30	2.10	2.40	2.46
2014	238	0015	4.68	19.86	4.08	0.30	2.10	2.40	2.46
2014	238	0016	4.77	19.87	4.08	0.31	2.07	2.38	2.46
2014	238	0017	4.70	19.87	4.08	0.30	2.08	2.38	2.46
2014	238	0018	4.72	20.00	4.06	0.30	2.08	2.38	2.46
2014	238	0019	4.77	20.02	4.08	0.30	2.09	2.39	2.46
2014	238	0020	4.77	20.02	4.08	0.30	2.09	2.39	2.46
2014	238	0021	4.74	20.07	4.72	0.30	2.10	2.40	2.44
2014	238	0022	4.70	20.02	4.08	0.30	2.08	2.38	2.44
2014	238	0023	4.70	20.00	4.08	0.30	2.10	2.40	2.44
2014	238	0024	4.70	20.00	4.70	0.30	2.10	2.40	2.44
2014	238	0025	4.74	20.04	4.70	0.30	2.08	2.38	2.46
2014	238	0026	4.70	19.98	4.70	0.30	2.12	2.42	2.46
2014	238	0027	4.70	19.84	4.08	0.30	2.10	2.40	2.46
2014	238	0028	4.64	19.84	4.08	0.30	2.10	2.40	2.46
2014	238	0029	4.64	19.84	4.08	0.30	2.10	2.40	2.46
2014	238	0030	4.64	20.00	4.07	0.30	2.10	2.40	2.46
2014	238	0031	4.70	19.98	4.02	0.31	2.10	2.41	2.46
2014	238	0032	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0033	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0034	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0035	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0036	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0037	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0038	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0039	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0040	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0041	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0042	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0043	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0044	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0045	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0046	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0047	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0048	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0049	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0050	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0051	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0052	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0053	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0054	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0055	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0056	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0057	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0058	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0059	4.70	19.98	4.02	0.31	2.12	2.43	2.46
2014	238	0060	4.70	19.98	4.02	0.31	2.12	2.43	2.46

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121811369
Stack: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO_2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	257	23:13	6.13	20.98	3.65	0.30	0.30	0.30	0.00
2014	257	23:41	6.09	20.98	3.65	0.33	0.30	0.00	0.00
2014	257	23:42	6.16	20.98	3.61	0.32	0.30	0.00	0.00
2014	257	23:43	6.10	20.93	3.69	0.28	0.00	0.00	0.00
2014	257	23:44	6.13	20.93	3.62	0.35	0.00	0.00	0.00
2014	257	23:45	6.13	20.98	3.62	0.35	0.00	0.00	0.00
2014	257	23:46	6.07	21.01	3.69	0.35	0.00	0.00	0.00
2014	257	23:47	6.07	20.94	3.54	0.34	0.00	0.00	0.00
2014	257	23:48	6.10	20.93	3.69	0.33	0.00	0.00	0.00
2014	257	23:49	6.10	20.91	3.62	0.33	0.30	0.00	0.30
2014	257	23:50	6.10	20.78	3.61	0.33	0.00	0.30	0.00
2014	257	23:51	6.04	20.98	3.62	0.33	0.00	0.00	0.30
2014	257	23:52	6.00	20.98	3.61	0.33	0.00	0.00	0.30
2014	257	23:53	6.11	20.98	3.62	0.32	0.00	0.00	0.30
2014	257	23:54	4.08	21.00	3.62	0.33	0.00	0.00	0.00
2014	257	23:55	6.13	20.98	3.62	0.33	0.00	0.00	0.00
2014	257	23:56	6.13	20.95	3.69	0.33	0.00	0.00	0.00
2014	257	23:57	6.04	20.98	3.62	0.33	0.00	0.00	0.00
2014	257	23:58	4.08	21.00	3.62	0.33	0.00	0.00	0.30
2014	257	23:59	6.08	20.98	3.61	0.33	0.00	0.00	0.00
2014	257	24:00	6.11	20.98	3.69	0.33	0.00	0.00	0.00
2014	258	1	6.14	20.98	3.62	0.33	0.00	0.00	0.00
2014	258	2	6.13	20.98	3.62	0.33	0.00	0.00	0.00
2014	258	3	6.14	20.97	3.65	0.33	0.00	0.00	0.00
2014	258	4	6.14	20.91	3.65	0.35	0.30	0.00	0.00
2014	258	5	4.97	20.91	3.53	0.33	0.00	0.00	0.30
2014	258	6	6.11	20.87	3.58	0.33	0.00	0.00	0.00
2014	258	7	6.13	20.98	3.43	0.33	0.00	0.00	0.00
2014	258	8	6.14	20.92	3.57	0.34	0.00	0.00	0.00
2014	258	9	6.13	20.97	3.48	0.38	0.00	0.00	0.30
2014	258	10	5.08	20.98	3.67	0.34	0.00	0.30	0.30
2014	258	11	6.14	20.95	3.58	0.38	0.00	0.00	0.30
2014	258	12	6.13	20.98	3.11	0.38	0.00	0.00	0.00
2014	258	13	6.14	20.97	3.54	0.34	0.00	0.00	0.30
2014	258	14	6.16	20.98	3.58	0.34	0.00	0.00	0.30
2014	258	15	6.16	20.97	3.11	0.34	0.00	0.00	0.30
2014	258	16	6.17	20.94	3.65	0.34	0.00	0.00	0.00
2014	258	17	6.08	20.97	3.62	0.34	0.00	0.00	0.30
2014	258	18	6.14	20.94	3.69	0.34	0.00	0.00	0.00
2014	258	19	6.13	20.90	3.66	0.34	0.00	0.00	0.30
2014	258	20	6.14	20.94	3.47	0.34	0.00	0.00	0.00
2014	258	21	6.17	20.92	3.61	0.34	0.00	0.00	0.30
2014	258	22	6.16	20.94	3.66	0.34	0.00	0.00	0.30
2014	258	23	6.04	21.01	3.34	0.34	0.00	0.00	0.30
2014	258	24	6.13	20.98	3.41	0.34	0.00	0.00	0.30
2014	259	25	6.17	20.92	3.48	0.34	0.00	0.00	0.30
2014	259	26	6.13	20.95	3.71	0.34	0.00	0.00	0.00
2014	259	27	6.17	20.98	3.61	0.33	0.30	0.00	0.30
2014	259	28	6.16	20.93	3.47	0.34	0.00	0.00	0.30
2014	259	29	6.20	20.73	3.48	0.34	0.00	0.00	0.30
2014	259	30	6.20	20.73	3.48	0.34	0.00	0.00	0.30
2014	259	31	6.24	20.73	3.48	0.33	0.00	0.00	0.00
2014	259	32	6.20	20.80	3.48	0.34	0.00	0.00	0.00
2014	259	33	6.20	20.80	3.47	0.34	0.00	0.00	0.00
2014	259	34	6.24	20.74	3.80	0.34	0.00	0.00	0.00
2014	259	35	6.20	20.80	3.80	0.34	0.00	0.00	0.30
2014	259	36	6.11	20.84	3.62	0.36	0.00	0.00	0.00
2014	259	37	6.21	20.87	3.80	0.34	0.00	0.00	0.00
2014	259	38	6.19	20.80	3.41	0.34	0.00	0.00	0.00
2014	259	39	6.16	20.91	3.91	0.30	0.00	0.00	0.00
2014	259	40	6.17	20.80	3.80	0.37	0.00	0.00	0.30
2014	259	41	6.17	20.80	3.87	0.37	0.00	0.00	0.00
2014	259	42	6.20	20.78	3.80	0.37	0.00	0.00	0.30
2014	259	43	6.25	20.14	3.94	0.30	0.00	0.00	0.30
2014	259	44	6.20	20.39	3.61	0.30	0.00	0.00	0.00
2014	259	45	6.21	20.36	3.62	0.37	0.00	0.00	0.00
2014	259	46	6.20	20.61	3.80	0.37	0.00	0.00	0.00
2014	259	47	6.20	20.54	3.80	0.37	0.00	0.00	0.00
2014	259	48	5.98	20.82	3.62	0.36	0.00	0.00	0.00
2014	259	49	7.35	20.48	3.62	0.30	0.00	0.00	0.00
2014	259	50	6.27	20.31	3.65	0.30	0.00	0.00	0.00
2014	259	51	6.21	20.91	3.64	0.37	0.00	0.00	0.00
2014	259	52	6.19	20.73	3.44	0.30	0.00	0.00	0.00
2014	259	53	6.13	20.73	3.62	0.30	0.00	0.00	0.00
2014	259	54	6.07	20.80	3.80	0.30	0.00	0.00	0.00
2014	259	55	6.10	20.78	3.80	0.37	0.00	0.00	0.00
2014	259	56	6.10	20.91	4.30	0.30	0.00	0.00	0.00
2014	259	57	6.10	20.78	4.23	0.37	0.00	0.00	0.00
2014	259	58	6.13	20.78	4.23	0.37	0.00	0.00	0.00
2014	259	59	6.15	20.73	4.23	0.37	0.00	0.00	0.00
2014	259	100	6.21	20.73	4.30	0.37	0.00	0.00	0.00
2014	259	101	6.19	20.72	4.30	0.37	0.00	0.00	0.00
2014	259	102	6.11	20.62	4.23	0.37	0.00	0.00	0.00
2014	259	103	6.08	20.66	4.23	0.30	0.00	0.00	0.00
2014	259	104	6.10	20.73	4.24	0.37	0.00	0.00	0.00
2014	259	105	6.20	20.79	4.23	0.37	0.00	0.00	0.00
2014	259	106	6.20	20.79	4.30	0.30	0.00	0.00	0.00
2014	259	107	6.10	20.77	4.37	0.37	0.00	0.00	0.00
2014	259	108	6.08	20.80	4.34	0.30	0.00	0.00	0.00
2014	259	109	6.10	20.87	4.34	0.34	0.00	0.00	0.00
2014	259	110	6.11	20.80	4.30	0.37	0.00	0.00	0.00
2014	259	111	6.14	20.85	4.34	0.30	0.00	0.00	0.00
2014	259	112	6.16	20.80	4.37	0.37	0.00	0.00	0.00
2014	259	113	6.16	20.82	4.70	0.36	0.00	0.00	0.00
2014	259	114	6.08	20.85	4.74	0.30	0.00	0.00	0.00
2014	259	115	5.88	21.01	4.91	0.36	0.00	0.00	0.00
2014	259	116	6.10	20.83	4.74	0.30	0.00	0.00	0.00
2014	259	117	6.13	20.80	4.70	0.30	0.00	0.00	0.00
2014	259	118	4.88	21.04	4.62	0.30	0.00	0.00	0.00
2014	259	119	5.99	20.88	4.76	0.40	0.00	0.00	0.00
2014	259	120	6.17	20.88	4.70	0.30	0.00	0.00	0.00
2014	259	121	6.16	20.88	4.70	0.40	0.00	0.00	0.00
2014	259	122	6.17	20.79	4.70	0.30	0.00	0.00	0.00
2014	259	123	6.13	20.91	4.76	0.30	0.00	0.00	0.00
2014	259	124	6.16	20.77	4.62	0.40	0.00	0.00	0.00
2014	259	125	6.16	20.80	4.70	0.30	0.00	0.00	0.00
2014	259	126	6.11	20.84	4.70	0.40	0.00	0.00	0.00
2014	259	127	6.08	20.91	4.70	0.30	0.00	0.00	0.00
2014	259	128	6.10	20.78	4.75	0.34	0.00	0.00	0.00

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO_2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	259	11:01	6.08	20.45	3.80	0.33	1.43	1.00	2.17
2014	259	11:02	6.10	20.39	3.80	0.33	1.44	1.11	2.18
2014	259	11:03	6.07	20.36	3.91	0.34	1.30	0.94	2.16
2014	259	11:04	6.08	20.18	3.71	0.34	1.43	1.08	2.18
2014	259	11:05	6.07	20.17	3.53	0.34	1.30	1.03	2.14
2014	259	11:06	6.06	20.16	3.91	0.34	1.44	1.13	2.14
2014	259	11:07	6.10	20.20	3.65	0.36	1.43	1.08	2.10
2014	259	11:08	6.08	20.20	3.70	0.38	1.44	1.08	2.13
2014	259	11:09	6.08	20.17	3.45	0.34	1.49	1.08	2.13
2014	259	11:10	6.06	20.19	3.69	0.38	1.41	1.08	2.11
2014	259	11:11	6.04	20.34	3.68	0.34	1.39	0.94	2.10
2014	259	11:12	6.06	20.15	3.42	0.33	1.45	1.08	2.10
2014	259	11:13	6.08	20.20	3.42	0.30	1.39	0.98	2.08
2014	259	11:14	6.02	20.20	3.40	0.37	1.35	1.02	2.08
2014	259	11:15	6.04	20.20	3.38	0.36	1.2	0.90	2.03
2014	259	11:16	6.08	20.20	3.47	0.30	1.34	0.97	2.07
2014	259	11:17	6.08	20.20	3.31	0.30	1.38	0.73	2.07
2014	259	11:18	6.08	20.14	3.04	0.35	1.18	0.94	2.00
2014	259	11:19	6.07	20.20	3.04	0.30	1.18	0.93	2.00
2014	259	11:20	6.02	20.18	3.00	0.37	1.34	0.88	2.04
2014	259	11:21	6.08	20.13	3.01	0.30	1.32	0.87	2.04
2014	259	11:22	6.02	20.11	3.00	0.30	1.43	1.07	2.03
2014	259	11:23	6.01	20.07	3.05	0.30	1.31	0.88	2.02
2014	259	11:24	6.02	20.10	3.00	0.30	1.30	0.93	2.00
2014	259	11:25	6.04	20.11	3.04	0.30	1.35	0.88	2.01
2014	259	11:26	6.00	20.08	3.00	0.30	1.35	0.90	2.00
2014	259	11:27	6.06	20.07	3.07	0.30	1.18	0.74	2.05
2014	259	11:28	6.00	20.06	3.04	0.30	1.18	0.90	1.99
2014	259	11:29	6.04	20.12	3.03	0.37	1.30	0.88	1.98
2014	259	11:30	6.07	20.12	3.04	0.37	1.14	0.77	1.97
2014	259	11:31	6.08	20.15	3.08	0.30	1.09	0.73	1.98
2014	259	11:32	6.08	20.08	3.01	0.30	1.03	0.67	1.98
2014	259	11:33	6.06	20.08	3.01	0.30	1.03	0.67	1.98
2014	259	11:34	6.06	20.17	3.00	0.30	1.03	0.67	1.98
2014	259	11:35	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:36	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:37	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:38	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:39	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:40	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:41	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:42	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:43	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:44	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:45	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:46	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:47	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:48	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:49	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:50	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:51	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:52	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:53	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:54	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:55	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:56	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:57	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:58	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	11:59	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:00	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:01	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:02	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:03	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:04	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:05	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:06	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:07	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:08	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:09	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:10	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:11	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:12	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:13	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:14	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:15	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:16	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:17	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:18	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:19	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:20	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:21	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:22	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:23	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:24	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:25	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:26	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:27	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:28	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:29	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:30	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:31	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:32	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:33	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:34	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:35	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:36	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:37	6.06	20.12	3.01	0.30	1.03	0.67	1.98
2014	259	12:38	6.06	20.12	3.01	0.30	1.03	0.67	1.98

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121511200
Plant: Lime Kiln
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	SO2 + TRS (ppm)	TRS (ppm)	TRS 4 hour rolling average
2014	230	1200	0.19	20.26	4.78	0.00	0.00	0.00	0.00
2014	230	1201	0.20	20.79	4.83	0.00	0.00	0.00	0.00
2014	230	1202	0.19	20.79	4.77	0.00	0.00	0.00	0.00
2014	230	1203	0.18	20.79	4.69	0.00	0.00	0.00	0.00
2014	230	1204	0.18	20.91	4.72	0.00	0.00	0.00	0.00
2014	230	1205	0.20	20.79	4.72	0.00	0.00	0.00	0.00
2014	230	1206	0.17	20.66	4.69	0.00	0.00	0.00	0.00
2014	230	1207	0.18	20.92	4.69	0.00	0.00	0.00	0.00
2014	230	1208	0.09	21.01	4.72	0.00	0.00	0.00	0.00
2014	230	1209	0.09	21.05	4.66	0.00	0.00	0.00	0.00
2014	230	1210	0.10	20.91	4.69	0.00	0.00	0.00	0.00
2014	230	1211	0.10	20.66	4.64	0.00	0.00	0.00	0.00
2014	230	1212	0.16	20.53	4.62	0.00	0.00	0.00	0.00
2014	230	1213	0.16	20.53	4.57	0.00	0.00	0.00	0.00
2014	230	1214	0.16	20.53	4.52	0.00	0.00	0.00	0.00
2014	230	1215	0.07	20.67	4.52	0.00	0.00	0.00	0.00
2014	230	1216	0.45	20.53	4.52	0.00	0.00	0.00	0.00
2014	230	1217	0.20	20.39	4.52	0.00	0.00	0.00	0.00
2014	230	1218	0.01	21.05	4.52	0.00	0.00	0.00	0.00
2014	230	1219	0.13	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1220	0.10	20.66	4.57	0.00	0.00	0.00	0.00
2014	230	1221	0.10	20.66	4.57	0.00	0.00	0.00	0.00
2014	230	1222	0.5	20.77	4.52	0.00	0.00	0.00	0.00
2014	230	1223	0.01	20.53	4.52	0.00	0.00	0.00	0.00
2014	230	1224	0.21	20.92	4.52	0.00	0.00	0.00	0.00
2014	230	1225	0.20	20.92	4.52	0.00	0.00	0.00	0.00
2014	230	1226	0.17	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1227	0.14	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1228	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1229	0.17	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1230	0.27	20.74	4.52	0.00	0.00	0.00	0.00
2014	230	1231	0.17	20.91	4.52	0.00	0.00	0.00	0.00
2014	230	1232	0.08	21.01	4.52	0.00	0.00	0.00	0.00
2014	230	1233	0.07	20.87	4.52	0.00	0.00	0.00	0.00
2014	230	1234	0.13	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1235	0.17	20.66	4.57	0.00	0.00	0.00	0.00
2014	230	1236	0.21	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1237	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1238	0.18	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1239	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1240	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1241	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1242	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1243	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1244	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1245	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1246	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1247	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1248	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1249	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1250	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1251	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1252	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1253	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1254	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1255	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1256	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1257	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1258	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1259	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1300	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1301	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1302	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1303	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1304	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1305	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1306	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1307	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1308	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1309	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1310	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1311	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1312	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1313	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1314	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1315	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1316	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1317	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1318	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1319	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1320	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1321	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1322	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1323	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1324	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1325	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1326	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1327	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1328	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1329	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1330	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1331	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1332	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1333	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1334	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1335	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1336	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1337	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1338	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1339	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1340	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1341	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1342	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1343	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1344	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1345	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1346	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1347	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1348	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1349	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1350	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1351	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1352	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1353	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1354	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1355	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1356	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1357	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1358	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1359	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1400	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1401	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1402	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1403	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1404	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1405	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1406	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1407	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1408	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1409	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1410	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1411	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1412	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1413	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1414	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1415	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1416	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1417	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1418	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1419	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1420	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1421	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1422	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1423	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1424	0.20	20.66	4.52	0.00	0.00	0.00	0.00
2014	230	1425	0.20	20.66	4.52	0.00	0.00	0.00	0.00
AVERAGE			4.81	21.37	3.33	0.30	0.15	0.04	Maximum 2.49

Note: If SO2 + TRS or TRS is less than 0, made the final concentration 0.

Raw Data for Northern Pulp Summer Source Testing
Test #1

Client: Northern Pulp
Job Number: 1.1511258

Plant: Pictou
Location: Recovery Boiler
Test: PM-1
Date: 19-Aug-14
Personnel: T Bill/FS

Test Start: 11:10 AM
Test Finish: 1:10 PM

Particulate Collected from Filter (mg):	526.1
Particulate Collected from Probe Wash (mg):	132.9
Particulate Collected from Impinger Wash (mg):	9.2
Total Particulate Collected (mg):	1253.9

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	907.9	626.7	281.2
2	100 mL H2O	974.0	737.3	236.7
3	Blank	662.6	632.0	30.6
4	200g Silica Gel	1929.8	1896.7	33.1
			Total Weight Gain (g)	581.6
			Moisture Volume (mL)	581.6

Parameters

Barometric Pressure, Pbar (in. Hg)	29.90	O2, (%)	6.1	Stack Diameter, (in.)	136
Stack Static Pressure, Pstatic (in. H2O)	1.13	CO2, (%)	11.0	Stack Area, (sq. ft.)	100.87
Ambient Temp, (°F)	65	N2, (%)	82.9	Probe Length, (ft.)	8
H2O Volume Collected, Vw (mL)	581.6	CO(ppm)	1478.4	Nozzle Diameter, (in.)	0.231 (1-8)
Total # Sampling Points,	24	NOx (ppm)	51.7	Pitot Coefficient, (Cp)	0.838
Sampling Time per Point, (min)	5	SO2 (ppm)	18.7	Gamma, meter constant	1.010
Readings Taken Every __ mins	2.5			Port length (in.)	4
Regulatory Agency	NSEnv				

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
						476.153		
Traverse 1	1-1	2.5	154	0.61	0.91	471.430	62	62
		5	159	0.70	0.99	471.700	63	63
	1-2	7.5	157	0.66	0.94	473.940	64	63
		10	157	0.70	0.99	475.230	61	61
	1-3	12.5	157	0.65	0.96	476.430	62	63
		15	158	0.63	0.90	477.670	64	63
	1-4	17.5	156	0.61	0.87	478.710	64	63
		20	157	0.63	0.90	480.110	64	63
	1-5	22.5	157	0.61	0.91	481.390	67	64
		25	157	0.64	0.91	482.690	67	64
	1-6	27.5	157	0.61	0.87	483.870	68	64
		30	156	0.67	0.88	485.100	69	64
Traverse 2	2-1	32.5	157	0.64	0.87	486.190	70	66
		35	160	0.64	0.92	487.680	72	66
	2-2	37.5	160	0.62	0.90	488.830	71	66
		40	160	0.63	0.90	490.090	72	67
	2-3	42.5	160	0.62	0.89	491.310	72	67
		45	160	0.63	0.91	492.610	72	67
	2-4	47.5	159	0.64	0.92	493.990	73	68
		50	157	0.66	0.95	495.370	74	68
	2-5	52.5	157	0.64	0.91	496.590	73	68
		55	157	0.63	0.91	497.730	74	69
	2-6	57.5	156	0.61	0.88	498.910	75	69
		60	156	0.60	0.87	500.126	75	69
Traverse 3	3-1	62.5	159	0.67	0.94	501.410	75	70
		65	159	0.65	0.91	502.730	75	70
	3-2	67.5	159	0.65	0.94	504.000	75	71
		70	160	0.63	0.91	505.270	76	71
	3-3	72.5	158	0.64	0.94	506.610	76	71
		75	158	0.61	0.91	507.930	75	72
	3-4	77.5	158	0.64	0.93	509.050	76	72
		80	157	0.61	0.88	510.280	76	72
	3-5	82.5	158	0.62	0.90	511.490	77	73
		85	157	0.64	0.93	512.690	77	73
	3-6	87.5	157	0.61	0.93	514.110	77	73
		90	157	0.62	0.92	515.390	77	74
Traverse 4	4-1	92.5	156	0.64	0.93	516.650	77	74
		95	161	0.64	0.93	517.910	77	74
	4-2	97.5	158	0.63	0.93	519.210	77	74
		100	159	0.63	0.94	520.460	77	75
	4-3	102.5	162	0.61	0.94	521.760	77	75
		105	161	0.64	0.93	523.010	78	75
	4-4	107.5	159	0.67	0.98	524.260	78	75
		110	159	0.65	0.95	525.560	78	75
	4-5	112.5	159	0.66	0.96	526.890	77	76
		115	159	0.64	0.89	528.170	76	76
	4-6	117.5	159	0.63	0.94	529.410	77	76
		120	159	0.61	0.95	530.730	77	76

Calculations for Test #1 Northern Pulp Opacity Source Testing

Client: Northern Pulp
Job Number: 121511250

Plant: Pictou
Location: Recovery Rotor
Test: PM-1
Date: 19-Aug-14
Personnel: T BI-VFB

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.08
Stack Gas Molecular Weight, Dry Basis, Md (lbs/lb-mole)	31.00
Volume of Water Vapour Collected, Vwc (cu.ft)	27.917
Stack Gas Moisture Content (% as decimal)	0.304
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	28.35

Isokineticity Checks

Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Us (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1-1	2.5	614	0.64	0.91	50.34	30.07	522	1.250	1.344	98.19
		5	618	0.70	0.99	52.86	30.07	522	1.270	1.366	96.78
	1-2	7.5	617	0.66	0.94	51.25	30.07	524	1.250	1.340	98.86
		10	617	0.70	0.99	52.78	30.07	524	1.260	1.351	64.81
	1-3	12.5	617	0.66	0.93	50.88	30.07	524	1.240	1.328	98.52
		15	618	0.63	0.90	50.11	30.07	525	1.220	1.306	98.44
	1-4	17.5	616	0.61	0.87	49.23	30.06	525	1.240	1.327	99.44
		20	617	0.63	0.90	50.07	30.07	525	1.240	1.327	97.94
	1-5	22.5	617	0.64	0.91	50.47	30.07	526	1.240	1.324	98.98
		25	617	0.64	0.91	50.47	30.07	526	1.290	1.378	100.90
	1-6	27.5	617	0.61	0.87	49.27	30.06	526	1.190	1.270	95.24
		30	616	0.62	0.88	49.63	30.06	527	1.230	1.311	97.47
Traverse 2	2-1	32.5	617	0.61	0.87	49.27	30.06	529	1.250	1.327	99.57
		35	620	0.64	0.92	50.58	30.07	529	1.250	1.327	97.45
	2-2	37.5	620	0.63	0.90	50.19	30.07	529	1.250	1.327	98.22
		40	620	0.63	0.90	50.19	30.07	530	1.240	1.314	97.25
	2-3	42.5	620	0.62	0.89	49.79	30.07	530	1.220	1.293	98.45
		45	620	0.66	0.93	50.98	30.07	530	1.300	1.378	100.38
	2-4	47.5	616	0.64	0.92	50.43	30.07	531	1.290	1.366	99.87
		50	617	0.66	0.96	51.25	30.07	531	1.270	1.342	98.61
	2-5	52.5	617	0.64	0.93	50.47	30.07	532	1.330	1.404	102.06
		55	617	0.63	0.91	50.07	30.07	532	1.220	1.288	96.09
	2-6	57.5	616	0.61	0.88	49.23	30.06	532	1.210	1.278	96.87
		60	614	0.60	0.87	48.75	30.06	532	1.190	1.256	94.71
Traverse 3	3-1	62.5	619	0.65	0.94	50.94	30.07	533	1.290	1.360	98.97
		65	619	0.66	0.96	50.94	30.07	533	1.310	1.381	100.51
	3-2	67.5	619	0.65	0.94	50.94	30.07	534	1.290	1.347	98.02
		70	620	0.63	0.91	50.19	30.07	534	1.270	1.336	98.86
	3-3	72.5	619	0.66	0.94	50.90	30.07	534	1.330	1.399	101.77
		75	618	0.63	0.91	50.11	30.07	534	1.220	1.283	94.81
	3-4	77.5	618	0.64	0.93	50.51	30.07	534	1.230	1.293	94.76
		80	617	0.61	0.88	49.27	30.06	534	1.230	1.293	98.97
	3-5	82.5	618	0.62	0.90	49.71	30.07	535	1.210	1.269	94.52
		85	617	0.61	0.89	49.27	30.07	535	1.310	1.374	103.08
	3-6	87.5	617	0.64	0.93	50.47	30.07	535	1.310	1.374	100.65
		90	617	0.62	0.92	49.87	30.07	536	1.280	1.342	99.82
Traverse 4	4-1	92.5	616	0.64	0.93	50.43	30.07	536	1.260	1.321	98.54
		95	621	0.64	0.93	50.83	30.07	536	1.270	1.331	97.80
	4-2	97.5	618	0.66	0.95	50.90	30.07	536	1.300	1.363	99.10
		100	619	0.62	0.90	49.76	30.07	536	1.240	1.298	98.76
	4-3	102.5	622	0.66	0.94	51.07	30.07	536	1.300	1.361	99.33
		105	621	0.64	0.93	50.63	30.07	537	1.270	1.329	97.82
	4-4	107.5	619	0.62	0.90	49.75	30.07	537	1.230	1.287	95.89
		110	614	0.66	0.95	50.74	30.07	537	1.300	1.360	98.60
	4-5	112.5	618	0.66	0.96	51.29	30.07	537	1.330	1.391	100.43
		115	614	0.64	0.93	50.34	30.07	537	1.260	1.338	97.74
	4-6	117.5	614	0.64	0.94	50.34	30.07	537	1.260	1.318	96.30
		120	615	0.66	0.95	50.78	30.07	537	1.320	1.381	100.19
		Total 120	Average 616	Average 0.64	Average 0.92	Average 50.35	Average 30.07	Average 531	Total 60.570	Total 63.997	Average 97.91

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511289

Plant: Pictou
Location: Recovery Boiler
Test: PM-1
Date: 19-Aug-14
Personnel: T BH/FS

Test Start: 12:15 PM
Test Finish: 12:45 PM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	5.80	11.20	2465	15	53
5	5.70	11.29	1139	17	56
10	6.10	11.09	1629	16	54
15	6.00	11.19	1271	24	50
20	6.60	10.80	1313	18	48
25	6.50	10.70	1310	21	50
30	6.30	10.90	1200	21	51
Average:	6.1	11.0	1479	19	52

Raw Data For Test #2 — Northern Pulp Summer Source Testing

Client: Northern Pulp
Job Number: 121811.pm

Plant: Pictou
Location: Recovery Boiler
Test: PM-C
Date: 19-Aug-14
Personnel: TRS/PS

Test Start: 1:00 PM
Test Finish: 3:14 PM

Particulate Collected from Filter (mg):	984.6
Particulate Collected from Probe Wash (mg):	277.6
Particulate Collected from Impinger Wash (mg):	14
Total Particulate Collected (mg):	1285.8

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	918.3	622.6	295.7
2	100 mL H2O	976.8	701.8	275.0
3	Blank	645.2	634.6	10.6
4	200g Silica Gel	1047.6	1036.7	10.9

Total Weight Gain (g): 600.4
Moisture Volume (mL): 600.4

Parameters
Barometric Pressure, Pbar (in. Hg): 30.15
Stack Static Pressure, Pstatic (in. H2O): 1.10
Ambient Temp, (°F): 68
H2O Volume Collected, Vw (mL): 600.4
Total # Sampling Points: 24
Sampling Time per Point, (min): 5
Readings Taken Every __ mins: 2.5
Regulatory Agency: NSENV

O2, (%)	4.5
CO2, (%)	12.1
N2, (%)	83.4
CO(ppm)	130.9
NOx (ppm)	65.6
SO2 (ppm)	80.3

Stack Diameter, (in.)	138
Stack Area, (sq. ft.)	103.87
Probe Length, (ft.)	2
Nozzle Diameter, (in.)	0.233
Pitot Coefficient, (Cp)	0.839
Gamma, meter constant	1.04
Port length (in.)	4

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1-1	2.5	157	0.63	0.69	530.940		
		5	157	0.61	0.64	533.240	75	75
	1-2	7.5	158	0.62	0.70	535.500	75	75
		10	158	0.60	0.67	538.690	75	75
	1-3	12.5	158	0.64	0.64	541.980	75	75
		15	157	0.61	0.61	547.290	74	75
	1-4	17.5	157	0.60	0.67	549.450	74	75
		20	157	0.63	0.70	550.630	75	74
	1-5	22.5	156	0.61	0.69	552.130	75	74
		25	157	0.61	0.69	553.130	76	75
	1-6	27.5	157	0.60	0.67	554.570	76	75
		30	157	0.60	0.67	555.780	75	75
Traverse 2	2-1	32.5	159	0.63	0.70	557.030	75	75
		35	156	0.61	0.63	558.380	75	75
	2-2	37.5	157	0.59	0.64	559.480	75	75
		40	154	0.61	0.69	560.680	74	75
	2-3	42.5	157	0.59	0.66	561.886	75	74
		45	158	0.70	0.71	563.980	76	74
	2-4	47.5	157	0.71	0.77	564.170	76	74
		50	160	0.69	0.67	565.370	76	74
	2-5	52.5	157	0.63	0.67	566.370	73	74
		55	158	0.61	0.65	567.780	76	74
	2-6	57.5	160	0.62	0.70	568.[illegible]	80	74
		60	159	0.64	0.71	570.250	75	74
Traverse 3	3-1	62.5	157	0.67	0.67	571.590	76	74
		65	159	0.61	0.69	572.810	76	74
	3-2	67.5	159	0.60	0.72	574.130	76	74
		70	159	0.70	1.12	574.400	77	74
	3-3	72.5	160	0.67	0.69	575.230	77	74
		75	158	0.67	0.67	577.230	77	75
	3-4	77.5	159	0.65	0.64	578.210	78	75
		80	159	0.69	0.67	579.450	78	75
	3-5	82.5	156	0.68	0.69	580.640	78	76
		85	156	0.68	0.62	581.830	76	76
	3-6	87.5	158	0.67	0.64	583.130	76	76
		90	158	0.67	0.63	584.340	76	76
Traverse 4	4-1	92.5	158	0.61	0.63	585.[illegible]	76	76
		95	159	0.61	0.64	586.[illegible]	76	76
	4-2	97.5	159	0.61	0.64	587.[illegible]	76	76
		100	158	0.62	0.61	589.180	76	76
	4-3	102.5	159	0.61	0.62	590.640	77	76
		105	160	0.61	0.60	592.070	77	76
	4-4	107.5	157	0.64	0.64	593.350	77	76
		110	157	0.61	0.61	594.460	77	76
	4-5	112.5	158	0.60	0.60	595.710	76	76
		115	157	0.62	0.64	597.200	76	77
	4-6	117.5	156	0.61	0.57	598.180	76	77
		120	157	0.60	0.60	599.[illegible]	76	76

Calculations for Test #2 — Northern Pulp Burners Source Testing

Client: Northern Pulp
Job Number: 121911200

Plant: Pictou
Location: Recovery Boiler
Test: PM-2
Date: 19-Aug-14
Personnel: TBH/FS

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.21
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	29.12
Volume of Water Vapour Collected, Vwc (cu.ft)	25.819
Stack Gas Moisture Content (% as decimal)	0.315
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	28.20

Isokineticity Checks

Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (F)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Us (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1-1	2.5	617	0.61	0.89	49.20	30.21	536	1.280	1.349	102.56
		5	617	0.64	0.94	50.40	30.21	537	1.250	1.314	97.53
	1-2	7.5	618	0.62	0.90	48.64	30.21	536	1.190	1.254	94.87
		10	618	0.60	0.87	48.84	30.21	536	1.230	1.298	99.48
	1-3	12.5	618	0.64	0.93	50.44	30.21	535	1.330	1.393	103.40
		15	617	0.63	0.91	50.00	30.21	535	1.210	1.277	96.51
	1-4	17.5	617	0.60	0.87	48.80	30.21	536	1.170	1.234	94.82
		20	617	0.63	0.92	50.00	30.21	536	1.270	1.340	100.25
	1-5	22.5	618	0.61	0.89	49.16	30.21	538	1.240	1.308	99.20
		25	615	0.61	0.89	49.12	30.21	536	1.220	1.285	97.82
	1-6	27.5	617	0.60	0.87	48.80	30.21	536	1.220	1.285	98.48
		30	617	0.60	0.87	48.80	30.21	536	1.210	1.274	97.67
Traverse 2	2-1	32.5	618	0.62	0.90	48.64	30.21	536	1.250	1.318	99.35
		35	618	0.61	0.89	48.16	30.21	535	1.230	1.296	98.48
	2-2	37.5	617	0.58	0.86	47.98	30.21	535	1.220	1.286	100.25
		40	614	0.61	0.89	49.06	30.21	537	1.200	1.260	95.57
	2-3	42.5	617	0.59	0.86	48.38	30.21	536	1.140	1.203	92.97
		45	618	0.50	0.73	44.58	30.20	535	1.180	1.222	102.72
	2-4	47.5	617	0.53	0.77	45.88	30.20	536	1.190	1.253	102.16
		50	620	0.60	0.87	48.92	30.21	535	1.180	1.244	95.57
	2-5	52.5	617	0.60	0.87	48.80	30.21	536	1.170	1.233	94.53
		55	618	0.61	0.89	49.24	30.21	536	1.260	1.328	101.06
	2-6	57.5	620	0.62	0.90	49.72	30.21	537	1.260	1.323	100.03
		60	619	0.64	0.93	50.49	30.21	536	1.250	1.319	98.05
Traverse 3	3-1	62.5	617	0.67	0.97	51.57	30.22	536	1.300	1.371	99.42
		65	619	0.64	0.93	50.48	30.21	536	1.240	1.307	97.18
	3-2	67.5	619	0.68	0.99	52.03	30.22	535	1.300	1.371	98.85
		70	619	0.70	1.02	52.79	30.22	536	1.310	1.378	98.00
	3-3	72.5	620	0.68	0.99	52.08	30.22	536	1.290	1.367	97.99
		75	618	0.67	0.97	51.61	30.22	537	1.230	1.293	93.88
	3-4	77.5	619	0.66	0.94	50.87	30.21	537	1.290	1.366	100.04
		80	619	0.60	0.87	48.98	30.21	537	1.150	1.208	92.72
	3-5	82.5	618	0.60	0.87	48.84	30.21	537	1.200	1.260	98.87
		85	618	0.63	0.92	49.96	30.21	537	1.230	1.292	98.58
	3-6	87.5	618	0.62	0.91	49.64	30.21	538	1.300	1.364	102.94
		90	619	0.61	0.89	49.28	30.21	539	1.230	1.290	98.27
Traverse 4	4-1	92.5	618	0.61	0.89	49.34	30.21	537	1.230	1.292	98.28
		95	619	0.61	0.89	49.28	30.21	537	1.250	1.313	99.96
	4-2	97.5	619	0.62	0.91	49.64	30.21	537	1.260	1.323	99.87
		100	618	0.62	0.91	49.64	30.21	537	1.250	1.313	99.07
	4-3	102.5	619	0.63	0.92	50.08	30.21	537	1.290	1.368	101.61
		105	620	0.61	0.89	49.32	30.21	537	1.250	1.314	100.13
	4-4	107.5	617	0.64	0.94	50.40	30.21	537	1.240	1.303	98.75
		110	617	0.63	0.92	50.00	30.21	537	1.330	1.398	104.59
	4-5	112.5	618	0.60	0.88	48.84	30.21	536	1.280	1.347	103.31
		115	617	0.60	0.88	48.80	30.21	537	1.190	1.251	95.98
	4-6	117.5	618	0.63	0.92	49.96	30.21	537	1.250	1.314	98.22
		120	617	0.60	0.88	48.80	30.21	538	1.240	1.306	100.00
		Total 120	Average 618	Average 0.62	Average 0.90	Average 49.52	Average 30.21	Average 536	Total 59.450	Total 62.585	Average 98.58

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511289

Plant: Pictou
Location: Recovery Boiler
Test: PM-2
Date: 19-Aug-14
Personnel: TBH/FS

Test Start: 4:30 PM
Test Finish: 5:50 PM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	4.40	12.20	128	53	65
5	4.50	12.10	140	38	66
10	4.70	12.10	118	57	66
15	4.40	12.20	132	61	65
20	4.70	12.10	117	63	68
25	4.50	12.20	130	67	65
30	4.30	12.10	150	65	66
Average:	4.50	12.14	131	60	66

Raw Data For: Northern Pulp Summer Source Testing
Test #3

Client: Northern Pulp
Job Number: 121511200

Plant: Pulpu
Location: Recovery Boiler
Test: PM-1
Date: 20-Sep-21
Personnel: [illegible]

Test Start: 1:10 PM
Test Finish: 3:20 PM

Particulate Collected from Filter (mg):	1941.3
Particulate Collected from Probe Wash (mg):	[illegible]
Particulate Collected from Impinger Wash (mg):	[illegible]
Total Particulate Collected (mg):	2004.9

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	905.4	670.0	235.4
2	100 mL H2O	985.6	686.8	298.8
3	Blank	655.9	634.7	21.2
4	200g Silica Gel	991.9	973.5	18.4
			Total Weight Gain (g)	621.8
			Moisture Volume (mL)	621.8

Parameters

Barometric Pressure, Pbar (in. Hg)	30.06
Stack Static Pressure, Pstatic (in. H2O)	1.10
Ambient Temp, (°F)	67
H2O Volume Collected, Vw (mL)	621.8
Total # Sampling Points,	24
Sampling Time per Point, (min)	5
Readings Taken Every __ mins	15
Regulatory Agency	NSENV

O2, (%)	8.5
CO2, (%)	13.5
N2, (%)	81.1
CO(ppm)	211.9
NOx (ppm)	34.8
SO2 (ppm)	7.1

Stack Diameter, (in.)	138
Stack Area, (sq. ft.)	103.87
Probe Length, (ft.)	2
Nozzle Diameter, (in.)	0.233
Pitot Coefficient, (Cp)	0.838
Gamma, meter constant	1.04
Port length (in.)	4

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1-1	2.5	159	0.65	0.91	630.810		
		5	160	0.64	0.94	631.870	91	84
	1-2	7.5	158	0.61	0.91	632.900	89	84
		10	158	0.75	0.91	633.930	92	86
	1-3	12.5	159	0.63	0.90	634.950	88	87
		15	159	0.63	0.94	635.960	87	89
	1-4	17.5	159	0.65	0.94	636.970	88	89
		20	159	0.63	0.91	637.980	89	88
	1-5	22.5	159	0.61	0.89	638.990	89	88
		25	159	0.64	0.89	640.000	91	88
	1-6	27.5	158	0.60	0.87	641.010	90	86
		30	158	0.64	0.87	642.020	90	87
Traverse 2	2-1	32.5	159	0.68	0.90	643.030	91	87
		35	158	0.64	0.91	644.040	91	87
	2-2	37.5	157	0.60	0.87	645.050	91	87
		40	158	0.65	0.95	646.060	92	88
	2-3	42.5	157	0.62	0.90	647.070	97	88
		45	158	0.61	0.90	648.080	92	88
	2-4	47.5	158	0.61	0.92	649.090	91	89
		50	157	0.63	0.92	650.100	93	90
	2-5	52.5	158	0.65	0.93	651.110	97	90
		55	158	0.62	0.91	652.120	91	89
	2-6	57.5	159	0.63	0.91	653.130	95	90
		60	159	0.64	0.94	654.140	92	90
Traverse 3	3-1	62.5	158	0.64	0.94	655.150	93	90
		65	159	0.65	0.92	656.160	96	91
	3-2	67.5	159	0.65	0.95	657.170	95	91
		70	158	0.64	0.96	658.180	95	91
	3-3	72.5	159	0.61	0.89	659.190	94	91
		75	160	0.64	0.91	660.200	94	91
	3-4	77.5	159	0.63	0.91	661.210	94	91
		80	159	0.63	0.95	662.220	94	91
	3-5	82.5	159	0.65	0.91	663.230	95	92
		85	160	0.67	0.93	664.240	95	92
	3-6	87.5	159	0.61	0.94	665.250	94	92
		90	159	0.64	0.94	666.260	99	92
Traverse 4	4-1	92.5	160	0.61	0.93	667.270	97	91
		95	158	0.60	0.95	668.280	97	93
	4-2	97.5	158	0.63	0.93	669.290	97	93
		100	159	0.61	0.93	670.300	96	93
	4-3	102.5	157	0.64	0.94	671.310	97	93
		105	157	0.61	0.94	672.320	98	94
	4-4	107.5	158	0.64	0.94	673.330	98	94
		110	158	0.64	0.94	674.340	98	94
	4-5	112.5	159	0.64	0.94	675.350	98	95
		115	157	0.61	0.94	676.360	98	95
	4-6	117.5	156	0.63	0.96	677.370	98	95
		120	158	0.64	0.91	678.380	98	95

Calculations for Test #3 — Northern Pulp Nova Scotia Testing

Client: Northern Pulp
Job Number: 121811769

Plant: Pictou
Location: Recovery Boiler
Test: PM-3
Date: 20-Aug-14
Parameter: TSP/PM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.06	
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	30.38	
Volume of Water Vapour Collected, Vwc (cu.ft)	29.948	
Stack Gas Moisture Content (% as decimal)	0.127	
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	28.39	

Isokineticity Checks

	Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Us (f/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1-1	2.5	619	0.65	0.93	50.97	30.07	544	1.260	1.300	97.90
	1-2	5	620	0.64	0.92	50.62	30.07	545	1.230	1.268	98.30
	1-3	7.5	618	0.66	0.94	50.93	30.07	545	1.270	1.309	98.51
	1-4	10	618	0.66	0.95	51.32	30.07	546	1.270	1.307	97.58
	1-5	12.5	619	0.61	0.88	49.38	30.08	546	1.220	1.254	97.48
	1-6	15	619	0.66	0.94	50.97	30.07	547	1.280	1.325	98.77
Traverse 2	2-1	17.5	620	0.63	0.91	50.22	30.07	548	1.240	1.271	97.31
	2-2	20	619	0.61	0.89	49.38	30.07	548	1.220	1.251	97.21
	2-3	22.5	619	0.64	0.89	50.62	30.07	548	1.230	1.258	98.44
	2-4	25	618	0.60	0.87	49.93	30.08	548	1.220	1.249	97.85
	2-5	27.5	619	0.64	0.93	50.54	30.08	549	1.280	1.320	100.07
	2-6	30	618	0.62	0.93	49.74	30.07	549	1.190	1.216	93.72
Traverse 3	3-1	32.5	619	0.64	0.90	50.56	30.07	549	1.260	1.278	98.98
	3-2	35	618	0.60	0.93	49.74	30.07	549	1.200	1.227	98.07
	3-3	37.5	617	0.65	0.87	50.14	30.07	550	1.270	1.298	97.44
	3-4	40	618	0.62	0.96	50.93	30.07	550	1.240	1.266	97.48
	3-5	42.5	617	0.62	0.90	50.89	30.07	552	1.240	1.265	97.41
	3-6	45	618	0.63	0.90	49.74	30.07	552	1.230	1.252	96.67
Traverse 4	4-1	47.5	618	0.65	0.92	49.78	30.07	552	1.270	1.293	97.25
	4-2	50	617	0.62	0.96	50.56	30.07	552	1.280	1.303	97.95
	4-3	52.5	618	0.62	0.95	50.54	30.07	553	1.230	1.252	98.44
	4-4	55	619	0.64	0.91	50.18	30.07	553	1.230	1.249	98.34
	4-5	57.5	619	0.64	0.91	50.97	30.07	553	1.260	1.280	97.14
	4-6	60	618	0.63	0.84	50.54	30.07	554	1.250	1.270	98.29
	4-7	62.5	619	0.66	0.94	49.38	30.07	553	1.260	1.278	97.73
	4-8	65	619	0.64	0.93	50.62	30.07	553	1.260	1.279	98.31
	4-9	67.5	618	0.64	0.93	50.82	30.07	553	1.260	1.309	98.29
	4-10	70	619	0.65	0.96	50.93	30.07	553	1.250	1.218	94.67
	4-11	72.5	619	0.61	0.93	50.18	30.07	553	1.260	1.268	98.36
	4-12	75	620	0.64	0.95	50.97	30.07	554	1.360	1.280	97.22
	4-13	77.5	620	0.64	0.93	50.22	30.07	553	1.160	1.402	105.49
	4-14	80	618	0.65	0.93	50.54	30.07	554	1.260	1.176	93.98
	4-15	82.5	619	0.63	0.95	50.54	30.07	555	1.260	1.278	96.31
	4-16	85	619	0.65	0.93	50.62	30.07	555	1.270	1.278	97.81
	4-17	87.5	620	0.63	0.95	50.93	30.07	556	1.260	1.285	97.49
	4-18	90	618	0.64	0.93	50.93	30.07	556	1.260	1.275	96.72
	4-19	92.5	618	0.64	0.94	49.38	30.07	556	1.280	1.274	96.79
	4-20	95	620	0.64	0.94	50.50	30.07	556	1.290	1.294	97.41
	4-21	97.5	619	0.64	0.94	50.50	30.07	557	1.280	1.306	98.26
	4-22	100	618	0.65	0.94	50.54	30.07	558	1.270	1.274	99.04
	4-23	102.5	619	0.61	0.94	50.54	30.07	558	1.250	1.281	97.05
	4-24	105	617	0.64	0.94	50.58	30.07	558	1.270	1.282	95.61
	4-25	107.5	617	0.64	0.94	50.50	30.07	557	1.280	1.282	97.22
	4-26	110	618	0.64	0.96	50.93	30.07	557	1.290	1.292	97.99
	4-27	112.5	619	0.64	0.94	50.54	30.07	557	1.290	1.291	97.86
	4-28	115	619	0.64					1.270	1.301	98.58
		117.5	617	0.64					1.280	1.281	98.30
		120	618	0.65						1.291	97.90
		Total 120	Average 618	Average 0.64	Average 0.92	Average 50.38	Average 30.07	Average 552	Total 60.270	Total 61.314	Average 97.23

Combustion Gas Data for: **Northern Pulp Summer Source Testing**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Recovery Boiler
Test: PM-3
Date: 20-Aug-14
Personnel: TBH/FS

Test Start: 1:10 AM
Test Finish: 1:40 AM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	5.50	13.40	75	5	34
5	5.50	13.40	119	6	34
10	5.20	13.80	82	7	34
15	5.30	13.70	184	7	35
20	5.50	13.50	318	8	36
25	5.70	13.20	440	8	36
30	5.50	13.40	285	8	36
Average:	5.46	13.49	212	7	35

DATA ENTRY

Northern Pulp
Recovery Boiler
Operating Conditions: Normal
Emission Control Equipment: Multicyclones
Stack Diameter: 3.5 m

Reference Temperature, Tref (F): [redacted]
(K): 298
Reference Pressure, Pref (in.Hg): [redacted]
(Bar): 1.0

Parameter	Symbol	Units	Test 1	Test 2	Test 3	Average
Test ID	-	-	PM-1	PM-2	PM-3	-
Date	-	-	19-Aug-14	19-Aug-14	20-Aug-14	n/a
Start Time	-	-	11:10 AM	3:00 PM	1:10 PM	n/a
End Time	-	-	1:30 PM	5:15 PM	3:20 PM	n/a
Total Sampling Time	-	min	120	120	120	120
Stack Diameter	D	in.	138	138	138	138
Average Stack Gas Temperature	Ts	F	158	158	158	158
Average Dry Gas Meter Temperature	Tm	F	71	76	82	80
Barometric Pressure	Pbar	in.Hg	30.0	30.1	30.0	30.0
Stack Static Pressure	Pstatic	in.H2O	1.10	1.10	1.10	1.10
Average Pressure Drop (Head)	dP	in.H2O	0.64	0.62	0.64	0.63
Average deltaH Orifice	dH	in.H2O	0.92	0.90	0.92	0.91
Average Meter Temperature	Tm	F	71	76	82	80
Gas Sample Volume	Vm	cu.ft	60.57	59.45	60.27	60.10
Average Isokinetics	I	%	97.9	98.6	97.2	97.9
Nozzle Diameter	Dn	in.	0.233	0.233	0.233	0.233
Pitot Coefficient	Cp	-	0.838	0.838	0.838	0.838
Gamma, meter constant	y	-	1.040	1.040	1.040	1.040
Reference Temperature	Tref	R	537	537	537	537
Reference Pressure	Pref	in.Hg	29.92	29.92	29.92	29.92
Stack Gas Oxygen Content	Co2	%	6.1	4.5	5.6	5.4
Stack Gas Carbon Dioxide Content	Cco2	%	11.0	12.1	13.5	12.2
Stack Gas Nitrogen Content	Cn2	%	82.9	83.4	81.1	82.4
Stack Gas Sulphur Dioxide Content	Cso2	ppm	19	60	7	29
Stack Gas Nitrogen Oxides Content	Cnox	ppm	52	66	35	51
Stack Gas Carbon Monoxide Content	Cco	ppm	1479	131	212	807
Volume of Water Collected	Vw	mL	562	600	622	601
Particulate Collected from Filter	-	mg	826	885	1244	985
Particulate Collected from Probe Wash	-	mg	423	378	758	519
Particulate Collected from Impinger Wash	-	mg	5.23	3.44	3.72	4.13
Total Particulate Collected (excluding impingers)	Mp	mg	1,249	1,262	2,001	1,504

Legend:
F - degrees Fahrenheit
K - degrees Kelvin
Bar - bars
in.Hg - inches of mercury
in. - inches
in.H2O - inches of water
cu.ft - cubic feet
R - degrees Rankin
NOx - as NO2

CALCULATIONS

Northern Pulp
Recovery Boiler
Operating Conditions: Normal
Emission Control Equipment: Multicyclones
Stack Diameter: 3.5 m

Variable	Symbol	Units	Calculation	Test 1	Test 2	Test 3	Average
Stack Area	As	sq.ft	As = PI x [(D/12)^2] / 4	103.87	103.87	103.87	103.87
		sq.m	As (sq.m) = As (sq.ft) x 0.0929	9.65	9.65	9.65	9.65
Barometric Pressure	Pbar	kPa	Pbar (kPa) = Pbar (in.Hg) x 3.386	101.6	102.1	101.8	101.7
Stack Static Pressure	Pstatic	kPa	Pstatic (kPa) = Pstatic (in.H2O) x 0.249	0.27	0.27	0.27	0.27
Avg. Stack Temperature	Ts	R	Ts (R) = Ts (F) + 460	618	618	618	618
Avg. Meter Temperature	Tm	R	Tm (R) = Tm (F) + 460	531	536	552	540
Nozzle Diameter	Dn	mm	Dn (mm) = Dn (in.) x 25.4	6	6	6	6
Gas Meter Pressure	Pm	in.Hg	Pm = Pbar + (dH / 13.6)	30.1	30.2	30.1	30.1
Sample Volume at Ref Cond	Vmc	cu.ft	Vmc = Tref/Pref x (Vm x Pm x y) / Tm	64.0	62.6	61.3	62.8
		cu.m	Vmc (cu.m) = 0.02832 x Vmc (cu.ft)	1.81	1.77	1.74	1.77
Volume of Water Vapour	Vwc	cu.ft	Vwc = 0.0468 x Vlc	27.9	28.8	28.8	28.9
Water Fraction	Bwo	-	Bwo = Vwc / (Vwc + Vmc)	0.304	0.316	0.327	0.315
Molecular Weight, Dry	Md	lb/lb-mol	Md = 0.44 (Co2) + 0.32 (O2) + 0.28 (Co)	30.0	30.1	30.4	30.2
Molecular Weight, Wet	Ms	lb/lb-mol	Ms = Md (1 - Bwo) + (18 x Bwo)	26.4	26.3	26.3	26.3
Stack Pressure	Ps	in.Hg	Ps = Pbar + (Pstatic / 12.6)	30.1	30.2	30.1	30.1
Stack Gas Velocity	Us	fs/s	Us = 58.33 x Cp x (dP x Ts)/(Ps x Ms)^0.5	50.4	45.5	50.4	50.1
		m/s	Us (m/s) = 0.3048 x Us (fs/s)	15.4	13.1	15.4	15.3
Actual Stack Gas Flow Rate	Q	acfm	Q = 60 x Us x As	313,981	304,634	313,970	312,188
Dry Stack Gas Flow Rate	Qs	Rcfm	Qs = Q x (1-Bwo) x (Tref/Ts)x (Ps/Pref)	101,101	188,573	184,352	187,003
		Rcms	Qs (Rcms) = 0.000472 x Qs (Rcfm)	80.2	87.6	87.0	86.9
Sulphur Dioxide - SO2							
SO2 Measured Concentration	Cso2	ppm	Measurement from Flue Gas Analyzer	18.71	60.29	7.14	28.7
Uncorrected @ Ref Cond	Cso2	mg/Rcm	Cso2 (mg/Rcm) = Cso2 (ppm) x 2.62	49.03	157.95	18.71	75.2
SO2 Emission Rate	ERso2	g/s	ERso2 = Cso2/1000 x Qs	4.42	13.83	1.63	6.8
		kg/hr	ERso2 (kg/hr) = 3.6 x ERso2 (g/s)	15.92	49.81	5.88	24
SO2 Concentration							
Corrected to 11% O2	Cso2	mg/Rcm	Cso2 (11% O2) = Cso2 (mg/Rcm) x (20.9-11) / (20.9-Co2)	32.0	95.3	12.0	46.7
Corrected to 3% O2	Cso2	mg/Rcm	Cso2 (3% O2) = Cso2 (mg/Rcm) x (20.9-3) / (20.9-Co2)	58	172	22	85
Corrected to 12% CO2	Cso2	mg/Rcm	Cso2 (12% CO2) = Cso2 (mg/Rcm) x (12/Co2)	53.7	158.1	18.7	75.5
Nitrogen Oxides - NOx							
NOx Measured Concentration	Cnox	ppm	Measurement from Flue Gas Analyzer	51.7	86.8	34.9	50.7
Uncorrected @ Ref Cond	Cnox	mg/Rcm	Cnox (mg/Rcm) = Cnox (ppm) x 1.882	97.3	123	66	95
NOx Emission Rate	ERnox	g/s	ERnox = Cnox/1000 x Qs	8.78	10.81	5.71	8.42
		kg/hr	ERnox (kg/hr) = 3.6 x ERnox (g/s)	31.6	38.9	20.5	30.4
NOx Concentration							
Corrected to 11% O2	Cnox	mg/Rcm	Cnox (11% O2) = Cnox (mg/Rcm) x (20.9-11) / (20.9-Co2)	65.3	74.5	42.1	60.8
Corrected to 3% O2	Cnox	mg/Rcm	Cnox (3% O2) = Cnox (mg/Rcm) x (20.9-3) / (20.9-Co2)	118	135	76	110
Corrected to 12% CO2	Cnox	mg/Rcm	Cnox (12% CO2) = Cnox (mg/Rcm) x (12/Co2)	100.8	122.0	58.4	95.8
Carbon Monoxide - CO							
CO Measured Concentration	Cco	ppm	Measurement from Flue Gas Analyzer	1,478	131	212	607
Uncorrected @ Ref Cond	Cco	mg/Rcm	Cco (mg/Rcm) = Cco (ppm) x 1.146	1,694	160	243	695
CO Emission Rate	ERco	g/s	ERco = Cco/1000 x Qs	152.8	13.1	21.1	62.3
		kg/hr	ERco (kg/hr) = 3.6 x ERco (g/s)	550	47	76	224
CO Concentration							
Corrected to 11% O2	Cco	mg/Rcm	Cco (11% O2) = Cco (mg/Rcm) x (20.9-11) / (20.9-Co2)	1,138	90	156	461
Corrected to 3% O2	Cco	mg/Rcm	Cco (3% O2) = Cco (mg/Rcm) x (20.9-3) / (20.9-Co2)	4,036	588	780	2,109
Corrected to 12% CO2	Cco	mg/Rcm	Cco (12% CO2) = Cco (mg/Rcm) x (12/Co2)	1,855	148	218	743
Particulate Concentration	Cp	mg/Rcm	Cp = Mp / Vmc	889	712	1,152	851
Particulate Emission Rate	ERp	g/s	ERp = Cp/1000 x Qs	82.1	62.4	100.3	74.9
		kg/hr	ERp (kg/hr) = 3.6 x ERp (g/s)	224	225	361	270
Particulate Concentration							
Corrected to 11% O2	Cp	mg/Rcm	Cp (11% O2) = Cp x (20.9-11) / (20.9-Co2)	482	430	739	544
Corrected to 3% O2	Cp	mg/Rcm	Cp (3% O2) = Cp x (20.9-3) / (20.9-Co2)	836	777	1,335	983
Corrected to 12% CO2	Cp	mg/Rcm	Cp (12% CO2) = Cp x (12/Co2)	755	704	1,225	828

Legend:
sq.ft - square feet
sq.m - square metres
PI - 3.142
R - degrees Rankin

acfm - actual cubic feet per minute
Rcfm - dry reference cubic feet per minute
Rcms - dry reference cubic metres per second
ppm - parts per million
cu.m - cubic metres
Ref Cond - reference temperature and pressure (25 C and 101.3 kPa)

in.Hg - inches of mercury
cu.ft - cubic feet
mg/Rcm - milligrams per dry reference cubic metre
g/s - grams per second
NOx - as NO2

OFFICIAL STACK TESTING RESULTS
Northern Pulp
Recovery Boiler

Operating Conditions: Normal
Emission Control Equipment: Multicyclones
Stack Diameter: 3.5 m

Parameter	Test 1	Test 2	Test 3	Average	NSENV Limits
Test ID Test Date	PM-1 19-Aug-14	PM-2 19-Aug-14	PM-3 20-Aug-14	- -	- -
Stack Gas Temperature (C) Moisture Content (%) Velocity (m/s) Volumetric Flow (Rcms)	70 30.4 15.4 90.2	70 31.5 15.1 87.6	70 32.7 15.4 87.0	70 31.5 15.3 88.3	- - - -
Oxygen - O2 (%) Carbon Dioxide - CO2 (%)	6.14 10.96	4.50 12.1	5.5 13.49	5.37 12.20	- -
Sulphur Dioxide - SO2 SO2 Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	18.7 49.0 15.9	60.3 158 49.8	7.14 18.7 5.86	28.7 75.2 23.9	- - -
Nitrogen Oxides - NOx NOx Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	51.7 97.3 31.6	65.6 123.4 38.9	34.9 65.6 20.5	50.7 95.4 30.4	- - -
Carbon Monoxide - CO CO Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	1,479 1,694 550	131 150 47.2	212 243 76.0	607 695 224	- - -
Particulate Matter - PM Uncorrected at Ref Cond (mg/Rcm) PM - Corrected to 11% O2 (mg/Rcm) Particulate Emission Rate (kg/hr)	689 462 224	712 430 225	1,152 739 361	851 544 270	- 375 -

Legend:
C - degrees Celsius
m/s - metres per second
Rcms - dry reference cubic metres per second
ppm - parts per million
Ref Cond - reference temperature and pressure (25 C and
mg/Rcm - milligrams per dry reference cubic metre
NOx - as NO2

Particulate Recovery, Impinger Catch, Probe Wash, Filter Catch

Client: Northern Pulp
Facility: Pictou
Location: Recovery Boiler
Job Number: 12151 1288

IMPINGER CATCH

Container ID	Beaker Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Recovery Jar + Sample + Rinse (g)	Jar Tare (g)	Sample Collected (g)	Rinse Water (g)	Total Water (g)	Beaker Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
T3	114.7525	114.7523		114.7524	PM-1	1076.4	378.0	698.4	19.9	18.8	114.7571	114.7576		114.7577	0.0053	0.0052
C3	113.2769	113.2764		113.2767	PM-2	1058.7	377.8	680.9	16.4	18.4	113.2801	113.2802		113.2802	0.0035	0.0034
A3	110.3090	110.3089		110.3090	PM-3	1070.5	380.9	689.6	23.1	23.1	110.3137	110.3128		110.3128	0.0038	0.0037
																Conc (g/mL)
S4	108.0487	108.0482		108.0485	WB	632.7	377.4	275.3		275.3	108.0492	108.0498		108.0494	0.0009	0.000003

Container ID	Beaker Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Recovery Jar + Residue (g)	Jar Tare (g)	Recovered Acetone (g)	Rinse Acetone (g)	Total Acetone (g)	Beaker Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
L1	109.1948	109.1943		109.1947	PM-1	470.3	308.8	161.5	23.5	185.0	109.6172	109.6173		109.6173	0.4226	0.4226
V1	111.9297	111.9293		111.9295	PM-2	483.1	308.5	174.6	32.6	207.2	112.3073	112.3070		112.3072	0.3776	0.3776
O1	111.9726	111.9726		111.9726	PM-3	377.8	285.2	92.6	23.1	115.6	112.7298	112.7299		112.7299	0.7573	0.7573
																Conc (g/mL)
V2	109.1749	109.1744		109.1747	AB	477.7	376.7	101.0		101.0	109.1743	109.1744		109.1744	-0.0003	0.000000

Density of Acetone: 0.7851 g/ml

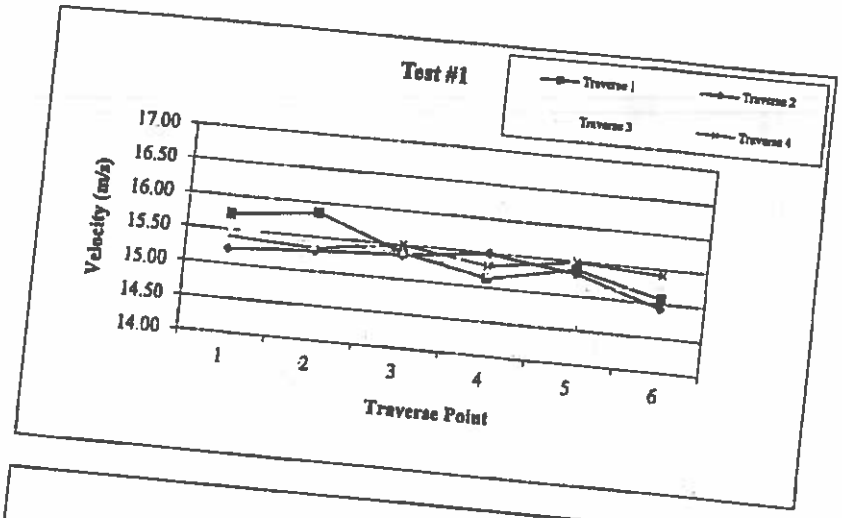
FILTER CATCH

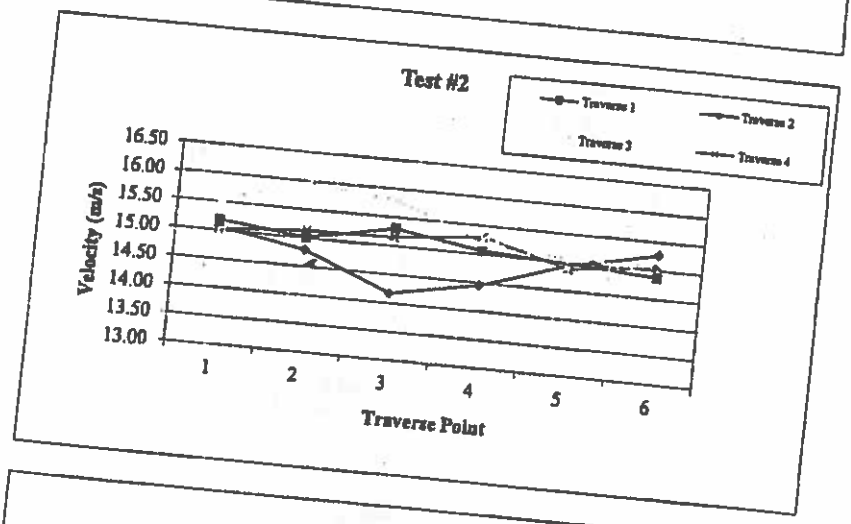
Filter ID	Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Particulate Weight from Filter (g)
0128-14	0.3368	0.3368		0.3369	PM-1	1.1630	1.1627		1.1629	0.8261
0128-17	0.3031	0.3030		0.3031	PM-2	1.1895	1.1898		1.1897	0.8866
0516-20	0.3555	0.3557		0.3556	PM-3	1.5998	1.5999		1.5999	1.2443

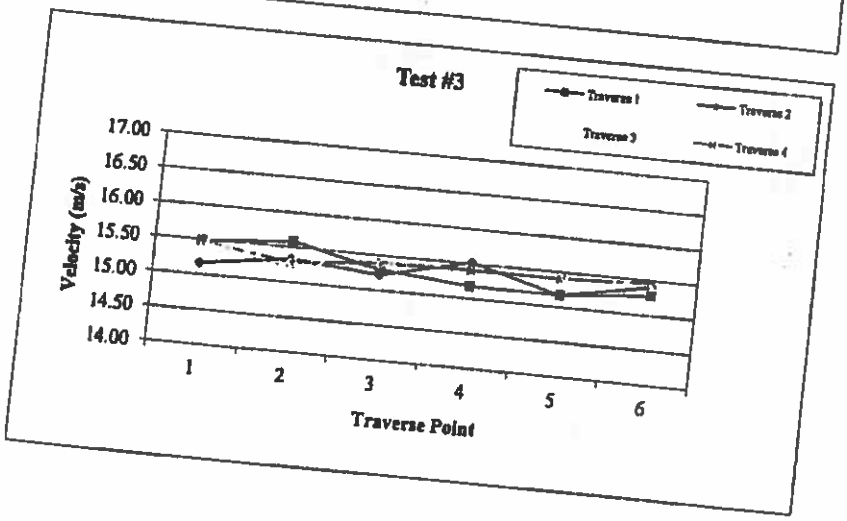
Northern Pulp
Pictou

Job No. 121511269

Stack Gas Velocity Profiles
Recovery Boiler







Raw Data for: Northern Pulp Summer Source Testing
Test #1

Client: Northern Pulp
Job Number: 121811258

Plant: Pictou
Location: Dissolving Tank
Test: PM-1
Date: 20-Aug-11
Personnel: CAM/MM

Test Start: 1:50 PM
Test Finish: 4:50 PM

Particulate Collected from Filter (mg):	660.8
Particulate Collected from Probe Wash (mg):	234.7
Particulate Collected from Impinger Wash (mg):	65.2
Total Particulate Collected (mg):	970.7

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	1715.8	1336.1	379.7
2	100 mL H2O	1022.6	699.2	323.4
3	Blank	799.1	801.4	97.7
4	200g Silica Gel	1015.1	1007.0	8.1
			Total Weight Gain (g)	808.9
			Moisture Volume (mL)	808.9

Parameters

Barometric Pressure, Pbar (in. Hg)	30.00	O2, (%)	20.9	Stack Diameter, (in.)	48
Stack Static Pressure, Pstatic (in. H2O)	-0.10	CO2, (%)	0.0	Stack Area, (sq. ft.)	12.57
Ambient Temp, (°F)	84	N2, (%)	79.1	Probe Length, (ft.)	5
H2O Volume Collected, Vw (mL)	808.9	CO(ppm)	0.0	Nozzle Diameter, (in.)	0.311 (2-10)
Total # Sampling Points,	12	NOx (ppm)	0.0	Pitot Coefficient, (Cp)	0.84
Sampling Time per Point, (min)	5	SO2 (ppm)	0.0	Gamma, meter constant	1.000
Readings Taken Every __ mins	2.5			Port length (in.)	6
Regulatory Agency	NSEMV				

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1	2.5	216	0.10	0.71	312.3[illegible]	[illegible]	[illegible]
		5	214	0.12	0.40	313.900	96	97
	2	7.5	220	0.15	0.38	314.770	96	97
		10	219	0.21	0.16	315.630	96	97
	3	12.5	219	0.21	0.41	316.480	98	97
		15	201	0.16	0.39	317.330	99	98
	4	17.5	217	0.21	0.44	318.190	99	98
		20	218	0.19	0.43	319.060	100	98
	5	22.5	213	0.19	0.19	320.930	100	98
		25	213	0.17	0.16	321.790	101	98
	6	27.5	211	0.17	0.56	322.640	101	98
		30	207	0.17	0.46	323.510	101	98
	7	32.5	215	0.19	0.32	324.400	101	98
		35	197	0.12	0.28	325.300	102	99
	8	37.5	156	0.21	0.21	326.219	102	99
		40	200	0.19	0.37	327.100	102	99
	9	42.5	211	0.16	0.16	328.170	102	99
		45	197	0.20	0.40	329.060	102	99
	10	47.5	136	0.13	0.31	330.070	103	99
		50	197	0.12	0.30	331.010	103	99
Traverse 2	1	52.5	214	0.13	0.27	331.940	101	100
		55	196	0.14	0.21	332.790	102	100
	2	57.5	203	0.18	0.19	333.680	102	100
		60	196	0.16	0.25	334.480	103	100
	3	62.5	198	0.13	0.39	335.300	103	100
		65	201	0.17	0.37	336.170	102	100
	4	67.5	205	0.17	0.39	337.120	103	100
		70	203	0.17	0.37	338.100	103	100
	5	72.5	204	0.17	0.37	339.010	104	100
		75	206	0.17	0.37	339.930	104	101
	6	77.5	201	0.09	0.17	340.700	104	101
		80	196	0.14	0.23	341.610	104	101
	7	82.5	196	0.11	0.31	342.480	104	101
		85	196	0.19	0.42	343.110	104	101
	8	87.5	209	0.19	0.41	344.410	104	101
		90	204	0.19	0.41	345.020	104	101
	9	92.5	209	0.18	0.39	346.460	104	101
		95	212	0.18	0.39	347.320	105	101
	10	97.5	213	0.18	0.28	348.380	105	101
		100	213	0.18	0.30	349.190	105	101

Calculations for: Northern Pulp Summer Source Testing
Test #1

Client: Northern Pulp
Job Number: 17-911256

Plant: Fabre
Location: Dissolving Tank
Test: PM-1
Date: 20-Aug-14
Personnel: CA/MBM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	29.90
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.94
Volume of Water Vapour Collected, Vwc (cu.ft)	35.927
Stack Gas Moisture Content (% as decimal)	0.321
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	28.20

Isokineticity Checks

	Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Vs (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	678	0.10	0.21	22.24	30.02	558	0.880	0.840	95.24
	2	5	673	0.19	0.40	30.58	30.03	558	0.870	0.844	90.92
	3	7.5	680	0.15	0.31	27.32	30.02	558	0.880	0.853	104.81
	4	10	678	0.21	0.44	32.30	30.03	558	1.030	0.989	102.85
	5	12.5	679	0.21	0.44	32.30	30.03	559	1.080	1.045	107.85
	6	15	684	0.18	0.39	29.57	30.03	559	0.880	0.829	102.19
	7	17.5	677	0.21	0.44	32.25	30.03	559	0.880	0.848	97.45
	8	20	676	0.18	0.40	30.70	30.03	559	0.880	0.828	100.42
	9	22.5	673	0.18	0.40	30.59	30.03	559	0.870	0.838	101.10
	10	25	675	0.17	0.36	28.98	30.03	560	0.850	0.818	104.72
		27.5	676	0.17	0.36	28.98	30.03	560	0.850	0.818	104.72
		30	667	0.17	0.30	28.80	30.03	560	0.860	0.847	107.38
		32.5	675	0.15	0.32	27.22	30.02	561	0.860	0.858	104.25
		35	655	0.13	0.29	24.96	30.02	561	0.900	0.866	111.54
		37.5	658	0.18	0.33	29.87	30.02	561	0.850	0.816	108.87
		40	660	0.17	0.37	28.86	30.03	561	0.850	0.816	103.37
		42.5	671	0.16	0.34	28.03	30.03	561	0.870	0.835	109.89
		45	628	0.20	0.40	30.31	30.03	561	1.030	0.993	100.80
		47.5	586	0.15	0.31	25.30	30.02	561	0.870	0.839	94.86
		50	667	0.18	0.38	29.41	30.03	561	0.880	0.844	103.31
Traverse 2	1	52.5	674	0.13	0.27	26.32	30.02	561	0.900	0.868	113.14
	2	55	658	0.14	0.31	25.99	30.02	561	0.800	0.771	95.08
	3	57.5	660	0.18	0.38	29.48	30.03	561	0.870	0.838	91.92
	4	60	668	0.18	0.35	27.71	30.03	562	0.860	0.829	98.06
	5	62.5	658	0.15	0.30	28.44	30.03	562	0.820	0.789	98.43
	6	65	661	0.17	0.37	28.87	30.03	562	0.870	0.838	94.57
	7	67.5	665	0.17	0.37	28.76	30.03	562	0.950	0.915	103.58
	8	70	665	0.17	0.37	28.76	30.03	562	0.980	0.943	108.85
	9	72.5	664	0.17	0.37	28.74	30.03	562	0.930	0.864	101.23
	10	75	660	0.17	0.37	28.78	30.03	563	0.960	0.923	104.58
		77.5	661	0.09	0.17	19.67	30.01	563	0.710	0.682	112.28
		80	658	0.16	0.35	27.73	30.03	563	0.810	0.874	101.54
		82.5	658	0.14	0.31	25.92	30.02	563	0.860	0.817	101.23
		85	658	0.16	0.42	30.24	30.03	563	0.860	0.842	100.37
		87.5	660	0.18	0.41	30.50	30.03	563	1.000	0.961	103.27
		90	664	0.19	0.41	30.35	30.03	563	0.980	0.942	100.63
		92.5	668	0.18	0.39	29.68	30.03	563	1.020	0.960	108.21
		95	672	0.16	0.39	29.78	30.03	563	0.870	0.831	103.06
		97.5	673	0.16	0.38	29.77	30.03	563	0.870	0.832	103.21
		100	673	0.16	0.38	29.77	30.03	563	0.860	0.823	102.15
		Total 100	Average 664	Average 0.17	Average 0.39	Average 28.51	Average 30.03	Average 561	Total 37.100	Total 35.797	Average 102.16

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Dissolving Tank
Test: PM-1
Date: 20-Aug-14
Personnel: CAM/MM

Test Start: 1:00 PM
Test Finish: 3:30 PM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	20.96	0.00	0.0	0	0
5	20.90	0.00	0.0	0	0
10	21.00	0.00	0.0	0	0
15	20.90	0.00	0.0	0	0
20	20.90	0.00	0.0	0	0
25	20.96	0.00	0.0	0	0
30	20.90	0.00	0.0	0	0
Average:	20.91	0.00	0.0	0	0

Raw Data for Northern Pulp Summer Source Testing
Test #2

Client: Northern Pulp
Job Number: 121611200

Plant: Pulpu
Location: Digesting Tank
Test: PM-2
Date: 21-Aug-11
Personnel: CAM/MM

Test Start: 8:20 AM
Test Finish: 10:10 AM

Particulate Collected from Filter (mg):	343.0
Particulate Collected from Probe Wash (mg):	33.4
Particulate Collected from Impinger Wash (mg):	65.8
Total Particulate Collected (mg):	841.9

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	1734.4	1384.7	388.7
2	100 mL H2O	1033.4	717.3	316.1
3	Blank	791.8	692.6	79.2
4	200g Silica Gel	1022.7	1015.0	7.7
			Total Weight Gain (g)	801.7
			Moisture Volume (mL)	801.7

Parameters

Barometric Pressure, Pbar (in. Hg)	30.00
Stack Static Pressure, Pstatic (in. H2O)	-0.20
Ambient Temp, (°F)	80
H2O Volume Collected, Vw (mL)	801.7
Total # Sampling Points,	20
Sampling Time per Point, (min)	1
Readings Taken Every __ mins	2.5
Regulatory Agency	NSENV

O2, (%)	20.9
CO2, (%)	0.0
N2, (%)	79.1
CO(ppm)	0.0
NOx (ppm)	0.0
SO2 (ppm)	0.0

Stack Diameter, (in.)	48
Stack Area, (sq. ft.)	12.57
Probe Length, (ft.)	5
Nozzle Diameter, (in.)	0.311
Pitot Coefficient, (Cp)	0.836
Gamma, meter constant	1.003
Port length (in.)	8

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1	2.5	191	0.16	0.45	349.346	90	90
	2	5	197	0.13	0.31	350.540	91	90
	3	7.5	194	0.20	0.57	351.890	91	90
	4	10	191	0.19	0.32	352.540	91	90
	5	12.5	194	0.17	0.47	353.890	92	90
	6	15	203	0.18	0.44	355.240	91	91
	7	17.5	211	0.18	0.48	356.590	91	91
	8	20	215	0.21	0.54	357.940	92	91
	9	22.5	214	0.20	0.51	358.670	92	91
	10	25	215	0.13	0.16	359.170	92	92
		27.5	207	0.19	0.41	359.120	92	92
		30	203	0.18	0.40	361.290	92	92
		32.5	201	0.14	0.40	362.640	97	92
		35	197	0.13	0.41	363.990	97	93
		37.5	196	0.13	0.31	365.340	97	93
		40	201	0.18	0.39	366.690	98	93
		42.5	211	0.19	0.44	367.240	98	94
		45	211	0.15	0.34	368.690	98	94
		47.5	205	0.19	0.51	367.230	98	94
		50	218	0.18	0.40	368.690	98	94
				0.14	0.49	369.340	98	94
Traverse 2	1	52.5	197	0.14	0.39	370.690	98	94
	2	55	202	0.15	0.41	371.290	98	94
	3	57.5	198	0.10	0.25	371.890	99	94
	4	60	199	0.18	0.43	372.490	99	94
	5	62.5	200	0.18	0.42	373.090	99	94
	6	65	213	0.20	0.44	373.590	102	94
	7	67.5	199	0.16	0.38	374.590	100	97
	8	70	202	0.18	0.38	375.590	101	97
	9	72.5	205	0.17	0.37	376.140	102	97
	10	75	209	0.17	0.37	376.770	101	97
		77.5	203	0.17	0.43	377.310	102	97
		80	200	0.17	0.47	378.250	102	98
		82.5	201	0.16	0.37	378.790	102	98
		85	196	0.13	0.41	379.330	101	98
		87.5	190	0.16	0.40	379.870	102	98
		90	201	0.13	0.44	380.410	102	98
		92.5	204	0.18	0.43	380.950	101	98
		95	204	0.16	0.40	381.490	102	98
		97.5	199	0.17	0.47	382.030	101	98
		100	197	0.16	0.44	382.570	102	99
				0.14	0.39	383.110	101	99

Calculations for Test #2 Northern Pulp Summer Source Testing

Client: Northern Pulp
Job Number: 121611z00

Plant: Pictou
Location: Greenheg Tank
Test: PM-2
Date: 21-Aug-14
Personnel: CAMMM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	29.99
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.84
Volume of Water Vapour Collected, Vwc (cu.ft)	36.482
Stack Gas Moisture Content (% as decimal)	0.508
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	28.58

Isokineticity Checks

Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Vs (f/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	644	0.16	0.45	27.34	30.03	550	1.010	0.983	110.38
		5	647	0.13	0.25	24.70	30.02	551	0.980	0.944	104.36
	2	7.5	644	0.20	0.52	30.57	30.04	551	1.140	1.120	111.34
		10	654	0.19	0.52	30.03	30.04	551	1.350	1.325	135.21
	3	12.5	654	0.17	0.47	28.40	30.03	552	1.030	1.008	109.85
		15	663	0.18	0.44	29.42	30.03	553	1.080	1.037	110.51
	4	17.5	671	0.18	0.48	29.80	30.04	553	1.020	0.987	108.70
		20	674	0.21	0.58	32.04	30.04	554	1.000	0.977	97.00
	5	22.5	675	0.19	0.51	30.50	30.04	554	1.170	1.142	119.27
		25	675	0.18	0.48	29.89	30.04	554	0.950	0.927	99.49
	6	27.5	667	0.18	0.43	27.83	30.03	555	0.980	0.953	108.01
		30	673	0.18	0.48	29.85	30.04	555	1.070	1.042	111.89
	7	32.5	663	0.15	0.41	26.98	30.03	555	0.970	0.946	110.07
		35	662	0.13	0.22	34.60	30.02	556	0.750	0.730	90.54
	8	37.5	658	0.10	0.20	21.82	30.01	556	0.690	0.671	95.17
		40	661	0.13	0.34	24.97	30.02	556	0.670	0.651	81.37
	9	42.5	671	0.13	0.24	28.18	30.02	556	0.780	0.758	96.44
		45	671	0.19	0.51	30.41	30.04	556	1.100	1.070	111.40
	10	47.5	666	0.18	0.48	29.47	30.04	557	1.050	1.020	108.88
		50	670	0.18	0.48	29.58	30.04	557	1.050	1.018	108.97
Traverse 2	1	52.5	657	0.14	0.38	25.83	30.03	557	0.950	0.923	110.78
		55	663	0.15	0.41	26.88	30.02	557	0.920	0.903	103.90
	2	57.5	658	0.10	0.25	21.86	30.04	558	0.700	0.679	90.51
		60	658	0.18	0.50	28.34	30.04	558	1.030	0.998	105.93
	3	62.5	666	0.19	0.52	30.34	30.04	558	1.060	1.027	108.74
		65	673	0.20	0.54	31.25	30.04	559	1.100	1.065	108.28
	4	67.5	658	0.18	0.50	28.34	30.04	559	1.080	1.045	110.76
		70	663	0.18	0.49	28.42	30.03	559	1.060	1.028	109.13
	5	72.5	660	0.17	0.47	28.09	30.03	560	1.040	1.005	110.23
		75	669	0.17	0.47	28.72	30.03	560	1.040	1.004	110.38
	6	77.5	663	0.17	0.47	28.60	30.03	560	1.040	1.004	108.86
		80	660	0.14	0.37	25.89	30.03	560	0.940	0.907	109.16
	7	82.5	665	0.15	0.41	26.90	30.04	560	0.930	0.898	104.77
		85	668	0.16	0.49	27.80	30.03	560	1.040	1.004	112.63
	8	87.5	660	0.12	0.34	23.79	30.03	560	0.740	0.714	92.13
		90	665	0.16	0.41	28.47	30.04	560	0.860	0.830	88.44
	9	92.5	668	0.16	0.49	27.85	30.03	560	1.000	0.965	109.32
		95	664	0.17	0.47	28.82	30.04	561	1.010	0.974	108.70
	10	97.5	658	0.16	0.48	27.86	30.03	561	1.020	0.968	110.63
		100	657	0.14	0.38	25.83	30.00	561	0.970	0.934	112.09
		Total 100	Average 662	Average 0.16	Average 0.48	Average 27.82	Average 30.03	Average 557	Total 30.230	Total 29.111	Average 108.26

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Dissolving Tank
Test: PM-2
Date: 21-Aug-14
Personnel: CAM/MM

Test Start: 8:30 AM
Test Finish: 9:00 AM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	20.90	0.00	0.0	0	0
5	20.90	0.00	0.0	0	0
10	20.90	0.00	0.0	0	0
15	20.90	0.00	0.0	0	0
20	21.00	0.00	0.0	0	0
25	20.90	0.00	0.0	0	0
30	20.90	0.00	0.0	0	0
Average:	20.91	0.00	0.0	0	0

Raw Data for Northern Pulp Summer Source Testing
Test #3

Client: Northern Pulp
Job Number: 121811269

Plant: Hulou
Location: Bleaching Tank
Test: PM-1
Date: 13-Aug 11
Personnel: CAM/MM

Test Start: 9:10 AM
Test Finish: 10:00 AM

Particulate Collected from Filter (mg):	620.1
Particulate Collected from Probe Wash (mg):	86.9
Particulate Collected from Impinger Wash (mg):	74.4
Total Particulate Collected (mg):	781.3

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
0	Blank	973.8	614.6	359.2
1	100 mL H2O	1019.2	737.4	281.8
2	100 mL H2O	963.4	719.9	244.5
3	Blank	675.6	622.5	53.1
4	200g Silica Gel	947.0	931.0	8.0
			Total Weight Gain (g)	943.6
			Moisture Volume (mL)	943.6

Parameters

Barometric Pressure, Pbar (in. Hg)	31.00	O2, (%)	20.9	Stack Diameter, (in.)	48
Stack Static Pressure, Pstatic (in. H2O)	-0.30	CO2, (%)	0.0	Stack Area, (sq. ft.)	12.57
Ambient Temp, (°F)	80.00	N2, (%)	79.1	Probe Length, (ft.)	5
H2O Volume Collected, Vw (mL)	943.60	CO(ppm)	0.0	Nozzle Diameter, (in.)	0.311
Total # Sampling Points,	20	NOx (ppm)	0.0	Pitot Coefficient, (Cp)	0.836
Sampling Time per Point, (min)	3	SO2 (ppm)	0.0	Gamma, meter constant	1.003
Readings Taken Every __ mins	2.5			Port length (in.)	6
Regulatory Agency	NSENV				

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1	2.5	190	0.13	0.26	348.810	96	92
		5	192	0.12	0.24	351.780		
	2	7.5	189	0.13	0.25	354.750	93	93
		10	191	0.16	0.31	357.730	94	91
	3	12.5	197	0.19	0.41	360.690	94	91
		15	200	0.19	0.39	363.670	95	91
	4	17.5	199	0.19	0.37	366.650	95	92
		20	199	0.17	0.37	369.630	96	93
	5	22.5	199	0.18	0.34	372.610	96	91
		25	193	0.18	0.31	375.590	97	91
	6	27.5	199	0.16	0.34	378.570	97	94
		30	200	0.16	0.31	381.550	98	94
	7	32.5	213	0.17	0.36	384.530	98	94
		35	209	0.18	0.36	387.510	98	94
	8	37.5	203	0.18	0.37	390.490	99	93
		40	197	0.19	0.41	393.470	99	95
	9	42.5	199	0.19	0.41	396.450	99	95
		45	196	0.19	0.41	399.430	99	95
	10	47.5	196	0.16	0.39	402.410	100	96
		50	201	0.18	0.39	405.390	100	96
Traverse 2	1	52.5	208	0.14	0.31	408.370	98	97
		55	211	0.13	0.28	411.350	100	97
	2	57.5	209	0.14	0.30	414.330	100	97
		60	210	0.13	0.30	417.310	101	97
	3	62.5	198	0.13	0.31	420.290	101	98
		65	199	0.12	0.28	423.270	101	98
	4	67.5	202	0.13	0.29	426.250	101	98
		70	213	0.10	0.23	429.230	102	98
	5	72.5	211	0.13	0.27	432.210	101	98
		75	211	0.13	0.31	435.190	101	98
	6	77.5	209	0.13	0.31	438.170	102	98
		80	214	0.13	0.31	441.150	102	99
	7	82.5	207	0.13	0.31	444.130	102	99
		85	210	0.17	0.37	447.110	102	99
	8	87.5	218	0.16	0.38	450.090	102	99
		90	211	0.18	0.38	453.070	102	99
	9	92.5	218	0.19	0.40	456.050	102	99
		95	204	0.14	0.30	459.030	102	99
	10	97.5	203	0.21	0.43	462.010	103	99
		100	209	0.21	0.44	464.440	103	99

Calculations for: Northern Pulp Summer Source Testing
Test #3

Client: Northern Pulp
Job Number: 121b11380

Plant: Pictou
Location: Deaerating Tank
Test: PM-3
Date: 23-Aug-14
Personnel: CA/MM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	29.89
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.81
Volume of Water Vapour Collected, Vwc (cu.ft)	48.283
Stack Gas Moisture Content (% as decimal)	0.307
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	27.69

Isokinetic Check

	Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Vs (f/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Ref., Vmn (cu. ft.)	Isokinetic I (%)
Traverse 1	1	2.5	653	0.13	0.28	25.20	30.02	563	0.770	0.752	105.87
	2	5	652	0.12	0.26	24.19	30.02	563	0.760	0.733	107.24
	3	7.5	645	0.13	0.29	25.04	30.02	564	0.800	0.781	109.22
	4	10	651	0.16	0.35	27.91	30.03	564	0.850	0.830	106.10
	5	12.5	657	0.19	0.41	30.56	30.03	564	0.800	0.781	91.12
	6	15	656	0.20	0.38	31.57	30.03	564	0.970	0.946	108.42
	7	17.5	659	0.20	0.37	31.40	30.03	564	0.980	0.955	108.86
	8	20	658	0.17	0.37	28.93	30.03	564	0.920	0.896	110.66
	9	22.5	656	0.18	0.34	29.77	30.03	564	0.960	0.924	110.84
	10	25	653	0.18	0.35	29.65	30.03	564	0.950	0.924	110.52
		27.5	653	0.16	0.34	28.17	30.03	564	0.910	0.885	113.04
		30	659	0.18	0.38	30.01	30.03	564	0.930	0.904	109.42
		32.5	659	0.17	0.36	29.25	30.03	564	0.880	0.855	108.78
		35	658	0.18	0.38	30.01	30.03	564	0.930	0.903	109.22
		37.5	658	0.08	0.17	18.92	30.01	564	0.830	0.811	110.43
		40	659	0.19	0.41	30.80	30.03	564	0.990	0.961	112.33
		42.5	659	0.19	0.41	30.80	30.03	564	0.970	0.941	109.98
		45	658	0.19	0.41	30.53	30.03	564	1.000	0.969	113.00
		47.5	658	0.18	0.38	29.72	30.03	564	0.990	0.959	114.93
		50	662	0.18	0.39	29.86	30.03	564	0.930	0.901	108.48
Traverse 2	1	52.5	665	0.14	0.30	26.39	30.02	568	0.830	0.805	110.08
	2	55	661	0.13	0.28	25.35	30.02	569	0.763	0.738	104.50
	3	57.5	664	0.14	0.30	26.37	30.02	569	0.737	0.713	97.50
	4	60	676	0.16	0.36	30.17	30.03	569	0.860	0.851	103.82
	5	62.5	658	0.15	0.33	27.17	30.02	569	0.820	0.792	104.16
	6	65	655	0.15	0.33	27.11	30.02	569	0.780	0.753	98.84
	7	67.5	661	0.16	0.36	29.83	30.03	569	0.770	0.744	89.49
	8	70	673	0.20	0.43	31.73	30.03	569	0.890	0.860	99.03
	9	72.5	671	0.19	0.41	30.86	30.03	569	0.960	0.928	108.42
	10	75	671	0.19	0.41	30.86	30.03	569	0.950	0.947	111.70
		77.5	669	0.19	0.41	30.84	30.03	569	0.980	0.946	111.43
		80	678	0.19	0.41	31.04	30.03	569	0.960	0.926	109.79
		82.5	662	0.19	0.41	30.67	30.03	569	0.960	0.926	108.49
		85	660	0.17	0.37	28.97	30.03	569	0.870	0.839	103.78
		87.5	678	0.18	0.38	30.21	30.03	569	0.910	0.878	106.92
		90	674	0.18	0.38	30.12	30.03	569	0.950	0.916	111.29
		92.5	678	0.19	0.40	31.04	30.02	569	0.900	0.868	102.93
		95	664	0.14	0.30	26.37	30.03	569	0.850	0.820	112.04
		97.5	662	0.21	0.45	32.25	30.03	569	0.960	0.925	103.11
		100	663	0.23	0.48	34.26	30.04	569	0.980	0.945	102.17
		Total 100	Average 664	Average 0.17	Average 0.36	Average 29.11	Average 30.03	Average 568	Total 35.630	Total 34.530	Average 108.69

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Dissolving Tank
Test: PM-3
Date: 22-Aug-14
Personnel: CAM/MM

Test Start: 8:20AM
Test Finish: 9:20AM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	20.90	0.00	0.0	0	0
5	20.90	0.00	0.0	0	0
10	20.90	0.00	0.0	0	0
15	20.90	0.00	0.0	0	0
20	20.90	0.00	0.0	0	0
25	20.90	0.00	0.0	0	0
30	20.90	0.00	0.0	0	0
Average:	20.90	0.00	0.0	0	0

DATA ENTRY

Northern Pulp
Dissolving Tank
Operating Conditions: Normal
Stack Height from Grade: 51 m
Stack Diameter: 1.22 m

Reference Temperature, Tref (F):	77
(K):	298
Reference Pressure, Pref (in.Hg):	29.92
(Bar):	1.0

Parameter	Symbol	Units	Test 1	Test 2	Test 3	Average
Test ID	-	-	PM-1	PM-2	PM-3	-
Date	-	-	20-Aug-14	21-Aug-14	22-Aug-14	n/a
Start Time	-	-	2:50 PM	8:20 AM	8:10 AM	n/a
End Time	-	-	4:00 PM	10:20 AM	10:00 AM	n/a
Total Sampling Time	-	min	100	100	100	100
Stack Diameter	D	in.	48	48	48	48
Average Stack Gas Temperature	Ts	F	204	202	204	203
Average Dry Gas Meter Temperature	Tm	F	101	97	98	98
Barometric Pressure	Pbar	in.Hg	30.00	30.00	30.00	30.00
Stack Static Pressure	Pstatic	in.H2O	-0.20	-0.20	-0.20	-0.20
Average Pressure Drop (Head)	dP	in.H2O	0.17	0.16	0.17	0.17
Average deltaH Orifice	dH	in.H2O	0.36	0.43	0.38	0.39
Average Meter Temperature	Tm	F	101	97	98	98
Gas Sample Volume	Vm	cu.ft	37.10	39.23	35.63	37.32
Average Isokinetics	I	%	102.2	106.4	107	105
Nozzle Diameter	Dn	in.	0.311	0.311	0.311	0.311
Pitot Coefficient	Cp	-	0.836	0.836	0.836	0.836
Gamma, meter constant	y	-	1.003	1.003	1.003	1.003
Reference Temperature	Tref	R	537	537	537	537
Reference Pressure	Pref	in.Hg	29.92	29.92	29.92	29.92
Stack Gas Oxygen Content	Co2	%	20.9	20.9	20.9	20.9
Stack Gas Carbon Dioxide Content	Cco2	%	0.0	0.0	0.0	0.0
Stack Gas Nitrogen Content	Cn2	%	79.1	79.1	79.1	79.1
Stack Gas Sulphur Dioxide Content	Cso2	ppm	0.0	0.0	0.0	0.0
Stack Gas Nitrogen Oxides Content	Cnox	ppm	0.0	0.0	0.0	0.0
Stack Gas Carbon Monoxide Content	Cco	ppm	0.0	0.0	0.0	0.0
Volume of Water Collected	Vw	mL	809	802	944	851
Particulate Collected from Filter	-	mg	601	443	600	548
Particulate Collected from Probe Wash	-	mg	265	333	88.8	235
Particulate Collected from Impinger Wash	-	mg	85.2	85.5	74.4	75.0
Total Particulate Collected (excluding impingers)	Mp	mg	866	776	687	783

Legend:
F - degrees Fahrenheit
K - degrees Kelvin
Bar - bars
in.Hg - inches of mercury
in. - inches
in.H2O - inches of water
cu.ft - cubic feet
R - degrees Rankin
NOx - as NO2

Northern Pulp
Dissolving Tank
Operating Conditions: Normal
Stack Height from Grade: 51 m
Stack Diameter: 1.22 m

Variable	Symbol	Units	Calculation	Test 1	Test 2	Test 3	Average
Stack Area	As	sq.ft sq.m	As = Pi x ((D/12)^2) / 4 As (sq.m) = As (sq.ft) x 0.0929	12.57 1.17	12.57 1.17	12.57 1.17	12.57 1.17
Barometric Pressure Stack Static Pressure Avg. Stack Temperature Avg. Meter Temperature Nozzle Diameter	Pbar Pstatic Ts Tm Dn	kPa kPa R R mm	Pbar (kPa) = Pbar (in.Hg) x 3.386 Pstatic (kPa) = Pstatic (in.H2O) x 0.249 Ts (R) = Ts (F) + 460 Tm (R) = Tm (F) + 460 Dn (mm) = Dn (in.) x 25.4	101.6 -0.05 664 561 8	101.6 -0.05 682 557 8	101.6 -0.05 684 558 8	101.6 -0.05 683 558.3 8
Gas Meter Pressure Sample Volume at Ref Cond Volume of Water Vapour Water Fraction	Pm Vmc Vwc Bwc	in.Hg cu.ft cu.m cu.ft -	Pm = Pbar + (dH / 13.6) Vmc = Tref/Pref x (Vm x Pm x y) / Tm Vmc (cu.m) = 0.02832 x Vmc (cu.ft) Vwc = 0.0472 x Vw Bwc = Vwc / (Vwc + Vmc)	30.03 35.77 1.01 38.6 0.52	30.03 38.10 1.08 38.5 0.50	30.03 34.53 0.98 45.3 0.57	30.03 36.1 1.02 40.9 0.53
Molecular Weight, Dry Molecular Weight, Wet	Md Ms	lb/lb-mol lb/lb-mol	Md = 0.44 (Co2) + 0.32 (O2) + 0.28 (N2) Ms = Md (1 - Bwc) + (18 x Bwc)	28.8 23.2	28.8 23.4	28.8 22.7	28.8 23.1
Stack Pressure Stack Gas Velocity Actual Stack Gas Flow Rate Dry Stack Gas Flow Rate	Ps Us Q Qs	in.Hg ft/s m/s acfm Rcfm Rcmm	Ps = Pbar + (Pstatic / 13.6) Us = 85.33 x Cp x ((dP x Ts)/(Ps x Ms))^0.5 Us (m/s) = 0.3048 x Us (ft/s) Q = 60 x Us x As Qs = Q x (1-Bwc) x (Tref/Ts) x (Ps/Pref) Qs (Rcmm) = 1.001472 x Qs (Rcfm)	30.0 28.5 8.69 21,498 8,363 3.94	30.0 27.9 8.51 21,048 8,510 4.02	30.0 29.1 8.87 21,952 7,702 3.64	30.0 28.5 8.69 21,499 8,195 3.86
Sulphur Dioxide - SO2 SO2 Measured Concentration Uncorrected @ Ref Cond SO2 Emission Rate	Cso2 Cso2 ERso2	ppm mg/Rcm g/s kg/hr	Measurement from Flue Gas Analyzer Cso2 (mg/Rcm) = Cso2 (ppm) x 2.63 ERso2 = Cso2*1000 x Qs ERso2 (kg/hr) = 3.6 x ERso2 (g/s)	ND ND ND ND	ND ND ND ND	ND ND ND ND	ND ND ND ND
Nitrogen Oxides - NOx NOx Measured Concentration Uncorrected @ Ref Cond NOx Emission Rate	Cnox Cnox ERnox	ppm mg/Rcm g/s kg/hr	Measurement from Flue Gas Analyzer Cnox (mg/Rcm) = Cnox (ppm) x 1.882 ERnox = Cnox/1000 x Qs ERnox (kg/hr) = 3.6 x ERnox (g/s)	ND ND ND ND	ND ND ND ND	ND ND ND ND	ND ND ND ND
Carbon Monoxide - CO CO Measured Concentration Uncorrected @ Ref Cond CO Emission Rate	Cco Cco ERco	ppm mg/Rcm g/s kg/hr	Measurement from Flue Gas Analyzer Cco (mg/Rcm) = Cco (ppm) x 1.145 ERco = Cco/1000 x Qs ERco (kg/hr) = 3.6 x ERco (g/s)	ND ND ND ND	ND ND ND ND	ND ND ND ND	ND ND ND ND
Particulate Concentration Particulate Emission Rate Emission Metric Emission Metric	Cs ERp	mg/Rcm g/s kg/hr adbmt/day kg/adbmt	Cs = Mp / Vmc ERp = Cs/1000 x Qs ERp (kg/hr) = 3.6 x ERp (g/s)	874 3.45 12.41 968 0.31	720 2.89 10.40 890 0.38	702 2.56 9.19 831 0.27	765 2.96 10.67 830 0.31

Legend:
sq.ft - square feet
sq.m - square metres
Pi - 3.142
R - degrees Rankin
ppm - parts per million

in.Hg - inches of mercury
cu.ft - cubic feet
cu.m - cubic metres
Ref Cond - reference temperature and pressure (25 C and 101.3 kPa)
Rcms - dry reference cubic metres per second
Rcfm - dry reference cubic feet per minute

mg/Rcm - milligrams per dry reference cubic metre
g/s - grams per second
NOx - as NO2
acfm - actual cubic feet per minute
adbmt - air dried unbleached metric tonnes

OFFICIAL STACK TESTING RESULTS
Northern Pulp
Dissolving Tank

Operating Conditions: Normal
Stack Height from Grade: 51 m
Stack Diameter: 1.22 m

Parameter	Test 1	Test 2	Test 3	Average	NSENV Limits
Test ID Test Date	PM-1 20-Aug-14	PM-2 21-Aug-14	PM-3 22-Aug-14	- -	- -
Stack Gas Temperature (C) Moisture Content (%) Velocity (m/s) Volumetric Flow (Rcms)	96 52.1 8.69 3.94	95 50.2 8.51 4.02	95 56.7 8.87 3.84	95 53.0 8.69 3.86	- - - -
Oxygen - O2 (%) Carbon Dioxide - CO2 (%)	20.9 0.0	20.9 0.0	20.9 0.0	20.9 0.0	- -
Sulphur Dioxide - SO2 SO2 Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	ND ND ND	ND ND ND	ND ND ND	ND ND ND	- - -
Nitrogen Oxides - NOx NOx Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	ND ND ND	ND ND ND	ND ND ND	ND ND ND	- - -
Carbon Monoxide - CO CO Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	ND ND ND	ND ND ND	ND ND ND	ND ND ND	- - -
Particulate Matter - PM Particulate Concentration (mg/Rcm) Particulate Emission Rate (kg/hr) Particulate Emission Rate (kg/ADUBMT)	874 12.41 0.31	720 10.40 0.36	702 9.19 0.27	765 10.67 0.31	- - 0.50

Legend:
C - degrees Celsius
m/s - metres per second
Rcms - dry reference cubic metres per second
ppm - parts per million
ADUBMT - air dried unbleached metric tonnes
Ref Cond - reference temperature and pressure (25 C and 101.3 kPa)
mg/Rcm - milligrams per dry reference cubic metre
NOx - as NO2
ND - non-detectable

Particulate Recovery: Impinger Catch, Probe Wash, Filter Catch

Client: Northern Pulp
Facility: Pictou
Location: Dewatering Leak
Job Number: T21811209

IMPINGER CATCH

Container ID	Beaker Pre Weights (g) Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Residues Jar + Sample + Rinse (g)	Jar Tare (g)	Sample Collected (g)	Rinse Water (g)	Total Rinse Water (g)	Beaker Post Weights (g) Data Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
G4	112.0777	112.0773		112.0775	PM-1	2059.5	782.0	1277.5	27.3	27.3	112.1626	112.1626		112.1627	0.0852	0.0852
E3	107.3475	107.3472		107.3474	PM-2	2051.2	782.4	1268.8	18.1	18.1	107.4127	107.4129		107.4129	0.0655	0.0655
I3		113.1087	113.1083	113.1080	PM-3	1872.7	757.3	1095.4	29.3	29.3	113.1804	113.1804		113.1804	0.0744	0.0744
E6	107.0487	108.0487		108.0487	WB	632.7	377.4	275.3		275.3	108.0492	108.0490		108.0491	0.0004	Conc. (g/mL) 0.000001

PROBE WASH

Container ID	Beaker Pre Weights (g) Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Residues Jar + Acetone (g)	Jar Tare (g)	Recovered Acetone (g)	Rinse Acetone	Total Acetone (g)	Beaker Post Weights (g) Data Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
B4	107.8907	107.8911		107.8909	PM-1	455.5	380.0	75.5	14.3	89.8	108.1455	108.1455		108.1456	0.2547	0.2547
B5	110.3836	110.3835		110.3835	PM-2	492.2	378.3	83.9	48.7	132.6	110.7170	110.7163		110.7169	0.3334	0.3334
C4	112.6482	112.6484		112.6483	PM-3	461.4	377.2	84.2	4.4	88.6	112.7331	112.7331		112.7331	0.0848	0.0848
V2	109.1748	109.1744		109.1747	AB	477.7	376.7	101.0		101.0	109.1743	109.1744		109.1744	-0.0003	Conc. (g/mL) 0.000000

Density of Acetone: 0.7899 g/ml

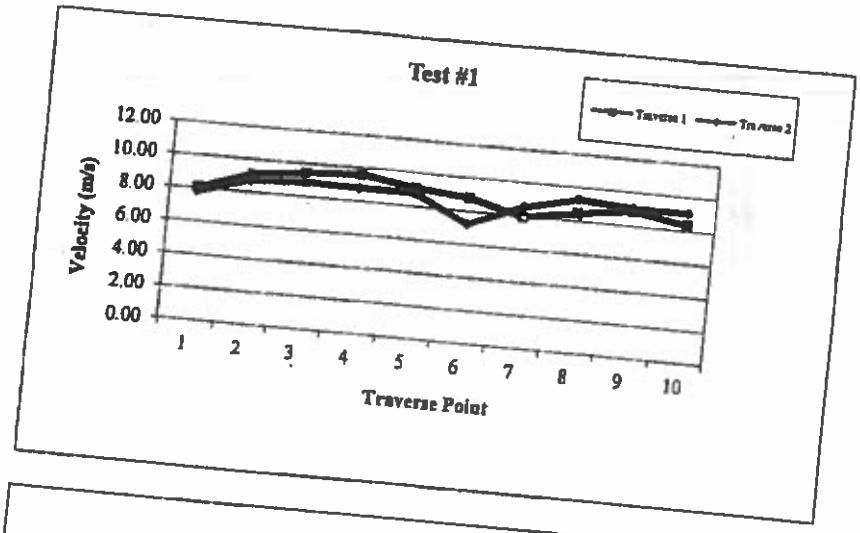
FILTER CATCH

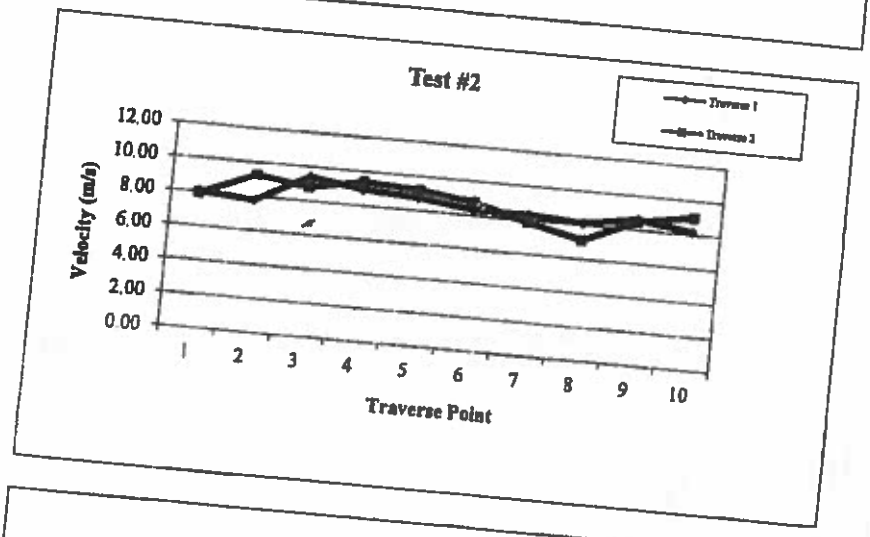
Filter ID	Pre Weights (g) Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Post Weights (g) Analyzed by Trial 1	Trial 2	Trial 3	Average	Particulate Weight from Filter (g)
0518-19	0.3464	0.3464		0.3464	PM-1	0.9480	0.9467	0.9473	0.9473	0.6009
0518-21	0.3462	0.3462		0.3462	PM-2	0.7908	0.7912	0.7917	0.7912	0.4430
0518-7	0.3328	0.3328		0.3328	PM-3	0.9328	0.9337	0.9325	0.9329	0.6001

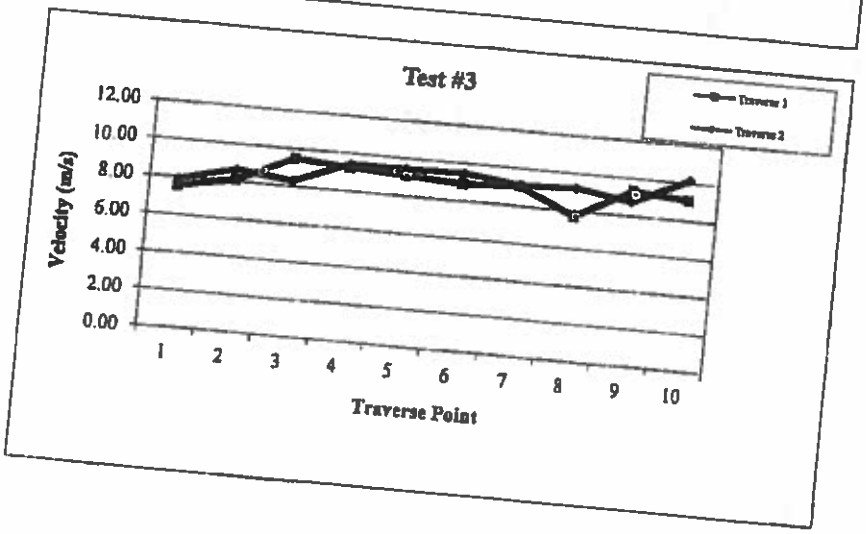
Northern Pulp
Pictou

121511269

Stack Gas Velocity Profiles
Dissolving Tank







Raw Data for: Northern Pulp Summer Source Testing
Test #1

Client: Northern Pulp
Job Number: 121511289

Plant: Potlou
Location: Power Boiler
Test: PM-1
Date: 19-Aug-14
Personnel: CAM/MM

Test Start: 11:00 AM
Test Finish: 1:00 PM

Particulate Collected from Filter (mg):	211.6
Particulate Collected from Probe Wash (mg):	14.7
Particulate Collected from Impinger Wash (mg):	6.6
Total Particulate Collected (mg):	229.8

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	934.7	717.8	217.9
2	100 mL H2O	741.1	705.1	36.0
3	Blank	825.6	820.7	5.3
4	200g Silica Gel	956.8	944.5	12.4
			Total Weight Gain (g)	271.6
			Moisture Volume (mL)	271.6

Parameters

Barometric Pressure, Pbar (in. Hg)	30.00
Stack Static Pressure, Pstatic (in. H2O)	0.20
Ambient Temp, (°F)	65
H2O Volume Collected, Vw (mL)	271.6
Total # Sampling Points,	24
Sampling Time per Point, (min)	1
Readings Taken Every __ mins	2.5
Regulatory Agency	NSDEV

O2, (%)	12.1
CO2, (%)	6.5
N2, (%)	81.4
CO(ppm)	583.0
NOx (ppm)	39.0
SO2 (ppm)	0.0

Stack Diameter, (in.)	71
Stack Area, (sq. ft.)	28.27
Probe Length, (ft.)	8
Nozzle Diameter, (in.)	0.175
Pitot Coefficient, (Cp)	0.817
Gamma, meter constant	1.001
Port length (in.)	6

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1	2.5	144	0.80	0.45	131.520		
		5	144	0.77	0.34	136.270	70	69
	2	7.5	138	0.69	0.39	137.970	69	69
		10	142	0.72	0.40	139.800	68	69
	3	12.5	142	0.66	0.34	140.770	69	69
		15	139	0.79	0.35	141.690	69	69
	4	17.5	142	0.59	0.34	142.570	69	69
		20	142	0.75	0.35	143.370	69	69
	5	22.5	141	0.65	0.34	144.370	69	69
		25	142	0.63	0.34	145.260	69	69
	6	27.5	142	0.84	0.47	146.200	70	69
		30	143	0.87	0.49	147.220	70	69
	7	32.5	141	1.70	0.95	148.240	70	69
		35	143	1.70	0.96	149.180	71	69
	8	37.5	143	1.70	0.96	150.090	71	69
		40	140	1.80	1.00	151.100	71	69
	9	42.5	141	1.80	1.03	152.070	71	69
		45	143	1.80	1.01	153.270	73	69
	10	47.5	142	1.90	1.01	154.260	72	69
		50	141	1.80	1.01	155.210	72	69
	11	52.5	142	1.90	0.96	156.230	71	69
		55	140	0.91	0.52	157.210	71	69
	12	57.5	141	1.50	0.85	158.160	72	69
		60	139	1.70	0.96	159.080	73	70
Traverse 2	1	62.5	139	1.10	0.74	160.400	70	70
		65	137	1.20	0.68	161.160	71	70
	2	67.5	143	1.20	0.63	162.190	71	70
		70	140	1.10	0.62	163.460	72	70
	3	72.5	141	1.10	0.62	164.640	73	70
		75	141	1.05	0.56	165.790	73	70
	4	77.5	144	1.20	0.63	166.990	74	70
		80	141	1.10	0.62	168.180	74	71
	5	82.5	141	1.20	0.68	169.360	74	71
		85	142	1.20	0.68	170.510	76	71
	6	87.5	143	1.20	0.68	171.760	77	72
		90	143	1.20	0.68	172.960	77	72
	7	92.5	141	1.20	0.68	174.230	77	73
		95	141	0.79	0.45	175.250	74	72
	8	97.5	143	0.60	0.34	176.150	78	73
		100	141	0.59	0.34	177.090	78	73
	9	102.5	143	0.60	0.34	178.990	78	74
		105	144	0.46	0.34	179.820	79	74
	10	107.5	144	0.72	0.41	180.800	79	74
		110	144	0.72	0.41	181.780	79	75
	11	112.5	147	0.68	0.39	182.770	79	75
		115	143	0.41	0.24	183.640	79	75
	12	117.5	143	0.61	0.35	184.520	80	75
		120	142	0.68	0.39	185.470	80	75

Calculations for. Northern Pulp Summer Source Testing
Test #1

Client: Northern Pulp
Job Number: 121511200

Plant: Plant
Location: Power Boiler
Test: PM-1
Date: 10-Aug-14
Personnel: CA/MBM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.01
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.92
Volume of Water Vapour Collected, Vwc (cu.ft)	13.037
Stack Gas Moisture Content (% as decimal)	0.100
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	27.38

Isokineticity Checks

	Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Us (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	604	0.80	0.45	53.51	30.03	530	1.050	1.072	113.33
	2	5	604	0.78	0.44	52.83	30.03	529	1.000	1.022	109.41
	3	7.5	598	0.69	0.39	48.44	30.03	529	0.960	0.981	111.10
	4	10	602	0.72	0.40	50.66	30.03	529	0.960	0.982	109.23
	5	12.5	602	0.60	0.34	48.26	30.03	528	0.880	0.901	109.77
	6	15	598	0.59	0.35	46.78	30.03	528	0.920	0.941	116.34
	7	17.5	602	0.59	0.34	46.87	30.03	529	0.880	0.900	110.59
	8	20	602	0.58	0.34	46.46	30.03	529	0.900	0.920	114.08
	9	22.5	602	0.61	0.34	48.84	30.03	528	0.880	0.900	111.24
	10	25	602	0.61	0.34	48.84	30.03	529	0.820	0.830	110.00
	11	27.5	602	0.84	0.47	54.74	30.03	530	1.020	1.042	107.28
	12	30	602	0.87	0.49	55.70	30.04	530	1.040	1.062	107.47
		32.5	604	1.70	0.95	78.00	30.07	530	1.420	1.452	105.27
		35	602	1.70	0.98	77.83	30.07	530	1.440	1.471	108.58
		37.5	603	1.70	0.98	77.83	30.07	530	1.450	1.481	107.30
		40	606	1.80	1.00	80.52	30.08	530	1.470	1.502	108.17
		42.5	602	1.80	1.02	80.12	30.07	531	1.530	1.564	117.03
		45	603	1.80	1.01	80.19	30.07	531	1.540	1.572	110.06
		47.5	602	1.80	1.01	80.12	30.07	531	1.490	1.521	108.98
		50	603	1.80	1.01	80.19	30.07	531	1.510	1.541	108.50
		52.5	602	1.70	0.98	77.87	30.07	531	1.420	1.448	104.80
		55	600	0.94	0.53	57.81	30.04	531	1.120	1.141	110.88
		57.5	601	1.50	0.85	73.08	30.06	531	1.360	1.378	105.06
		60	599	1.79	0.98	77.97	30.07	532	1.440	1.467	105.91
Traverse 2	1	62.5	599	1.30	0.74	67.82	30.06	530	1.320	1.347	111.27
	2	65	597	1.20	0.68	65.15	30.06	531	1.240	1.264	108.50
	3	67.5	602	1.20	0.68	65.42	30.05	531	1.230	1.254	108.07
	4	70	600	1.10	0.62	62.83	30.05	531	1.070	1.090	87.82
	5	72.5	601	1.10	0.62	62.58	30.05	532	1.180	1.201	107.96
	6	75	600	1.00	0.56	59.77	30.04	532	1.150	1.170	110.54
	7	77.5	603	1.20	0.68	65.48	30.05	532	1.200	1.220	108.23
	8	80	601	1.10	0.62	62.58	30.05	533	1.110	1.129	101.29
	9	82.5	601	1.20	0.68	65.37	30.05	534	1.200	1.278	108.99
	10	85	603	1.20	0.68	65.37	30.05	534	1.180	1.207	103.88
	11	87.5	602	1.20	0.68	65.48	30.06	535	1.210	1.225	105.81
	12	90	603	1.20	0.68	65.42	30.05	535	1.240	1.256	108.14
		92.5	602	1.20	0.68	65.48	30.05	535	1.230	1.245	107.35
		95	602	0.79	0.45	53.08	30.03	536	1.020	1.031	108.48
		97.5	602	0.80	0.34	48.26	30.03	536	0.900	0.908	110.70
		100	602	0.59	0.34	45.87	30.03	536	0.900	0.908	111.83
		102.5	603	0.80	0.34	48.30	30.03	536	0.900	0.908	110.68
		105	603	0.80	0.34	48.30	30.03	536	0.880	0.887	108.12
		107.5	606	0.80	0.34	50.84	30.03	537	0.870	0.877	108.09
		110	604	0.72	0.41	50.78	30.03	537	0.860	0.867	108.93
		112.5	607	0.72	0.41	48.45	30.03	537	0.850	0.858	108.92
		115	606	0.69	0.39	47.80	30.03	537	0.820	0.828	109.53
		117.5	603	0.64	0.36	46.66	30.03	538	0.870	0.875	105.82
		120	602	0.61	0.39	48.25	30.03	538	0.950	0.956	109.38
		Total 120	Average 602	Average 1.08	Average 0.60	Average 60.13	Average 30.04	Average 532	Total 54.550	Total 55.400	Average 108.84

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Power Boiler
Test: PM-1
Date: 19-Aug-14
Personnel: CAM/MM

Test Start: 4 00 PM
Test Finish: 4 30 PM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	12.40	6.30	448	0	36
5	12.40	6.10	479	0	37
10	12.50	6.20	541	0	38
15	12.70	6.00	596	0	37
20	12.00	6.70	734	0	40
25	11.70	6.80	685	0	41
30	10.80	7.40	590	0	40
Average:	12.07	6.50	584	0	39

Raw Data for: Northern Pulp Summer Source Testing
Test #2

Client: Northern Pulp
Job Number: 12181209

Plant: Pictou
Location: Power Boiler
Test: PM-1
Date: 13-Aug-14
Personnel: CM/MM

Test Start: 3:00 PM
Test Finish: 3:08 PM

Parameters
Barometric Pressure, Pbar (in. Hg) 30.02
Stack Static Pressure, Pstatic (in. H2O) 0.28
Ambient Temp. (°F) 61
H2O Volume Collected, Vw (mL) 263.2
Total # Sampling Points, 24
Sampling Time per Point, (min) 5
Readings Taken Every ___ minu 2.5
Regulatory Agency NSENV

Particulate Collected from Filter (mg):	257.7
Particulate Collected from Probe Wash (mg):	4.6
Particulate Collected from Impinger Wash (mg):	4.3
Total Particulate Collected (mg):	264.2

O2, (%)	13.8
CO2, (%)	5.4
N2, (%)	80.8
CO(ppm)	836.1
NOx (ppm)	30.4
SO2 (ppm)	0.0

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	865.3	789.7	225.6
2	100 mL H2O	738.6	711.5	24.1
3	Blank	695.2	671.7	3.5
4	200g Silica Gel	986.0	958.0	10.0
			Total Weight Gain (g)	263.2
			Moisture Volume (mL)	263.2

Stack Diameter, (in.)	72
Stack Area, (sq. ft.)	28.27
Probe Length, (ft.)	8
Nozzle Diameter, (in.)	0.173
Pitot Coefficient, (Cp)	0.817
Gamma, meter constant	1.003
Port length (in.)	6

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1	2.5	145	1.10	0.61	230.760	76	75
		5	153	1.00	0.57	231.950	75	75
		7.5	151	1.00	0.57	233.200	76	75
	2	10	142	0.99	0.63	234.300	76	75
		12.5	141	0.97	0.55	235.290	77	75
	4	15	144	0.97	0.54	236.640	77	76
		17.5	143	0.97	0.56	237.480	78	76
	5	20	141	0.97	0.56	238.410	78	76
		22.5	139	1.00	0.56	239.700	78	76
	6	25	140	0.97	0.57	240.880	78	76
		27.5	137	1.00	0.56	242.030	78	76
	7	30	140	0.96	0.57	243.130	78	77
		32.5	142	0.95	0.55	244.150	78	77
	8	35	142	0.92	0.56	245.280	79	77
		37.5	145	0.92	0.56	246.110	79	77
	9	40	145	0.94	0.51	247.190	79	77
		42.5	146	0.94	0.53	248.370	79	78
	10	45	139	0.90	0.53	249.540	78	78
		47.5	141	0.89	0.52	250.380	78	78
	11	50	141	0.89	0.52	251.110	78	78
		52.5	145	0.94	0.51	252.490	78	77
	12	55	141	0.93	0.51	253.640	78	77
		57.5	139	0.90	0.51	254.100	77	77
		60	136	0.90	0.54	254.150	76	77
			141	0.90	0.28	254.970	76	77
					0.29	255.790	76	77
Traverse 2	1	62.5	132	0.82	0.46	256.620	77	77
		65	132	0.81	0.50	257.523	78	77
	2	67.5	131	0.80	0.56	258.800	79	77
		70	131	0.81	0.56	259.890	80	78
	3	72.5	133	0.83	0.56	261.310	80	78
		75	136	0.86	0.50	262.140	80	78
	4	77.5	137	0.86	0.51	263.200	81	78
		80	137	0.83	0.51	264.053	82	78
	5	82.5	139	0.83	0.51	265.310	82	78
		85	139	0.83	0.52	266.730	82	78
	6	87.5	139	0.80	0.25	267.630	82	79
		90	141	0.83	0.14	268.490	83	79
	7	92.5	144	0.79	0.39	269.670	84	79
		95	147	0.80	0.41	270.890	84	79
	8	97.5	147	0.80	0.42	272.070	84	79
		100	146	1.00	0.41	273.670	84	80
	9	102.5	147	1.77	0.97	274.890	83	80
		105	147	1.78	0.97	276.490	83	80
	10	107.5	146	1.78	0.96	277.960	84	81
		110	143	1.78	0.97	279.390	84	81
	11	112.5	141	1.79	0.98	280.870	83	80
		115	147	1.78	0.98	282.490	83	80
	12	117.5	147	1.78	0.98	283.790	83	81
		120	147	1.78	0.98	285.260	83	81
			149	1.79	0.98	286.715	84	81
				1.80	0.74	288.170	84	81
						289.490	84	81

Calculations for: Northern Pulp Burner Source Testing
Test #2

Client: Northern Pulp
Job Number: 121611.39

Plant: Pictou
Location: Power Boiler
Test: PM-2
Date: 19 Aug-14
Personnel: CAMMM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.01
Stack Gas Molecular Weight, Dry Basis, Md (lbm-mole)	29.41
Volume of Water Vapour Collected, Vwc (cu.ft)	12.664
Stack Gas Moisture Content (% as decimal)	0.199
Stack Gas Molecular Weight, Wet Basis, Ms (lbm-mole)	27.14

Isokineticity Checks

Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (F)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Us (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (F)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Ref., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	603	1.10	0.63	62.81	30.05	539	1.190	1.195	108.46
		5	603	1.00	0.57	59.96	30.04	538	1.140	1.148	108.06
	2	7.5	603	1.00	0.57	59.96	30.04	538	1.110	1.118	108.19
		10	602	0.99	0.53	59.63	30.05	538	1.080	1.087	104.82
	3	12.5	605	0.87	0.56	58.18	30.04	538	1.120	1.127	109.08
		15	604	0.85	0.54	58.51	30.04	538	1.080	1.088	108.08
	4	17.5	600	0.87	0.56	58.83	30.04	538	1.120	1.128	109.51
		20	601	0.87	0.56	58.86	30.04	538	1.130	1.138	109.57
	5	22.5	602	1.00	0.57	58.93	30.04	538	1.140	1.147	109.97
		25	600	0.87	0.56	58.83	30.04	538	1.120	1.127	109.81
	6	27.5	597	1.00	0.57	58.83	30.04	538	1.150	1.157	109.57
		30	604	0.90	0.56	58.82	30.04	538	1.130	1.138	110.41
	7	32.5	602	0.52	0.30	43.22	30.02	538	0.850	0.854	112.50
		35	602	0.52	0.30	43.22	30.03	538	0.860	0.863	113.83
	8	37.5	605	0.44	0.25	39.89	30.02	538	0.770	0.774	111.25
		40	605	0.44	0.25	39.86	30.02	538	0.780	0.783	112.50
	9	42.5	598	0.48	0.28	41.81	30.02	538	0.790	0.794	107.54
		45	601	0.49	0.29	41.82	30.02	538	0.780	0.784	108.44
	10	47.5	604	0.54	0.31	44.12	30.02	538	0.770	0.774	100.35
		50	603	0.54	0.31	44.08	30.02	538	0.780	0.784	98.97
	11	52.5	605	0.58	0.33	45.78	30.02	538	0.780	0.784	95.88
		55	604	0.59	0.34	46.11	30.03	538	0.750	0.754	93.52
	12	57.5	606	0.50	0.28	42.49	30.02	538	0.820	0.824	111.14
		60	604	0.50	0.29	42.46	30.02	538	0.810	0.814	109.70
Traverse 2	1	62.5	612	0.82	0.46	54.72	30.03	537	1.040	1.047	110.86
		65	612	0.85	0.46	55.71	30.04	538	1.060	1.066	110.88
	2	67.5	611	0.83	0.36	47.93	30.03	538	0.820	0.824	111.58
		70	611	0.83	0.36	47.93	30.03	539	0.880	0.882	108.51
	3	72.5	613	0.53	0.30	44.03	30.02	539	0.830	0.832	109.80
		75	616	0.68	0.31	45.37	30.02	539	0.830	0.832	108.97
	4	77.5	607	0.55	0.31	44.63	30.02	540	0.880	0.882	110.92
		80	607	0.55	0.31	44.63	30.02	540	0.880	0.882	110.92
	5	82.5	607	0.61	0.36	47.00	30.03	541	0.850	0.850	103.92
		85	604	0.59	0.34	46.11	30.03	541	0.840	0.840	104.16
	6	87.5	605	0.80	0.34	46.54	30.03	541	0.900	0.900	110.76
		90	604	0.79	0.45	53.36	30.03	541	1.040	1.038	111.37
	7	92.5	607	0.80	0.46	53.83	30.03	542	0.980	0.978	104.45
		95	607	1.80	0.81	78.13	30.07	543	1.360	1.357	102.42
	8	97.5	606	1.70	0.87	78.40	30.07	542	1.460	1.458	106.70
		100	607	1.70	0.87	78.47	30.07	542	1.450	1.448	106.05
	9	102.5	607	1.70	0.87	78.47	30.07	543	1.450	1.447	105.98
		105	606	1.70	0.87	78.40	30.07	543	1.480	1.477	108.06
	10	107.5	605	1.70	0.86	78.34	30.07	543	1.460	1.458	106.42
		110	605	1.70	0.86	78.34	30.07	543	1.460	1.458	106.42
	11	112.5	607	1.70	0.86	78.47	30.07	544	1.470	1.464	107.22
		115	607	1.70	0.86	78.47	30.07	544	1.460	1.444	106.78
	12	117.5	607	1.70	0.86	78.47	30.07	544	1.460	1.454	106.48
		120	606	1.30	0.74	68.88	30.05	544	1.320	1.314	110.13
		Total	Average	Average	Average	Average	Average	Average	Total	Total	Average
		120	605	0.93	0.54	58.52	30.04	539	50.730	50.834	107.45

Raw Data for: Northern Pulp Summer Source Testing
Test #3

Client: Northern Pulp
Job Number: 121911288

Plant: Pilot
Location: Heavy Boiler
Test: PM-3
Date: 28-Aug-14
Personnel: CAMBM

Test Start: 9:12 AM
Test Finish: 11:20 AM

Particulate Collected from Filter (mg):	2.8 0
Particulate Collected from Probe Wash (mg):	19 8
Particulate Collected from Impinger Wash (mg):	6 3
Total Particulate Collected (mg):	267.8

Impinger No.	Impinger Contents	Final Weight (g)	Tare Weight (g)	Weight of Moisture (g)
1	100 mL H2O	823 5	724 3	199.2
2	100 mL H2O	730 2	606 5	23.7
3	Stack	624 1	621 5	2.6
4	200g Silica Gel	975 8	966.5	9.3

Total Weight Gain (g)	234.8
Moisture Volume (mL)	234.8

Parameters

Barometric Pressure, Pbar (in. Hg)	30 09	O2, (%)	13.7	Stack Diameter, (in.)	72
Stack Static Pressure, Pstatic (in. H2O)	0 26	CO2, (%)	5.3	Stack Area, (sq. ft.)	28.27
Ambient Temp, (°F)	63	N2, (%)	81.0	Probe Length, (ft.)	8
H2O Volume Collected, Vw (mL)	234.80	CO(ppm)	582.3	Nozzle Diameter, (in.)	0.173
Total # Sampling Points,	3	NOx (ppm)	28.7	Pitot Coefficient, (Cp)	0.917
Sampling Time per Point, (min)	4	SO2 (ppm)	0.0	Gamma, meter constant	1.003
Readings Taken Every __ mins	3.5			Port length (in.)	6
Regulatory Agency	NSENV				

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)	Orifice delta H (in. H2O)	Gas Meter Volume (cu. ft.)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)
Traverse 1	1	2.5	144	0.66	0.27	264.820	75	72
		5	146	0.65	0.27	265.910	72	72
	2	7.5	148	0.67	0.25	266.810	73	72
		10	149	0.67	0.26	267.700	74	72
	3	12.5	149	0.46	0.26	268.570	73	72
		15	146	0.46	0.26	269.390	74	72
	4	17.5	146	0.41	0.23	270.040	74	73
		20	147	0.42	0.23	270.630	74	73
	5	22.5	146	0.46	0.26	271.270	75	73
		25	149	0.69	0.37	272.460	75	71
	6	27.5	146	0.63	0.37	273.460	75	72
		30	146	0.66	0.37	274.310	75	73
	7	32.5	149	1.40	0.79	275.190	76	73
		35	149	1.46	0.79	276.110	76	74
	8	37.5	144	1.40	0.80	276.980	77	74
		40	144	1.50	0.81	277.930	78	74
	9	42.5	144	1.50	0.83	278.870	78	74
		45	145	1.56	0.85	280.770	79	75
	10	47.5	144	1.68	0.91	281.760	80	75
		50	145	1.58	0.94	282.910	80	75
	11	52.5	146	1.53	0.85	284.270	80	75
		55	146	1.50	0.85	285.390	81	75
	12	57.5	148	1.48	0.80	286.520	81	76
		60	147	1.30	0.74	287.290	82	77
Traverse 2	1	62.5	146	1.08	0.47	289.430	77	76
		65	146	1.08	0.47	290.970	78	77
	2	67.5	145	1.08	0.47	291.340	78	77
		70	141	0.97	0.46	291.674	80	77
	3	72.5	144	0.95	0.44	292.950	81	77
		75	141	0.94	0.44	293.890	81	77
	4	77.5	146	0.98	0.46	296.230	81	78
		80	141	0.90	0.51	297.110	82	78
	5	82.5	144	0.89	0.51	298.130	82	78
		85	144	0.92	0.55	299.160	83	78
	6	87.5	142	0.99	0.57	300.700	83	78
		90	142	0.96	0.49	302.610	84	78
	7	92.5	142	0.87	0.38	303.794	83	79
		95	141	0.80	0.34	305.670	84	79
	8	97.5	144	0.46	0.26	306.330	82	79
		100	144	0.46	0.26	306.770	84	79
	9	102.5	144	0.46	0.26	306.160	84	80
		105	143	0.43	0.30	306.940	84	80
	10	107.5	143	0.47	0.27	307.780	84	81
		110	141	0.47	0.27	308.580	85	81
	11	112.5	142	0.47	0.27	309.320	85	81
		115	141	0.46	0.27	310.130	85	80
	12	117.5	139	0.47	0.27	310.950	85	81
		120	142	0.47	0.27	311.760	86	81

Calculations for: Northern Pulp Summer Source Testing
Test #3

Client: Northern Pulp
Job Number: 1215\1200

Plant: Pictou
Location: Power Boiler
Test: PM-3
Date: 20-Aug-14
Personnel: CA/MM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	30.01
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	29.40
Volume of Water Vapour Collected, Vwc (cu.ft)	11.276
Stack Gas Moisture Content (% as decimal)	0.184
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	27.31

Isokinetic Checks

	Check average	Within Criteria

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Orifice delta H (in. H2O)	Stack Gas Velocity, Vs (ft/s)	Meter Press., Pm (in. Hg)	Gas Meter Avg. Temp, Tm (R)	Gas Meter Volume, Vm (cu. ft.)	Gas Meter Vol. @ Std., Vmc (cu. ft.)	Isokinetics I (%)
Traverse 1	1	2.5	604	0.88	0.37	48.82	30.03	533	0.950	0.983	111.20
	2	5	608	0.85	0.37	48.33	30.03	532	0.940	0.985	111.27
	3	7.5	608	0.57	0.32	45.33	30.02	533	0.890	0.982	112.40
	4	10	605	0.57	0.32	45.32	30.02	533	0.880	0.983	112.29
	5	12.5	606	0.48	0.26	40.82	30.02	533	0.810	0.822	113.74
	6	15	606	0.48	0.26	40.88	30.02	533	0.780	0.791	109.52
	7	17.5	607	0.41	0.23	38.36	30.02	534	0.750	0.760	111.43
	8	20	608	0.42	0.24	38.68	30.02	534	0.810	0.820	119.00
	9	22.5	609	0.48	0.28	40.86	30.02	534	0.770	0.779	107.91
	10	25	608	0.49	0.27	42.07	30.02	534	0.830	0.840	112.98
	11	27.5	608	0.85	0.37	48.33	30.03	534	0.960	0.962	112.03
	12	30	608	0.88	0.37	48.70	30.03	534	0.910	0.921	108.50
		32.5	603	1.40	0.79	70.75	30.03	535	1.220	1.235	97.80
		35	605	1.40	0.79	70.87	30.06	535	1.380	1.398	110.70
		37.5	604	1.40	0.80	70.81	30.06	536	1.290	1.304	103.30
		40	604	1.50	0.85	73.30	30.06	536	1.330	1.343	102.81
		42.5	604	1.50	0.85	73.30	30.06	536	1.340	1.353	103.50
		45	605	1.50	0.85	73.70	30.06	537	1.300	1.310	100.39
		47.5	604	1.60	0.91	75.70	30.07	537	1.390	1.400	103.78
		50	604	1.60	0.91	73.43	30.07	538	1.380	1.391	103.11
		52.5	606	1.50	0.85	73.43	30.08	538	1.330	1.339	102.89
		55	606	1.50	0.85	70.87	30.08	538	1.320	1.328	101.83
		57.5	606	1.40	0.80	68.18	30.08	539	1.330	1.336	108.00
		60	603	1.30	0.74		30.08	540	1.280	1.294	105.49
Traverse 2	1	62.5	606	1.00	0.57	58.95	30.04	537	1.220	1.230	115.51
	2	65	606	1.00	0.57	59.06	30.04	538	1.170	1.177	110.57
	3	67.5	605	1.00	0.57	59.90	30.04	538	1.150	1.157	108.69
	4	70	601	0.97	0.56	58.80	30.04	539	1.090	1.095	103.28
	5	72.5	604	0.98	0.56	58.04	30.04	539	1.120	1.124	107.54
	6	75	604	0.98	0.58	59.25	30.04	539	1.140	1.144	108.34
	7	77.5	604	0.98	0.58	59.25	30.04	540	1.140	1.143	108.34
	8	80	605	0.90	0.61	58.82	30.04	540	1.080	1.081	108.98
	9	82.5	604	0.89	0.51	58.46	30.04	541	1.100	1.101	109.48
	10	85	604	0.89	0.58	58.84	30.04	541	1.150	1.151	110.12
	11	87.5	602	0.90	0.57	58.45	30.04	541	1.140	1.141	107.32
	12	90	602	0.90	0.55	58.54	30.03	541	1.140	1.140	108.88
		92.5	603	0.89	0.38	48.86	30.03	542	0.840	0.839	107.51
		95	603	0.87	0.34	40.32	30.02	541	0.890	0.888	107.45
		97.5	604	0.80	0.26	40.59	30.02	542	0.880	0.879	121.53
		100	604	0.48	0.28	40.80	30.02	542	0.820	0.818	113.14
		102.5	604	0.48	0.29	40.60	30.02	542	0.790	0.788	108.60
		105	605	0.48	0.30	43.61	30.02	543	0.790	0.779	100.28
		107.5	603	0.53	0.27	41.00	30.02	543	0.790	0.787	107.56
		110	603	0.47	0.27	41.00	30.02	543	0.770	0.768	104.73
		112.5	602	0.47	0.27	40.98	30.02	543	0.820	0.818	111.44
		115	601	0.47	0.27	40.49	30.02	544	0.830	0.827	114.03
		117.5	602	0.48	0.27	40.98	30.02	544	0.800	0.795	108.82
		120	602	0.47	0.27	40.98	30.02	544	0.810	0.805	109.98
		Total 120	Average 604	Average 0.67	Average 0.49	Average 54.32	Average 30.04	Average 538	Total 49.730	Total 50.007	Average 108.38

Combustion Gas Data for: **Northern Pulp**

Client: Northern Pulp
Job Number: 121511269

Plant: Pictou
Location: Power Boiler
Test: PM-3
Date: 20-Aug-14
Personnel: CAM/MM

Test Start: 11 44 AM
Test Finish: 12 15 PM

Time (min)	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
0	13.40	5.60	727	0	30
5	13.50	5.50	1033	0	30
10	13.60	5.40	848	0	29
15	14.10	5.00	917	0	27
20	14.20	5.00	848	0	27
25	13.80	5.40	823	0	28
30	13.50	5.50	788	0	30
Average:	13.70	5.34	882	0	29

DATA ENTRY

Northern Pulp
Power Boiler
Fuel: Biomass
Operating Conditions: Normal
Emission Control Equipment: Scrubber
Stack Diameter: 1.83 m

Reference Temperature, Tref (F):	77
(K):	298
Reference Pressure, Pref (in.Hg):	29.92
(Bar):	1.0

Parameter	Symbol	Units	Test 1	Test 2	Test 3	Average
Test ID	-	-	PM-1	PM-2	PM-3	-
Date	-	-	18-Aug-14	19-Aug-14	20-Aug-14	n/a
Start Time	-	-	11:00 AM	3:00 PM	9:12 AM	n/a
End Time	-	-	1:00 PM	5:08 PM	11:20 AM	n/a
Total Sampling Time	-	min	120	120	120	120
Stack Diameter	D	in.	72	72	72	72
Average Stack Gas Temperature	Ts	F	142	145	144	144
Average Dry Gas Meter Temperature	Tm	F	72	79	78	78
Barometric Pressure	Pbar	in.Hg	30.00	30.00	30.00	30.00
Stack Static Pressure	Pstatic	in.H2O	0.20	0.20	0.20	0.20
Average Pressure Drop (Head)	dP	in.H2O	1.06	0.93	0.87	0.95
Average deltaH Orifice	dH	in.H2O	0.60	0.54	0.49	0.54
Average Meter Temperature	Tm	F	72	79	78	76
Gas Sample Volume	Vm	cu.ft	54.6	50.7	49.7	51.7
Average Isokinetics	I	%	106.6	107.5	108.4	106.2
Nozzle Diameter	Dn	in.	0.173	0.173	0.173	0.173
Pitot Coefficient	Cp	-	0.817	0.817	0.817	0.817
Gamma, meter constant	y	-	1.003	1.003	1.003	1.003
Reference Temperature	Tref	R	537	537	537	537
Reference Pressure	Pref	in.Hg	29.92	29.92	29.92	29.92
Stack Gas Oxygen Content	Co2	%	12.1	13.8	13.7	13.2
Stack Gas Carbon Dioxide Content	Cco2	%	6.5	5.4	5.3	5.7
Stack Gas Nitrogen Content	Cn2	%	81.4	80.9	81.0	81.1
Stack Gas Sulphur Dioxide Content	Cso2	ppm	0.0	0.0	0.0	0.0
Stack Gas Nitrogen Oxides Content	Cnox	ppm	39.0	30.4	28.7	32.7
Stack Gas Carbon Monoxide Content	Cco	ppm	584	936	882	801
Volume of Water Collected	Vw	mL	272	283	234.8	257
Particulate Collected from Filter	-	mg	215	288	248	250
Particulate Collected from Probe Wash	-	mg	14.65	6.50	19.6	13.8
Particulate Collected from Impinger Wash	-	mg	5.57	4.29	6.34	5.40
Total Particulate Collected (excluding impingers)	Mp	mg	230	294	268	284

Legend:
F - degrees Fahrenheit
K - degrees Kelvin
Bar - bars
in.Hg - inches of mercury
in. - inches
in.H2O - inches of water
cu.ft - cubic feet
R - degrees Rankin
NOx - as NO2

CALCULATIONS

Northern Pulp
Power Boiler
Fuel: Biomass
Operating Conditions: Normal
Emission Control Equipment: Scrubber
Stack Diameter: 1.83 m

Variable	Symbol	Units	Calculation	Test 1	Test 2	Test 3	Average
Stack Area	As	sq.ft	As = Pi x (D/12)^2 / 4	26.27	26.27	26.27	26.27
		sq.m	As (sq.m) = As (sq.ft) x 0.0929	2.63	2.63	2.63	2.63
Barometric Pressure	Pbar	kPa	Pbar (kPa) = Pbar (in.Hg) x 3.386	101.6	101.6	101.6	101.6
Stack Static Pressure	Pstatic	kPa	Pstatic (kPa) = Pstatic (in.H2O) x 0.249	0.05	0.05	0.05	0.05
Avg. Stack Temperature	Ts	R	Ts (R) = Ts (F) + 460	602	605	604	604
Avg. Meter Temperature	Tm	R	Tm (R) = Tm (F) + 460	532	539	538	538
Nozzle Diameter	Dn	mm	Dn (mm) = Dn (in.) x 25.4	4	4	4	4
Gas Meter Pressure	Pm	in.Hg	Pm = Pbar + (dH / 13.6)	30.04	30.04	30.04	30.04
Sample Volume at Ref Cond	Vmc	cu.ft	Vmc = Tref/Pref x (Vm x Pm x y) / Tm	55.46	50.86	49.89	52.1
		cu.m	Vmc (cu.m) = 0.02832 x Vmc (cu.ft)	1.57	1.44	1.42	1.48
Volume of Water Vapour	Vwc	cu.ft	Vwc = 0.0468 x Vw	13.0	12.6	11.27	12.31
Water Fraction	Bwo	-	Bwo = Vwc / (Vwc + Vmc)	0.190	0.199	0.184	0.19
Molecular Weight, Dry	Md	lb/lb-mol	Md = 0.44 (Co2) + 0.32 (Co2) + 0.28 (Co2)	29.52	29.41	29.40	29.4
Molecular Weight, Wet	Ms	lb/lb-mol	Ms = Md (1 - Bwo) + (18 x Bwo)	27.33	27.14	27.31	27.3
Stack Pressure	Ps	in.Hg	Ps = Pbar + (Pstatic / 13.6)	30.01	30.01	30.01	30.01
Stack Gas Velocity	Us	ft/s	Us = 85.33 x Cp x ((dP x Ts)/(Ps x Ms))^0.5	60.1	56.5	54.3	57.0
		m/s	Us (m/s) = 0.3048 x Us (ft/s)	18.3	17.2	16.6	17.4
Actual Stack Gas Flow Rate	Q	acfm	Q = 60 x Us x As	102,008	95,878	92,144	96,877
Dry Stack Gas Flow Rate	Qs	Rcfm	Qs = Q x (1-Bwo) x (Tref/Ts) x (Ps/Pref)	73,884	68,361	67,022	69,756
		Rcms	Qs (Rcms) = 0.000472 x Qs (Rcfm)	34.9	32.3	31.6	32.9
Sulphur Dioxide - SO1							
SO2 Measured Concentration	Cso2	ppm	Measurement from Flue Gas Analyzer	ND	ND	ND	ND
Uncorrected @ Ref Cond	Cso2	mg/Rcm	Cso2 (mg/Rcm) = Cso2 (ppm) x 2.62	ND	ND	ND	ND
SO2 Emission Rate	ERso2	g/s	ERso2 = Cso2/1000 x Qs	ND	ND	ND	ND
		kg/hr	ERso2 (kg/hr) = 3.6 x ERso2 (g/s)	ND	ND	ND	ND
SO2 Concentration							
Corrected to 11% O2	Cso2	mg/Rcm	Cso2 (11% O2) = Cso2 (mg/Rcm) x (20.9-11) / (20.9-Co2)	ND	ND	ND	ND
Corrected to 3% O2	Cso2	mg/Rcm	Cso2 (3% O2) = Cso2 (mg/Rcm) x (20.9-3) / (20.9-Co2)	ND	ND	ND	ND
Corrected to 12% CO2	Cso2	mg/Rcm	Cso2 (12% CO2) = Cso2 (mg/Rcm) x (12/Cco2)	ND	ND	ND	ND
Nitrogen Oxides - NOx							
NOx Measured Concentration	Cnox	ppm	Measurement from Flue Gas Analyzer	39.0	30.4	28.7	32.7
Uncorrected @ Ref Cond	Cnox	mg/Rcm	Cnox (mg/Rcm) = Cnox (ppm) x 1.882	73	57	54	62
NOx Emission Rate	ERnox	g/s	ERnox = Cnox/1000 x Qs	2.56	1.85	1.71	2.04
		kg/hr	ERnox (kg/hr) = 3.6 x ERnox (g/s)	9.2	6.7	6.2	7.3
NOx Concentration							
Corrected to 11% O2	Cnox	mg/Rcm	Cnox (11% O2) = Cnox (mg/Rcm) x (20.9-11) / (20.9-Co2)	82	79	74	78
Corrected to 3% O2	Cnox	mg/Rcm	Cnox (3% O2) = Cnox (mg/Rcm) x (20.9-3) / (20.9-Co2)	149	143	134	142
Corrected to 12% CO2	Cnox	mg/Rcm	Cnox (12% CO2) = Cnox (mg/Rcm) x (12/Cco2)	136	128	121	128
Carbon Monoxide - CO							
CO Measured Concentration	Cco	ppm	Measurement from Flue Gas Analyzer	584	936	862	801
Uncorrected @ Ref Cond	Cco	mg/Rcm	Cco (mg/Rcm) = Cco (ppm) x 1.146	669	1072	1010	917
CO Emission Rate	ERco	g/s	ERco = Cco/1000 x Qs	23.3	34.59	31.98	30.0
		kg/hr	ERco (kg/hr) = 3.6 x ERco (g/s)	83.9	124.5	115.0	107.8
CO Concentration							
Corrected to 11% O2	Cco	mg/Rcm	Cco (11% O2) = Cco (mg/Rcm) x (20.9-11) / (20.9-Co2)	750	1485	1389	1208
Corrected to 3% O2	Cco	mg/Rcm	Cco (3% O2) = Cco (mg/Rcm) x (20.9-3) / (20.9-Co2)	1355	2685	2512	2184
Corrected to 12% CO2	Cco	mg/Rcm	Cco (12% CO2) = Cco (mg/Rcm) x (12/Cco2)	1234	2401	2269	1968
Particulate Concentration	Cp	mg/Rcm	Cp = Mp / Vmc	146.2	204	189.0	179.8
Particulate Emission Rate	ERp	g/s	ERp = Cp/1000 x Qs	5.10	6.59	5.98	5.89
		kg/hr	ERp (kg/hr) = 3.6 x ERp (g/s)	18.3	23.7	21.5	21.2
Particulate Concentration							
Corrected to 11% O2	Cp	mg/Rcm	Cp (11% O2) = Cp x (20.9-11) / (20.9-Co2)	184	293	258.9	235.6
Corrected to 3% O2	Cp	mg/Rcm	Cp (3% O2) = Cp x (20.9-3) / (20.9-Co2)	298	512	470	426
Corrected to 12% CO2	Cp	mg/Rcm	Cp (12% CO2) = Cp x (12/Cco2)	270	458	424	383.9

Legend:
sq.ft - square feet
sq.m - square metres
Pi - 3.142
R - degrees Rankin
ppm - parts per million

in.Hg - inches of mercury
cu.ft - cubic feet
cu.m - cubic metres
Ref Cond - reference temperature and pressure (25 C and 101.3 kPa)
Rcms - dry reference cubic metres per second
Rcfm - dry reference cubic feet per minute

mg/Rcm - milligrams per dry reference cubic metre
g/s - grams per second
NOx - as NO2
acfm - actual cubic feet per minute

OFFICIAL STACK TESTING RESULTS
Northern Pulp
Power Boiler

Fuel: Biomass
Operating Conditions: Normal
Emission Control Equipment: Scrubber
Stack Diameter: 1.83 m

Parameter	Test 1	Test 2	Test 3	Average	NSENV Limits
Test ID Test Date	PM-1 19-Aug-14	PM-2 19-Aug-14	PM-3 20-Aug-14	- -	- -
Stack Gas Temperature (C) Moisture Content (%) Velocity (m/s) Volumetric Flow (Rcms)	61 19.0 18.3 34.9	63 19.9 17.2 32.3	62 18.40 16.6 31.6	62 19.1 17.4 32.9	- - - -
Oxygen - O2 (%) Carbon Dioxide - CO2 (%)	12.1 6.50	13.8 5.36	13.7 5.34	13.2 5.73	- -
Sulphur Dioxide - SO2 SO2 Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	ND ND ND	ND ND ND	ND ND ND	ND ND ND	- - -
Nitrogen Oxides - NOx NOx Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	39.0 73.4 9.21	30.4 57.3 6.65	28.7 54.0 6.15	32.7 61.6 7.34	- - -
Carbon Monoxide - CO CO Measured Concentration (ppm) Uncorrected at Ref Cond (mg/Rcm) Emission Rate (kg/hr)	584 669 83.9	936 1072 125	882 1010 115	801 917 108	- - -
Particulate Matter - PM Uncorrected at Ref Cond (mg/Rcm) PM - Corrected to 11% O2 (mg/Rcm) Particulate Emission Rate (kg/hr)	146 164 18.3	204 283 23.7	189 260 21.5	180 236 21.2	- 150 -

Legend:
C - degrees Celsius
m/s - metres per second
Rcms - dry reference cubic metres per second
ppm - parts per million
Ref Cond - reference temperature and pressure (25 C and 101.3 kPa)
mg/Rcm - milligrams per dry reference cubic metre
NOx - as NO2
ND - non-detectable

Particulate Recovery: Impinger Catch, Probe Wash, Filter Catch

Client: Nothing Pulp
Facility: Pepsi
Location: Power Boiler
Job Number: [illegible]

IMPINGER CATCH

Container ID	Beaker Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Recoveries Jar + Sample + Rinse (g)	Jar Tare (g)	Sample Collected (g)	Rinse Water (g)	Total Rinse Water (g)	Beaker Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
H5	112.1872	112.1874		112.1873	PM-1	812.3	378.1	434.2	8.7	8.7	112.1928	112.1930		112.1929	0.0056	0.0056
D3	107.1850	107.1852		107.1851	PM-2	791.3	378.4	382.9	17.1	17.1	107.1894	107.1895		107.1895	0.0044	0.0043
I5	107.6486	107.6487		107.6486	PM-3	702.6	378.3	322.7	18.4	18.4	107.6550	107.6553		107.6552	0.0064	0.0063
																Corr. Total
E6	108.0487	108.0482		108.0485	WB	652.7	377.4	275.3	0.0	275.3	108.0493	108.0495		108.0494	0.0009	0.000003

PROBE WASH

Container ID	Beaker Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Recoveries Jar + Acetone (g)	Jar Tare (g)	Recovered Acetone (g)	Rinse Acetone	Total Acetone (g)	Beaker Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Uncorrected Particulate Weight (g)	Corrected Particulate Weight (g)
K4	111.0074	111.0076		111.0075	PM-1	374.2	308.4	67.8	36.1	103.9	111.0222	111.0220		111.0222	0.0147	0.0147
V5	113.7145	113.7143		113.7144	PM-2	376.4	308.6	67.8	28.2	96.0	113.7209	113.7210		113.7209	0.0065	0.0065
X1	112.3826	112.3821		112.3824	PM-3	391.7	284.4	107.3	27.4	134.7	112.4019	112.4020		112.4020	0.0196	0.0196
																Corr. Total
V2	109.1749	109.1744		109.1747	AB	477.7	376.7	101.0		101.0	109.1743	109.1744		109.1744	-0.0003	0.000000

Density of Acetone 0.7899 g/ml

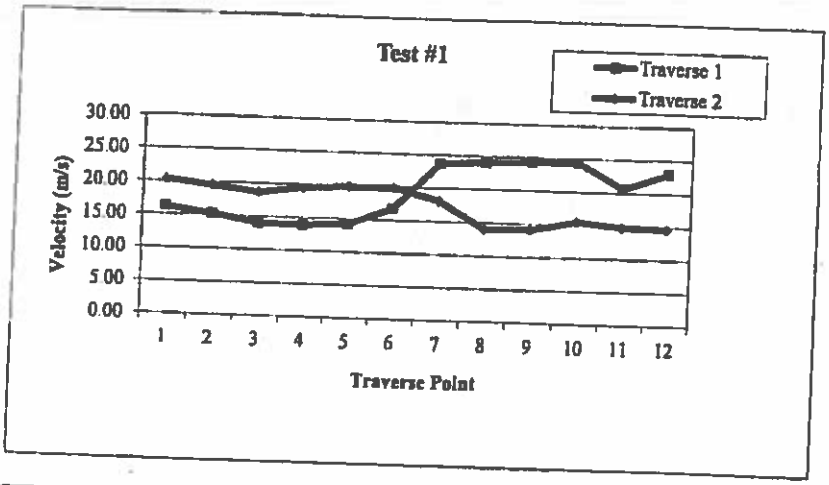
FILTER CATCH

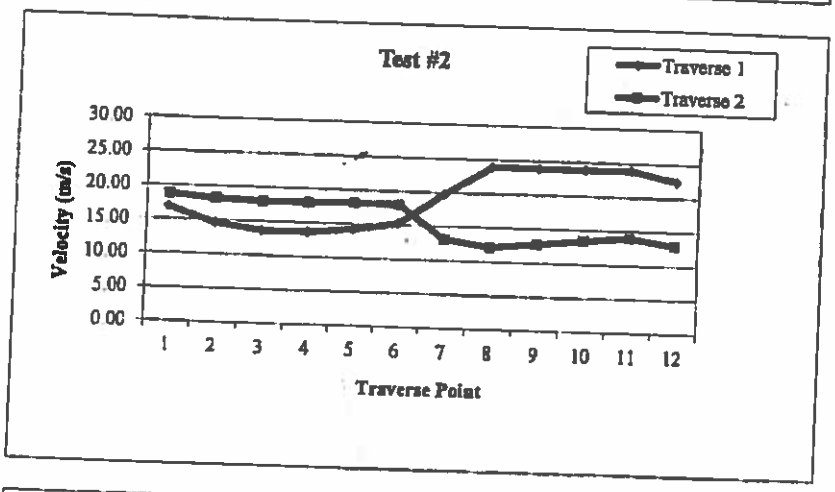
Filter ID	Pre Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Sample ID	Post Weights (g) Date Analyzed by Trial 1	Trial 2	Trial 3	Average	Particulate Weight From Filter (g)
0308-34	0.4156	0.4157		0.4156	PM-1	0.6299	0.6311	0.6313	0.6307	0.2148
0128-15	0.3582	0.3580		0.3581	PM-2	0.9429	0.9445	0.9440	0.9438	0.5857
0128-11	0.3518	0.3520		0.3519	PM-3.1	0.4990	0.4994	0.4972	0.4989	0.1470
0128-10	0.3417	0.3419		0.3418	PM-3.2	0.4416	0.4432	0.4428	0.4428	0.1010

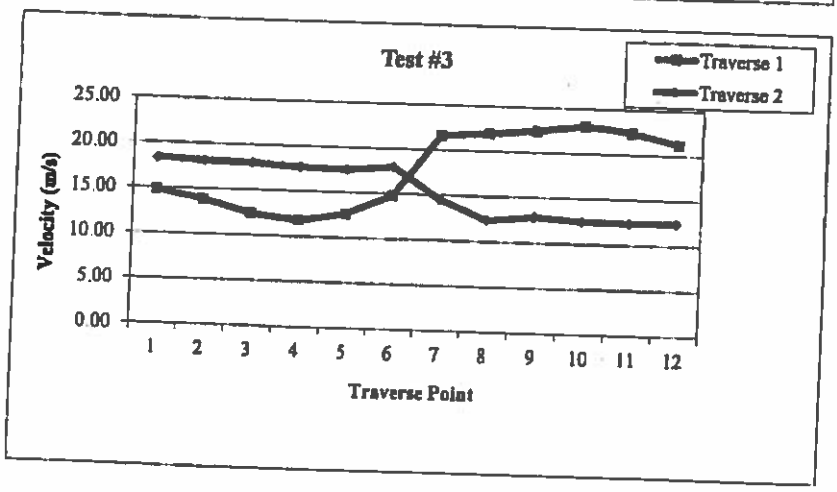
Northern Pulp
Pictou

121511269

Stack Gas Velocity Profiles
Power Boiler







Summary of RAW DATA

Client: Northern Pulp
Project No.: 121691269
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	131	1300	20.43	0.250	142.3	-0.210	62.0	64.188
2014	131	1312	20.44	0.243	142.6	-0.825	62.41	64.575
2014	131	1311	20.43	0.236	135.8	-0.463	64.13	66.672
2014	131	1350	20.44	0.246	146	-0.671	63.23	65.901
2014	131	1334	20.42	0.211	136	-0.179	64.64	65.020
2014	131	1323	20.43	0.237	143.4	-0.653	63.57	64.588
2014	131	1330	20.43	0.23	137.1	-0.344	64.18	64.524
2014	131	1337	20.42	0.229	138	-0.415	65	65.413
2014	131	1315	20.41	0.231	137.9	-0.04	64.75	65.10
2014	131	1350	20.43	0.234	138.2	-0.179	65.05	65.259
2014	131	1340	20.42	0.234	138.8	-0.179	64.01	64.189
2014	131	1341	20.41	0.179	139.3	-0.193	64.11	64.513
2014	131	1342	20.43	0.232	138.3	-0.413	64.7	65.113
2014	131	1343	20.41	0.235	139.7	-0.533	64.4	65.253
2014	131	1344	20.42	0.229	139.2	-1.484	64.21	66.414
2014	131	1345	20.43	0.244	138.7	-0.665	63.52	64.238
2014	131	1349	20.44	0.235	138.5	-2.787	69.39	71.767
2014	131	1347	20.42	0.239	139.8	-2.599	70.7	73.299
2014	131	1348	20.42	0.237	134.4	-3.621	69.97	73.301
2014	131	1349	20.42	0.235	135.3	-4.108	70.9	74.828
2014	131	1350	20.44	0.238	134	-3.791	70.5	73.651
2014	131	1351	20.42	0.232	138.8	-3.778	71.1	73.576
2014	131	1352	20.42	0.237	135.7	-2.792	70.7	73.492
2014	131	1353	20.41	0.234	135.3	-2.179	70.6	72.673
2014	131	1354	20.41	0.219	135.5	-1.336	70.9	72.836
2014	131	1355	20.41	0.219	142.2	-2.985	71.8	74.783
2014	131	1356	20.41	0.219	141.1	-3.639	71.9	73.730
2014	131	1357	20.41	0.21	134	-0.196	71.8	74.888
2014	131	1358	20.4	0.214	140.9	-0.205	72.7	76.988
2014	131	1359	20.44	0.23	142.4	-0.587	71	74.207
2014	131	1400	20.42	0.224	141.6	-0.39	71.3	74.45
2014	131	1401	20.43	0.232	135.9	-3.778	71.8	74.570
2014	131	1402	20.42	0.237	140.4	-1.646	71.1	71.788
2014	131	1403	20.43	0.234	138.6	-1.922	70.1	72.331
2014	131	1404	20.42	0.212	139.1	-3.751	71.3	74.081
2014	131	1405	20.42	0.233	139.4	-1.619	71.2	73.013
2014	131	1406	20.44	0.235	140	-4.276	70.6	73.520
2014	131	1407	20.43	0.226	134.7	-3.947	71.2	74.367
2014	131	1408	20.41	0.230	139.7	-3.04	72.7	75.74
2014	131	1409	20.41	0.229	137	-1.613	71.9	74.512
2014	131	1410	20.43	0.236	138.1	-1.645	71.1	73.943
2014	131	1411	20.41	0.228	137	-1.350	71.4	74.088
2014	131	1412	20.41	0.227	138.1	-1.067	71.4	74.447
2014	131	1413	20.42	0.236	138	-1.671	71.8	74.671
2014	131	1414	20.42	0.238	141.3	-1.199	71.8	71.828
2014	131	1415	20.44	0.23	141.6	-1.219	71	73.419
2014	131	1416	20.44	0.23	141.6	-1.488	71.6	73.130
2014	131	1417	20.42	0.235	139.7	-1.916	71.3	74.416
2014	131	1418	20.43	0.19	140.4	-1.817	71	73.317
2014	131	1419	20.43	0.139	137.8	-2.184	71.3	73.409
2014	131	1420	20.42	0.231	137.9	-1.379	71.4	73.176
2014	131	1421	20.43	0.19	139.4	-1.817	71.8	74.017
2014	131	1422	20.41	0.232	139.1	-1.402	72.8	73.883
2014	131	1423	20.44	0.228	142.3	-1.283	70.7	73.088
2014	131	1424	20.42	0.229	138	-3.047	71.1	73.947
2014	131	1425	20.42	0.221	139.9	-1.208	71.7	74.084
2014	131	1426	20.43	0.238	138.8	-1.402	71.3	73.082
2014	131	1427	20.43	0.225	138.8	-1.627	72.4	73.627
2014	131	1428	20.41	0.227	139.4	-1.400	70	73.400
2014	131	1429	20.44	0.29	141.3	-1.540	69.47	72.854
2014	131	1430	20.43	0.225	139.1	-1.348	70.7	73.846
2014	131	1431	20.40	0.32	138.3	-2.358	71.3	74.653
2014	131	1432	20.44	0.21	140.3	-2.066	71.9	74.708
2014	131	1433	20.41	0.232	140.8	-2.425	69.3	72.825
2014	131	1434	20.41	0.228	139.3	-2.083	71.5	73.883
2014	131	1435	20.41	0.229	139.7	-2.067	71.3	74.387
2014	131	1436	20.43	0.236	138.8	-2.898	70.8	73.836
2014	131	1437	20.42	0.24	139.7	-2.817	70.8	73.317
2014	131	1438	20.42	0.236	138.3	-2.963	71	74.033
2014	131	1439	20.43	0.24	141.8	-2.118	70.6	72.730
2014	131	1440	20.43	0.243	142.1	-2.656	70.9	74.256
2014	131	1441	20.42	0.238	138.5	-2.123	71.5	74.923
2014	131	1442	20.42	0.234	137	-2.216	70.5	73.710
2014	131	1443	20.42	0.23	137.7	-2.48	72.4	74.80
2014	131	1444	20.41	0.231	139.3	-2.990	72.7	74.796
2014	131	1445	20.43	0.238	139.7	-4.177	73.2	76.277
2014	131	1446	20.42	0.234	139.4	-2.469	72.4	73.889
2014	131	1447	20.38	0.217	139.9	-2.170	73	75.173
2014	131	1448	20.42	0.21	138.2	-0.35	71.5	74.65
2014	131	1449	20.43	0.21	140.6	-2.641	72.1	74.741
2014	131	1450	20.42	0.22	138.5	-3.067	68.97	72.967
2014	131	1451	20.43	0.215	138.7	-2.167	73	75.167
2014	131	1452	20.43	0.211	139.8	-1.408	70.3	73.688
2014	131	1453	20.41	0.234	138.3	-3.791	70.4	74.191
2014	131	1454	20.41	0.215	137	2.436	71.2	74.630
2014	131	1455	20.44	0.215	140	-2.576	69.82	72.396
2014	131	1456	20.43	0.217	136.3	-1.315	70.3	73.615
2014	131	1457	20.41	0.218	137.1	-0.99	70.1	72.69
2014	131	1458	20.43	0.213	140.9	-2.751	70.5	74.251
2014	131	1459	20.42	0.226	141.7	-2.816	70.9	73.316

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	131	1501	20.43	0.24	144.3	-2.116	70.9	73.713
2014	131	1502	20.43	0.241	142.1	-2.358	70.9	74.258
2014	131	1503	20.42	0.235	136.9	-2.123	71.5	74.952
2014	131	1504	20.43	0.234	137	-2.219	72.5	75.790
2014	131	1505	20.43	0.23	137.7	-2.46	71.4	74.86
2014	131	1506	20.41	0.232	135.2	-2.836	72.7	74.198
2014	131	1507	20.43	0.236	138.7	-2.177	71.1	73.177
2014	131	1508	20.41	0.214	138.4	-2.469	72.4	75.888
2014	131	1509	20.36	0.212	140.8	-2.173	73	75.173
2014	131	1510	20.41	0.22	139.1	-0.15	71.5	74.65
2014	131	1511	20.41	0.22	140.6	-2.641	71.3	74.341
2014	131	1512	20.43	0.22	138.6	-3.067	72.787
2014	131	1513	20.43	0.219	135.7	-2.317	71	73.317
2014	131	1514	20.41	0.221	131.5	-2.466	70.2	73.888
2014	131	1515	20.41	0.224	138.5	-2.791	70.6	73.131
2014	131	1516	20.41	0.225	137	-3.439	71.3	74.839
2014	131	1517	20.44	0.229	144	-0.576	68.82	72.394
2014	131	1518	20.43	0.217	138.3	-0.319	70.1	73.435
2014	131	1519	20.43	0.216	137.3	-0.39	70.1	73.49
2014	131	1520	20.41	0.211	140.1	-2.651	70.5	74.151
2014	131	1521	20.42	0.218	141.3	-2.916	70.9	73.210
2014	131	1522	20.43	0.19	140.7	-0.251	70.5	73.401
2014	131	1523	20.41	0.212	142.7	-0.661	71.3	73.896
2014	131	1524	20.43	0.217	139.3	-2.055	71.2	74.253
2014	131	1525	20.41	0.242	147.3	-2.163	69.84	71.886
2014	131	1526	20.41	0.224	141.2	-4.071	69.84	73.911
2014	131	1527	20.44	0.229	141.1	-3.138	70.5	73.604
2014	131	1528	20.42	0.228	140.9	-1.37	72	73.37
2014	131	1529	20.42	0.115	138.5	-4.388	71.9	73.876
2014	131	1530	20.42	0.223	139.8	-2.890	71.6	74.096
2014	131	1531	20.39	0.221	134.8	-3.943	70.7	73.641
2014	131	1532	20.43	0.221	138.3	-1.818	73	75.518
2014	131	1533	20.43	0.226	142.7	-2.835	70.2	73.803
2014	131	1534	20.42	0.230	142.5	-0.257	71.5	74.757
2014	131	1535	20.41	0.221	142.9	-0.196	72.1	73.288
2014	131	1536	20.43	0.229	141	-2.837	72.8	75.637
2014	131	1537	20.42	0.236	142.1	-4.481	72.8	74.952
2014	131	1538	20.43	0.217	144.3	-4.713	68.21	72.513
2014	131	1539	20.41	0.237	140	-3.279	68.71	71.989
2014	131	1540	20.41	0.233	141.2	-3.291	71	73.751
2014	131	1541	20.41	0.227	141.2	-4.318	70.8	73.128
2014	131	1542	20.41	0.234	141	-4.37	72.3	75.37
2014	131	1543	20.41	0.220	142.8	-3.741	70.8	74.541
2014	131	1544	20.41	0.23	141.4	-3.137	107.7	110.837
2014	131	1545	20.41	0.222	145	-3.428	226.2	223.772
2014	131	1546	20.43	0.235	142.2	-4.37	75.3	78.67
2014	131	1547	20.41	0.236	143	-4.837	73.8	76.637
2014	131	1548	20.41	0.217	142.2	-2.163	74	77.163
2014	131	1549	20.43	0.236	144	-4.06	72.2	75.26
2014	131	1550	20.41	0.24	144	-4.847	71.2	76.147
2014	131	1551	20.43	0.226	142.9	-4.788	71.9	76.688
2014	131	1552	20.42	0.229	138	-2.366	71.5	74.863
2014	131	1553	20.43	0.23	140.6	-4.48	72.4	75.88
2014	131	1554	20.43	0.233	140.3	-4.46	72.3	75.76
2014	131	1555	20.44	0.230	147.6	-5.130	70.7	73.836
2014	131	1556	20.43	0.24	142.9	-4.817	71.1	73.717
2014	131	1557	20.44	0.230	145.7	-4.098	70.1	73.198
2014	131	1558	20.41	0.234	139.9	-3.978	72.7	76.678
2014	131	1559	20.43	0.232	142.3	-4.548	71.6	75.148
2014	131	1560	20.43	0.232	138.8	-4.889	72.5	75.389
2014	131	1561	20.41	0.234	141.2	-4.538	73	75.538
2014	131	1562	20.41	0.236	141.5	-1.61	71.8	73.61
2014	131	1563	20.43	0.233	144.8	-4.617	71.3	74.917
2014	131	1564	20.41	0.237	140.4	-4.366	72.9	76.866
2014	131	1565	20.41	0.24	140.8	-2.136	73	75.136
2014	131	1566	20.43	0.229	146.4	-3.573	72.8	75.373
2014	131	1567	20.44	0.234	140.9	-3.435	71.3	74.735
2014	131	1568	20.41	0.231	140.3	-3.148	72.9	76.148
2014	131	1569	20.41	0.232	141.5	-3.423	72.4	75.823
2014	131	1570	20.41	0.234	143.4	-3.163	72.8	76.063
2014	131	1571	20.41	0.237	139.9	-3.07	72.8	76.83
2014	131	1572	20.42	0.234	144	-3.507	71.9	75.407
2014	131	1573	20.41	0.236	141.3	-3.377	71.7	74.977
2014	131	1574	20.42	0.237	142.9	-3.741	72.4	76.141
2014	131	1575	20.42	0.237	139.8	-3.645	72.1	75.745
2014	131	1576	20.42	0.238	138.7	-3.782	72.6	77.382
2014	131	1577	20.42	0.24	143.8	-3.91	72.5	76.41
2014	131	1578	20.43	0.237	141.8	-4.138	73.1	78.238
2014	131	1579	20.4	0.235	138.1	-3.837	70	77.837
2014	131	1580	20.41	0.234	140	-3.701	73.2	76.911
2014	131	1581	20.43	0.237	141.7	-4.837	72.7	76.537
2014	131	1582	20.42	0.233	140.3	-4.654	73.2	76.854
2014	131	1583	20.43	0.225	140.7	-3.542	73.1	76.642
2014	131	1584	20.41	0.234	140.7	-3.719	74.4	78.119
2014	131	1585	20.41	0.232	141.3	-4.947	73.1	77.047
2014	131	1586	20.41	0.236	144.8	-4.188	73.3	77.488
2014	131	1587	20.41	0.237	145.7	-4.59	73.3	78.09
2014	131	1588	20.43	0.23	141.1	-3.108	74.3	77.408
2014	131	1589	20.43	0.233	140.9	-4.188	74.1	77.388
2014	131	1590	20.42	0.234	137.7	-4.481	73.2	76.681

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811248
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	[illegible]	1500	20.42	0.23	136.7	-0.101	70.3	70.201
2014	251	1501	20.42	0.232	140.7	-2.581	71.3	73.961
2014	251	1502	20.45	0.237	139.2	-3.923	71.3	74.254
2014	251	1503	20.44	0.241	147.3	-3.100	69.64	73.000
2014	251	1504	20.43	[illegible]	141.2	-4.371	[illegible]	73.971
2014	251	1505	20.44	0.239	143.1	-3.138	70.5	73.638
2014	251	1506	20.41	0.236	[illegible]	-3.37	72	75.37
2014	251	1507	20.43	0.239	136.8	-4.209	71.8	76.009
2014	251	1508	20.41	0.235	138.9	-2.806	72.4	74.806
2014	251	1509	20.39	0.221	[illegible]	-3.844	70.7	74.543
2014	251	1510	20.41	0.271	138.3	-2.631	71	73.633
2014	251	1511	20.41	0.238	141.7	-3.221	70.1	73.321
2014	251	1512	20.41	0.239	142.9	-3.287	71.5	74.787
2014	251	1513	20.41	0.231	140.3	-2.138	72.1	74.238
2014	251	1514	20.42	0.233	141	-2.527	72.8	75.427
2014	251	1515	20.45	0.236	141.2	-3.451	70.8	74.252
2014	251	1516	20.45	0.237	144.3	-4.715	69.35	74.329
2014	251	1517	20.44	0.237	149	-2.273	68.71	71.043
2014	251	1518	20.43	0.238	142.1	-4.731	73	77.731
2014	251	1519	20.40	[illegible]	141.5	-3.310	70.8	74.310
2014	[illegible]	1520	20.49	0.234	141	-0.37	72.8	73.17
2014	251	1521	20.43	0.235	142.8	-3.741	70.9	74.641
2014	251	1522	20.42	0.21	141.4	-6.387	187.7	194.087
2014	[illegible]	1523	20.43	0.231	146	-6.429	528.1	534.529
2014	251	1524	20.42	0.238	140.2	-4.37	73.3	77.67
2014	251	1525	20.41	[illegible]	142	-2.617	72.9	75.517
2014	[illegible]	1526	20.41	0.232	140.5	-3.265	74	77.265
2014	251	1527	20.43	0.236	144	-3.04	72.2	75.24
2014	251	1528	20.41	0.24	144	-4.947	72.2	76.147
2014	[illegible]	1529	20.42	0.238	143.9	-5.708	73.8	79.508
2014	251	1530	20.41	0.239	138	-3.908	72.6	76.508
2014	251	1531	20.43	[illegible]	140.2	-2.48	72.4	74.88
2014	[illegible]	1532	20.41	0.238	140.2	-3.48	72.3	75.78
2014	251	1533	20.44	0.238	147.5	-5.196	76.7	81.896
2014	251	1534	20.43	0.24	143.6	-5.517	72.3	77.717
2014	251	1535	20.44	0.236	146.7	-5.955	78.3	84.255
2014	251	1536	20.41	0.234	138.8	-5.575	73.3	78.875
2014	251	[illegible]	20.40	[illegible]	142.1	-4.848	73.6	78.348
2014	251	1538	20.42	0.231	139.8	-4.889	72.8	78.589
2014	251	1539	20.41	0.238	143.1	-5.915	79	84.915
2014	251	[illegible]	20.41	0.236	143.5	-6.01	72.8	78.81
2014	251	1540	20.40	0.232	144.8	-6.017	71.8	78.017
2014	251	1541	20.41	0.237	140.4	-5.758	72.8	78.258
2014	251	1542	20.41	0.23	141.6	-5.358	70	75.358
2014	251	1543	20.40	0.235	140.4	-6.672	71.8	78.472
2014	251	1544	20.40	0.234	144.8	-6.423	72.5	78.923
2014	251	1545	20.44	0.234	140.1	-5.348	72.8	78.148
2014	251	1546	20.41	0.231	141.5	-5.425	71.4	76.825
2014	251	1547	20.42	0.231	142.4	-6.161	72.8	78.961
2014	251	1548	20.42	0.236	143.4	-5.52	72.9	78.42
2014	251	1549	20.41	0.237	144.8	-5.587	71.8	77.387
2014	251	1550	20.41	0.234	144	-5.177	72.7	77.877
2014	251	1551	20.43	0.236	143.3	-5.341	72.4	78.341
2014	251	1552	20.42	0.237	142.8	-5.748	73.6	79.348
2014	251	1553	20.42	0.237	140.8	-5.762	73.5	77.262
2014	251	1554	20.42	0.238	139.7	-5.81	72.2	78.01
2014	251	1555	20.41	0.23	140.5	-4.138	72.1	76.326
2014	251	1556	20.40	0.227	144.4	-6.037	71	77.037
2014	251	1557	20.4	0.236	139.1	-4.762	73.2	78.962
2014	251	1558	20.41	0.238	140	-5.417	72.7	78.117
2014	251	[illegible]	20.42	0.237	143.7	-5.896	73.2	79.096
2014	251	1559	20.42	0.236	140.8	-5.642	73.2	78.842
2014	251	1560	20.41	0.235	140.7	-5.415	70.4	75.115
2014	251	1561	20.43	0.232	144.3	-5.847	71.2	77.047
2014	251	1562	20.43	0.236	144.9	-6.103	71.3	77.403
2014	251	1563	20.43	0.232	141.7	-5.39	[illegible]	76.89
2014	251	1564	20.43	0.23	141.1	-5.109	74.3	77.409
2014	251	1565	20.43	0.228	140.8	-5.188	74.1	77.288
2014	251	1566	20.4	0.234	137.7	-4.401	75.2	79.601
2014	251	1567	20.43	0.238	142.3	-4.899	72.2	77.199
2014	251	1568	20.43	0.234	141.8	-4.348	74.5	77.848
2014	251	1569	20.41	0.241	141.8	-5.008	73.5	78.508
2014	251	1570	20.43	0.238	142.7	-4.708	77	78.708
2014	251	1571	20.42	0.234	139.8	-4.374	74	78.374
2014	251	1572	20.42	0.233	138.8	-4.861	73.4	77.761
2014	251	1573	20.43	0.238	140.7	-5.905	73.1	77.205
2014	251	1574	20.42	0.239	138.4	-5.875	73.8	77.375
2014	251	1575	20.41	0.22	142.1	-4.889	73.5	77.589
2014	251	1576	20.43	0.232	143.4	-4.816	72.4	76.416
2014	251	1577	20.40	0.232	143.9	-4.681	71.4	76.081
2014	251	1578	20.41	0.237	147.5	-4.281	73	77.281
2014	251	1579	20.41	0.232	138.5	-5.831	73.7	77.531
2014	251	1580	20.42	0.232	140.8	-4.154	72.8	76.954
2014	251	1581	20.42	0.23	147.6	-4.581	71.5	76.081
2014	251	1582	20.4	0.239	141.1	-6.934	71.6	77.534
2014	251	1583	20.42	0.237	141.6	-5.708	71.8	77.508
2014	251	1584	20.41	0.232	140.4	-4.002	72.2	76.202
2014	251	1585	20.41	0.237	140.7	-5.951	72.7	78.651
2014	251	1586	20.42	0.234	140.8	-5.096	73.3	78.396
2014	251	1587	20.41	0.236	144.7	-4.47	73.6	78.07

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	252	251	20.40	0.239	141.7	-4.009	73.1	77.109
2014	252	252	20.43	0.234	141.6	-3.546	74.1	77.646
2014	252	253	20.42	0.231	141.8	-6.006	73.5	79.506
2014	252	254	20.43	0.228	140.7	-3.708	75	78.708
2014	252	255	20.43	0.234	139.5	-4.374	74	78.374
2014	252	256	20.41	0.229	139.8	-3.961	73.8	77.761
2014	252	257	20.43	0.234	140.7	-5.808	73.1	77.908
2014	252	258	20.42	0.238	139.4	-4.975	73.1	77.175
2014	252	259	20.42	0.23	142.2	-4.089	73.5	77.589
2014	252	260	20.43	0.238	140.4	-4.618	72.4	76.818
2014	252	261	20.43	0.232	142.3	-3.605	72.4	75.805
2014	252	262	20.44	0.237	147.8	-4.291	73	77.291
2014	252	263	20.41	0.237	139.5	-3.681	73.7	77.381
2014	252	264	20.41	0.232	140.9	-4.154	72.8	76.954
2014	252	265	20.43	0.23	147.6	-4.181	72.8	76.981
2014	252	266	20.4	0.236	141.1	-3.599	72.8	77.534
2014	252	267	20.42	0.237	141.6	-3.763	73.5	77.263
2014	252	268	20.43	0.232	140.4	-4.003	73.1	77.103
2014	252	269	20.42	0.237	142.7	-3.963	73.7	77.663
2014	252	270	20.41	0.234	142.3	-3.954	72.3	75.654
2014	252	271	20.41	0.234	144.7	-4.47	73.4	78.87
2014	252	272	20.41	0.238	142.8	-6.456	177.5	183.956
2014	252	273	20.43	0.229	143.8	-5.002	542.7	548.302
2014	252	274	20.42	0.227	142.5	-4.869	78.3	83.169
2014	252	275	20.41	0.232	142.5	-4.346	75.6	79.946
2014	252	276	20.42	0.234	140.7	-5.177	78	83.177
2014	252	277	20.42	0.229	144.4	-4.262	71.8	76.062
2014	252	278	20.43	0.232	142.7	-6.792	76.2	82.992
2014	252	279	20.43	0.234	140.7	-5.318	82.2	88.183
2014	252	280	20.4	0.234	140.4	-4.662	78.1	82.862
2014	252	281	20.42	0.232	140.8	-6.195	78.4	84.595
2014	252	282	20.41	0.231	140.3	-4.39	75.5	79.89
2014	252	283	20.44	0.35	151.4	-4.916	74.3	79.216
2014	252	284	20.45	0.233	143.2	-4.834	79.5	84.434
2014	252	285	20.44	0.237	152.5	-4.322	73.7	77.912
2014	252	286	20.42	0.238	140.3	-4.809	74.3	79.109
2014	252	287	20.42	0.235	140.4	-4.671	74.6	79.271
2014	252	288	20.41	0.234	139.1	-4.539	74.2	78.739
2014	252	289	20.41	0.237	140.7	-4.457	75.6	80.057
2014	252	290	20.41	0.232	140.9	-4.374	74.9	79.274
2014	252	291	20.44	0.33	140.8	-4.311	74.8	79.111
2014	252	292	20.44	0.238	140.1	-4.893	75.6	80.493
2014	252	293	20.42	0.231	140.2	-4.589	75.3	79.889
2014	252	294	20.43	0.233	139.2	-4.546	75.5	79.946
2014	252	295	20.43	0.239	139.2	-6.047	75.8	80.747
2014	252	296	20.44	0.237	139.4	-5.293	75.4	80.693
2014	252	297	20.44	0.236	139.2	-5.171	75.3	78.371
2014	252	298	20.44	0.238	139.2	-4.717	75.5	80.217
2014	252	299	20.43	0.239	140.9	-4.772	75.2	80.072
2014	252	300	20.43	0.239	140.6	-4.676	81	85.676
2014	252	301	20.41	0.239	151.1	-5.588	75.9	80.488
2014	252	302	20.42	0.230	147.8	-4.9	76.5	81.4
2014	252	303	20.43	0.234	139	-4.442	75.9	80.342
2014	252	304	20.43	0.229	140.4	-4.135	75.4	79.535
2014	252	305	20.41	0.237	140.8	-4.318	76.1	80.419
2014	252	306	20.43	0.232	147.8	-4.462	76.5	80.962
2014	252	307	20.42	0.233	147.6	-4.34	76.8	80.94
2014	252	308	20.4	0.225	140.3	-4.548	76.6	81.148
2014	252	309	20.41	0.228	153	-4.872	76.8	81.671
2014	252	310	20.40	0.233	151.7	-5.144	76.1	81.244
2014	252	311	20.42	0.233	151.1	-4.951	77	81.951
2014	252	312	20.40	0.243	157.1	-5.655	76.1	81.755
2014	252	313	20.42	0.243	154.1	-4.773	76.5	81.273
2014	252	314	20.43	0.244	150.1	-4.814	77	81.814
2014	252	315	20.44	0.242	149.9	-4.643	76.8	81.443
2014	252	316	20.43	0.239	147.1	-5.329	77.2	82.429
2014	252	317	20.41	0.244	144.7	-4.888	78	82.888
2014	252	318	20.44	0.237	151.9	-5.376	75.5	81.176
2014	252	319	20.41	0.24	148.3	-4.888	75.2	80.188
2014	252	320	20.42	0.239	149	-5.213	76.2	81.413
2014	252	321	20.43	0.239	148.1	-4.388	77.1	81.488
2014	252	322	20.41	0.239	148.3	-5.165	76.4	81.565
2014	252	323	20.40	0.235	146.8	-5.474	[illegible]	81.974
2014	252	324	20.42	0.237	146.5	-4.869	76.4	81.261
2014	252	325	20.44	[illegible]	149.3	-4.765	76.9	81.665
2014	252	326	20.42	0.239	142.1	-5.136	77.7	82.836
2014	252	327	20.43	0.233	144.3	-4.465	76.3	80.765
2014	252	328	20.44	0.23	139.9	-4.793	76.8	81.593
2014	252	329	20.44	0.231	140.6	-4.772	76.2	80.972
2014	252	330	20.41	0.232	145	-5.34	77	82.34
2014	252	331	20.41	0.235	146.5	-5.635	75.8	81.435
2014	252	332	20.41	0.237	146	-5.09	76.2	80.89
2014	252	333	20.41	0.238	145.5	-5.814	76.9	82.114
2014	252	334	20.41	0.235	142.4	-4.34	77	81.34
2014	252	335	20.43	0.237	144.1	-5.398	76.3	81.698
2014	252	336	20.43	0.238	140.5	-5.158	78.9	84.058
2014	252	337	20.42	0.35	141	-6.639	76	[illegible]
2014	252	338	20.40	0.231	142.3	-4.911	75.9	80.811
2014	252	339	20.42	0.233	138.8	-5.811	76.6	82.411

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811269
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	191	1600	20.41	0.230	140.8	-0.654	177.6	183.204
2014	191	1601	20.42	0.223	140.6	[illegible]	942.7	24...305
2014	191	1602	20.42	0.227	141.5	-0.628	70.1	63.588
2014	191	1603	20.41	0.232	142.1	-0.598	71.8	70.046
2014	191	1604	20.42	0.234	143.7	-0.177	75	75.177
2014	191	1605	20.41	0.230	146.4	-0.002	72.8	77.602
2014	191	[illegible]	20.42	0.232	148.7	-1.782	78.3	79.981
2014	191	1607	20.43	0.234	149.7	-1.510	82.2	84.183
2014	191	1608	20.4	0.234	148.5	-0.283	78.3	[illegible]
2014	191	1609	20.42	0.233	148.8	-1.182	78.4	79.586
2014	191	1610	20.42	0.231	148.1	-0.60	75.3	76.90
2014	191	1611	20.44	0.23	152.4	-1.810	76.2	78.116
2014	191	1612	20.43	0.232	152.1	-0.934	73.3	76.434
2014	191	1613	20.44	0.237	152.3	-0.322	72.7	77.022
2014	191	1614	20.43	0.239	148.1	-1.820	74.8	[illegible]
2014	191	[illegible]	20.42	0.232	143.4	-0.471	74.8	76.071
2014	191	1616	20.40	0.230	150.1	-1.500	74.2	76.729
2014	191	1617	20.41	0.237	148.7	-0.407	73.8	80.237
2014	191	1618	20.43	0.233	149.0	-0.374	[illegible]	78.374
2014	191	1619	20.44	0.23	[illegible]	-0.311	74.0	79.111
2014	191	1620	20.40	0.230	149.2	-1.500	73.3	80.483
2014	191	1621	20.42	0.231	149.3	-1.520	75.3	78.830
2014	191	1622	20.41	0.235	150.2	-0.346	76.5	79.840
2014	191	1623	20.40	0.238	153.3	-0.947	75.6	79.347
2014	191	1624	20.43	0.237	150.4	-0.306	73.8	79.680
2014	191	1625	20.43	0.236	150.3	-0.271	73.3	78.771
2014	191	1626	20.44	0.238	152.8	-0.717	73.5	80.217
2014	191	1627	20.44	0.236	148.5	-0.771	[illegible]	80.873
2014	191	1628	20.42	0.239	149.8	-0.671	81	82.679
2014	191	1629	20.43	0.238	151.1	-0.368	75.8	80.666
2014	191	1700	20.42	0.238	147.8	-0.8	76.8	81.6
2014	191	1701	20.41	0.234	150	-0.642	75.3	80.341
2014	191	1702	20.41	0.239	148.4	-0.295	78.4	79.885
2014	191	1703	20.41	0.237	148.5	-0.519	76.3	80.519
2014	191	[illegible]	20.40	0.233	147.8	-0.483	76.8	[illegible]
2014	191	1706	20.42	0.232	147.4	-0.698	76.2	80.835
2014	191	1707	20.42	0.233	147.3	-0.14	76.8	83.84
2014	191	1707	20.4	0.235	149.3	-0.343	76.8	84.043
2014	191	1709	20.43	0.236	151	-0.671	76.8	80.671
2014	191	1709	20.43	0.233	151.7	-0.164	76.3	81.044
2014	191	1710	20.42	0.236	151.1	-0.931	77	83.981
2014	191	1711	20.40	0.242	157.1	-0.633	78.1	80.735
2014	191	1712	20.43	0.240	154.1	-0.776	76.5	81.271
2014	191	1713	20.43	0.244	149.3	-0.814	77	81.814
2014	191	1714	20.46	0.241	149.9	-0.642	76.8	80.842
2014	191	1715	20.43	0.235	147.3	-0.328	77.3	83.438
2014	191	1716	20.41	0.234	144.7	-0.308	78	82.608
2014	191	1717	20.44	0.237	151.8	-0.370	75.8	81.178
2014	191	1718	20.41	0.24	146.8	-0.834	76.8	80.880
2014	191	1719	20.41	0.239	146	-0.318	76.3	81.619
2014	191	1720	20.41	0.241	148.2	-0.308	77.1	81.405
2014	191	1721	20.42	0.237	145.5	-0.108	75.6	82.085
2014	191	1722	20.41	0.233	145.8	-0.476	74.3	81.876
2014	191	1723	20.42	0.237	146.8	-0.882	75.4	81.903
2014	191	1724	20.44	0.232	149.8	-0.748	74.8	79.549
2014	191	1725	20.41	0.239	143.2	-0.310	77.7	[illegible]
2014	191	1726	20.41	0.233	144.8	-0.898	75.9	80.708
2014	191	1727	20.44	0.32	139.8	-0.730	76.3	81.830
2014	191	1728	20.44	0.231	140.6	-0.775	76.3	80.973
2014	191	1729	20.42	0.233	140	-0.34	77	82.34
2014	191	1730	20.43	0.240	144.9	-0.425	75.8	81.425
2014	191	1731	20.43	0.237	140	-0.61	78.3	80.62
2014	191	1732	20.41	0.238	140.5	-0.634	76.8	82.234
2014	191	1733	20.42	0.235	140.4	-0.84	77	81.56
2014	191	1734	20.43	0.237	144.1	-0.364	76.3	81.963
2014	191	1735	20.41	0.233	146.6	-0.358	76.8	81.083
2014	191	1736	20.42	0.23	143	-0.630	76	81.633
2014	191	1737	20.42	0.234	142.5	-0.811	75.8	80.412
2014	191	1738	20.43	0.223	138.8	-0.611	76.8	81.411
2014	191	1739	20.40	0.232	140.5	-0.768	76.3	80.290
2014	191	1740	20.41	0.234	141.1	-0.902	76.1	81.401
2014	191	1741	20.42	0.234	143.3	-0.358	76.8	83.098
2014	191	1742	20.43	0.230	140.2	-0.564	78.3	80.796
2014	191	1743	20.41	0.233	138.2	0.968	76.8	81.368
2014	191	1744	20.41	0.231	140.1	-0.189	76	81.193
2014	191	1745	20.46	0.237	147.8	-0.649	75	80.649
2014	191	1746	20.41	0.231	140.4	-0.185	75.5	80.685
2014	191	1747	20.42	0.232	141.1	-0.110	77.5	82.836
2014	191	1748	20.43	0.235	143.4	-0.58	76.4	80.84
2014	191	1749	20.43	0.233	138.5	-0.849	76.7	81.348
2014	191	1750	20.44	0.230	141	-0.163	78	81.163
2014	191	1751	20.44	0.236	140.8	-0.381	75.8	80.181
2014	191	1752	20.41	0.234	138.1	-0.331	77.8	81.131
2014	191	1753	20.41	0.23	138.4	-0.748	80	84.748
2014	191	1754	20.41	0.236	140.5	-0.738	79.1	420.835
2014	191	1755	20.41	0.238	141.5	-0.528	80.8	80.828
2014	191	1756	20.42	0.235	140.6	-0.614	76.7	81.314
2014	191	1757	20.40	0.235	138.4	-0.812	77.3	82.130
2014	191	1758	20.41	0.234	138.7	-0.623	77.5	83.158
2014	191	1759	20.41	0.235	140	-0.536	77.1	81.636

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	192	421	20.40	0.238	140.8	-0.760	76.8	80.960
2014	192	422	20.42	0.230	141.1	-0.291	76.1	81.891
2014	192	423	20.42	0.234	142.2	-0.138	76.0	82.038
2014	192	424	20.40	0.233	140.2	-0.254	78.3	80.354
2014	192	425	20.41	0.235	144.2	-0.809	79.8	83.309
2014	192	426	20.42	[illegible]	140.1	-0.362	76	81.362
2014	192	427	20.44	0.237	147.9	-0.620	75	80.620
2014	192	428	20.41	0.231	140.4	-1.180	78.3	80.086
2014	192	429	20.42	0.231	141.3	-0.116	77.6	81.526
2014	192	430	20.43	0.230	140.4	-4.51	78.8	80.8
2014	192	431	20.45	0.232	[illegible]	-4.001	76.7	81.369
2014	192	432	20.44	[illegible]	141	-0.371	76	81.371
2014	192	433	20.44	0.236	140.3	-4.301	75.8	80.101
2014	192	434	20.41	0.234	134.1	-0.301	77.6	81.371
2014	192	435	20.41	0.23	138.6	-4.741	80	84.741
2014	192	436	20.41	0.230	140.3	-0.723	202.3	483.023
2014	192	437	20.41	0.230	141.3	-4.020	80.6	80.620
2014	192	438	20.43	[illegible]	140.6	-4.814	76.7	81.714
2014	192	439	20.41	0.230	140.4	-4.020	77.8	81.820
2014	192	440	20.45	0.234	138.7	-5.580	77.8	83.380
2014	192	441	20.43	[illegible]	140	-4.580	77.1	81.680
2014	192	442	20.44	0.230	142.8	-4.876	75.1	80.776
2014	192	443	20.42	0.23	138.3	-5.154	77.3	82.454
2014	192	444	20.44	0.231	138.1	-5.171	76.8	82.071
2014	192	445	20.45	0.231	138.8	-5.185	76.8	82.085
2014	192	446	20.43	0.232	140.7	-4.751	77.7	82.451
2014	192	447	20.44	0.21	142.7	-4.821	79	83.821
2014	192	448	20.43	0.236	138.8	-5.368	78.1	83.468
2014	192	449	20.44	0.235	140.1	-4.948	78.8	83.848
2014	192	450	20.43	0.21	138.8	-5.159	77.8	83.859
2014	192	451	20.42	0.235	140.3	-4.82	[illegible]	82.33
2014	192	452	20.43	0.232	138.7	-5.648	79	83.648
2014	192	453	20.41	0.233	[illegible]	-4.277	78.3	84.277
2014	192	454	[illegible]	0.234	137.8	-5.336	77.8	83.136
2014	192	[illegible]	20.44	0.230	137.1	-4.898	77.7	82.598
2014	192	456	20.42	0.232	134.7	-5.796	79.5	85.296
2014	192	457	20.44	0.234	140.1	-4.47	[illegible]	80.27
2014	192	[illegible]	20.45	0.230	141.9	-5.796	77.3	81.096
2014	192	459	20.41	0.230	[illegible]	-4.439	78	82.439
2014	192	500	20.43	[illegible]	138.7	-5.047	78.8	83.747
2014	192	501	20.44	0.231	136	-5.081	78.3	83.381
2014	192	502	20.42	0.229	137.8	-4.319	77.8	82.223
2014	192	503	20.44	0.233	135.7	5.828	78	83.828
2014	192	504	[illegible]	0.230	138.9	-5.101	77.8	83.896
2014	192	505	20.44	0.229	138.7	-5.099	78.2	84.199
2014	192	506	20.44	[illegible]	139.6	-4.044	78.9	83.944
2014	192	507	20.44	0.236	137.2	-4.36	82.1	86.56
2014	192	508	20.43	0.238	139.2	-4.348	81.2	85.548
2014	192	509	20.44	0.237	136.2	-4.888	78.6	83.788
2014	192	510	20.44	0.233	138.9	-4.311	78.4	82.811
2014	192	511	20.44	0.236	139	-4.222	78.8	83.022
2014	192	512	20.42	0.236	134.8	-5.433	78.8	84.833
2014	192	513	20.45	0.230	138.2	-4.604	[illegible]	84.604
2014	192	514	20.43	0.233	137.2	-4.799	78.8	84.599
2014	192	515	20.46	0.236	134.3	-5.777	78.4	83.177
2014	192	516	20.41	0.236	138.1	-4.389	84.3	88.689
2014	192	517	20.44	0.235	136.8	-4.382	83.6	88.182
2014	192	518	20.45	0.229	136.1	-4.903	79	83.903
2014	192	519	20.45	0.15	137.8	-4.112	78.6	82.712
2014	192	520	20.42	0.233	134.1	-4.81	81.4	86.21
2014	192	521	20.44	0.236	137.7	-4.083	79.6	83.682
2014	192	522	20.45	0.237	140.8	-4.08	78.8	82.88
2014	192	523	20.44	0.230	136.8	-4.687	79.2	83.887
2014	192	524	20.41	0.234	131.8	-4.582	81.8	87.382
2014	192	525	20.45	0.237	138	-4.941	82.1	86.941
2014	192	526	20.45	0.236	138.4	-4.868	78.7	84.568
2014	192	527	20.43	0.230	138.8	-4.898	80.7	85.598
2014	192	528	20.44	0.238	139.8	-5.068	78.8	83.868
2014	192	529	20.45	0.238	138.8	-4.464	78.1	82.564
2014	192	530	20.43	0.236	138.7	-4.898	78.8	83.698
2014	192	531	20.46	0.239	134.3	-4.860	78.8	83.360
2014	192	532	20.43	0.238	135	-5.515	80.5	85.015
2014	192	533	20.45	0.232	132.8	-5.105	80.7	85.805
2014	192	534	20.42	[illegible]	134	-4.060	80.2	85.260
2014	192	[illegible]	20.45	0.234	135.8	-5.723	78.8	84.523
2014	192	536	20.44	0.230	136.8	-5.780	80	85.780
2014	192	537	20.45	0.235	136.8	-4.258	79	83.258
2014	192	538	20.44	0.235	136.8	-4.738	79.3	84.033
2014	192	539	20.43	0.233	134.7	-5.411	80	85.411
2014	192	540	20.45	0.232	136.7	-5.67	79.7	84.17
2014	192	541	20.74	0.232	136.7	-5.440	78.1	83.540
2014	192	542	20.44	0.233	136.8	-5.41	78.8	83.36
2014	192	543	20.45	0.233	136.4	-5.722	78.3	84.722
2014	192	544	20.43	0.235	137.7	-5.878	80.8	85.778
2014	192	545	20.43	0.237	131.2	-5.867	80.6	86.467
2014	192	546	20.44	0.231	136	-5.08	78.8	84.08
2014	192	547	20.46	0.232	140.8	-5.000	78.8	83.800
2014	192	548	20.46	0.231	142	-4.949	134.3	138.849
2014	192	549	20.44	0.234	137.8	-5.254	80.1	85.354
2014	192	550	20.47	0.238	140.3	-5.439	78	83.439

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811269
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	231	1000	20.44	0.219	141.3	-4.575	75.2	76.778
2014	231	1001	20.42	0.13	138.5	-5.154	77.5	82.754
2014	231	1002	20.44	0.132	136.1	-5.171	76.2	81.571
2014	231	1003	20.43	0.211	135.8	-5.155	75.6	81.083
2014	231	1004	20.43	0.221	140.7	4.731	77.7	82.431
2014	231	1005	20.44	0.23	142.7	-4.521	76	80.621
2014	231	1006	20.43	0.230	139.8	-4.368	75.1	82.498
2014	231	1007	20.44	0.215	141.1	-4.068	75.8	81.583
2014	231	1008	20.43	0.22	144.3	-5.198	77.8	83.898
2014	231	1009	20.42	0.220	139.9	-4.03	76.3	82.22
2014	231	1010	20.41	0.212	131.8	-4.598	68.80	84.000
2014	231	1011	20.42	0.225	138.5	-5.094	64.91	83.808
2014	231	1012	20.41	0.196	136.3	-4.59	61.30	68.80
2014	231	1013	20.45	0.196	141.8	-5.259	68.8	84.197
2014	231	1014	20.44	0.243	142.8	-5.088	65.42	84.235
2014	231	1015	20.43	0.206	138.8	-5.051	64.18	84.675
2014	231	1016	20.44	0.206	143	-5.371	63.72	83.913
2014	231	1017	20.41	0.212	136	-5.179	64.84	83.024
2014	231	1018	20.42	0.207	141.4	-5.024	69.87	84.583
2014	231	1019	20.43	0.19	137.3	-5.104	64.15	84.914
2014	231	1020	20.41	0.220	136	-5.413	68	85.413
2014	231	1021	20.41	0.201	137.9	-5.44	64.75	85.19
2014	231	1022	20.42	0.204	138.8	-5.179	65.58	85.259
2014	231	1023	20.42	0.230	136.9	-5.179	64.08	84.109
2014	231	1024	20.43	0.200	139.2	-5.158	64.51	84.577
2014	231	1025	20.43	0.231	138.6	-5.418	64.7	85.113
2014	231	1026	20.42	0.195	136.7	-5.633	64.4	85.060
2014	231	1027	20.42	0.235	139.2	-5.864	64.59	86.416
2014	231	1028	20.42	0.236	138.7	-5.045	63.51	84.135
2014	231	1029	20.44	0.218	141.5	-5.578	68.78	84.354
2014	231	1030	20.43	0.219	138.8	-5.77	63.41	84.36
2014	231	1031	20.44	0.214	140.2	-5.00	63.17	84.16
2014	231	1032	20.43	0.24	142.6	-5.118	63.16	85.398
2014	231	1033	20.44	0.218	139	-5.018	64.83	84.820
2014	231	1034	20.41	0.220	139.9	-5.681	64.67	85.321
2014	231	1035	20.43	0.220	138.2	-5.591	64.79	83.871
2014	231	1036	20.45	0.206	140.3	-5.184	63.71	83.414
2014	231	1037	20.44	0.234	141	-5.905	64.66	84.348
2014	231	1038	20.42	0.225	135	-5.546	63.84	67.369
2014	231	1039	20.44	0.225	136.9	-5.253	64.89	83.341
2014	231	1040	20.44	0.218	141.9	-5.743	65.11	85.853
2014	231	1041	20.43	0.218	142.8	-5.54	64.32	83.86
2014	231	1042	20.42	0.225	138.7	-5.490	63.08	84.970
2014	231	1043	20.43	0.221	138	-5.835	64.83	84.798
2014	231	1044	20.43	0.228	139.4	-5.180	64.57	84.308
2014	231	1045	20.44	0.219	140.9	-5.071	63.84	84.413
2014	231	1046	20.44	0.218	140.5	-5.082	64.5	85.512
2014	231	1047	20.43	0.227	139.1	-5.472	65.73	87.192
2014	231	1048	20.43	0.21	141.7	-5.170	66.08	85.250
2014	231	1049	20.41	0.232	139.8	-5.077	65.17	85.247
2014	231	1050	20.41	0.222	134.8	-5.252	64.30	87.042
2014	231	1051	20.44	0.218	139.3	-5.283	66.27	85.353
2014	231	1052	20.44	0.230	142.7	-5.134	64.92	85.994
2014	231	1053	20.4	0.220	134.2	-5.010	64.90	87.526
2014	231	1054	20.41	0.221	139.9	-5.066	67.13	87.700
2014	231	1055	20.41	0.225	137.5	-5.361	66.34	86.907
2014	231	1056	20.43	0.220	138.8	-5.143	66.6	87.542
2014	231	1057	20.41	0.216	134	-5.715	67.37	86.065
2014	231	1058	20.44	0.210	141.5	-5.348	66.34	87.098
2014	231	1059	20.44	0.215	138.8	-5.21	63.85	87.06
2014	231	1060	20.38	0.21	136.4	-5.059	66.15	78.083
2014	231	1061	20.42	0.210	138.1	-5.023	67.48	85.080
2014	231	1062	20.43	0.218	137	-5.725	66.94	87.675
2014	231	1063	20.44	0.215	140.4	-5.353	66.57	87.322
2014	231	1064	20.44	0.217	138.7	-5.170	66.45	86.815
2014	231	1065	20.43	0.223	137.4	-5.065	67.83	85.898
2014	231	1066	20.43	0.218	138.5	-5.77	66.74	87.51
2014	231	1067	20.43	0.225	138.8	-5.349	67.36	87.816
2014	231	1068	20.43	0.218	139	-5.87	67.38	88.83
2014	231	1069	20.44	0.223	140.3	-5.080	66.83	87.713
2014	231	1070	20.43	0.221	140.4	-5.223	67.39	87.253
2014	231	1071	20.41	0.222	139.8	-5.087	66.38	88.317
2014	231	1072	20.43	0.217	140.4	-5.471	67.07	88.842
2014	231	1073	20.41	0.214	134.6	-5.798	66.21	86.806
2014	231	1074	20.42	0.21	138.4	-5.327	66.88	88.887
2014	231	1075	20.44	0.218	140.7	-5.65	67.62	88.67
2014	231	1076	20.43	0.215	141	-5.256	66.25	88.388
2014	231	1077	20.41	0.21	138.8	5.783	67.61	88.844
2014	231	1078	20.43	0.224	137	-5.27	66.74	78.8
2014	231	1079	20.46	0.220	138.8	-5.379	67.8	88.878
2014	231	1080	20.41	0.220	135	-5.878	66.27	88.848
2014	231	1081	20.43	0.220	136.8	-5.188	66.06	88.328
2014	231	1082	20.41	0.219	138	-5.050	66.41	88.887
2014	231	1083	20.41	0.226	136.7	-5.54	67.63	88.15
2014	231	1084	20.44	0.226	137.3	-5.747	67.12	88.847
2014	231	1085	20.42	0.223	136.2	-5.45	66.6	78.81
2014	231	1086	20.43	0.217	137.8	-5.234	67.94	88.884
2014	231	1087	20.42	0.221	138.1	-5.678	66.1	78.778
2014	231	1088	20.42	0.222	135	-5.848	66.36	71.188
2014	231	1089	20.42	0.215	134.6	-5.462	66.11	71.798

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	232	251	20.43	0.217	141.8	-4.511	78.1	83.811
2014	232	252	20.44	0.224	136.3	-5.075	79.5	84.575
2014	232	253	20.43	0.216	137.4	-5.864	78.6	83.284
2014	232	254	20.44	0.220	137.7	-5.118	83.4	90.546
2014	232	255	20.44	0.220	136.1	-4.658	107.5	112.158
2014	232	256	20.44	0.218	136.8	-5.154	80.9	86.154
2014	232	257	20.44	0.216	138.9	-4.857	79.8	84.357
2014	232	258	20.44	0.224	139.8	-5.172	80.9	86.071
2014	232	259	20.43	0.211	142.7	-5.458	82.7	87.498
2014	232	260	20.43	0.222	141.9	-4.865	81.9	86.365
2014	232	261	20.43	0.222	142.1	-5.139	81.4	87.929
2014	232	262	20.44	0.219	141.4	-5.740	82.9	86.019
2014	232	263	20.44	0.217	138.4	-5.066	79.5	83.246
2014	232	264	20.45	0.21	138.6	-5.184	79.5	83.754
2014	232	265	20.44	0.215	138.4	-5.080	80.4	85.480
2014	232	266	20.45	0.220	138.6	-5.260	81.1	87.365
2014	232	267	20.44	0.216	143.8	-5.144	79.3	84.344
2014	232	268	20.43	0.229	138	-5.136	79.4	83.126
2014	232	269	20.44	0.229	140.5	-4.415	78.7	83.115
2014	232	270	20.43	0.22	134.3	6.268	78.5	84.788
2014	232	271	20.44	0.21	132.7	-5.69	236.8	234.28
2014	232	272	20.44	0.217	132.1	-4.883	118.4	122.483
2014	232	273	20.44	0.23	134.8	-4.786	83.8	83.884
2014	232	274	20.43	0.227	134.4	-5.344	80.8	85.984
2014	232	275	20.44	0.224	135.4	-4.934	78.7	84.634
2014	232	276	20.44	0.226	138.8	-5.408	79.4	84.886
2014	232	277	20.43	0.230	136.6	-5.611	79.4	85.311
2014	232	278	20.44	0.227	138.7	-5.474	80.5	85.774
2014	232	279	20.44	0.223	138	-5.383	80.1	85.383
2014	232	280	20.47	0.22	136.8	-5.14	78.8	84.14
2014	232	281	20.44	0.222	134.1	-5.000	78.8	85.788
2014	232	282	20.45	0.221	138.7	-5.000	136.8	202.428
2014	232	283	20.44	0.229	133.3	-5.384	151.8	237.384
2014	232	284	20.44	0.227	134.8	-5.463	81.4	87.862
2014	232	285	20.45	0.221	136.3	-5.21	78.6	85.21
2014	232	286	20.44	0.219	136.1	-5.433	80.1	85.513
2014	232	287	20.46	0.221	134.8	-5.853	79	85.610
2014	232	288	20.45	0.217	134.2	-5.357	83.1	84.427
2014	232	289	20.47	0.218	143.1	-5.408	78	84.408
2014	232	290	20.47	0.217	141.3	-5.134	78.1	84.204
2014	232	291	20.45	0.219	131.8	-5.38	80.4	86.86
2014	232	292	20.44	0.219	137.3	-5.884	80.3	86.884
2014	232	293	20.45	0.223	137.6	-5.34	78.9	86.34
2014	232	294	20.44	0.225	133.6	-5.415	78.8	85.215
2014	232	295	20.45	0.216	134.7	-5.008	78.8	85.886
2014	232	296	20.47	0.221	140.8	-5.46	80.1	85.36
2014	232	297	20.44	0.225	137.9	-5.078	431.9	437.978
2014	232	298	20.45	0.225	139.7	-5.726	80	135.726
2014	232	299	20.45	0.22	136.7	-5.348	80.3	86.848
2014	232	300	20.47	0.225	142.6	-5.007	78.8	86.807
2014	232	301	20.47	0.220	137.8	-5.008	79.1	85.808
2014	232	302	20.45	0.221	139.6	-5.092	79.7	86.892
2014	232	303	20.46	0.220	136.1	-5.068	80	86.882
2014	232	304	20.44	0.226	132	-5.250	81.1	86.250
2014	232	305	20.46	0.220	133.2	-5.850	80.8	86.871
2014	232	306	20.46	0.222	136.4	-5.819	81.2	87.315
2014	232	307	20.47	0.227	138.7	-5.18	79.2	86.48
2014	232	308	20.46	0.220	137.6	-5.417	80.2	86.417
2014	232	309	20.46	0.224	137.9	-5.205	79.8	86.185
2014	232	310	20.45	0.215	138.1	-5.000	80.8	87.400
2014	232	311	20.45	0.221	136.3	-5.518	80.8	86.180
2014	232	312	20.44	0.216	132.4	-5.878	81.4	86.375
2014	232	313	20.46	0.215	136.2	-5.425	81.6	1.1223
2014	232	314	20.47	0.215	135.1	-5.413	79.5	83.013
2014	232	315	20.45	0.22	136.8	-5.798	81.8	88.298
2014	232	316	20.46	0.221	134.7	-5.574	82.9	88.874
2014	232	317	20.46	0.218	135.8	-5.845	80.6	86.848
2014	232	318	20.44	0.221	130.3	-5.21	83	88.21
2014	232	319	20.47	0.218	139	-5.08	80.4	88.48
2014	232	320	20.45	0.218	131.4	-5.345	81.2	87.928
2014	232	321	20.45	0.218	132.3	-5.154	82.3	88.154
2014	232	322	20.47	0.217	137.9	-5.02	79.9	88.01
2014	232	323	20.48	0.217	138.3	-5.217	80.8	87.817
2014	232	324	20.45	0.22	134.1	-5.053	81.8	84.381
2014	232	325	20.45	0.217	135	-5.081	80.8	88.381
2014	232	326	20.47	0.219	132.8	-5.34	81.8	88.34
2014	232	327	20.45	0.224	135.9	-5.23	83.9	87.13
2014	232	328	20.47	0.224	140.7	-5.178	81.4	87.375
2014	232	329	20.46	0.217	137	-5.417	81.3	87.717
2014	232	330	20.48	0.217	137.7	-5.736	81.4	87.136
2014	232	331	20.47	0.23	138.8	-5.091	80	88.882
2014	232	332	20.48	0.226	141.8	-5.759	81.8	88.959
2014	232	333	20.47	0.218	140.8	-5.810	80.1	87.118
2014	232	334	20.45	0.226	136.1	-5.832	82.1	87.983
2014	232	335	20.47	0.225	138.8	-5.871	81.8	87.871
2014	232	336	20.45	0.21	135.8	-5.3	80.4	86.3
2014	232	337	20.46	0.218	137.5	-5.675	81.7	88.343
2014	232	338	20.47	0.217	136.1	-5.161	83.5	87.841
2014	232	339	20.46	0.229	135.5	-5.832	81.8	87.386
2014	232	340	20.47	0.228	137.8	-5.795	83.5	87.293

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121511283
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	251	2030	20.61	0.221	137	-0.334	69.42	68.758
2014	251	2031	20.61	0.221	137.9	-1.508	68.13	70.609
2014	251	2032	20.61	0.219	134.3	-1.718	66.77	70.488
2014	251	2033	20.61	0.22	136.7	-1.913	68.36	70.673
2014	251	2034	20.61	0.224	139	-1.949	69.09	70.038
2014	251	2035	20.62	0.226	139.5	-1.948	68.36	69.308
2014	251	2036	20.61	0.223	136.1	-2.007	69.5	71.507
2014	251	2037	20.61	0.225	134.4	-2.039	69.8	71.839
2014	251	2038	20.61	0.218	138.6	-2.146	68.77	71.916
2014	251	2039	20.63	0.224	136.8	-1.982	68.11	70.092
2014	251	2040	20.63	0.219	137.3	-1.54	68.98	70.51
2014	251	2041	20.61	0.223	132.8	-1.967	70.8	72.767
2014	251	2042	20.61	0.22	139.4	-2.258	69.89	71.888
2014	251	2043	20.61	0.218	136.6	-2.534	69.98	71.394
2014	251	2044	20.61	0.221	139.8	-2.008	69.57	71.578
2014	251	2045	20.63	0.219	134	-1.842	69.44	71.282
2014	251	2046	20.63	0.220	136.3	-2.094	69.57	71.664
2014	251	2047	20.63	0.218	138.7	-1.529	68.47	70.000
2014	251	2048	20.63	0.218	134.2	-1.672	70.8	72.772
2014	251	2049	20.62	0.219	139.6	-0.86	70	70.83
2014	251	2050	20.6	0.222	131.8	-1.698	70.4	70.098
2014	251	2051	20.61	0.22	134.7	-0.918	70.8	71.015
2014	251	2052	20.62	0.227	137.7	-2.002	68.86	70.862
2014	251	2053	20.62	0.241	140.8	-2.833	68.67	71.506
2014	251	2054	20.62	0.244	140.7	-2.888	68.13	70.018
2014	251	2055	20.62	0.228	135	-2.469	69.48	71.979
2014	251	2056	20.61	0.228	133.9	-2.815	68.76	71.576
2014	251	2057	20.61	0.229	136.1	-3.061	70.2	73.262
2014	251	2058	20.61	0.233	138.8	-2.373	69.92	71.293
2014	251	2059	20.62	0.231	136.4	-2.262	69.39	70.652
2014	251	2060	20.61	0.234	135	-2.388	69.84	71.435
2014	251	2061	20.61	0.234	138.2	-2.378	68.97	71.348
2014	251	2062	20.61	0.232	134.7	-1.809	70.3	71.998
2014	251	2063	20.63	0.225	137.7	-1.818	68.91	70.728
2014	251	2064	20.62	0.227	137.2	-2.377	68.7	71.077
2014	251	2065	20.65	0.229	134.5	-2.313	68.57	71.981
2014	251	2066	20.63	0.229	134.1	-2.152	69.17	71.402
2014	251	2067	20.62	0.229	140.1	-4.059	73.3	69.499
2014	251	2068	20.63	0.231	140.1	-4.189	73.3	70.239
2014	251	2069	20.61	0.235	138.1	-4.246	73.3	70.846
2014	251	2070	20.62	0.238	133.2	-2.947	73.8	70.747
2014	251	2071	20.63	0.237	139.4	-2.265	70.8	70.898
2014	251	2072	20.63	0.236	139.1	-2.171	70.1	70.271
2014	251	2073	20.66	0.238	137.9	-4.717	75.5	80.217
2014	251	2074	20.64	0.239	140.5	-4.779	75.1	80.879
2014	251	2075	20.62	0.239	140.6	-4.678	81	85.678
2014	251	2076	20.63	0.239	133.1	-4.349	76.9	80.849
2014	251	2077	20.63	0.239	147.8	-4.8	76.5	81.6
2014	251	2078	20.63	0.234	138	-4.462	75.8	80.262
2014	251	2079	20.63	0.238	146.4	-4.293	75.4	79.693
2014	251	2080	20.63	0.237	146.1	-4.319	76.2	80.519
2014	251	2081	20.63	0.233	147.8	-4.403	76.5	80.903
2014	251	2082	20.63	0.231	147.4	-4.625	76.2	80.825
2014	251	2083	20.63	0.232	147.3	-4.34	76.6	80.94
2014	251	2084	20.6	0.225	144.8	-5.349	78.8	84.943
2014	251	2085	20.63	0.230	151	-4.971	76.9	81.871
2014	251	2086	20.63	0.235	151.7	-5.144	76.3	81.444
2014	251	2087	20.62	0.233	153.1	-4.851	77	81.851
2014	251	2088	20.63	0.242	157.1	-4.626	76.2	80.826
2014	251	2089	20.63	0.243	154.1	-4.772	76.5	81.272
2014	251	2090	20.63	0.244	150.3	-4.614	77	81.614
2014	251	2091	20.64	0.243	148.8	-4.442	76.4	80.842
2014	251	2092	20.63	0.239	147.3	-4.126	77.2	81.326
2014	251	2093	20.63	0.234	144.7	-4.838	78	82.838
2014	251	2094	20.64	0.237	151.9	-4.375	76.5	81.375
2014	251	2095	20.61	0.24	143.8	-4.838	79.9	84.866
2014	251	2096	20.62	0.238	144	-4.313	76.3	81.613
2014	251	2097	20.63	0.233	146.1	-4.895	77.1	81.995
2014	251	2098	20.63	0.229	148.5	-3.123	78.4	81.523
2014	251	2099	20.61	0.24	145.3	-4.515	84.48	84.995
2014	251	2100	20.63	0.238	143.4	-4.014	81.33	85.344
2014	251	2101	20.63	0.23	144.3	-4.014	81.85	85.864
2014	251	2102	20.61	0.226	138.2	0.196	84.34	84.142
2014	251	2103	20.61	0.227	140.2	0.163	84.88	84.718
2014	251	2104	20.62	0.229	148.3	-4.364	82.79	86.154
2014	251	2105	20.59	0.229	157.1	-0.22	84.89	84.61
2014	251	2106	20.58	0.223	157.8	-0.165	86.86	86.345
2014	251	2107	20.59	0.222	158.3	-0.309	85.35	[illegible]
2014	251	2108	20.59	0.221	147.1	-0.13	84.34	84.46
2014	251	2109	20.61	0.225	143.8	-0.183	[illegible]	85.328
2014	251	2110	20.6	0.21	139	0.719	83.89	84.179
2014	251	2111	20.62	0.215	146.8	0.677	83.92	83.243
2014	251	2112	20.6	0.215	146.5	-0.136	83.15	83.286
2014	251	2113	20.59	0.212	136.8	-0.11	84	84.11
2014	251	2114	20.59	0.203	136.6	-0.613	84.6	85.213
2014	251	2115	20.59	0.194	136.3	-1.1	84.91	86.01
2014	251	2116	20.61	0.188	141.4	0.843	83.95	83.108
2014	251	2117	20.62	0.189	142.3	-0.389	83.9	84.289
2014	251	2118	20.64	0.198	143.6	-0.823	83.43	[illegible]
2014	251	2119	20.65	0.198	134.9	-0.993	84.16	84.893

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	251	2120	20.66	0.198	136.8	-0.798	82.5	83.298
2014	252	2121	20.65	0.192	138.3	-0.158	83.8	83.958
2014	252	2122	20.66	0.192	[illegible]	-0.852	83.2	84.052
2014	252	2123	20.66	0.197	136.8	-0.825	83	83.825
2014	252	2124	20.66	0.22	134	-0.569	84.6	85.169
2014	252	2125	20.66	0.225	138	-0.269	84.2	84.469
2014	252	2126	20.66	0.216	132	-0.436	88.6	89.036
2014	252	2127	20.66	0.223	134.6	-0.169	[illegible]	90.089
2014	252	2128	20.65	0.223	134.6	-0.411	86.6	87.011
2014	252	2129	20.66	0.223	138	-0.34	84	84.34
2014	252	2130	20.67	0.225	139.7	-0.34	85	85.34
2014	252	2131	20.66	0.227	134.7	-0.23	85	85.23
2014	252	2132	20.66	0.226	134.2	-0.803	85.2	86.003
2014	252	2133	20.68	0.226	136	-0.769	85.2	85.969
2014	252	2134	20.67	0.226	135.4	-0.255	86.2	86.455
2014	252	2135	20.68	0.228	136.2	-0.583	84	84.582
2014	252	2136	20.68	0.223	136.4	-0.824	86	86.824
2014	252	2137	[illegible]	[illegible]	134.4	-0.882	85.5	[illegible]
2014	252	2138	20.67	0.223	133.5	-0.523	86.6	87.123
2014	252	2139	20.69	0.225	135.5	-0.529	88.8	89.329
2014	252	2140	20.68	0.218	136.3	-0.54	[illegible]	[illegible]
2014	252	2141	20.67	0.219	136.8	-0.969	86.8	87.769
2014	252	2142	20.68	0.221	135	-0.46	87.4	87.86
2014	252	2143	20.67	0.221	136.7	-0.888	86.8	[illegible]
2014	252	2144	20.68	0.218	131.8	-0.841	87	87.841
2014	252	2145	20.68	0.218	131.3	-0.344	87.3	88.644
2014	252	2146	20.67	0.218	136.5	-0.859	87.3	88.159
2014	252	2147	20.66	0.214	137.8	-0.348	87.1	87.448
2014	252	2148	20.66	0.22	136.5	-0.848	88.6	89.448
2014	252	2149	20.65	0.224	131.6	-0.65	[illegible]	112.21
2014	252	2150	20.68	0.219	137.8	-0.11	88.9	89.01
2014	252	2151	20.68	0.218	137.7	-0.116	87.8	87.916
2014	252	2152	20.68	0.21	136.7	-0.144	88.8	88.944
2014	252	2153	20.67	0.212	136.7	-0.747	87.4	84.187
2014	252	2154	20.68	0.212	134.3	-0.168	86.7	86.868
2014	252	2155	20.69	0.221	135.7	-0.171	85.4	85.571
2014	252	2156	20.68	0.215	134.2	-0.863	86.4	87.263
2014	252	2157	20.68	0.217	138.5	-0.863	85.8	86.663
2014	252	2158	20.68	0.216	132.1	-0.437	86.1	86.537
2014	252	2159	20.5	0.219	[illegible]	-0.865	88	88.865
2014	252	2160	20.51	0.221	139.1	-0.866	84.4	85.266
2014	252	2161	20.66	0.214	139.4	-0.963	86.7	87.663
2014	252	2162	20.66	0.208	136.5	-0.419	[illegible]	84.919
2014	252	2163	20.51	0.219	137.9	-0.367	84.8	85.167
2014	252	2164	20.49	0.225	136.7	-0.12	85.3	85.42
2014	252	2165	20.49	0.225	136.1	-0.666	85.8	[illegible]
2014	252	2166	20.51	0.222	136.4	-0.611	85.8	86.411
2014	252	2167	20.49	0.218	1.03	-0.88	88.5	89.38
2014	252	2168	20.49	[illegible]	136.2	-0.866	86.5	87.366
2014	252	2169	20.51	0.221	138.9	-0.617	90.1	90.717
2014	252	2170	20.51	0.214	137.4	-0.894	86.8	87.694
2014	252	2171	20.51	0.214	137	-0.42	87	87.42
2014	252	2172	20.51	0.214	136.1	-0.363	88.6	89.363
2014	252	2173	20.51	0.218	135.5	-0.652	89.8	90.452
2014	252	2174	20.51	0.217	136	-0.398	89.3	89.798
2014	252	2175	20.5	0.219	134.9	-0.574	88.8	89.374
2014	252	2176	20.51	0.225	136	-0.522	87.1	88.622
2014	252	2177	20.51	0.221	136.8	-0.408	88.8	89.208
2014	252	2178	20.49	0.219	134.9	-0.606	91.9	92.506
2014	252	2179	20.51	0.219	137.9	-0.508	88.3	88.808
2014	252	2180	20.5	0.222	138.7	-0.765	84.1	84.865
2014	252	2181	20.50	0.219	134.4	-0.34	91.8	92.14
2014	252	2182	20.5	0.218	138.6	-0.34	88.1	88.44
2014	252	2183	20.5	0.22	137.8	-0.879	84.8	85.679
2014	252	2184	20.48	0.217	138.8	-4.038	96.9	101.938
2014	252	2185	20.49	0.21	138.4	-0.302	87.3	87.602
2014	252	2186	20.53	0.213	141.1	-4.437	157.8	162.237
2014	252	2187	20.53	0.211	137.8	-4.777	171.9	176.677
2014	252	2188	20.49	0.22	138.1	-5.029	92.8	97.829
2014	252	2189	20.52	0.218	139.3	-5.419	96.2	101.719
2014	252	2190	20.51	0.222	137.8	-4.576	96.8	101.376
2014	252	2191	20.51	0.218	138.6	-4.819	88.8	93.619
2014	252	2192	20.51	0.218	138.3	-7.17	96.6	103.77
2014	252	2193	[illegible]	0.224	134.5	-5.71	87.3	93.01
2014	252	2194	20.5	0.216	131.8	-4.784	87.1	91.884
2014	252	2195	20.5	0.212	136.8	-4	88.1	84.3
2014	252	2196	20.49	0.224	134.4	-4.508	87.7	92.208
2014	252	2197	20.48	0.221	131	-7.52	88.4	95.92
2014	252	2198	20.47	0.219	134.9	-6.327	88.1	94.427
2014	252	2199	20.47	0.213	131.8	-7.62	86.7	94.32
2014	252	2200	20.5	0.214	137.4	-7.32	87.1	94.42
2014	252	2201	20.5	0.213	136.8	-4.98	88.8	93.18
2014	252	2202	20.52	0.219	135	-7.87	86.1	93.97
2014	252	2203	20.51	0.219	132.7	-7.98	86.6	94.58
2014	252	2204	20.51	0.222	136.4	-7.14	87	94.14
2014	252	2205	20.52	0.221	133	-7.29	86.2	93.49
2014	252	2206	20.52	0.229	137.7	-7.97	88.8	95.77
2014	252	2207	20.5	0.219	133.1	-7.43	86.4	93.83
2014	252	2208	20.49	0.211	130.8	-7.98	87.7	95.68
2014	252	2209	20.5	0.191	132.8	-8.784	87.1	95.884
2014	252	2210	20.5	0.225	133.3	-7.68	87.8	95.48

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811269
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	151	2100	20.44	0.236	143	-0.373	60.33	63.561
2014	151	2101	20.42	0.231	136	-0.179	64.94	68.010
2014	151	2102	20.41	0.237	143.4	-0.628	63.57	64.308
2014	151	2103	20.43	0.23	137.1	-0.344	64.16	64.314
2014	151	2104	20.42	0.229	136	-0.413	65	65.413
2014	151	2105	20.41	0.231	137.9	-0.44	64.73	65.19
2014	151	2106	20.43	0.233	142.1	-0.041	62.57	62.611
2014	151	2107	20.41	0.230	136.6	0.22	63.38	63.79
2014	151	2108	20.43	0.231	138.3	-0.138	63.31	63.310
2014	151	2109	20.41	0.233	134.6	-0.551	64.01	64.011
2014	151	2110	20.4	0.236	137.7	0.481	64.38	64.388
2014	151	2111	20.41	0.234	140	-0.22	63.29	63.3
2014	151	2112	20.4	0.232	141.4	-0.896	63.79	63.886
2014	151	2113	20.4	0.233	140.8	-0.614	64.01	64.014
2014	151	2114	20.42	0.230	139.7	-0.206	63	63.189
2014	151	2115	20.42	0.228	134.8	0.289	64.16	63.711
2014	151	2116	20.4	0.234	136.6	-0.379	64.73	65.000
2014	151	2117	20.4	0.232	131.4	0.379	65.01	65.453
2014	151	2118	20.39	0.229	138.3	0.138	63.73	63.853
2014	151	2119	20.4	0.237	141.8	-0.655	63.86	64.512
2014	151	2120	20.4	0.233	139.3	-0.896	64.44	64.880
2014	151	2121	20.4	0.231	138.7	-0.344	63.57	63.914
2014	151	2122	20.42	0.230	140.4	0.069	63.5	63.591
2014	151	2123	20.41	0.229	138.8	-0.273	63.04	63.313
2014	151	2124	20.42	0.231	141.1	0.071	64.37	63.989
2014	151	2125	20.41	0.233	142.4	-0.273	64.1	64.471
2014	151	2126	20.41	0.24	142.2	0.316	64.48	64.796
2014	151	2127	20.41	0.233	142.4	-0.014	63.86	63.844
2014	151	2128	20.41	0.19	140.6	-0.014	63.88	63.894
2014	151	2129	20.39	0.230	139.3	0.138	64.04	64.042
2014	151	2130	20.41	0.227	141.1	0.185	64.09	63.925
2014	151	2131	20.42	0.230	140.8	-0.344	63.79	63.814
2014	151	2132	20.39	0.225	137.2	-0.32	64.06	64.01
2014	151	2133	20.39	0.232	137.3	-0.185	63.96	63.345
2014	151	2134	20.38	0.232	138.5	-0.069	63.38	63.883
2014	151	2135	20.39	0.231	142.1	-0.31	64.54	64.85
2014	151	2136	20.41	0.235	140.8	-0.138	63.48	63.625
2014	151	2137	20.4	0.23	138	0.718	63.56	63.273
2014	151	2138	20.41	0.235	144.3	0.577	62.91	63.348
2014	151	2139	20.4	0.230	141.3	-0.598	63.15	63.888
2014	151	2140	20.39	0.232	138.5	-0.33	64	64.11
2014	151	2141	20.38	0.235	136.4	-0.413	64.6	65.013
2014	151	2142	20.39	0.234	136.1	-1.1	64.33	66.01
2014	151	2143	20.43	0.230	141.4	0.041	63.96	63.909
2014	151	2144	20.46	0.230	142.8	-0.343	63.55	63.911
2014	151	2145	20.43	0.230	143.4	-0.341	63.83	63.872
2014	151	2146	20.4	0.230	142.5	-0.344	63.71	63.864
2014	151	2147	20.4	0.234	140.2	0.344	63.49	63.146
2014	151	2148	20.4	0.227	136.8	0.32	64.13	63.83
2014	151	2149	20.42	0.228	140.8	0	63.79	63.79
2014	151	2150	20.4	0.234	140.5	0.134	63.56	63.426
2014	151	2151	20.4	0.229	138.5	-0.303	63.32	63.623
2014	151	2152	20.42	0.231	139.4	0.034	63.84	63.806
2014	151	2153	20.38	0.23	141.8	-0.44	63.19	63.63
2014	151	2154	20.42	0.230	139.8	-0.539	64.11	64.639
2014	151	2155	20.41	0.231	139.1	-1.014	63.49	65.504
2014	151	2156	20.42	0.23	141.3	-0.31	63.88	63.85
2014	151	2157	20.45	0.235	141.1	-0.131	63.64	63.771
2014	151	2158	20.41	0.235	138.4	0.185	63.9	63.715
2014	151	2159	20.42	0.237	141.8	-0.386	64.025	64.411
2014	151	2160	20.41	0.238	138.1	-0.069	64.07	64.139
2014	151	2161	20.41	0.229	138.3	-0.344	63.29	63.634
2014	151	2162	20.41	0.23	138.8	-0.309	64.52	64.829
2014	151	2163	20.42	0.34	143.7	-1.341	64.73	66.071
2014	151	2164	20.43	0.240	143.8	-0.379	63.45	63.725
2014	151	2165	20.42	0.23	138.2	-0.069	64.84	64.709
2014	151	2166	20.40	0.239	143.3	-0.06	64.29	64.35
2014	151	2167	20.41	0.232	132.6	-0.309	63.88	64.189
2014	151	2168	20.42	0.233	139.5	-0.096	64.01	64.105
2014	151	2169	20.41	0.238	136.3	-0.38	63.56	63.88
2014	151	2170	20.43	0.236	141.8	-0.309	63.9	64.189
2014	151	2171	20.44	0.241	142.5	-0.069	63.43	63.499
2014	151	2172	20.41	0.238	139.8	-0.069	64.18	64.573
2014	151	2173	20.44	0.236	143	-0.371	63.21	63.991
2014	151	2174	20.42	0.231	136	-0.179	64.06	64.019
2014	151	2175	20.43	0.237	142.4	-0.413	63.87	64.309
2014	151	2176	20.43	0.23	137.1	-0.344	64.18	64.524
2014	151	2177	20.41	0.230	138	-0.413	65	65.413
2014	151	2178	20.41	0.231	137.9	-0.44	64.73	65.19
2014	151	2179	20.43	0.234	136.6	-0.179	63.88	64.059
2014	151	2180	20.42	0.235	138.9	-0.179	64.01	64.189
2014	151	2181	20.42	0.233	139.2	-0.275	64.62	64.919
2014	151	2182	20.42	0.231	138.5	-0.413	64.7	65.113
2014	151	2183	20.41	0.229	138.7	-0.655	63.4	63.055
2014	151	2184	20.42	0.235	138.3	-1.064	64.55	65.614
2014	151	2185	20.43	0.234	138.7	-0.689	64.53	64.225
2014	151	2186	20.44	0.235	141.5	-0.379	63.78	64.159
2014	151	2187	20.43	0.230	138.5	-0.77	63.61	64.38
2014	151	2188	20.43	0.234	138.8	-0.59	63.17	64.13
2014	151	2189	20.45	0.24	142.6	-0.198	63.38	63.388

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	152	251	20.31	0.242	146.8	-7.04	66.6	66.64
2014	152	252	20.33	0.241	143.3	-7.02	65.8	66.82
2014	152	253	20.40	0.236	138.1	-7.79	67.2	68.99
2014	152	254	20.8	0.235	142.3	-7.26	66.8	68.06
2014	152	255	20.49	0.234	141.3	-6.93	66.8	68.82
2014	152	256	20.5	0.233	140.7	-7.36	66.8	68.08
2014	152	257	20.51	0.235	140.1	-7.11	67	68.11
2014	152	258	20.49	0.236	141.4	-6.867	66.4	68.587
2014	152	259	20.51	0.233	144.4	-7.29	67.3	68.79
2014	152	260	20.48	0.234	139.6	-6.14	107.8	115.74
2014	152	261	20.48	0.232	137.1	-7.36	91.8	98.88
2014	152	262	20.49	0.236	141.1	-7.43	88.3	95.95
2014	152	263	20.5	0.234	141.6	-6.44	87.9	94.34
2014	152	264	20.5	0.235	142.3	-7.16	86.8	94.36
2014	152	265	20.5	0.237	138.4	-7.46	86	93.46
2014	152	266	20.49	0.238	142.4	-7.88	88	93.88
2014	152	267	20.48	0.237	139.3	-7.85	91	93.96
2014	152	268	20.49	0.236	138.7	-8.53	87.8	97.31
2014	152	269	20.5	0.239	138.5	-6.71	87.2	98.91
2014	152	270	20.5	0.236	138.2	-7.02	111.8	119.81
2014	152	271	20.5	0.23	139.2	-7.03	108.9	117.23
2014	152	272	20.5	0.235	138.2	4.98	217.8	138.88
2014	152	273	20.5	0.229	138.4	-7.81	89	94.81
2014	152	274	20.5	0.229	138.5	-6.87	88.1	94.17
2014	152	275	20.5	0.235	138.3	-6.33	87.8	94.01
2014	152	276	20.48	0.237	138.8	-6.33	88.8	97.98
2014	152	277	20.51	0.229	136.2	-7.33	91.2	95.45
2014	152	278	20.5	0.230	136.8	-6.1	89.8	96.7
2014	152	279	20.49	0.230	139.1	-7.46	86.5	96.05
2014	152	280	20.47	0.232	138.1	-6.16	91.1	96.53
2014	152	281	20.48	0.230	139.7	-6.48	90.6	96.08
2014	152	282	20.48	0.232	137.8	-7.98	129.4	131.98
2014	152	283	20.5	0.231	138.8	-6.1	493.8	501.7
2014	152	284	20.5	0.230	138.9	-6.39	139	144.39
2014	152	285	20.5	0.231	135.2	-8.38	90.1	98.48
2014	152	286	20.49	0.232	137.3	-7.61	93.1	98.58
2014	152	287	20.48	0.217	141.6	-8.09	93.1	98.36
2014	152	288	20.49	0.217	137.3	-7.75	91.6	99.38
2014	152	289	20.48	0.215	138.5	-7.81	91.7	99.71
2014	152	290	20.49	0.221	138	-7.88	91.4	99.38
2014	152	291	20.5	0.224	137.5	-8.4	90.7	99.1
2014	152	292	20.53	0.217	136.8	-7.83	90.7	97.39
2014	152	293	20.51	0.213	139.7	-7.61	90.8	97.01
2014	152	294	20.5	0.218	140.8	-7.88	90.1	97.05
2014	152	295	20.51	0.221	137.5	-7.91	90.7	97.61
2014	152	296	20.51	0.218	137.1	-8.06	90.4	98.04
2014	152	297	20.51	0.216	137.7	-7.29	90.1	97.39
2014	152	298	20.5	0.221	140.6	-8.39	93.1	100.39
2014	152	299	20.5	0.22	137.4	-7.35	90.3	97.55
2014	152	300	20.48	0.212	136.1	-6.04	93.2	98.16
2014	152	301	20.49	0.211	139.6	4.01	92.5	100.59
2014	152	302	20.49	0.213	137.7	-8.77	90.8	100.37
2014	152	303	20.5	0.214	141.1	-8.18	90.8	99.81
2014	152	304	20.51	0.215	142.6	-8.11	88.8	98.11
2014	152	305	20.51	0.222	140.3	-8.5	91.1	99.6
2014	152	306	20.49	0.221	139.5	-7.38	93	99.88
2014	152	307	20.49	0.215	139.6	-8.15	128.1	136.26
2014	152	308	20.5	0.214	140.6	-7.82	434.4	442.52
2014	152	309	20.51	0.217	139	-8.09	113.8	117.49
2014	152	310	20.51	0.217	147.3	-7.81	98.7	105.81
2014	152	311	20.5	0.211	147.5	-8.08	93.2	100.29
2014	152	312	20.49	0.208	146.1	-7.79	93	100.79
2014	152	313	20.5	0.207	146.8	-8.03	91.8	98.78
2014	152	314	20.51	0.214	144.7	-7.87	91.9	98.87
2014	152	315	20.51	0.212	148.5	-8.44	114.7	123.04
2014	152	316	20.51	0.212	145.8	-7.77	373.8	387.57
2014	152	317	20.5	0.213	139.7	-8.3	100.6	108.9
2014	152	318	20.51	0.215	144	-7.83	97.8	105.68
2014	152	319	20.5	0.218	143.2	-8.46	93.9	100.36
2014	152	320	20.51	0.216	140	-8.39	91.9	100.29
2014	152	321	20.51	0.214	138.3	-8.21	93.3	100.71
2014	152	322	20.51	0.214	143.3	-8.83	92.8	101.53
2014	152	323	20.51	0.213	141	-8.5	93.4	101.2
2014	152	324	20.52	0.22	146.2	-8.87	92.4	101.27
2014	152	325	20.51	0.218	147.1	-8.89	91.8	100.49
2014	152	326	20.5	0.216	138.8	-7.88	93.4	101.26
2014	152	327	20.52	0.219	143.7	-8.25	90.8	100.08
2014	152	328	20.52	0.218	144.5	-8.25	92.1	100.65
2014	152	329	20.51	0.22	144.6	-8.11	93.4	101.51
2014	152	330	12.48	0.213	141.3	-8.4	90.5	101.9
2014	152	331	20.5	0.17	143.4	-8.06	93.3	102.16
2014	152	332	20.51	0.219	145.3	-7.31	93.3	99.21
2014	152	333	20.52	0.22	141.6	-8.39	92.3	100.68
2014	152	334	20.53	0.222	142.4	-8.38	91.2	100.59
2014	152	335	20.52	0.218	141.1	-8.38	92.8	101.16
2014	152	336	20.51	0.218	144.1	-8.12	92.7	100.83
2014	152	337	20.52	0.216	140.8	-8.04	91.8	100.64
2014	152	338	20.52	0.222	143.2	-8.8	92.6	101.2
2014	152	339	20.52	0.223	146	-8.16	92.2	100.16
2014	152	340	20.52	0.227	142.8	-8.26	91	100.18

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811369
Stack: HLRV
Test No.: 1

Yr-mo	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	231	1130	20.44	0.218	139	-1.614	64.61	64.628
2014	231	1231	20.41	0.230	139.9	-0.411	64.57	65.162
2014	231	1232	20.41	0.236	139.3	-0.301	64.78	65.371
2014	231	1131	20.43	0.214	143.1	-0.604	63.72	63.634
2014	231	1234	20.41	0.218	141.3	-0.846	65.3	64.270
2014	231	1235	20.41	0.230	143.1	-0.790	62.82	63.375
2014	231	1130	20.41	0.227	139.3	-0.608	63.89	64.212
2014	231	1237	20.41	0.227	139.1	-0.823	64.36	64.971
2014	231	1236	20.44	0.224	143	-0.608	63.46	64.205
2014	231	1139	20.43	0.215	135	-1.348	65.04	67.189
2014	231	1240	20.44	0.223	136.9	-1.253	64.59	65.842
2014	231	1242	20.42	0.218	134.8	-0.745	65.31	65.832
2014	231	1243	20.41	0.215	142.9	-1.34	64.32	65.66
2014	231	1243	20.41	0.225	136.7	-1.000	65.39	66.079
2014	231	1244	20.43	0.223	139	-1.015	64.82	64.795
2014	231	1245	20.43	0.225	139.4	-1.139	65.67	66.908
2014	231	1148	20.44	0.223	140.5	-1.073	65.34	66.411
2014	231	1247	20.44	0.228	140.9	-1.042	64.5	65.842
2014	231	1248	20.43	0.227	139.1	-1.472	66.72	67.392
2014	231	1249	20.43	0.22	141.7	-0.179	65.88	65.259
2014	231	1250	20.43	0.222	139.9	-0.677	66.17	66.347
2014	231	1251	20.41	0.225	143.9	-1.252	66.38	67.642
2014	231	1252	20.44	0.218	139.3	-0.609	65.17	65.959
2014	231	1253	20.44	0.229	142.7	-0.134	64.93	65.064
2014	231	1254	20.4	0.225	134.3	-0.528	66.38	67.823
2014	231	1255	20.43	0.221	138.8	-0.046	67.12	67.708
2014	231	1256	20.43	0.225	137.5	-0.745	66.34	66.961
2014	231	1257	20.41	0.226	136.3	-1.141	66.4	67.542
2014	231	1258	20.41	0.218	134	-0.715	67.57	68.189
2014	231	1259	20.44	0.220	141.8	-1.205	65.34	67.885
2014	231	1300	20.44	0.219	136.8	-1.21	65.83	67.06
2014	231	1301	20.38	0.21	138.4	-0.968	68.13	70.098
2014	231	1302	20.41	0.218	136.3	-0.529	67.46	68.003
2014	231	1303	20.41	0.218	137	-0.715	68.08	67.575
2014	231	1304	20.44	0.230	140.6	-1.257	64.87	63.772
2014	231	1305	20.44	0.227	136.7	-0.179	66.45	68.630
2014	231	1306	20.40	0.222	137.4	-1.348	67.82	68.308
2014	231	1307	20.43	0.216	139.3	-0.77	66.78	67.31
2014	231	1308	20.43	0.219	139.6	-0.944	67.36	67.814
2014	231	1309	20.43	0.220	139	-1.57	67.98	68.63
2014	231	1310	20.44	0.221	140.3	-1.023	66.82	67.716
2014	231	1311	20.43	0.201	140.8	-0.921	67.08	68.833
2014	231	1312	20.41	0.222	139.6	-1.067	66.13	66.217
2014	231	1313	20.43	0.227	142.4	-1.473	67.87	68.841
2014	231	1314	20.41	0.224	134.8	-0.798	68.21	69.040
2014	231	1315	20.41	0.22	136.4	-1.527	68.06	68.607
2014	231	1316	20.44	0.215	140.7	-1.68	67.02	68.67
2014	231	1317	20.43	0.219	142	-1.158	66.85	68.106
2014	231	1318	20.43	0.22	144.8	-1.719	67.81	69.340
2014	231	1319	20.42	0.224	137	-1.67	66.72	70.6
2014	231	1320	20.42	0.218	138.6	-1.279	67.6	68.670
2014	231	1321	20.41	0.220	135	-0.870	68.27	68.946
2014	231	1322	20.41	0.220	138.5	-1.169	68.68	69.329
2014	231	1323	20.42	0.220	138	-1.050	68.41	69.489
2014	231	1324	20.44	0.225	136.3	-1.34	67.13	68.15
2014	231	1325	20.44	0.220	137.3	-1.747	67.13	68.867
2014	231	1326	20.42	0.218	138.1	-1.45	68.6	70.01
2014	231	1327	20.43	0.222	137.8	-2.114	67.34	69.504
2014	231	1328	20.42	0.220	136.8	-1.870	69.3	70.776
2014	231	1329	20.43	0.221	131	-1.844	69.35	71.323
2014	231	1330	20.43	0.215	134.9	-1.462	69.19	71.712
2014	231	1331	20.41	0.221	137	-0.138	69.62	69.786
2014	231	1332	20.42	0.222	137.8	-1.548	68.13	70.488
2014	231	1333	20.43	0.220	134.2	-1.718	69.77	70.489
2014	231	1334	20.43	0.21	136.7	-1.515	69.69	70.675
2014	231	1335	20.41	0.224	139	-1.548	68.89	70.489
2014	231	1336	20.43	0.218	138.9	-1.348	69.36	69.908
2014	231	1337	20.42	0.219	140.1	-1.617	69.5	71.307
2014	231	1338	20.43	0.223	141.4	-1.619	68.6	72.419
2014	231	1339	20.42	0.220	136.8	-1.146	69.77	71.816
2014	231	1340	20.43	0.224	140.8	-1.692	68.81	70.512
2014	231	1341	20.42	0.223	137.5	-1.34	68.84	70.31
2014	231	1342	20.41	0.212	132.8	-1.357	70.8	72.307
2014	231	1343	20.43	0.21	137.9	-1.156	68.35	71.486
2014	231	1344	20.42	0.224	134.1	-1.124	69.06	71.384
2014	231	1345	20.42	0.223	139.9	-1.806	69.47	71.576
2014	231	1346	20.42	0.226	134	-1.643	69.4	71.384
2014	231	1347	20.41	0.219	136.1	-1.604	69.57	71.454
2014	231	1348	20.41	0.216	136.7	-1.825	69.47	70.885
2014	231	1349	20.42	0.215	134.3	-1.472	70.3	71.772
2014	231	1350	20.42	0.221	136.8	-0.98	70	70.83
2014	231	1351	20.4	0.223	131.8	-2.653	70.4	70.068
2014	231	1352	20.41	0.22	134.7	-0.915	70.6	72.015
2014	231	1353	20.42	0.217	137.7	-1.862	69.96	72.792
2014	231	1354	20.42	0.241	144.6	-2.513	68.87	71.052
2014	231	1355	20.40	0.224	136.7	-1.809	68.15	72.050
2014	231	1356	20.42	0.220	135	-1.408	69.49	71.979
2014	231	1357	20.41	0.220	132.3	-2.613	69.78	71.573
2014	231	1358	20.41	0.225	134.1	-2.063	70.1	71.243
2014	231	1359	20.42	0.220	138.8	-1.175	69.01	71.184

Yr-mo	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	232	1021	20.53	0.216	141.9	-0.33	69.3	69.89
2014	232	1022	20.51	0.224	138.7	-0.72	67.8	68.53
2014	232	1023	20.53	0.215	140.2	-0.11	69.5	69.71
2014	232	1024	20.49	0.216	141.6	-0.29	69.5	68.79
2014	232	1025	20.52	0.215	139.8	-0.18	67.6	68.70
2014	232	1026	20.51	0.219	143	-0.81	69.2	69.31
2014	232	1027	20.5	0.220	143.8	0.00	69.6	68.80
2014	232	1028	20.54	0.185	139.9	-0.34	68.1	69.34
2014	232	1029	20.51	0.220	142.8	-0.25	69.6	68.75
2014	232	1030	20.5	0.205	143.3	-0.08	69.1	68.18
2014	232	1031	20.51	0.224	142.3	-0.4	69.3	68.1
2014	232	1032	20.5	0.25	144.6	-0.5	69.7	68.3
2014	232	1033	20.5	0.227	143	-0.28	69.4	68.49
2014	232	1034	20.51	0.184	140.5	-0.35	69.8	69.35
2014	232	1035	20.53	0.223	140	-0.94	69.3	69.18
2014	232	1036	20.52	0.222	140.6	-10.26	69.8	68.84
2014	232	1037	20.52	0.220	142.6	-0.83	69.6	68.61
2014	232	1038	20.51	0.217	141.8	-10.25	69.8	68.48
2014	232	1039	20.5	0.214	143.8	-10	69.4	69.1
2014	232	1040	20.49	0.220	139.3	-10.07	69.4	68.47
2014	232	1041	20.51	0.21	142.5	-0.8	69.8	68.4
2014	232	1042	20.5	0.204	139.2	-0.72	69.2	69.42
2014	232	1043	20.5	0.204	144	-10.14	69.3	68.44
2014	232	1044	20.8	0.196	140	-0.56	69.8	68.88
2014	232	1045	20.51	0.21	143.8	-10.89	69.4	69.38
2014	232	1046	20.5	0.208	140.8	-10.15	69.7	68.45
2014	232	1047	20.49	0.213	139.3	-0.89	69.8	68.85
2014	232	1048	20.49	0.19	143.2	-0.84	69.2	68.34
2014	232	1049	20.55	0.248	144.5	-10.32	69.4	68.23
2014	232	1050	20.51	0.214	140.9	-0.89	69.2	68.19
2014	232	1051	20.51	0.217	143.4	-0.51	69.4	68.48
2014	232	1052	20.52	0.228	140.3	-10.53	69.3	68.78
2014	232	1053	20.5	0.217	140.2	-0.83	69.4	68.22
2014	232	1054	20.51	0.196	139.5	-10.08	69	68.68
2014	232	1055	20.53	0.222	141.2	-0.18	69.7	68.86
2014	232	1056	20.49	0.190	138.8	-0.8	69.8	69.7
2014	232	1057	20.51	0.221	138.6	-0.36	69.4	69.36
2014	232	1058	20.51	0.206	134.3	-0.16	69.6	69.86
2014	232	1059	20.51	0.224	137.8	-0.59	69.2	68.76
2014	232	1100	20.52	0.222	138.8	-10.47	69.3	68.77
2014	232	1101	20.53	0.211	138.4	-0.83	69.3	68.83
2014	232	1102	20.5	0.211	138.8	-0.34	69.2	68.34
2014	232	1103	20.51	0.216	137.8	-0.85	69.7	68.35
2014	232	1104	20.51	0.214	136.3	-10.18	69.8	68.84
2014	232	1105	20.51	0.219	142.1	-10.38	69.3	68.38
2014	232	1106	20.52	0.224	140.9	-0.41	69.8	69.01
2014	232	1107	20.52	0.216	139.5	-0.9	69.5	68.7
2014	232	1108	20.53	0.225	140	-0.81	69.1	68.88
2014	232	1109	20.51	0.217	140.1	-0.28	69.3	69.38
2014	232	1110	20.51	0.219	141.9	-0.45	69.2	68.79
2014	232	1111	20.53	0.17	141.9	-0.45	69.2	68.8
2014	232	1112	20.53	0.219	140.8	-0.34	69.4	69.31
2014	232	1113	20.53	0.217	140.3	-0.02	69.3	69.21
2014	232	1114	20.54	0.216	140	-10.29	69.5	69.08
2014	232	1115	20.53	0.21	140.1	-0.46	69.2	68.88
2014	232	1116	20.53	0.216	140.9	-0.49	69.2	69.21
2014	232	1117	20.51	0.225	144.2	-0.74	69.7	68.64
2014	232	1118	20.51	0.22	139	-10.35	69.4	69.78
2014	232	1119	20.51	0.217	139.2	-0.67	69.3	69.17
2014	232	1120	20.51	0.218	139.8	-0.31	69.5	69.41
2014	232	1121	20.51	0.218	139	-0.46	69.7	69.18
2014	232	1122	20.51	0.219	144.5	-0.13	69.7	69.95
2014	232	1123	20.51	0.215	140.9	-0.79	69.7	69.49
2014	232	1124	20.49	0.22	137.9	-0.49	69.2	69.88
2014	232	1125	20.51	0.217	137.8	-0.71	69.8	69.51
2014	232	1126	20.53	0.214	134.5	-0.92	69.8	69.43
2014	232	1127	20.54	0.217	142.9	-0.41	69.3	69.98
2014	232	1128	20.51	0.208	140.2	-0.66	69.7	69.16
2014	232	1129	20.50	0.215	139.8	-0.4	69.8	69.4
2014	232	1130	20.51	0.215	139.3	-0.46	69.3	69.78
2014	232	1131	20.51	0.22	137	-0.82	69.6	69.42
2014	232	1132	20.49	0.214	134.3	-10.14	69.2	69.34
2014	232	1133	20.5	0.215	139.4	-0.94	69.8	69.34
2014	232	1134	21.14	0.230	142.3	-0.71	69.2	69.21
2014	232	1135	20.51	0.217	143.4	-0.81	69.4	69.41
2014	232	1136	20.54	0.244	147.4	-0.63	69.4	69.47
2014	232	1137	20.5	0.211	138.3	-0.57	69.3	69.22
2014	232	1138	20.5	0.222	139.9	-0.81	69.7	69.81
2014	232	1139	20.51	0.221	139	-10.81	69.8	69.31
2014	232	1140	20.51	0.242	139.6	-10.42	69	69.42
2014	232	1141	20.48	0.221	138.7	-0.98	69.3	69.88
2014	232	1142	20.53	0.218	140.9	-0.24	69.4	69.76
2014	232	1143	20.54	0.241	143.9	-0.81	69.3	69.83
2014	232	1144	20.53	0.24	143.8	-0.81	69.1	69.81
2014	232	1145	20.51	0.218	139.3	-0.38	69.6	69.89
2014	232	1146	20.51	0.218	144.4	-0.8	69.5	69.8
2014	232	1147	20.51	0.217	140.9	-0.53	69.8	69.42
2014	232	1148	20.51	0.221	134.8	-10.4	69.6	69.2
2014	232	1149	20.53	0.191	140.5	-0.57	69.3	69.87
2014	232	1150	20.53	0.214	143.6	-0.46	69	69.41

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811269
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+OCE (ppm)	TRS (ppm)
2014	232	1400	20.42	0.221	148.4	-1.063	68.53	70.653
2014	232	1	20.42	0.224	151	1.363	68.64	71.015
2014	232	2	20.43	0.224	149.2	-1.779	68.97	71.748
2014	232	3	20.41	0.223	146.7	-1.698	70.1	71.809
2014	232	4	20.41	0.225	137.7	-1.513	68.51	70.023
2014	232	5	20.41	0.217	137.7	-0.177	68.7	71.077
2014	232	6	20.41	0.213	134.5	-2.211	69.37	71.081
2014	232	7	20.43	0.220	134.2	-2.132	69.37	71.402
2014	232	8	20.42	0.220	133	-2.216	70.3	72.126
2014	232	9	20.42	0.225	135.3	-2.721	70.2	72.923
2014	232	10	20.42	0.224	136.3	-2.819	69.69	72.509
2014	232	11	20.43	0.221	134.8	-2.123	70.3	72.512
2014	232	12	20.44	0.21	138.8	-2.559	68.42	71.139
2014	232	13	20.41	0.215	137.7	-2.751	68.4	71.151
2014	232	14	20.41	0.211	135.9	-2.197	68.88	71.277
2014	232	15	20.43	0.219	138.1	-0.315	68.83	71.046
2014	232	16	20.42	0.211	139.8	-0.26	69.38	72.63
2014	232	17	20.42	0.216	139.6	-2.177	69.79	71.967
2014	232	18	20.41	0.219	134.2	-2.489	71.1	73.589
2014	232	19	20.42	0.218	137	-2.841	72.4	73.841
2014	232	20	20.42	0.23	138	-2.641	72.1	72.741
2014	232	21	20.41	0.224	138.2	-2.475	69.21	71.696
2014	232	22	20.44	0.218	139.3	-2.757	69.03	71.757
2014	232	23	20.42	0.218	138.8	-3.009	70.7	73.379
2014	232	24	20.43	0.227	134.4	-2.423	69.97	72.393
2014	232	25	20.43	0.216	132.5	-0.108	70.8	74.828
2014	232	26	20.44	0.218	134	-2.711	70.3	73.081
2014	232	27	20.41	0.222	135.6	-2.776	71.2	73.976
2014	232	28	20.42	0.227	135.7	-2.793	70.7	73.491
2014	232	29	20.43	0.224	133.3	-2.179	70.5	72.979
2014	232	30	20.43	0.219	130.6	-1.826	70.3	72.826
2014	232	31	20.43	0.219	132.8	-2.063	72.5	74.725
2014	232	32	20.41	0.219	132.1	-1.839	73.8	75.729
2014	232	33	20.41	0.22	134	-0.195	73.1	74.998
2014	232	34	20.4	0.224	138.9	-0.163	72.7	75.085
2014	232	35	20.44	0.22	137.4	-0.307	72	74.507
2014	232	36	20.42	0.224	132.6	-0.15	71.1	74.43
2014	232	37	20.41	0.222	131.8	-1.778	71.8	74.579
2014	232	38	20.40	0.217	140.4	-1.448	69.52	71.798
2014	232	39	20.43	0.224	139.8	-1.911	73.3	75.213
2014	232	40	20.42	0.212	136.1	-2.761	72.3	74.051
2014	232	41	20.41	0.223	136.4	-3.612	71.3	73.818
2014	232	42	20.44	0.218	140	-2.525	72.8	75.928
2014	232	43	20.42	0.226	134.3	-2.867	72.2	74.367
2014	232	44	20.41	0.219	130.7	-3.06	72.7	75.74
2014	232	45	20.41	0.220	137	-2.953	71.8	74.316
2014	232	46	20.48	0.218	138.1	-2.648	72.1	73.848
2014	232	47	20.41	0.218	137	-2.536	72.4	74.458
2014	232	48	20.43	0.217	140.3	-2.547	72.4	74.487
2014	232	49	20.43	0.212	138	-2.571	71.8	74.573
2014	232	50	20.43	0.226	141.2	-2.139	71.8	73.989
2014	232	51	20.44	0.19	141.8	-2.659	71	73.819
2014	232	52	20.44	0.18	141.8	-2.669	71.4	73.889
2014	232	53	20.42	0.225	138.7	-2.916	71.7	74.018
2014	232	54	20.41	0.22	140.4	-2.517	71	73.217
2014	232	55	20.41	0.214	138.1	-2.067	71.8	74.067
2014	232	56	20.42	0.211	140.2	-2.269	70.7	73.008
2014	232	57	20.43	0.19	140.5	-1.637	70.8	72.527
2014	232	58	20.43	0.216	142.5	-2.317	71.7	74.217
2014	232	59	20.44	0.214	140.3	-2.104	70.1	73.204
2014	232	100	20.42	0.219	139.5	-2.527	71.2	73.627
2014	232	101	20.42	0.219	137.4	-2.204	71.3	73.404
2014	232	102	20.43	0.221	137.9	-1.774	71.4	73.174
2014	232	103	20.41	0.19	134.4	-2.817	71.3	74.217
2014	232	104	20.41	0.223	136.1	-2.462	72.8	75.262
2014	232	105	20.44	0.225	142.8	-2.806	70.7	73.023
2014	232	106	20.43	0.223	138	-2.547	71.3	73.047
2014	232	107	20.43	0.221	136.8	-2.395	71.7	74.095
2014	232	108	20.43	0.218	139.6	-2.603	71.2	73.802
2014	232	109	20.42	0.221	138.3	-2.527	72.4	75.617
2014	232	110	20.43	0.227	139.4	-2.469	70	73.469
2014	232	111	20.44	0.21	141.5	-2.834	68.47	72.304
2014	232	112	20.43	0.215	139.1	-2.365	70.7	73.065
2014	232	113	20.43	0.22	139.2	-2.314	72.1	74.414
2014	232	114	20.43	0.23	140.1	-2.464	71.9	74.798
2014	232	115	20.45	0.232	143.8	-2.425	69.3	72.825
2014	232	116	20.41	0.218	138.8	-2.053	71.5	73.819
2014	232	117	20.43	0.225	139.7	-2.267	71.3	74.367
2014	232	118	20.43	0.236	138.9	-2.836	70.8	72.636
2014	232	119	20.42	0.23	137.7	-2.527	70.6	73.117
2014	232	120	20.42	0.228	138.1	-2.368	72	74.368

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+OCE (ppm)	TRS (ppm)
2014	232	1131	20.5	0.214	146	-0.57	69.3	100.17
2014	232	1132	20.51	0.208	141.9	-0.89	68.2	99.26
2014	232	1133	20.5	0.215	138.4	-10.67	68.3	100.17
2014	232	1134	20.53	0.219	143	-0.83	68.4	98.46
2014	232	1135	20.51	0.212	138.1	-0.5	68	97.5
2014	232	1136	20.51	0.208	139	-9.37	68.5	97.67
2014	232	1137	20.49	0.206	139.5	-0.57	68.5	98.87
2014	232	1138	20.51	0.211	140.4	-10.84	68.9	99.26
2014	232	1139	20.52	0.212	141.3	-0.79	67	96.79
2014	232	1140	20.52	0.215	142.9	-10.77	66.7	99.47
2014	232	1141	20.54	0.218	144.8	-10.59	67.5	97.65
2014	232	1142	20.51	0.217	145.8	-10.81	68.1	98.92
2014	232	1143	20.52	0.215	145.9	-10.38	68.8	98.98
2014	232	1144	20.52	0.212	138.4	-10.73	69.9	100.58
2014	232	1145	20.51	0.215	142.4	-10.37	67.9	98.27
2014	232	1146	20.51	0.220	142.9	-10.49	68.2	99.48
2014	232	1147	20.51	0.217	140.9	-10.21	68.1	99.41
2014	232	1148	20.51	0.218	138.8	-10.38	68.4	98.88
2014	232	1149	20.52	0.244	139.3	-9.97	68.4	98.37
2014	232	1150	20.51	0.24	140.7	-10.08	68.1	98.08
2014	232	1151	20.5	0.21	145.9	-14.97	1.14	98.18
2014	232	1152	20.52	0.224	146.5	-10.09	69.2	103.04
2014	232	1153	20.5	0.241	144.5	-9.7	69	98.7
2014	232	1154	20.51	0.218	140.9	-10.08	68.2	98.18
2014	232	1155	20.51	0.218	143.3	-10.02	68.4	98.47
2014	232	1156	20.48	0.221	141	-10.08	69.9	100.59
2014	232	1157	20.51	0.219	144.4	-10.67	68.1	98.87
2014	232	1158	20.49	0.226	138.4	-10.8	68	98.4
2014	232	1159	20.51	0.217	140.2	-10.91	68.8	99.21
2014	232	1160	20.51	0.241	139.8	-10.52	1.14	98.21
2014	232	1161	20.51	0.219	144.1	-11.18	67.4	98.51
2014	232	1162	20.53	0.219	140.8	-12.39	2.13	99.79
2014	232	1163	20.5	0.224	138	-11.18	68.3	100.41
2014	232	1164	20.54	0.218	145.8	-11.34	66.6	97.94
2014	232	1165	20.51	0.221	144.8	-11.86	67.8	98.66
2014	232	1166	20.51	0.219	144.3	-11.7	68.3	99
2014	232	1167	20.51	0.224	140.6	-11.84	68.6	97.44
2014	232	1168	20.49	0.222	144.9	-10.88	66.6	97.88
2014	232	1169	20.51	0.218	143.1	-11.41	1.1.5	101.21
2014	232	1170	20.49	0.228	140	-11.21	68.7	99.73
2014	232	1171	20.5	0.222	142.5	-10.66	68.1	99.34
2014	232	1172	20.5	0.22	144.4	-11.03	68.3	100.19
2014	232	1173	20.5	0.222	145.5	-10.69	68.1	99.19
2014	232	1174	20.5	0.222	144.4	-11.31	67.9	98.97
2014	232	1175	20.5	0.225	144.8	-11.59	68.1	98.79
2014	232	1176	20.51	0.229	142.1	-12.12	68.3	98.42
2014	232	1177	20.5	0.219	144.3	-11.11	67.6	98.02
2014	232	1178	20.5	0.225	146.1	-10.41	69.1	100.02
2014	232	1179	20.51	0.221	148.3	-11.18	68.7	99.65
2014	232	1180	20.49	0.221	148.8	-10.98	69	99.89
2014	232	1181	20.5	0.219	148.5	-10.63	67.1	99.19
2014	232	1182	20.51	0.223	152.3	-10.83	68.5	99.53
2014	232	1183	20.51	0.222	148	-10.46	68.4	100.09
2014	232	1184	20.51	0.218	149.4	-10.96	68.5	100.04
2014	232	1185	20.51	0.219	146.1	-11.98	68.4	99.43
2014	232	1186	20.51	0.217	146.4	-10.25	68.8	99.25
2014	232	1187	20.5	0.215	148.8	-10.86	68.3	100.16
2014	232	1188	20.51	0.218	150.1	-11.17	68.1	101.67
2014	232	1189	20.5	0.217	149.2	-11.83	68.5	101.39
2014	232	1190	20.51	0.218	148.7	-10.72	69.1	99.83
2014	232	1191	20.51	0.219	148.5	-10.77	68.5	99.77
2014	232	1192	20.51	0.216	151.7	-10.48	67.8	99.43
2014	232	1193	20.49	0.218	151.1	-11.42	68	138.42
2014	232	1194	20.5	0.241	154.1	-11.18	68.8	99.85
2014	232	1195	20.51	0.24	151.6	-11.09	68.1	100.19
2014	232	1196	20.48	0.246	154	-11.23	68.3	101.78
2014	232	1197	20.52	0.248	149.9	-10.87	68.9	100.57
2014	232	1198	20.51	0.245	149.3	-11.42	68.5	99.91
2014	232	1199	20.51	0.239	146	-10.57	68.1	99.97
2014	232	1200	20.51	0.240	152.4	-10.93	68.3	99.82
2014	232	1201	20.5	0.238	149.6	-11.05	68.9	99.96
2014	232	1202	20.49	0.235	144	-10.82	69.8	99.72
2014	232	1203	20.49	0.231	148.9	-11.05	69.2	98.98
2014	232	1204	20.51	0.236	147.6	-10.1	68.4	100.8
2014	232	1205	20.5	0.225	144.4	-10.85	68.2	101.09
2014	232	1206	20.51	0.219	153.3	-9.88	68.3	99.81
2014	232	1207	20.49	0.211	146.3	-10.41	68.8	99.81
2014	232	1208	20.5	0.218	148.2	-10.85	68.2	101.38
2014	232	1209	20.5	0.219	147.3	-11.15	68	101.15
2014	232	1210	20.51	0.231	149.4	-10.43	90.1	100.53
2014	232	1211	20.47	0.218	139.5	-10.87	91.6	102.47
2014	232	1214	20.5	0.231	146.1	-10.98	90.8	101.78
2014	232	1215	20.51	0.237	148.1	-11.7	90.2	101.9
2014	232	1216	20.5	0.223	141.2	-11.35	91.4	102.75
2014	232	1217	20.51	0.231	143.3	-9.52	90.3	99.82
2014	232	1218	20.51	0.236	146.7	-11.51	90	101.51
2014	232	1219	20.49	0.225	144.8	-11.15	90.2	101.15

Summary of RAW DATA

Client: Northern Pulp
Project No.: 121811259
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS+SO2 (ppm)	TRS (ppm)
2014	232	1320	20.49	0.226	140.1	-11.42	91.2	102.62
2014	232	1321	20.51	0.231	147.3	-12.05	89.9	101.95
2014	232	1322	20.48	0.231	141.5	-11.15	90.6	101.75
2014	232	1323	20.5	0.232	145.8	-11.09	90.9	101.99
2014	232	1324	20.5	0.238	144.9	-10.91	89.9	100.81
2014	232	1325	20.5	0.234	142.8	-12.03	89.6	101.63
2014	232	1326	20.5	0.232	146.5	-11.57	90.2	101.77
2014	232	1327	20.5	0.231	148.3	-10.55	89.8	100.35
2014	232	1328	20.51	0.246	150.8	-11.32	88.5	99.82
2014	232	1329	20.51	0.238	146.6	-11.79	89.4	101.19
2014	232	1330	20.5	0.239	143.6	-10.98	89.8	100.78

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121811300
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	291	1230	20.27	0.22	142.00	0.30	51.30	48.61	
2014	291	1231	20.30	0.24	144.10	0.00	50.77	45.77	
2014	291	1232	20.27	0.25	139.44	0.40	51.54	48.10	
2014	291	1233	20.30	0.24	143.00	0.00	50.00	46.00	
2014	291	1234	20.30	0.23	134.25	0.70	50.30	48.46	
2014	291	1235	20.27	0.20	143.00	0.20	51.20	48.03	
2014	291	1236	20.27	0.22	137.54	0.00	51.34	48.34	
2014	291	1237	20.30	0.20	139.00	0.00	52.07	48.66	
2014	291	1238	20.30	0.20	139.44	0.40	52.11	48.87	
2014	291	1239	20.30	0.20	139.34	0.70	52.40	49.00	
2014	291	1240	20.00	0.24	139.44	0.70	51.30	49.01	
2014	291	1241	20.27	0.30	139.70	0.70	51.00	48.34	
2014	291	1242	20.30	0.24	139.04	0.00	50.00	48.04	
2014	291	1243	20.30	0.20	139.34	0.00	50.70	48.40	
2014	291	1244	20.30	0.20	139.70	4.00	51.00	47.90	
2014	291	1245	20.27	0.25	139.34	0.00	50.67	48.04	
2014	291	1246	20.30	0.20	140.00	2.10	50.44	51.20	
2014	291	1247	20.30	0.20	140.00	0.00	50.44	51.20	
2014	291	1248	20.27	0.22	134.00	0.00	50.00	50.00	
2014	291	1249	20.30	0.20	139.00	2.00	49.70	50.04	
2014	291	1250	20.00	0.23	134.00	2.10	47.24	50.57	
2014	291	1251	20.30	0.25	139.13	3.14	50.00	50.91	
2014	291	1252	20.30	0.23	138.30	2.12	50.14	50.00	
2014	291	1253	20.30	0.23	134.00	2.70	50.20	50.00	
2014	291	1254	20.30	0.22	141.21	4.00	50.00	50.30	
2014	291	1255	20.30	0.23	132.30	2.00	50.30	50.33	
2014	291	1256	20.30	0.23	141.01	4.00	50.00	50.27	
2014	291	1257	20.30	0.23	134.00	2.30	50.30	50.40	
2014	291	1258	20.34	0.21	141.41	2.00	50.17	50.54	
2014	291	1259	20.30	0.22	137.34	2.00	50.00	50.00	
2014	291	1300	20.30	0.20	133.32	2.70	50.00	50.00	
2014	291	1301	20.27	0.22	134.00	3.14	50.30	50.12	
2014	291	1302	20.30	0.22	141.00	2.47	50.70	50.30	
2014	291	1303	20.27	0.20	136.33	4.21	50.00	50.00	
2014	291	1304	20.30	0.21	136.00	2.00	51.70	50.30	
2014	291	1305	20.30	0.21	136.00	2.30	50.00	50.30	
2014	291	1306	20.30	0.22	140.00	2.30	50.30	50.40	
2014	291	1307	20.27	0.22	136.21	2.00	50.00	50.00	
2014	291	1308	20.30	0.22	136.33	2.07	50.17	50.00	
2014	291	1309	20.30	0.20	137.34	2.00	50.30	50.00	
2014	291	1310	20.27	0.20	136.04	4.00	50.00	50.40	
2014	291	1311	20.30	0.21	142.34	2.00	50.07	50.00	
2014	291	1312	20.27	0.22	133.00	2.70	50.00	50.00	
2014	291	1313	20.30	0.20	141.41	2.00	50.17	50.04	
2014	291	1314	20.27	0.21	141.70	2.14	50.30	51.47	
2014	291	1315	20.30	0.20	143.13	2.00	50.40	50.56	
2014	291	1316	20.30	0.23	142.11	2.40	50.00	50.43	
2014	291	1317	20.30	0.23	137.30	2.00	50.10	50.10	
2014	291	1318	20.27	0.23	140.00	2.40	50.40	50.00	
2014	291	1319	20.30	0.23	138.14	2.00	50.70	50.04	
2014	291	1320	20.30	0.22	138.44	4.10	50.00	50.70	
2014	291	1321	20.30	0.23	138.04	2.40	50.30	50.00	
2014	291	1322	20.30	0.22	138.00	2.40	50.30	50.02	
2014	291	1323	20.30	0.23	142.00	2.00	50.14	50.02	
2014	291	1324	20.27	0.22	138.34	2.07	50.00	50.40	
2014	291	1325	20.27	0.22	140.40	2.00	50.10	50.01	
2014	291	1326	20.30	0.22	140.10	4.13	50.00	50.03	
2014	291	1327	20.30	0.22	137.00	2.30	50.07	50.00	
2014	291	1328	20.27	0.22	138.00	2.40	50.44	50.01	
2014	291	1329	20.30	0.20	140.00	2.00	50.00	50.07	
2014	291	1330	20.27	0.22	138.04	2.07	50.14	50.40	
2014	291	1331	20.27	0.22	138.00	2.00	50.30	50.30	
2014	291	1332	20.27	0.22	140.00	2.00	50.73	50.21	
2014	291	1333	20.30	0.20	141.00	2.40	50.00	50.14	
2014	291	1334	20.26	0.22	138.00	2.00	50.07	50.11	
2014	291	1335	20.30	0.20	140.00	2.40	50.70	50.21	
2014	291	1336	20.27	0.22	138.44	2.74	50.00	50.00	
2014	291	1337	20.30	0.20	140.00	2.40	50.04	50.04	
2014	291	1338	20.27	0.20	138.70	2.00	50.00	50.04	
2014	291	1339	20.27	0.24	144.00	2.00	50.00	50.34	
2014	291	1340	20.27	0.20	140.00	2.00	50.30	50.70	
2014	291	1341	20.30	0.20	138.04	2.70	50.00	50.07	
2014	291	1342	20.30	0.20	137.04	2.00	50.07	47.34	
2014	291	1343	20.30	0.20	138.34	2.43	50.00	50.43	
2014	291	1344	20.30	0.22	140.73	2.00	50.17	50.20	
2014	291	1345	20.27	0.20	140.20	2.73	50.00	50.07	
2014	291	1346	20.30	0.20	139.00	2.40	50.00	50.40	
2014	291	1347	20.30	0.21	137.21	2.70	50.40	50.73	
2014	291	1348	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1349	20.27	0.22	141.13	4.30	50.00	50.30	
2014	291	1350	20.30	0.22	138.14	2.00	50.30	50.20	
2014	291	1351	20.27	0.22	138.04	2.73	50.40	50.72	
2014	291	1352	20.30	0.22	139.00	2.44	50.04	50.10	
2014	291	1353	20.30	0.20	140.00	2.00	50.04	50.00	
2014	291	1354	20.30	0.22	137.04	2.00	50.07	50.00	
2014	291	1355	20.30	0.20	138.34	2.43	50.00	50.43	
2014	291	1356	20.30	0.22	140.73	2.00	50.17	50.20	
2014	291	1357	20.27	0.22	140.20	2.73	50.00	50.07	
2014	291	1358	20.30	0.20	139.00	2.40	50.00	50.40	
2014	291	1359	20.30	0.21	137.21	2.70	50.40	50.73	
2014	291	1400	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1401	20.27	0.22	141.13	4.30	50.00	50.30	
2014	291	1402	20.30	0.22	138.14	2.00	50.30	50.20	
2014	291	1403	20.30	0.22	138.04	2.73	50.40	50.72	
2014	291	1404	20.30	0.22	139.00	2.44	50.04	50.10	
2014	291	1405	20.30	0.22	140.00	2.00	50.04	50.00	
2014	291	1406	20.30	0.22	137.04	2.00	50.07	50.00	
2014	291	1407	20.30	0.22	138.34	2.43	50.00	50.43	
2014	291	1408	20.30	0.22	140.73	2.00	50.17	50.20	
2014	291	1409	20.27	0.22	140.20	2.73	50.00	50.07	
2014	291	1410	20.30	0.20	139.00	2.40	50.00	50.40	
2014	291	1411	20.30	0.21	137.21	2.70	50.40	50.73	
2014	291	1412	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1413	20.30	0.22	141.13	4.30	50.00	50.30	
2014	291	1414	20.30	0.22	138.14	2.00	50.30	50.20	
2014	291	1415	20.30	0.22	138.04	2.73	50.40	50.72	
2014	291	1416	20.30	0.22	139.00	2.44	50.04	50.10	
2014	291	1417	20.30	0.22	140.00	2.00	50.04	50.00	
2014	291	1418	20.30	0.22	137.04	2.00	50.07	50.00	
2014	291	1419	20.30	0.22	138.34	2.43	50.00	50.43	
2014	291	1420	20.30	0.22	140.73	2.00	50.17	50.20	
2014	291	1421	20.27	0.22	140.20	2.73	50.00	50.07	
2014	291	1422	20.30	0.20	139.00	2.40	50.00	50.40	
2014	291	1423	20.30	0.21	137.21	2.70	50.40	50.73	
2014	291	1424	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1425	20.30	0.22	141.13	4.30	50.00	50.30	
2014	291	1426	20.30	0.22	138.14	2.00	50.30	50.20	
2014	291	1427	20.27	0.22	138.04	2.73	50.40	50.72	
2014	291	1428	20.30	0.22	139.00	2.44	50.04	50.10	
2014	291	1429	20.30	0.22	140.00	2.00	50.04	50.00	
2014	291	1430	20.30	0.22	137.04	2.00	50.07	50.00	
2014	291	1431	20.30	0.22	138.34	2.43	50.00	50.43	
2014	291	1432	20.30	0.22	140.73	2.00	50.17	50.20	
2014	291	1433	20.27	0.22	140.20	2.73	50.00	50.07	
2014	291	1434	20.30	0.22	139.00	2.40	50.00	50.40	
2014	291	1435	20.30	0.22	137.21	2.70	50.40	50.73	
2014	291	1436	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1437	20.30	0.22	141.13	4.30	50.00	50.30	
2014	291	1438	20.30	0.22	138.14	2.00	50.30	50.20	
2014	291	1439	20.27	0.22	138.04	2.73	50.40	50.72	
2014	291	1440	20.30	0.22	139.00	2.44	50.04	50.10	
2014	291	1441	20.30	0.22	140.00	2.00	50.04	50.00	
2014	291	1442	20.30	0.22	137.04	2.00	50.07	50.00	
2014	291	1443	20.30	0.22	138.34	2.43	50.00	50.43	
2014	291	1444	20.30	0.22	140.73	2.00	50.17	50.20	
2014	291	1445	20.27	0.22	140.20	2.73	50.00	50.07	
2014	291	1446	20.30	0.20	139.00	2.40	50.00	50.40	
2014	291	1447	20.30	0.21	137.21	2.70	50.40	50.73	
2014	291	1448	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1449	20.27	0.22	141.13	4.30	50.00	50.30	
2014	291	1450	20.30	0.22	138.14	2.00	50.30	50.20	
2014	291	1451	20.27	0.22	138.04	2.73	50.40	50.72	
2014	291	1452	20.30	0.22	139.00	2.44	50.04	50.10	
2014	291	1453	20.30	0.22	140.00	2.00	50.04	50.00	
2014	291	1454	20.30	0.22	137.04	2.00	50.07	50.00	
2014	291	1455	20.30	0.22	138.34	2.43	50.00	50.43	
2014	291	1456	20.27	0.22	140.73	2.00	50.17	50.20	
2014	291	1457	20.30	0.22	140.20	2.73	50.00	50.07	
2014	291	1458	20.30	0.22	139.00	2.40	50.00	50.40	
2014	291	1459	20.30	0.22	137.21	2.70	50.40	50.73	
2014	291	1500	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1501	20.30	0.22	141.13	4.30	50.00	50.30	
2014	291	1502	20.30	0.22	138.14	2.00	50.30	50.20	
2014	291	1503	20.27	0.22	138.04	2.73	50.40	50.72	
2014	291	1504	20.30	0.22	139.00	2.44	50.04	50.10	
2014	291	1505	20.30	0.22	140.00	2.00	50.04	50.00	
2014	291	1506	20.30	0.22	137.04	2.00	50.07	50.00	
2014	291	1507	20.30	0.22	138.34	2.43	50.00	50.43	
2014	291	1508	20.30	0.22	140.73	2.00	50.17	50.20	
2014	291	1509	20.27	0.22	140.20	2.73	50.00	50.07	
2014	291	1510	20.30	0.22	139.00	2.40	50.00	50.40	
2014	291	1511	20.30	0.22	137.21	2.70	50.40	50.73	
2014	291	1512	20.30	0.22	138.74	2.70	50.00	50.10	
2014	291	1513	20.30	0.22	141.13	4.30	50.00	50.30	
2014	291	1514	20.30	0.22	141.00	2.00	50.30	50.00	
2014	291	1515	20.27	0.22	142.73	2.40	50.04	50.00	
2014	291	1516	20.27	0.22	140.20	2.70	50.00	50.40	
2014	291	1517	20.30	0.22	140.00	2.04	50.10	50.40	

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	292	1401	20.30	0.22	138.40	2.07	50.14	50.17	51.00
2014	292	1402	20.27	0.22	139.04	2.00	50.40	50.37	51.00
2014	292	1403	20.27	0.20	140.20	2.00	50.04	50.00	51.00
2014	292	1404	20.30	0.22	140.70	2.00	50.00	50.33	51.00
2014	292	1405	20.30	0.20	141.40	2.70	50.00	50.70	50.91
2014	292	1406	20.30	0.22	141.00	2.30	50.37	50.00	50.00
2014	292	1407	20.27	0.22	143.70	2.40	50.00	50.30	50.10
2014	292	1408	20.30	0.22	145.37	2.12	50.00	50.37	50.44
2014	292	1409	20.30	0.20	145.00	2.04	50.13	50.40	50.17
2014	292	1410	20.30	0.22	142.37	2.10	50.00	50.30	50.21
2014	292	1411	20.27	0.22	141.00	2.00	50.04	50.30	50.23
2014	292	1412	20.27	0.20	141.00	2.00	50.77	50.30	50.29
2014	292	1413	20.27	0.22	142.10	2.17	50.30	50.00	50.21
2014	292	1414	20.30	0.22	141.00	2.12	170.73	174.11	50.00
2014	292	1415	20.27	0.22	140.37	2.40	310.04	310.00	50.00
2014	292	1416	20.30	0.22	140.70	2.04	50.07	50.37	50.54
2014	292	1417	20.30	0.22	140.30	2.07	49.37	50.30	50.00
2014	292	1418	20.30	0.22	140.00	2.07	50.00	50.00	50.00
2014	292	1419	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1420	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1421	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1422	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1423	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1424	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1425	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1426	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1427	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1428	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1429	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1430	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1431	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1432	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1433	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1434	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1435	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1436	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1437	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1438	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1439	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1440	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1441	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1442	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1443	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1444	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1445	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1446	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1447	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1448	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1449	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1450	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1451	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1452	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1453	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1454	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1455	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1456	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1457	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1458	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1459	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1500	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1501	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1502	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1503	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1504	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1505	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1506	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1507	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1508	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1509	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1510	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1511	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1512	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1513	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1514	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1515	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1516	20.30	0.22	141.00	2.00	50.00	50.00	50.00
2014	292	1517	20.30	0.22	141.00	2.00	50.00	50.00	50.00

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 12181289
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	231	1010	20.30	0.23	140.79	0.10	55.48	55.13	
2014	231	1015	20.37	0.23	141.88	2.09	55.64	52.21	
2014	231	1020	20.37	0.23	141.95	2.04	56.77	47.35	
2014	231	1025	20.37	0.23	140.13	2.17	54.35	50.53	
2014	231	1030	20.36	0.23	141.89	3.43	174.73	174.11	
2014	231	1035	20.37	0.23	140.87	2.49	319.84	316.98	
2014	231	1040	20.36	0.22	140.70	2.64	62.61	60.37	
2014	231	1045	20.36	0.23	140.60	2.87	60.37	60.30	
2014	231	1050	20.36	0.22	140.55	2.76	61.48	60.74	
2014	231	1055	20.37	0.23	140.30	2.87	60.65	59.75	
2014	231	1100	20.36	0.24	140.80	1.99	60.68	57.71	
2014	231	1105	20.37	0.23	140.40	2.14	60.30	57.23	
2014	231	1110	20.36	0.23	138.64	3.48	60.67	60.02	
2014	231	1115	20.37	0.23	140.38	3.40	60.97	57.44	
2014	231	1120	20.36	0.22	140.75	3.40	59.77	57.24	
2014	231	1125	20.36	0.24	140.18	2.71	60.14	56.27	
2014	231	1130	20.36	0.24	140.18	2.39	58.38	56.38	
2014	231	1135	20.36	0.26	140.27	2.03	57.84	54.93	
2014	231	1140	20.36	0.26	140.45	1.98	56.17	55.34	
2014	231	1145	20.36	0.26	140.66	2.39	56.66	55.70	
2014	231	1150	20.36	0.26	140.35	1.91	56.97	56.97	
2014	231	1155	20.36	0.22	141.75	2.57	56.45	56.12	
2014	231	1200	20.36	0.26	140.00	2.10	56.37	55.11	
2014	231	1205	20.37	0.26	140.37	2.56	56.73	56.46	
2014	231	1210	20.36	0.22	140.60	2.26	56.37	57.92	
2014	231	1215	20.36	0.23	144.14	3.70	59.46	57.76	
2014	231	1220	20.37	0.26	140.67	2.34	56.28	56.42	
2014	231	1225	20.36	0.26	140.37	3.48	58.70	56.37	
2014	231	1230	20.36	0.26	140.80	2.67	60.37	57.71	
2014	231	1235	20.36	0.23	139.80	3.46	59.67	57.30	
2014	231	1240	20.36	0.23	140.00	3.76	60.37	57.60	
2014	231	1245	20.36	0.22	139.44	1.89	60.37	58.86	
2014	231	1250	20.36	0.23	144.00	2.00	58.38	58.00	
2014	231	1255	20.36	0.23	141.80	2.73	58.16	58.42	
2014	231	1300	20.36	0.25	140.80	3.17	58.67	57.72	
2014	231	1305	20.36	0.23	140.38	2.30	58.98	58.31	
2014	231	1310	20.36	0.23	138.34	2.13	61.86	58.78	
2014	231	1315	20.37	0.23	140.30	2.18	58.97	57.27	
2014	231	1320	20.37	0.25	140.17	1.98	58.38	57.70	
2014	231	1325	20.34	0.23	138.04	2.07	58.49	58.42	
2014	231	1330	20.36	0.23	140.08	2.15	58.16	58.86	
2014	231	1335	20.36	0.22	140.30	2.28	56.17	57.23	
2014	231	1340	20.36	0.23	140.08	2.23	60.14	58.48	
2014	231	1345	20.37	0.23	141.30	2.07	58.98	58.84	
2014	231	1350	20.37	0.23	141.38	2.16	61.38	58.78	
2014	231	1355	20.37	0.22	144.48	1.86	60.14	58.82	
2014	231	1400	20.37	0.23	140.47	1.79	60.78	58.97	
2014	231	1405	20.37	0.26	140.29	2.02	60.78	58.48	
2014	231	1410	20.37	0.25	141.08	2.00	61.79	58.89	
2014	231	1415	20.37	0.23	141.48	2.08	61.84	58.79	
2014	231	1420	20.34	0.23	138.34	1.89	63.71	59.38	
2014	231	1425	20.37	0.23	142.70	1.91	60.86	60.57	
2014	231	1430	20.38	0.23	141.48	2.00	61.08	60.38	
2014	231	1435	20.37	0.23	140.48	0.69	60.68	60.86	
2014	231	1440	20.37	0.23	144.38	2.14	60.48	60.34	
2014	231	1445	20.38	0.22	140.66	1.86	61.48	60.38	
2014	231	1450	20.38	0.23	138.38	1.54	61.38	59.34	
2014	231	1455	20.37	0.23	141.38	2.08	60.86	60.84	
2014	231	1500	20.38	0.23	138.66	1.86	60.78	60.68	
2014	231	1505	20.36	0.22	140.78	1.81	60.86	60.18	
2014	231	1510	20.37	0.22	140.37	1.48	60.67	57.86	
2014	231	1515	20.37	0.25	140.47	2.31	60.67	57.86	
2014	231	1520	20.36	0.25	140.08	1.97	60.48	60.64	
2014	231	1525	20.36	0.22	140.98	2.06	61.18	60.13	
2014	231	1530	20.36	0.26	140.67	1.78	60.37	60.63	
2014	231	1535	20.36	0.26	140.18	1.73	59.97	60.38	
2014	231	1540	20.34	0.26	141.08	1.87	61.08	60.11	
2014	231	1545	20.36	0.22	140.18	2.14	61.08	60.84	
2014	231	1550	20.37	0.25	140.67	1.88	60.68	57.78	
2014	231	1555	20.37	0.26	140.37	1.96	60.17	58.23	
2014	231	1600	20.36	0.23	140.37	2.02	60.67	57.91	
2014	231	1605	20.36	0.26	140.37	1.48	61.08	60.86	
2014	231	1610	20.36	0.22	141.48	1.48	160.70	160.29	
2014	231	1615	20.36	0.25	141.18	2.31	200.00	201.04	
2014	231	1620	20.36	0.23	140.08	1.97	60.86	60.86	
2014	231	1625	20.36	0.22	140.08	1.89	60.78	61.08	
2014	231	1630	20.36	0.22	140.37	2.73	60.89	60.77	
2014	231	1635	20.36	0.23	140.97	1.80	61.38	60.48	
2014	231	1640	20.36	0.26	140.37	2.19	60.72	61.08	
2014	231	1645	20.37	0.23	139.80	2.05	74.48	71.84	
2014	231	1650	20.36	0.22	141.18	1.88	60.68	62.08	
2014	231	1655	20.36	0.22	140.37	1.71	60.08	61.38	
2014	231	1700	20.36	0.26	140.67	1.74	60.91	61.08	
2014	231	1705	20.36	0.22	133.80	1.48	61.48	59.60	
2014	231	1710	20.37	0.23	140.98	0.67	60.68	60.91	
2014	231	1715	20.36	0.26	138.13	1.66	61.18	60.60	
2014	231	1720	20.37	0.24	140.11	1.08	62.38	60.67	
2014	231	1725	20.36	0.26	140.67	1.68	62.18	60.38	
2014	231	1730	20.37	0.24	140.86	1.38	61.68	60.53	
2014	231	1735	20.36	0.26	140.37	1.43	60.91	61.91	
2014	231	1740	20.37	0.26	140.48	1.63	62.48	60.67	
2014	231	1745	20.36	0.23	140.38	1.38	63.18	60.71	
2014	231	1750	20.37	0.24	140.78	0.98	60.61	62.11	
2014	231	1755	20.36	0.26	140.67	1.38	62.91	61.48	
2014	231	1800	20.36	0.26	140.79	1.38	63.91	61.48	
2014	231	1805	20.37	0.24	139.61	1.06	60.91	61.38	
2014	231	1810	20.37	0.26	140.08	0.89	61.38	60.68	
2014	231	1815	20.37	0.23	140.08	0.72	60.68	60.68	
2014	231	1820	20.36	0.24	140.08	1.16	60.91	61.62	
2014	231	1825	20.36	0.23	140.08	1.13	72.34	71.91	
2014	231	1830	20.36	0.23	140.18	1.23	67.68	67.38	
2014	231	1835	20.37	0.26	141.08	1.33	60.42	60.08	
2014	231	1840	20.36	0.25	140.36	1.10	60.12	60.68	
2014	231	1845	20.36	0.23	140.37	1.42	61.42	61.08	
2014	231	1850	20.37	0.23	140.08	1.71	63.91	61.22	
2014	231	1855	20.36	0.22	140.37	1.88	63.73	62.14	
2014	231	1860	20.37	0.26	140.36	1.90	64.68	63.62	
2014	231	1905	20.36	0.26	140.08	1.97	63.73	60.68	

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	232	330	20.36	0.23	143.68	1.13	72.74	71.61	60.72
2014	232	340	20.36	0.23	140.78	1.22	60.86	57.30	60.75
2014	232	345	20.37	0.26	141.48	1.30	60.42	63.08	59.62
2014	232	350	20.36	0.23	140.38	1.10	64.13	63.03	60.87
2014	232	355	20.36	0.26	140.68	1.40	63.42	61.60	61.38
2014	233	3.4	20.37	0.23	140.68	1.71	62.91	61.30	60.83
2014	232	360	20.36	0.22	140.37	1.88	60.73	62.14	60.67
2014	232	365	20.37	0.23	140.86	1.59	64.09	62.92	60.91
2014	232	370	20.36	0.23	140.68	1.37	60.71	62.48	60.96
2014	232	375	20.36	0.26	140.68	1.78	64.92	62.96	60.99
2014	232	380	20.36	0.26	140.68	0.98	60.38	60.60	60.96
2014	232	385	20.36	0.26	140.68	1.59	64.36	62.48	60.96
2014	232	390	20.37	0.26	140.38	0.76	60.92	60.97	60.99
2014	232	395	20.36	0.26	141.08	0.98	64.92	60.66	60.37
2014	232	400	20.36	0.26	140.78	1.37	60.92	62.96	60.99
2014	232	405	20.36	0.26	140.78	1.47	64.36	62.48	60.96
2014	232	410	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	415	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	420	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	425	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	430	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	435	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	440	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	445	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	450	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	455	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	460	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	465	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	470	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	475	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	480	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	485	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	490	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	495	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	500	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	505	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	510	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	515	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	520	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	525	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	530	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	535	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	540	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	545	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	550	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	555	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	560	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	565	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	570	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	575	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	580	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	585	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	590	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	595	20.36	0.26	140.78	1.47	60.92	60.60	60.96
2014	232	600	20.36	0.26	140.78	1.47	60.92	60.60	60.96

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 131511200
Stack: HLBV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	231	1700	20.36	0.23	147.60	1.70	94.33	92.56	
2014	231	1707	20.34	0.37	149.40	0.36	95.98	93.60	
2014	231	1709	20.37	0.39	151.80	1.06	94.93	92.40	
2014	231	1708	20.37	0.33	152.20	0.75	93.60	92.67	
2014	231	1710	20.36	0.35	151.60	0.86	94.62	93.06	
2014	231	1711	20.39	0.34	157.71	1.27	92.83	92.36	
2014	231	1712	20.37	0.34	164.76	1.13	94.02	93.00	
2014	231	1713	20.37	0.34	168.60	1.08	94.80	93.40	
2014	231	1714	20.38	0.34	169.40	1.40	93.60	92.40	
2014	231	1715	20.37	0.33	147.60	0.67	94.79	94.79	
2014	231	1716	20.35	0.36	145.37	0.88	95.94	94.00	
2014	231	1717	20.38	0.37	152.40	0.82	93.31	93.00	
2014	231	1718	20.36	0.34	147.97	0.80	95.43	92.40	
2014	231	1719	20.38	0.35	144.00	0.95	93.72	93.24	
2014	231	1720	20.37	0.39	146.67	1.00	94.62	93.23	
2014	231	1721	20.37	0.35	145.67	0.71	95.62	95.21	
2014	231	1722	20.37	0.36	145.37	0.42	94.62	93.60	
2014	231	1723	20.36	0.32	145.67	0.90	93.60	93.60	
2014	231	1724	20.36	0.39	145.00	1.16	93.40	91.20	
2014	231	1725	20.40	0.33	145.60	0.76	95.34	94.40	
2014	231	1726	20.37	0.39	144.94	1.03	96.42	95.42	
2014	231	1727	20.36	0.39	146.30	1.14	93.52	92.60	
2014	231	1728	20.36	0.32	141.13	1.19	93.73	93.00	
2014	231	1729	20.36	0.39	145.67	0.88	94.60	93.67	
2014	231	1730	20.37	0.34	142.37	0.37	93.91	93.00	
2014	231	1731	20.37	0.39	145.65	0.71	93.71	92.42	
2014	231	1732	20.36	0.34	145.07	0.80	94.42	94.00	
2014	231	1733	20.36	0.33	145.00	1.04	94.00	92.80	
2014	231	1734	20.37	0.32	144.79	0.65	95.62	95.10	
2014	231	1735	20.36	0.33	145.10	0.74	95.42	92.4	
2014	231	1736	20.36	0.33	142.90	0.39	93.93	93.00	
2014	231	1737	20.37	0.39	145.00	1.30	93.40	93.00	
2014	231	1738	20.34	0.36	139.44	0.39	94.30	94.00	
2014	231	1739	20.37	0.32	141.36	0.14	94.00	91.80	
2014	231	1740	20.34	0.39	142.00	0.90	95.62	93.11	
2014	231	1741	20.36	0.33	142.00	0.74	94.46	95.11	
2014	231	1742	20.37	0.36	142.77	0.54	93.71	92.37	
2014	231	1743	20.33	0.33	139.14	0.80	94.33	94.30	
2014	231	1744	20.40	0.35	143.76	0.79	96.62	93.72	
2014	231	1745	20.37	0.39	145.40	0.39	92.80	92.20	
2014	231	1746	20.36	0.39	143.65	0.79	93.01	93.23	
2014	231	1747	20.40	0.33	141.00	0.67	95.14	94.67	
2014	231	1748	20.37	0.35	142.00	1.32	93.92	93.00	
2014	231	1749	20.37	0.30	143.00	1.00	94.30	93.30	
2014	231	1750	20.36	0.31	141.30	0.71	95.62	92.91	
2014	231	1751	20.36	0.39	141.00	1.01	93.40	91.00	
2014	231	1752	20.36	0.33	138.20	0.89	95.34	91.94	
2014	231	1753	20.36	0.39	138.00	1.19	95.97	95.40	
2014	231	1754	20.36	0.39	141.00	1.10	107.10	107.10	
2014	231	1755	20.36	0.33	143.00	1.07	73.40	72.30	
2014	231	1756	20.36	0.39	141.30	1.00	94.36	93.14	
2014	231	1757	20.37	0.33	139.00	1.07	94.93	93.72	
2014	231	1758	20.37	0.39	138.34	0.36	95.94	94.70	
2014	231	1759	20.37	0.32	140.00	1.20	94.00	93.37	
2014	231	1800	20.36	0.33	143.00	1.33	92.80	91.30	
2014	231	1801	20.36	0.39	138.83	0.84	95.04	94.40	
2014	231	1802	20.36	0.39	139.94	0.73	94.3	93.50	
2014	231	1803	20.37	0.33	139.33	0.71	94.30	93.32	
2014	231	1804	20.37	0.32	141.33	1.17	95.34	94.07	
2014	231	1805	20.36	0.39	142.30	1.39	93.92	92.94	
2014	231	1806	20.37	0.33	143.30	0.80	95.60	93.92	
2014	231	1807	20.36	0.39	140.00	0.93	94.17	93.13	
2014	231	1808	20.36	0.32	107.34	0.70	95.44	94.75	
2014	231	1809	20.36	0.39	139.00	1.00	95.70	93.97	
2014	231	1810	20.36	0.32	133.72	0.94	95.37	97.01	
2014	231	1811	20.36	0.39	138.00	0.84	93.39	93.64	
2014	231	1812	20.36	0.32	139.30	0.80	95.92	97.32	
2014	231	1813	20.37	0.33	140.00	0.80	91.38	93.61	
2014	231	1814	20.36	0.34	144.10	0.69	95.77	93.61	
2014	231	1815	20.37	0.33	139.44	0.40	97.34	95.10	
2014	231	1816	20.36	0.33	140.00	0.80	95.80	93.80	
2014	231	1817	20.36	0.33	139.33	0.70	95.30	93.80	
2014	231	1818	20.37	0.33	140.00	0.80	91.33	93.10	
2014	231	1819	20.37	0.33	137.94	0.39	91.94	93.11	
2014	231	1820	20.36	0.36	139.83	0.82	93.57	93.40	
2014	231	1821	20.36	0.39	139.44	0.40	93.11	93.40	
2014	231	1822	20.36	0.34	139.34	0.70	93.40	93.30	
2014	231	1823	20.36	0.34	138.44	0.70	91.30	93.31	
2014	231	1824	20.37	0.33	138.74	0.74	94.00	93.32	
2014	231	1825	20.36	0.39	138.74	0.93	92.00	93.10	
2014	231	1826	20.36	0.39	138.74	0.94	91.70	93.10	
2014	231	1827	20.36	0.39	138.74	4.04	91.80	93.13	
2014	231	1828	20.37	0.33	138.34	0.83	90.97	93.60	
2014	231	1829	20.36	0.39	140.00	0.80	91.10	93.60	
2014	231	1830	20.37	0.33	137.94	0.39	90.60	93.31	
2014	231	1831	20.36	0.39	141.00	4.04	90.94	93.67	
2014	231	1832	20.37	0.34	140.10	0.80	90.94	93.60	
2014	231	1833	20.36	0.39	139.94	4.01	90.30	93.60	
2014	231	1834	20.36	0.39	138.74	0.40	90.00	93.60	
2014	231	1835	20.37	0.33	138.74	0.34	93.14	93.60	
2014	231	1836	20.36	0.33	140.07	0.84	90.60	93.60	
2014	231	1837	20.36	0.39	141.00	0.80	91.01	93.70	
2014	231	1838	20.36	0.33	138.83	4.04	90.94	93.60	
2014	231	1839	20.36	0.37	137.44	4.00	91.00	93.72	
2014	231	1840	20.37	0.32	137.44	0.40	93.40	93.70	
2014	231	1841	20.36	0.33	140.40	4.00	91.30	93.60	
2014	231	1842	20.36	0.33	138.33	4.02	93.40	93.60	
2014	231	1843	20.37	0.32	139.94	4.11	92.30	93.57	
2014	231	1844	20.37	0.33	139.00	4.00	92.4	93.60	
2014	231	1845	20.36	0.33	141.00	0.80	92.71	93.40	
2014	231	1846	20.36	0.36	140.00	4.00	91.00	93.40	
2014	231	1847	20.37	0.33	139.94	4.47	90.10	93.40	
2014	231	1848	20.37	0.35	1.3.33	0.75	90.40	93.40	
2014	231	1849	20.36	0.33	140.40	4.00	91.94	93.40	
2014	231	1850	20.36	0.33	137.47	4.00	90.70	93.40	
2014	231	1851	20.36	0.33	138.64	0.00	92.04	93.40	
2014	231	1852	20.33	0.33	140.20	0.01	92.30	93.40	
2014	231	1853	20.34	0.33	134.77	0.00	90.97	93.40	

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	232	0237	20.37	0.39	134.97	0.80	93.30	97.30	93.40
2014	232	0300	20.36	0.33	136.43	1.97	97.37	93.40	93.40
2014	232	0300	20.40	0.39	138.84	1.42	95.90	94.43	93.40
2014	232	0301	20.40	0.39	140.20	0.90	96.00	94.30	93.62
2014	232	0302	20.37	0.39	138.80	1.33	96.00	93.02	93.60
2014	232	0303	20.37	0.39	139.42	0.87	97.00	97.30	93.60
2014	232	0304	20.36	0.32	139.32	0.71	96.30	97.97	93.84
2014	232	0305	20.36	0.32	134.62	1.00	97.77	1.2.74	95.70
2014	232	0306	20.36	0.33	135.40	0.17	96.40	96.90	96.51
2014	232	0307	20.36	0.33	137.13	0.13	97.97	97.44	96.84
2014	232	0308	20.36	0.33	137.34	1.40	96.00	96.90	96.90
2014	232	0309	20.37	0.32	138.33	1.17	97.37	97.30	96.84
2014	232	0310	20.37	0.33	137.25	1.40	97.77	96.94	96.90
2014	232	0311	20.36	0.33	137.33	0.40	96.00	96.92	96.62
2014	232	0312	20.36	0.33	138.83	0.40	97.37	96.93	96.60
2014	232	0313	20.36	0.33	138.33	0.17	96.40	96.30	96.10
2014	232	0314	20.36	0.33	131.71	0.13	96.30	97.40	96.10
2014	232	0315	20.36	0.33	140.30	0.80	96.10	96.10	96.23
2014	232	0316	20.36	0.33	141.20	0.81	94.30	96.90	96.30
2014	232	0317	20.36	0.33	140.00	1.30	102.34	101.31	96.51
2014	232	0318	20.36	0.33	144.00	0.64	97.97	97.00	96.55
2014	232	0319	20.36	0.33	137.60	0.47	96.94	96.90	96.84
2014	232	0320	20.36	0.33	140.30	1.30	96.00	97.97	96.80
2014	232	0321	20.36	0.33	133.60	0.92	97.00	96.42	96.62
2014	232	0322	20.36	0.33	138.34	0.70	97.00	1.3.94	96.97
2014	232	0323	20.36	0.33	137.13	1.27	73.00	72.30	96.71
2014	232	0324	20.36	0.33	138.60	0.94	95.44	94.10	96.30
2014	232	0325	20.36	0.33	137.13	0.64	95.40	97.84	96.80
2014	232	0326	20.36	0.33	138.34	1.00	97.17	96.67	97.00
2014	232	0327	20.36	0.33	139.00	0.23	96.40	97.70	97.04
2014	232	0328	20.36	0.33	141.20	0.41	96.60	96.40	97.14
2014	232	0329	20.36	0.33	141.20	1.37	96.00	95.73	97.21
2014	232	0330	20.36	0.33	141.20	0.30	79.00	98.04	97.27
2014	232	0331	20.36	0.33	138.32	0.14	97.00	97.79	97.33
2014	232	0332	20.36	0.33	141.10	0.20	97.17	96.34	97.30
2014	232	0333	20.36	0.33	140.94	0.04	96.55	96.41	97.40
2014	232	0334	20.36	0.33	139.00	0.01	97.97	97.17	96.90
2014	232	0335	20.36	0.33	134.12	0.70	75.03	73.03	96.87
2014	232	0336	20.36	0.33	139.34	0.80	96.70	96.91	96.90
2014	232	0337	20.36	0.33	133.64	1.40	96.30	95.30	96.90
2014	232	0338	20.36	0.33	139.03	0.93	97.00	96.77	96.84
2014	232	0339	20.36	0.33	141.30	0.21	97.10	99.4	96.30
2014	232	0340	20.36	0.33	132.40	0.00	210.00	208.07	96.73
2014	232	0341	20.36	0.33	138.40	1.11	104.07	104.17	96.51
2014	232	0342	20.36	0.33	135.00	0.97	96.10	97.07	96.60
2014	232	0343	20.36	0.33	137.10	0.40	97.00	97.34	97.00
2014	232	0344	20.36	0.33	139.00	0.30	97.37	96.30	97.03
2014	232	0345	20.36	0.33	139.34	0.40	97.17	1.3.00	97.13
2014	232	0346	20.36	0.33	133.33	0.30	97.00	97.40	97.16
2014	232	0347	20.36	0.33	137.34	0.30	97.77	97.30	97.31
2014	232	0348	20.36	0.33	134.00	0.00	96.40	96.00	97.30
2014	232	0349	20.36	0.33	137.25	0.00	97.37	97.37	97.30
2014	232	0350	20.36	0.33	133.60	0.31	297.11	297.11	99.34
2014	232	0351	20.36	0.33	136.00	1.34	291.71	294.40	97.09
2014	232	0352	20.36	0.33	138.73	0.00	79.00	99.77	96.00
2014	232	0353	20.36	0.33	144.73	0.34	97.11	97.17	96.00
2014	232	0354	20.36	0.33	147.70	0.00	97.00	97.21	97.17
2014	232	0355	20.36	0.33	133.73	0.00	97.37	97.37	97.22
2014	232	0356	20.36	0.33	137.04	0.00	96.30	96.37	96.30
2014	232	0357	20.36	0.33	139.34	0.00	96.40	96.40	97.36
2014	232	0358	20.36	0.33	140.13	0.30	97.00	97.30	97.33
2014	232	0359	20.36	0.33	139.00	0.00	97.40	97.40	96.40
2014	232	0360	20.36	0.33	141.30	0.00	97.37	96.00	96.40
2014	232	0361	20.36	0.33	138.33	0.00	97.41	97.40	1.1.00
2014	232	0362	20.36	0.33	140.00	0.00	97.37	97.34	96.84
2014	232	0363	20.36	0.33	138.33	0.00	434.30	434.30	71.00
2014	232	0364	20.36	0.33	137.04	0.00	96.00	96.00	71.17
2014	232	0365	20.36	0.33	138.83	0.00	96.30	96.30	71.32
2014	232	0366	20.36	0.33	138.44	0.00	97.40	97.40	71.30
2014	232	0367	20.36	0.33	139.34	0.00	96.00	96.00	71.30
2014	232	0368	20.36	0.33	138.44	0.00	97.37	97.37	71.32
2014	232	0369	20.36	0.33	138.74	0.00	97.97	97.97	71.30
2014	232	0370	20.36	0.33	138.74	0.00	96.30	96.30	71.40
2014	232	0371	20.36	0.33	138.74	0.00	96.40	96.40	71.43
2014	232	0372	20.36	0.33	138.74	0.00	96.70	96.70	71.47
2014	232	0373	20.36	0.33	138.34	0.00	97.77	97.77	71.51
2014	232	0374	20.36	0.33	140.00	0.00	97.77	97.77	71.56
2014	232	0375	20.36	0.33	139.83	0.00	97.37	97.37	71.60
2014	232	0376	20.36	0.33	139.44	0.00	96.90	96.90	71.62
2014	232	0377	20.36	0.33	140.10	0.00	97.00	97.00	71.66
2014	232	0378	20.36	0.33	139.94	0.00	96.00	96.00	71.69
2014	232	0379	20.36	0.33	138.74	0.00	96.10	96.10	71.73
2014	232	0380	20.36	0.33	138.74	0.00	97.00	97.00	71.76
2014	232	0381	20.36	0.33	140.07	0.00	96.40	96.40	71.81
2014	232	0382	20.36	0.33	139.83	0.00	97.40	97.40	71.86
2014	232	0383	20.36	0.33	141.00	0.00	96.34	96.34	71.87
2014	232	0384	20.36	0.33	139.44	0.00	96.83	96.83	71.84
2014	232	0385	20.36	0.33	138.74	0.00	97.00	97.00	71.87
2014	232	0386	20.36	0.33	138.74	0.00	96.70	96.70	72.01
2014	232	0387	20.36	0.33	138.74	0.00	96.10	96.10	72.00
2014	232	0388	20.36	0.33	138.64	0.00	96.30	96.30	72.11
2014	232	0389	20.36	0.33	139.04	0.00	96.00	96.00	72.10
2014	232	0390	20.36	0.33	139.34	0.00	97.00	97.00	72.18
2014	232	0391	20.36	0.33	139.72	0.00	97.00	97.00	72.33
2014	232	0392	20.36	0.33	139.33	0.00	96.40	96.40	72.33
2014	232	0393	20.36	0.33	137.94	0.00	96.30	96.30	72.36
2014	232	0394	20.36	0.33	139.34	0.00	96.40	96.40	72.40
2014	232	0395	20.36	0.33	140.14	0.00	97.00	97.00	72.44
2014	232	0396	20.36	0.33	140.00	0.00	97.97	97.97	72.49
2014	232	0397	20.36	0.33	141.00	0.00	99.19	99.19	72.53
2014	232	0398	20.36	0.33	139.73	0.00	97.77	97.77	73.13
2014	232	0399	20.36	0.33	139.73	0.00	96.84	96.84	73.03

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121011280
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	201	1004	20.36	0.33	128.34	0.39	84.03	49.23	62.16
2014	201	1005	20.37	0.33	128.84	0.19	86.63	48.44	61.71
2014	201	1006	20.37	0.35	128.84	4.79	88.70	49.03	62.09
2014	201	1007	20.36	0.31	134.83	5.23	84.77	48.36	62.97
2014	201	1008	20.36	0.32	142.22	4.68	88.13	48.46	62.84
2014	201	1009	20.36	0.33	138.44	4.73	84.88	49.21	63.31
2014	201	1010	20.3	0.31	128.88	4.67	88.88	51.88	62.88
2014	201	1011	20.36	0.33	136.03	5.41	84.88	49.42	61.87
2014	201	1012	20.37	0.32	137.94	5.23	84.36	49.14	61.88
2014	201	1013	20.36	0.33	140.86	4.68	82.45	49.78	61.62
2014	201	1014	20.36	0.32	138.34	5.78	83.64	49.33	61.88
2014	201	1015	20.37	0.33	137.94	4.38	86.36	50.67	61.86
2014	201	1016	20.36	0.32	138.64	5.18	84.13	49.67	61.86
2014	201	1017	20.37	0.32	143.06	5.88	84.88	49.29	61.88
2014	201	1018	20.37	0.35	138.84	4.18	86.36	51.38	61.79
2014	201	1019	20.36	0.32	140.66	4.82	83.89	49.17	61.77
2014	201	1020	20.37	0.35	140.33	5.91	84.48	49.47	61.74
2014	201	1021	20.36	0.33	140.16	4.64	86.84	50.79	61.73
2014	201	1022	20.37	0.32	140.88	4.48	84.47	50.01	61.71
2014	201	1023	20.36	0.31	138.13	5.72	85.88	50.76	61.68
2014	201	1024	20.36	0.32	138.84	4.82	86.48	50.09	61.71
2014	201	1025	20.36	0.32	140.37	4.37	84.41	50.14	61.63
2014	201	1026	20.37	0.33	141.88	3.68	84.34	50.66	61.61
2014	201	1027	20.37	0.33	138.44	4.18	88.33	51.62	61.88
2014	201	1028	20.36	0.32	137.84	4.68	86.18	52.10	61.88
2014	201	1029	20.37	0.33	140.38	4.68	83.21	50.69	61.57
2014	201	1030	20.36	0.36	138.53	5.38	86.78	51.34	61.88
2014	201	1031	20.37	0.36	138.04	4.78	84.47	50.71	61.86
2014	201	1032	20.36	0.36	138.84	4.57	86.63	50.89	61.91
2014	201	1033	20.36	0.32	134.34	4.38	86.91	50.63	61.86
2014	201	1034	20.36	0.33	137.84	4.18	84.92	50.84	61.88
2014	201	1035	20.36	0.32	138.03	4.38	83.93	51.22	61.88
2014	201	1036	20.37	0.32	138.44	5.71	84.74	51.43	61.86
2014	201	1037	20.36	0.32	137.44	4.38	86.93	52.38	61.88
2014	201	1038	20.36	0.32	138.03	4.88	86.48	52.01	61.78
2014	201	1039	20.37	0.31	138.13	5.48	86.78	52.38	61.76
2014	201	1040	20.36	0.33	137.84	5.18	87.88	51.38	61.74
2014	201	1041	20.36	0.32	138.44	4.88	86.54	52.18	61.73
2014	201	1042	20.36	0.32	134.72	4.38	86.48	51.78	61.70
2014	201	1043	20.37	0.36	137.38	4.11	88.38	52.17	61.68
2014	201	1044	20.36	0.33	138.84	4.88	84.91	51.88	61.39
2014	201	1045	20.36	0.36	138.14	4.88	88.88	51.48	61.64
2014	201	1046	20.37	0.33	138.03	5.51	88.88	53.42	61.64
2014	201	1047	20.37	0.33	138.03	5.18	87.93	53.63	62.62
2014	201	1048	20.36	0.32	137.13	5.77	87.38	53.48	63.21
2014	201	1049	20.37	0.32	137.34	4.38	88.34	53.01	63.88
2014	201	1050	20.37	0.33	137.84	4.38	86.48	53.63	63.88
2014	201	1051	20.36	0.32	138.33	4.63	86.38	53.73	63.84
2014	201	1052	20.36	0.33	138.88	3.68	86.78	53.17	63.63
2014	201	1053	20.36	0.33	137.34	3.88	88.48	53.88	63.38
2014	201	1054	20.36	0.33	140.46	3.91	86.48	53.88	63.48
2014	201	1055	20.36	0.32	134.83	4.38	86.87	53.78	63.48
2014	201	1056	20.37	0.36	138.34	4.88	87.88	53.88	63.48
2014	201	1057	20.37	0.33	138.34	4.38	88.88	53.63	63.48
2014	201	1058	20.36	0.32	134.83	4.48	87.74	53.38	63.41
2014	201	1059	20.36	0.33	137.34	3.88	87.44	53.38	63.48
2014	201	1060	20.34	0.36	138.11	3.38	87.84	54.89	63.37
2014	201	1061	20.36	0.32	138.53	3.88	88.48	53.88	63.48
2014	201	1062	20.36	0.33	138.34	3.91	87.38	54.38	63.38
2014	201	1063	20.36	0.34	141.38	3.68	88.88	53.91	63.34
2014	201	1064	20.37	0.36	137.88	3.88	88.38	53.38	63.38
2014	201	1065	20.36	0.36	138.88	3.88	88.48	53.63	63.38
2014	201	1066	20.36	0.36	138.34	3.63	88.38	53.38	63.38
2014	201	1067	20.36	0.33	137.84	3.63	87.64	53.78	63.38
2014	201	1068	20.36	0.36	138.44	3.76	88.48	53.88	63.38
2014	201	1069	20.36	0.36	138.88	4.88	88.78	53.78	63.21
2014	201	1070	20.36	0.32	133.93	4.63	87.87	53.84	63.38
2014	201	1071	20.36	0.32	138.33	5.14	86.36	53.88	63.48
2014	201	1072	20.36	0.33	138.33	4.63	87.84	53.81	63.48
2014	201	1073	20.37	0.32	138.34	4.48	86.83	54.21	63.48
2014	201	1074	20.36	0.36	138.34	3.73	88.73	55.38	63.25
2014	201	1075	20.37	0.33	138.84	3.91	86.88	53.18	63.38
2014	201	1076	20.36	0.33	138.88	3.88	87.88	53.48	63.25
2014	201	1077	20.36	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1078	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1079	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1080	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1081	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1082	20.37	0.36	138.88	2.88	83.48	50.89	63.07
2014	201	1083	20.36	0.32	133.93	3.14	83.38	50.38	63.07
2014	201	1084	20.36	0.33	138.33	4.63	87.88	50.14	63.14
2014	201	1085	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1086	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1087	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1088	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1089	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1090	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1091	20.37	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1092	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1093	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1094	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1095	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1096	20.37	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1097	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1098	20.36	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1099	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1100	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1101	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1102	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1103	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1104	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1105	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1106	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1107	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1108	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1109	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1110	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1111	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1112	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1113	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1114	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1115	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1116	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1117	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1118	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1119	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1120	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1121	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1122	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1123	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1124	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1125	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1126	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1127	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1128	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1129	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1130	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1131	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1132	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1133	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1134	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1135	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1136	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1137	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1138	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1139	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1140	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1141	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1142	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1143	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1144	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1145	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1146	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1147	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1148	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1149	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1150	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1151	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1152	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1153	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1154	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1155	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1156	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1157	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1158	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1159	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1160	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1161	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1162	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1163	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1164	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1165	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1166	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1167	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1168	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1169	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1170	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1171	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1172	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1173	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1174	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1175	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1176	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1177	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1178	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1179	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1180	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1181	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1182	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1183	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1184	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1185	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1186	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1187	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1188	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1189	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1190	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1191	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1192	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1193	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1194	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1195	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1196	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1197	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1198	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1199	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1200	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1201	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1202	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1203	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1204	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1205	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1206	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1207	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1208	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1209	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1210	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1211	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1212	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1213	20.36	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1214	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1215	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1216	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1217	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1218	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1219	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1220	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1221	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1222	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1223	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1224	20.36	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1225	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1226	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1227	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1228	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1229	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1230	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1231	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1232	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1233	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1234	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1235	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1236	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1237	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1238	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1239	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1240	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1241	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1242	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1243	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1244	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1245	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1246	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1247	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1248	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1249	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1250	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1251	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1252	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1253	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1254	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1255	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1256	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1257	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1258	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1259	20.36	0.33	138.33	3.14	83.38	50.38	63.07
2014	201	1260	20.36	0.32	138.34	4.63	87.88	50.14	63.14
2014	201	1261	20.36	0.32	138.34	4.48	86.83	51.21	63.14
2014	201	1262	20.36	0.32	138.34	3.73	88.73	50.38	63.25
2014	201	1263	20.37	0.33	138.88	3.91	86.88	53.18	63.38
2014	201	1264	20.37	0.33	134.72	3.78	88.78	52.91	63.25
2014	201	1265	20.37	0.34	140.34	4.88	83.81	52.11	63.88
2014	201	1266	20.36	0.36	140.88	1.38	83.84	51.3	63.38
2014	201	1267	20.36	0.36	138.78	1.88	83.81	51.48	63.38
2014	201	1268	20.37	0.36	138.81	1.88	83.21	51.38	63.07
2014	201	1269	20.36	0.32	133.93	2.88	83.48	50.89	63.07
2014	201	1270	20.36	0.33	138.33	3.14	83.38	50.38	63.07

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121011250
Sheet: 10.RV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	231	0942	20.39	0.20	139.74	0.00	52.31	48.23	77.00
2014	231	0943	20.39	0.22	142.70	0.10	51.44	46.34	67.00
2014	231	0944	20.39	0.20	140.47	0.37	50.15	44.76	67.82
2014	231	0945	20.33	0.22	137.74	0.73	51.70	46.93	67.40
2014	231	0946	20.32	0.23	139.34	0.77	53.20	47.39	67.41
2014	231	0947	20.33	0.22	139.33	0.83	53.73	47.89	67.36
2014	231	0948	20.33	0.20	143.00	0.83	51.00	45.67	67.20
2014	231	0949	20.36	0.20	144.30	0.77	50.01	44.83	67.17
2014	231	0950	20.34	0.20	139.94	0.80	50.79	45.34	67.19
2014	231	0951	20.36	0.20	140.67	0.82	50.77	45.34	67.20
2014	231	0952	20.34	0.20	144.00	0.40	50.40	45.00	67.01
2014	231	0953	20.33	0.20	139.14	0.83	51.30	45.83	66.98
2014	231	0954	20.33	0.20	139.86	0.83	52.30	47.40	66.80
2014	231	0955	20.34	0.20	141.00	0.00	51.30	46.83	66.77
2014	231	0956	20.37	0.20	142.00	0.00	51.30	46.81	66.73
2014	231	0957	20.33	0.20	144.14	0.00	50.77	-3.77	66.69
2014	231	0958	20.37	0.20	139.44	0.44	51.34	46.90	66.91
2014	231	0959	20.36	0.20	140.00	0.00	50.80	46.40	66.94
2014	231	1000	20.30	0.22	138.85	0.79	52.30	48.45	66.97
2014	231	1001	20.37	0.20	140.00	0.00	51.30	46.82	66.97
2014	231	1002	20.37	0.20	137.00	0.00	51.34	46.86	66.94
2014	231	1003	20.36	0.20	138.00	0.82	52.37	48.86	66.77
2014	231	1004	20.33	0.20	138.44	0.40	52.11	48.00	66.71
2014	231	1005	20.37	0.20	140.00	0.00	49.80	44.81	66.63
2014	231	1006	20.37	0.20	138.14	0.00	51.30	46.14	66.68
2014	231	1007	20.33	0.20	138.84	0.00	50.82	44.72	66.67
2014	231	1008	20.37	0.20	138.14	0.00	51.37	46.39	66.68
2014	231	1009	20.39	0.22	138.34	0.42	52.30	48.88	66.78
2014	231	1010	20.34	0.22	140.00	0.72	50.92	44.81	66.80
2014	231	1011	20.34	0.22	142.00	0.94	51.14	45.38	66.80
2014	231	1012	20.34	0.20	141.35	0.82	51.30	45.44	66.81
2014	231	1013	20.36	0.20	140.20	0.[illegible]	50.34	44.71	66.46
2014	231	1014	20.36	0.20	139.35	0.34	51.34	45.39	66.30
2014	231	1015	20.34	0.22	137.13	0.68	52.00	46.82	66.30
2014	231	1016	20.34	0.22	139.83	0.21	53.01	48.78	66.31
2014	231	1017	20.30	0.20	138.74	0.00	52.00	48.78	66.16
2014	231	1018	20.34	0.20	140.00	0.00	51.31	46.40	66.06
2014	231	1019	20.34	0.20	139.84	0.44	51.00	46.20	66.01
2014	231	1020	20.34	0.22	138.14	0.00	50.00	45.20	65.97
2014	231	1021	20.34	0.22	138.34	0.34	51.37	46.34	65.97
2014	231	1022	20.37	0.20	140.00	0.00	50.80	45.80	65.94
2014	231	1023	20.37	0.20	137.00	0.00	51.34	46.34	65.94
2014	231	1024	20.36	0.20	138.00	0.82	52.37	48.36	66.17
2014	231	1025	20.33	0.22	140.00	0.00	51.30	46.30	66.12
2014	231	1026	20.34	0.20	140.00	0.00	50.34	44.80	66.10
2014	231	1027	20.34	0.20	140.00	0.00	50.34	44.80	66.12
2014	231	1028	20.34	0.22	137.44	0.10	51.31	45.30	65.97
2014	231	1029	20.34	0.20	141.13	0.34	50.80	44.14	65.88
2014	231	1030	20.34	0.22	141.00	0.00	50.80	44.97	65.92
2014	231	1031	20.34	0.20	139.13	0.00	50.80	47.00	65.73
2014	231	1032	20.34	0.20	139.00	0.00	50.80	44.43	65.65
2014	231	1033	20.33	0.20	139.33	0.00	50.80	47.87	65.61
2014	231	1034	20.30	0.20	140.00	0.00	51.47	46.84	65.63
2014	231	1035	20.32	0.20	139.84	0.00	51.10	46.80	65.11
2014	231	1036	20.30	0.20	141.00	0.00	50.30	41.70	65.08
2014	231	1037	20.32	0.20	141.00	0.70	50.00	44.00	65.02
2014	231	1038	20.30	0.22	139.84	0.10	51.30	46.10	65.04
2014	231	1039	20.30	0.20	142.00	0.73	51.40	45.87	65.70
2014	231	1040	20.36	0.22	139.84	0.34	51.40	45.10	65.60
2014	231	1041	20.30	0.20	139.74	0.00	52.00	47.87	65.60
2014	231	1042	20.36	0.20	139.43	0.00	50.80	45.30	65.54
2014	231	1043	20.37	0.22	138.00	0.00	51.30	47.30	65.51
2014	231	1044	20.33	0.22	138.13	0.00	52.00	47.30	65.51
2014	231	1045	20.37	0.20	142.00	0.00	51.30	46.81	65.40
2014	231	1046	20.33	0.22	141.00	0.00	51.77	45.77	65.30
2014	231	1047	20.37	0.23	139.43	0.44	51.50	46.13	65.37
2014	231	1048	20.36	0.22	140.00	0.00	50.80	45.80	65.30
2014	231	1049	20.37	0.22	139.84	0.70	51.30	46.40	65.37
2014	231	1050	20.37	0.22	140.00	0.82	51.30	46.80	65.37
2014	231	1051	20.37	0.22	137.44	0.00	51.30	46.80	65.34
2014	231	1052	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1053	20.37	0.20	139.13	0.00	51.30	46.80	65.34
2014	231	1054	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1055	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1056	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1057	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1058	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1059	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1060	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1061	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1062	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1063	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1064	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1065	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1066	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1067	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1068	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1069	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1070	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1071	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1072	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1073	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1074	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1075	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1076	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1077	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1078	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1079	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1080	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1081	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1082	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1083	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1084	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1085	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1086	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1087	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1088	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1089	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1090	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1091	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1092	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1093	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1094	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1095	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1096	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1097	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1098	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1099	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1100	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1101	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1102	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1103	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1104	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1105	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1106	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1107	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1108	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1109	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1110	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1111	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1112	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1113	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1114	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1115	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1116	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1117	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1118	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1119	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1120	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1121	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1122	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1123	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1124	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1125	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1126	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1127	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1128	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1129	20.37	0.20	139.00	0.00	51.30	46.80	65.34
2014	231	1130	20.37	0.20	139.00	0.00	51.30	46.80	65.34

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121011280
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + CO (ppm)	TSP	TRS rolling 4-hour average
2014	231	1300	20.30	0.30	139.04	4.91	33.33	48.44	48.88
2014	231	1301	20.30	0.30	139.40	5.19	39.03	48.84	48.88
2014	231	1302	20.37	0.31	139.74	5.24	53.14	48.83	48.87
2014	231	1303	20.30	0.30	140.07	5.04	69.39	48.83	48.87
2014	231	1304	20.37	0.31	140.08	5.40	39.69	48.48	48.87
2014	231	1305	20.30	0.34	140.07	5.14	46.55	41.75	48.88
2014	231	1306	20.37	0.33	139.64	5.33	39.39	48.87	48.88
2014	231	1307	20.30	0.33	139.64	5.33	40.73	47.42	48.87
2014	231	1308	20.30	0.33	141.30	5.38	51.24	48.86	48.87
2014	231	1309	20.30	0.32	139.30	4.86	50.23	48.84	48.87
2014	231	1310	20.30	0.33	137.44	4.44	51.06	47.30	48.87
2014	231	1311	20.37	0.33	137.44	4.19	49.48	47.30	48.87
2014	231	1312	20.30	0.36	140.40	4.30	51.08	47.30	48.87
2014	231	1313	20.30	0.33	138.33	4.03	52.40	46.42	48.87
2014	231	1314	20.37	0.32	139.84	4.11	53.39	46.10	48.87
2014	231	1315	20.30	0.33	140.00	4.00	52.04	47.70	48.87
2014	231	1316	20.30	0.33	141.06	4.00	53.71	47.00	48.87
2014	231	1317	20.30	0.35	140.38	4.00	51.08	46.98	48.87
2014	231	1318	20.37	0.33	139.64	4.40	50.10	46.94	48.87
2014	231	1319	20.37	0.35	140.38	3.70	50.40	46.71	48.87
2014	231	1320	20.37	0.33	140.40	4.00	53.34	47.00	48.87
2014	231	1321	20.30	0.33	134.43	4.17	54.79	46.98	48.87
2014	231	1322	20.30	0.33	139.84	3.80	53.34	46.71	48.87
2014	231	1323	20.30	0.33	140.38	3.91	53.39	46.47	48.87
2014	231	1324	20.34	0.33	134.73	3.80	53.40	46.00	48.87
2014	231	1325	20.30	0.33	139.34	3.33	54.00	46.33	48.87
2014	231	1326	20.37	0.30	139.04	4.70	53.70	46.33	48.87
2014	231	1327	20.37	0.31	134.82	3.33	54.77	46.00	48.87
2014	231	1328	20.30	0.30	140.08	4.00	55.12	45.40	48.87
2014	231	1329	20.30	0.33	138.44	4.72	53.33	45.91	48.87
2014	231	1330	20.37	0.31	139.00	4.67	55.00	51.00	48.87
2014	231	1331	20.30	0.30	139.00	5.41	54.00	46.47	48.87
2014	231	1332	20.37	0.32	137.34	5.32	54.00	46.14	48.87
2014	231	1333	20.30	0.30	140.06	4.11	56.40	45.70	48.87
2014	231	1334	20.30	0.32	139.34	5.10	55.04	45.00	48.87
2014	231	1335	20.37	0.32	137.04	4.30	55.33	55.67	48.87
2014	231	1336	20.30	0.32	139.04	5.10	54.13	45.67	48.87
2014	231	1337	20.30	0.32	139.04	5.09	54.00	45.47	48.87
2014	231	1338	20.37	0.30	139.04	5.10	54.00	45.47	48.87
2014	231	1339	20.37	0.30	139.04	4.80	55.33	45.47	48.87
2014	231	1340	20.30	0.33	140.08	4.00	55.00	45.47	48.87
2014	231	1341	20.30	0.33	140.38	4.00	54.67	45.47	48.87
2014	231	1342	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1343	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1344	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1345	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1346	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1347	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1348	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1349	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1350	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1351	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1352	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1353	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1354	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1355	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1356	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1357	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1358	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1359	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1400	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1401	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1402	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1403	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1404	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1405	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1406	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1407	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1408	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1409	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1410	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1411	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1412	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1413	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1414	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1415	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1416	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1417	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1418	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1419	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1420	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1421	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1422	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1423	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1424	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1425	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1426	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1427	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1428	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1429	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1430	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1431	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1432	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1433	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1434	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1435	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1436	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1437	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1438	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1439	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	231	1440	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0000	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0001	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0002	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0003	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0004	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0005	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0006	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0007	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0008	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0009	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0010	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0011	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0012	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0013	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0014	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0015	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0016	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0017	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0018	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0019	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0020	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0021	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0022	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0023	20.30	0.33	139.34	4.00	54.00	45.47	48.87
2014	232	0024	20.30	0.33	139.34	4.00	54.00	45.47	48.87

Summary of CORRECTED DATA

Client: Northern Pulp
Project No.: 121011250
Stack: HLRV
Test No.: 1

Year	Day (Julian)	Hour	O_2 (%)	SO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	292	10	20.35	0.33	134.72	3.40	96.85	65.13	42.34
2014	292	11	20.30	0.30	137.64	3.28	97.54	64.67	45.60
2014	292	12	20.27	0.35	140.34	7.28	97.54	64.30	48.86
2014	292	13	20.30	0.35	139.74	3.40	96.54	64.30	48.46
2014	292	14	20.30	0.33	140.03	3.19	96.44	63.23	48.42
2014	292	15	20.30	0.33	134.32	3.32	98.14	64.63	48.80
2014	292	16	20.27	0.33	134.00	3.32	97.45	63.81	48.98
2014	292	17	20.30	0.33	133.92	2.88	98.38	64.94	48.91
2014	292	18	20.35	0.30	134.92	3.16	97.74	64.57	48.28
2014	292	19	20.30	0.33	136.73	3.14	98.60	65.21	48.30
2014	292	20	20.30	0.33	138.39	3.12	96.14	63.62	48.31
2014	292	21	20.35	0.33	134.02	3.16	98.38	64.88	48.10
2014	292	22	20.30	0.33	131.61	4.00	96.98	64.38	48.14
2014	292	23	20.35	0.33	132.32	3.88	98.38	65.33	48.11
2014	292	24	20.30	0.33	131.61	4.08	96.98	65.37	48.09
2014	292	25	20.35	0.32	134.02	3.76	98.38	65.40	48.06
2014	292	26	20.34	0.33	131.41	3.80	98.17	67.64	48.22
2014	292	27	20.30	0.33	137.94	3.48	98.40	65.60	48.03
2014	292	28	20.35	0.33	132.32	3.76	96.76	65.60	48.07
2014	292	29	20.37	0.33	134.92	3.16	98.38	65.13	48.04
2014	292	30	20.30	0.33	140.96	3.47	96.36	63.38	48.00
2014	292	31	20.37	0.33	138.39	4.01	97.94	65.03	48.09
2014	292	32	20.30	0.31	138.39	3.16	96.76	65.65	48.09
2014	292	33	20.30	0.31	139.00	3.20	96.98	65.16	48.04
2014	292	34	20.30	0.33	140.60	3.16	98.94	65.40	48.00
2014	292	35	20.37	0.33	138.53	3.09	96.98	65.40	48.05
2014	292	36	20.37	0.33	141.79	3.76	98.38	65.88	48.20
2014	292	37	20.35	0.35	140.16	3.16	98.46	66.30	48.37
2014	292	38	20.35	0.35	140.15	3.48	98.85	66.48	48.42
2014	292	39	20.34	0.32	137.36	3.80	98.10	66.10	48.40
2014	292	40	20.37	0.35	140.00	3.48	98.85	66.01	48.34
2014	292	41	20.37	0.33	139.94	3.84	96.36	65.43	48.39
2014	292	42	20.37	0.33	141.79	3.76	98.38	66.88	48.39
2014	292	43	20.35	0.35	140.16	3.16	98.46	66.30	48.37
2014	292	44	20.35	0.35	140.15	3.48	98.85	66.48	48.42
2014	292	45	20.34	0.32	137.36	3.80	98.10	66.10	48.40
2014	292	46	20.37	0.35	140.00	3.48	98.85	66.01	48.34
2014	292	47	20.35	0.30	137.94	3.80	98.67	66.01	48.39
2014	292	48	20.37	0.33	138.84	3.88	98.60	66.01	48.34
2014	292	49	20.37	0.33	139.94	3.84	96.36	65.43	48.39
2014	292	50	20.37	0.33	141.79	3.76	98.38	66.88	48.39
2014	292	51	20.35	0.35	140.16	3.16	98.46	66.30	48.37
2014	292	52	20.35	0.35	140.15	3.48	98.85	66.48	48.42
2014	292	53	20.34	0.32	137.36	3.80	98.10	66.10	48.40
2014	292	54	20.37	0.35	140.00	3.48	98.85	66.01	48.34
2014	292	55	20.30	0.33	139.74	3.88	98.38	65.61	48.34
2014	292	56	20.37	0.33	140.76	3.88	98.94	64.60	48.37
2014	292	57	20.35	0.33	140.60	4.00	98.85	64.60	48.38
2014	292	58	20.30	0.33	140.00	3.48	98.16	65.70	48.38
2014	292	59	20.35	0.33	140.07	3.92	97.84	63.73	48.38
2014	292	100	20.30	0.35	140.05	3.20	98.85	65.30	48.72
2014	292	101	20.30	0.35	139.14	3.92	98.70	64.84	48.70
2014	292	102	20.35	0.32	139.94	4.12	98.60	64.78	48.68
2014	292	103	20.30	0.35	139.84	3.48	97.30	63.94	48.64
2014	292	104	20.30	0.32	139.63	3.48	98.37	65.02	48.65
2014	292	105	20.30	0.33	140.38	3.52	98.14	64.63	48.62
2014	292	106	20.37	0.33	139.94	3.87	98.38	65.40	48.68
2014	292	107	20.37	0.32	140.42	3.88	98.14	65.61	48.62
2014	292	108	20.37	0.33	140.14	4.12	98.85	64.53	48.64
2014	292	109	20.30	0.32	139.63	3.88	98.67	65.30	48.69
2014	292	110	20.37	0.32	139.00	3.48	97.44	64.61	48.72
2014	292	111	20.30	0.35	142.00	3.88	98.60	63.87	48.74
2014	292	112	20.37	0.32	139.84	3.87	98.14	65.40	48.69
2014	292	113	20.37	0.31	138.74	3.56	98.38	65.30	48.68
2014	292	114	20.37	0.33	140.00	3.44	98.70	64.31	48.66
2014	292	115	20.30	0.33	140.42	3.48	98.67	64.14	48.66
2014	292	116	20.35	0.33	138.60	3.60	98.37	64.11	48.69
2014	292	117	20.30	0.33	140.38	3.88	98.70	65.21	48.62
2014	292	118	20.37	0.33	139.84	3.88	98.38	64.40	48.45
2014	292	119	20.35	0.35	140.38	3.48	98.04	64.04	48.40
2014	292	120	20.30	0.35	139.74	3.36	98.40	65.04	48.53
2014	292	121	20.37	0.34	140.38	3.88	98.04	64.34	48.44
2014	292	122	20.37	0.36	140.00	3.88	98.38	65.70	48.60
2014	292	123	20.30	0.33	139.84	3.70	98.38	65.47	48.64
2014	292	124	20.30	0.33	137.84	3.88	98.67	67.30	48.68
2014	292	125	20.30	0.33	139.94	3.40	98.60	65.43	48.74
2014	292	126	20.30	0.32	139.73	3.88	98.17	65.30	48.70
2014	292	127	20.37	0.30	140.38	3.73	98.60	65.57	48.64
2014	292	128	20.30	0.33	139.00	3.40	98.85	67.40	48.68
2014	292	129	20.30	0.31	139.91	3.70	98.40	66.73	48.64
2014	292	130	20.30	0.32	138.74	3.76	98.04	65.10	48.59
2014	292	131	20.37	0.33	140.15	3.88	98.04	66.30	51.02
2014	292	132	20.30	0.33	138.14	3.88	97.38	64.91	51.05
2014	292	133	20.37	0.32	138.34	3.73	98.40	64.72	51.19
2014	292	134	20.30	0.32	140.38	3.44	97.84	63.19	51.13
2014	292	135	20.30	0.33	140.60	3.16	97.60	64.60	51.19
2014	292	136	20.40	0.30	137.94	3.47	98.85	66.14	51.35
2014	292	137	20.30	0.35	140.38	3.16	98.38	66.04	51.34
2014	292	138	20.37	0.33	138.94	3.88	97.[illegible]	64.04	51.30
2014	292	139	20.35	0.33	137.34	3.92	97.84	66.53	51.30
2014	292	140	20.30	0.33	140.00	3.60	97.84	66.60	51.30
2014	292	141	20.30	0.33	141.73	3.60	98.04	63.00	51.42
2014	292	142	20.30	0.30	137.60	3.73	97.84	65.23	51.40
2014	292	143	20.30	0.35	141.38	3.60	98.38	63.03	51.40
2014	292	144	20.37	0.32	138.74	3.60	98.60	66.70	51.38
2014	292	145	20.30	0.34	137.60	3.76	98.60	63.31	51.37
2014	292	146	20.30	0.35	141.75	4.00	97.37	66.44	51.42
2014	292	147	20.35	0.33	143.00	3.73	97.84	66.17	51.38
2014	292	148	20.30	0.33	140.06	3.84	98.40	66.93	51.31
2014	292	149	20.30	0.33	138.94	3.60	98.38	67.30	51.36
2014	292	150	20.30	0.33	140.38	3.32	98.38	65.63	51.31

Year	Day (Julian)	Hour	O_2 (%)	SO_2 (%)	CO (ppm)	SO_2 (ppm)	TRS + SO2 (ppm)	TRS	TRS rolling 4-hour average
2014	292	1230	20.40	0.30	140.06	3.88	76.30	76.30	50.70
2014	292	1240	20.40	0.30	140.97	4.00	76.00	76.00	50.70
2014	292	1250	20.40	0.30	147.37	3.88	76.00	76.00	50.70
2014	292	1300	20.40	0.30	152.00	3.88	76.10	76.10	50.80
2014	292	1310	20.40	0.32	148.60	3.88	76.11	76.11	50.82
2014	292	1320	20.47	0.35	148.06	4.00	77.30	77.30	50.63
2014	292	1330	20.47	0.35	147.47	4.00	76.80	76.80	50.84
2014	292	1340	20.40	0.30	146.67	4.00	76.90	76.90	50.86
2014	292	1350	20.40	0.32	146.60	4.00	76.60	76.60	50.86
2014	292	1400	20.44	0.33	146.40	4.00	77.61	77.61	50.88
2014	292	1410	20.44	0.30	151.70	4.00	77.30	77.30	50.88
2014	292	1420	20.40	0.30	148.70	4.00	76.70	76.70	50.88
2014	292	1430	20.44	0.30	151.30	4.00	76.70	76.70	50.88
2014	292	1440	20.40	0.34	150.61	4.00	77.30	77.30	50.91
2014	292	1450	20.40	0.34	157.61	4.00	76.60	76.60	50.92
2014	292	1500	20.40	0.34	152.30	4.00	77.71	77.71	50.89
2014	292	1510	20.44	0.34	154.70	4.00	76.40	76.40	50.84
2014	292	1520	20.40	0.34	154.30	4.00	76.70	76.70	50.86
2014	292	1530	20.44	0.34	154.00	4.00	76.21	76.21	50.86
2014	292	1540	20.40	0.34	148.60	4.00	77.01	77.01	50.86
2014	292	1550	20.40	0.34	153.10	4.00	76.10	76.10	50.87
2014	292	1600	20.40	0.30	148.60	4.00	76.70	76.70	50.86
2014	292	1610	20.40	0.30	148.60	4.00	76.70	76.70	50.88
2014	292	1620	20.40	0.30	154.00	4.00	76.80	76.80	50.88
2014	292	1630	20.40	0.30	152.10	4.00	76.40	76.40	50.88
2014	292	1640	20.40	0.30	148.30	4.00	76.60	76.60	50.91
2014	292	1650	20.73	0.30	144.40	4.00	76.84	76.84	50.91
2014	292	1700	20.40	0.30	148.30	4.00	76.10	76.10	50.90
2014	292	1710	20.40	0.30	144.00	4.00	77.61	77.61	50.84
2014	292	1720	20.40	0.34	148.10	4.00	76.70	76.70	50.88
2014	292	1730	20.40	0.30	148.97	4.00	77.00	77.00	50.88
2014	292	1740	20.44	0.30	148.80	4.00	77.31	77.31	50.87
2014	292	1750	20.40	0.30	148.60	4.00	77.71	77.71	50.86
2014	292	1800	20.40	0.30	148.30	4.00	77.61	77.61	50.90
2014	292	1810	20.41	0.30	148.30	4.00	76.80	76.80	50.88
2014	292	1820	20.44	0.30	148.07	4.00	78.02	78.02	50.88
2014	292	1830	20.40	0.30	148.30	4.00	77.31	77.31	50.88
2014	292	1840	20.11	0.32	149.00	4.00	76.13	76.13	50.91
2014	292	1850	20.40	0.30	148.30	4.00	78.01	78.01	50.86
2014	292	1860	20.40	0.30	147.37	4.00	77.71	77.71	50.88
2014	292	1870	20.40	0.33	148.37	4.00	77.01	77.01	50.90
2014	292	1880	20.40	0.30	149.00	4.00	76.30	76.30	50.90
2014	292	1890	20.40	0.30	147.30	4.00	77.01	77.01	51.10
2014	292	1900	20.40	0.30	148.00	4.00	76.32	76.32	51.10
2014	292	1910	20.40	0.30	146.37	4.00	78.62	78.62	50.90
2014	292	1920	20.44	0.34	148.47	4.00	77.91	77.91	50.90
2014	292	1930	20.44	0.37	148.30	4.00	77.30	77.30	50.90
2014	292	1940	20.44	0.30	147.37	4.00	77.91	77.91	50.90
2014	292	1950	20.44	0.30	148.67	4.00	77.00	77.00	50.90
2014	292	1960	20.40	0.34	151.30	4.00	76.10	76.10	50.84
2014	292	1970	20.40	0.34	147.37	4.00	77.10	77.10	50.89
2014	292	1980	20.4[illegible]	0.34	144.10	4.00	77.30	77.30	50.89
AVERAGE			20.38	0.30	140.70	3.92	98.70	66.27	49.96
20 minute tests:									
1			20.30	0.33	137.42	4.40	84.67	56.22	
2			20.30	0.32	139.44	3.32	83.80	55.60	
3			20.30	0.33	139.42	4.00	84.70	55.70	
Maximum TRS rolling 4-hour average			50.92						

GAS CALCULATIONS

Client: Northern Pulp
Plant: New Glasgow
Location: High Level Roof Vent

	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)
Ave. Gas 1	20.4	0.2	137.4	4.4	0.0
Ave. Gas 2	20.4	0.2	138.4	3.3	0.0
Ave. Gas 3	20.4	0.2	139.6	3.0	0.0

Test 1 Time	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)
8/19/2014 13:30	20.36036	0.227152	137.4182	4.449723	0

Test 2 Time	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)
8/19/2014 14:00	20.36413	0.221871	138.4394	3.31528	0

Test 3 Time	O_2 (%)	CO_2 (%)	CO (ppm)	SO_2 (ppm)	NO_X (ppm)
8/19/2014 14:30	20.36105	0.223677	139.6234	3.021197	0

Note: O2, CO2, CO, and SO2 data from continuous monitoring using the trailer. The NOx testing was conducted concurrently with flow measurements.

Raw Data for: Northern Pulp Summer Testing
Test #1

Client: Northern Pulp
Job Number: 121911200

Plant: New Glasgow
Location: High Level Roof Vent
Test: I
Date: 20-Aug-11
Personnel: CM

Test Start: 12:15 PM
Test Finish: 12:2[illegible] PM

Parameters

Barometric Pressure, Pbar (in. Hg)	29.85	O2, (%)	20.4	Stack Diameter, (in.)	[illegible]2
Stack Static Pressure, Pstatic (in. H2O)	0.00	CO2, (%)	0.2	Stack Area, (sq. ft.)	20.27
Ambient Temp, (°F)	[illegible]	N2, (%)	79.4	Pitot Coefficient, (Cp)	0.84[illegible]
Assumed Moisture Content (as decimal)	[illegible]3				

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)
1	1	10.	134	0.78
	2		145	0.78
	3		133	0.72
	4		140	0.83
	5		138	0.89
	6		140	0.81
	7		137	0.83
	8		143	0.84
	9		144	0.87
	10		141	[illegible]
	11		140	0.77
	12		139	[illegible]
2	1		[illegible]	0.88
	2		144	[illegible]
	3		145	0.85
	4		144	0.83
	5		143	0.84
	6		142	[illegible]
	7		143	[illegible]
	8		140	[illegible]
	9		140	[illegible]
	10		[illegible]	[illegible]
	11		143	[illegible]
	12		[illegible]	0.79

Calculations for: Northern Pulp Summer Testing
Test #1

Client: Northern Pulp
Job Number: 121611269

Plant: New Glasgow
Location: High Level Roof Vent
Test: 1
Date: 28-Aug-14
Personnel: CM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	29.95
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.86
Volume of Water Vapour Collected, Vwc (cu.ft)	0.014
Stack Gas Moisture Content (% as decimal)	0.300
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	26.60

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Stack Gas Velocity, Us (ft/s)
1	1	10	594	0.78	55.72
	2		595	0.78	55.77
	3		596	0.79	56.17
	4		600	0.80	56.72
	5		601	0.80	56.77
	6		605	0.81	57.31
	7		606	0.83	58.01
	8		604	0.80	56.91
	9		604	0.81	57.26
	10		601	0.78	56.06
	11		600	0.77	55.65
	12		599	0.76	55.24
2	1		603	0.80	56.86
	2		604	0.81	57.26
	3		605	0.82	57.66
	4		604	0.81	57.26
	5		603	0.80	56.86
	6		602	0.79	56.46
	7		601	0.78	56.05
	8		600	0.77	55.65
	9		600	0.77	55.65
	10		601	0.77	55.59
	11		602	0.79	56.46
	12		603	0.80	56.86
		Total	Average	Average	Average
		10	601	0.79	56.5

Raw Data for: **Northern Pulp Summer Testing**
Test #2

Client: Northern Pulp
Job Number: 13-511800

Plant: New Glasgow
Location: High Level Roof Vent
Test: 2
Date: 20-Aug-14
Personnel: CM

Test Start: 12:25 PM
Test Finish: 12:55 PM

Parameters

Barometric Pressure, Pbar (in. Hg)	29.91	O2, (%)	20.4	Stack Diameter, (in.)	72
Stack Static Pressure, Pstatic (in. H2O)	0.1	CO2, (%)	0.2	Stack Area, (sq. ft.)	28.27
Ambient Temp, (°F)	63	N2, (%)	79.4	Pitot Coefficient, (Cp)	0.840
Assumed Moisture Content (as decimal)	0.1				

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)
1	1	19	140	0.76
	2		139	0.64
	3		140	0.72
	4		139	0.72
	5		143	0.64
	6		142	0.60
	7		143	0.72
	8		143	0.72
	9		147	0.71
	10		147	0.77
	11		149	0.77
	12		149	0.76
2	1		143	0.69
	2		141	0.64
	3		141	0.64
	4		141	0.68
	5		143	0.72
	6		143	0.68
	7		144	0.80
	8		145	0.80
	9		146	0.8
	10		147	0.8
	11		150	0.76
	12		149	0.76

Calculations for: Northern Pulp Summer Testing
Test #1

Client: Northern Pulp
Job Number: 121511109

Plant: New Glasgow
Location: High Level Roof Vent
Test: 2
Date: 20-Aug-14
Personnel: CM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	29.96
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	28.97
Volume of Water Vapour Collected, Vwc (cu.ft)	0.014
Stack Gas Moisture Content (% as decimal)	0.309
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	25.60

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Stack Gas Velocity, Us (ft/s)
1	1	10	600	0.79	56.36
	2		599	0.80	56.67
	3		600	0.81	57.07
	4		599	0.82	57.38
	5		601	0.81	57.12
	6		602	0.83	57.57
	7		605	0.79	56.80
	8		605	0.78	56.24
	9		602	0.76	56.10
	10		602	0.77	56.74
	11		600	0.77	55.66
	12		600	0.76	55.28
2	1		602	0.80	56.81
	2		603	0.79	56.50
	3		601	0.81	57.12
	4		601	0.81	57.12
	5		601	0.82	57.47
	6		605	0.81	57.31
	7		604	0.81	57.26
	8		603	0.79	56.50
	9		604	0.79	56.55
	10		604	0.78	56.19
	11		605	0.76	55.51
	12		601	0.76	55.33
		Total 10	Average 602	Average 0.79	Average 56.6

Raw Data for: Northern Pulp Summer Testing
Test #3

Client: Northern Pulp
Job Number: 121511288

Plant: New Glasgow
Location: High Level Roof Vent
Test: 3
Date: 20-Aug-14
Personnel: CM

Test Start: 12:30 PM
Test Finish: 12:45 PM

Parameters
Barometric Pressure, Pbar (in. Hg)
Stack Static Pressure, Pstatic (in. H2O)
Ambient Temp, (°F)
Assumed Moisture Content (as decimal)

O2, (%) 20.4
CO2, (%) 0.2
N2, (%) 79.4

Stack Diameter, (in.)
Stack Area, (sq. ft.) 28.27
Pitot Coefficient, (Cp) 0.84

	Traverse Point	Time (min)	Stack Gas Temp, Ts (°F)	S-type Pitot delta P (in. H2O)
1	1	10	[illegible]	[illegible]
	2		[illegible]	[illegible]
	3		[illegible]	[illegible]
	4		[illegible]	[illegible]
	5		[illegible]	[illegible]
	6		[illegible]	[illegible]
	7		[illegible]	[illegible]
	8		[illegible]	[illegible]
	9		[illegible]	[illegible]
	10		[illegible]	[illegible]
	11		[illegible]	[illegible]
	12		[illegible]	[illegible]
2	1		[illegible]	[illegible]
	2		[illegible]	[illegible]
	3		[illegible]	[illegible]
	4		[illegible]	[illegible]
	5		[illegible]	[illegible]
	6		[illegible]	[illegible]
	7		[illegible]	[illegible]
	8		[illegible]	[illegible]
	9		[illegible]	[illegible]
	10		[illegible]	[illegible]
	11		[illegible]	[illegible]
	12		[illegible]	[illegible]

Calculations for: Northern Pulp Summer Testing
Test #1

Client: Northern Pulp
Job Number: 121511269

Plant: New Glasgow
Location: High Level Roof Vent
Test: 3
Date: 28-Aug-14
Personnel: CM

Calculated Parameters

Stack Gas Pressure, Ps (in.Hg)	29.96
Stack Gas Molecular Weight, Dry Basis, Md (lb/lb-mole)	29.66
Volume of Water Vapour Collected, Vwc (cu.ft)	0.014
Stack Gas Moisture Content (% as decimal)	0.308
Stack Gas Molecular Weight, Wet Basis, Ms (lb/lb-mole)	25.60

	Traverse Point	Time (min)	Stack Gas Temp, Ts (R)	S-type Pitot, delta P (in. H2O)	Stack Gas Velocity, Us (ft/s)
1	1	10	601	0.79	56.41
	2		602	0.80	56.81
	3		604	0.81	57.26
	4		605	0.82	57.66
	5		605	0.81	57.31
	6		604	0.83	57.97
	7		601	0.80	56.77
	8		604	0.79	56.55
	9		602	0.78	56.10
	10		603	0.77	55.78
	11		602	0.77	55.74
	12		600	0.76	55.28
2	1		602	0.78	56.10
	2		601	0.79	56.41
	3		603	0.80	56.86
	4		601	0.81	57.12
	5		602	0.82	57.52
	6		601	0.81	57.12
	7		602	0.83	57.87
	8		603	0.81	57.21
	9		603	0.79	56.50
	10		604	0.79	56.55
	11		605	0.77	55.88
	12		601	0.76	55.33
		Total 10	Average 603	Average 0.80	Average 56.7

CALCULATIONS

Northern Pulp
New Glasgow
High Level Roof Vent
Operating Conditions: Normal

Reference Temperature, Tref (F): 77
(K): 298
Reference Pressure, Pref (in.Hg): 29.92
(Bar): 1.0

Parameter	Symbol	Units	Test 1	Test 2	Test 3	Average
Test ID	-	-	1	2	3	n/a
Date	-	-	20-Aug-14	20-Aug-14	20-Aug-14	n/a
Start Time	-	-	12:15 PM	12:25 PM	12:35 PM	n/a
End Time	-	-	12:25 PM	12:35 PM	12:45 PM	n/a
Total Sampling Time	-	min	10	10	10	10
Stack Diameter	D	in.	72	72	72	72
Average Stack Gas Temperature	Ts	F	141	142	143	142
Barometric Pressure	Pbar	in.Hg	29.95	29.95	29.95	29.9
Stack Static Pressure	Pstatic	in.H_2O	0	0	0	0
Average Pressure Drop (Head)	dP	in.H_2O	0.79	0.79	0.80	0.79
Pitot Coefficient	Cp	-	0.840	0.840	0.840	0.840
Reference Temperature	Tref	R	537	537	537	537
Reference Pressure	Pref	in.Hg	29.92	29.92	29.92	29.92
Water Fraction	Bwo		0.30	0.30	0.30	0.30
Average Stack Velocity	Us	ft/s	56.51	56.57	56.67	56.6
Actual Flow Rate	Acfm	cu.ft/m	95,871	95,975	96,141	95,996
Dry Standard Flow Rate	Dscfm	cu.ft/m	59,969	59,983	60,037	60,003
Dry Standard Flow Rate	MMSCFH		3.60	3.60	3.60	3.60

GAS CALCULATIONS
Northern Pulp
New Glasgow
High Level Roof Vent

Variable	Symbol	Units	Calculation	Test 1	Test 2	Test 3	Average
Dry Stack Gas Flow Rate	Qs	dscfm		59,989	59,983	60,037	60,003
		dscmm	Qs (dscmm) = 0.028472 x Qs (dscfm)	28.3	28.3	28.3	28.3
Stack Gas Oxygen Content	Co2	%	Measurement from Flue Gas Analyzer	20.4	20.4	20.4	20.4
Stack Gas Carbon Dioxide Content	Cco2	%	Measurement from Flue Gas Analyzer	0.2	0.2	0.2	0.2
Sulphur Dioxide - SO2							
SO2 Measured Concentration	Cso2	ppm	Measurement from Flue Gas Analyzer	4.45	3.32	3.02	3.60
Uncorrected @ STP	Cso2	mg/dscm	Cso2 (mg/dscm) = Cso2 (ppm) x 2.62	11.7	8.69	7.92	9.42
SO2 Emission Rate	ESo2	g/s	ESo2 = Cso2/1000 x Qs	0.33	0.25	0.22	0.27
		kg/hr	ESo2 (kg/hr) = 3.6 x ESo2 (g/s)	1.19	0.89	0.81	0.96
SO2 Concentration							
Corrected to 11% O2	Cso2	mg/dscm	Cso2 (11% O2) = Cso2 (mg/dscm) x (20.9-11) / (20.9-Co2)	214	160	145	173
Corrected to 3% O2	Cso2	mg/dscm	Cso2 (3% O2) = Cso2 (mg/dscm) x (20.9-3) / (20.9-Co2)	387	290	263	313
Corrected to 12% CO2	Cso2	mg/dscm	Cso2 (12% CO2) = Cso2 (mg/dscm) x (12/Cco2)	616	470	425	503
Nitrogen Oxides - NOx							
NOx Measured Concentration	Cnox	ppm	Measurement from Flue Gas Analyzer	0.0	0.0	0.0	0.00
Uncorrected @ STP	Cnox	mg/dscm	Cnox (mg/dscm) = Cnox (ppm) x 1.882	0.0	0.0	0.0	0.0
NOx Emission Rate	ENox	g/s	ENox = Cnox/1000 x Qs	0.00	0.00	0.00	0.00
		kg/hr	ENox (kg/hr) = 3.6 x ENox (g/s)	0.00	0.00	0.00	0.00
NOx Concentration							
Corrected to 11% O2	Cnox	mg/dscm	Cnox (11% O2) = Cnox (mg/dscm) x (20.9-11) / (20.9-Co2)	0	0	0	0
Corrected to 3% O2	Cnox	mg/dscm	Cnox (3% O2) = Cnox (mg/dscm) x (20.9-3) / (20.9-Co2)	0	0	0	0
Corrected to 12% CO2	Cnox	mg/dscm	Cnox (12% CO2) = Cnox (mg/dscm) x (12/Cco2)	0	0	0	0
Carbon Monoxide - CO							
CO Measured Concentration	Cco	ppm	Measurement from Flue Gas Analyzer	137	138	140	138
Uncorrected @ STP	Cco	mg/dscm	Cco (mg/dscm) = Cco (ppm) x 1.145	157	158	160	159
CO Emission Rate	ECo	g/s	ECo = Cco/1000 x Qs	4.45	4.49	4.53	4.49
		kg/hr	ECo (kg/hr) = 3.6 x ECo (g/s)	16.0	16.2	16.3	16.2
CO Concentration							
Corrected to 11% O2	Cco	mg/dscm	Cco (11% O2) = Cco (mg/dscm) x (20.9-11) / (20.9-Co2)	2,887	2,928	2,937	2,917
Corrected to 3% O2	Cco	mg/dscm	Cco (3% O2) = Cco (mg/dscm) x (20.9-3) / (20.9-Co2)	5,219	5,295	5,310	5,275
Corrected to 12% CO2	Cco	mg/dscm	Cco (12% CO2) = Cco (mg/dscm) x (12/Cco2)	8,312	8,573	8,577	8,487

Legend:
sq.ft - square feet
sq.m - square metres
PI - 3.142
R - degrees Rankin
ppm - parts per million

in.Hg - inches of mercury
cu.ft - cubic feet
cu.m - cubic metres
STP - standard temperature and pressure (25 C and 101.3 kPa)
dscmm - dry standard cubic metres per second
dscfm - dry standard cubic feet per minute

mg/dscm - milligrams per dry standard cubic metre
g/s - grams per second
NOx - as NO2
acfm - actual cubic feet per minute

STACK TESTING RESULTS
GAS CALCULATIONS
Northern Pulp
New Glasgow
High Level Roof Vent

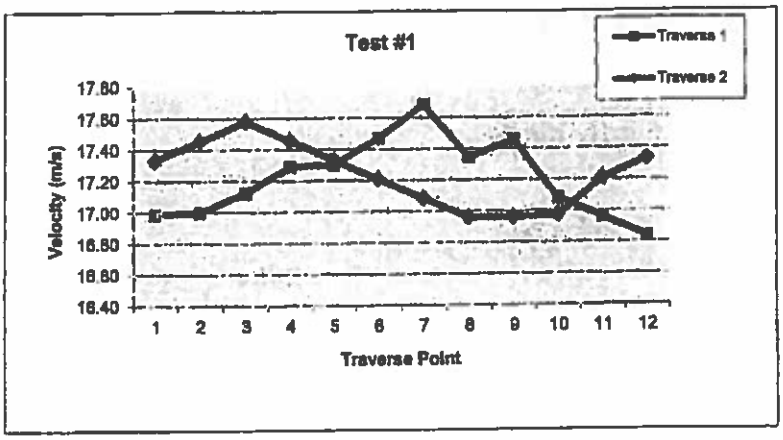
Parameter	Test 1	Test 2	Test 3	Average	Limits
Oxygen - O2 (%) Carbon Dioxide - CO2 (%)	20.4 0.2	20.4 0.2	20.4 0.2	20.4 0.2	- -
Sulphur Dioxide - SO2 SO2 Measured Concentration (ppm) Uncorrected at STP (mg/dscm) Emission Rate (kg/hr)	4.4 11.7 1.19	3.32 8.69 0.89	3.02 7.92 0.81	3.60 9.42 0.98	- - -
Nitrogen Oxides - NOx NOx Measured Concentration (ppm) Uncorrected at STP (mg/dscm) Emission Rate (kg/hr)	ND ND ND	ND ND ND	ND ND ND	ND ND ND	- - -
Carbon Monoxide - CO CO Measured Concentration (ppm) Uncorrected at STP (mg/dscm) Emission Rate (kg/hr)	137 157 16.0	138 159 16.2	140 160 16.3	138 159 16.2	- - -

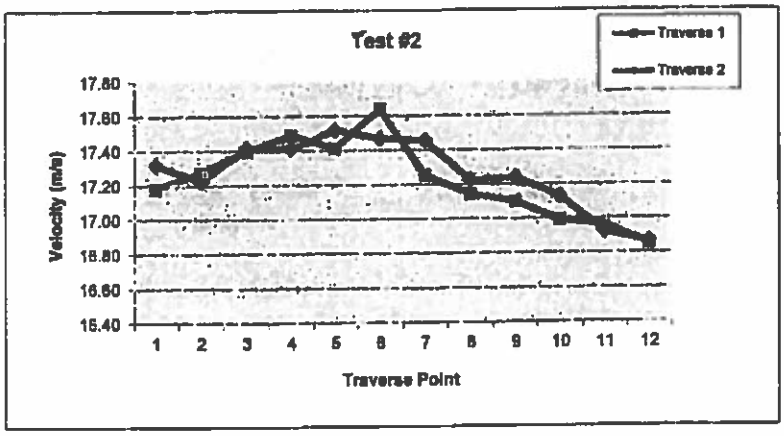
Legend:
C - degrees Celsius
m/s - metres per second
dscms - dry standard cubic metres per second
ppm - parts per million
STP - standard temperature and pressure (25 C and 101.3 kPa)
mg/dscm - milligrams per dry standard cubic metre
NOx - as NO2
ND - non-detectable

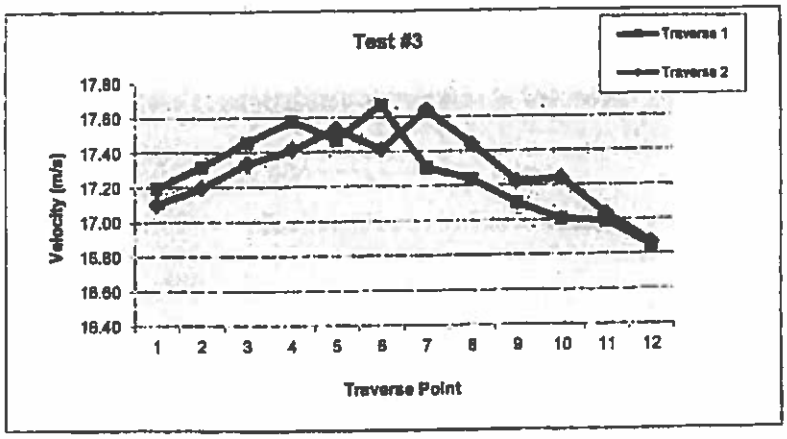
Raw Data for:
High Level Roof Vent

Job No. 121511269

Northern Pulp Summer Testing
Velocity Profile







Project: 121511269 Northern Pulp
Test: Recovery Boiler Test #1
Date: Sept. 3 2014
Analyst:

Absolute stack gas pressure (Ps) in in.Hg is:

$$Ps = P_{bar} + \frac{P_{static}\ in.H_2O}{13.6\ in.H_2O/in.Hg}$$

$$Ps = 30.00\ in\ Hg + \frac{6.10\ in\ H_2O}{13.6\ in\ H_2O/in\ Hg}$$

$$Ps = 30.08\ in.Hg$$

A

The molecular weight of the stack gas on a dry basis (Md) in lb/lb-mole is:

$$Md = 0.44\ (\%CO_2) + 0.32\ (\%O_2) + 0.28\ [(\%N_2)]$$

$$Md = 0.44 \times 9.4 + 0.32 \times 7.7 + 0.28\ (82.9 + /) + 0.40\ (/ + /)$$

$$Md = 4.136 + 2.464 + 23.212 + /$$

$$Md = 29.812\ lb/lb\text{-}mole$$

The volume of water vapour collected at reference conditions (Vwc) in ft³ is:

$$Vwc = 0.0480\ ft^3/mL \times \text{volume of moisture collected mL}$$

$$Vwc = 0.0480 \times 581.6\ mL$$

$$Vwc = 27.9168\ ft^3$$

The average _H orifice in in.H_2O is:

$$_H\ orifice_{avg.} = \frac{\Sigma\ H\ orifice}{\#\ points}$$

$$_H\ orifice_{avg.} = \frac{21.87 + 22.25}{48}$$

$$_H\ orifice_{avg.} = \underline{0.92}\ in.H_2O$$

The pressure at the gas meter (Pm) in in.Hg is:

$$Pm = P_{bar} + \frac{_H\ orifice_{avg.}\ in.H_2O}{13.6\ in.H_2O/in.Hg}$$

$$Pm = \underline{30.00\ in\ Hg} + \frac{0.92\ in\ H_2O}{13.6\ in\ H_2O/in\ Hg}$$

$$Pm = \underline{30.00\ in\ Hg} + \underline{0.068\ in\ Hg}$$

$$Pm = \underline{30.07}\ in.Hg$$

The temperature of the gas meter (Tm) in °R is:

$$Tm = \frac{\Sigma\ meter\ temp.\ °F}{\#\ points} + 460$$

$$Tm = \frac{3229 + 3604}{48 \cdot 2} + 460$$

$$Tm = \frac{6833}{96} + 460$$

$$Tm = \underline{531}\ °R$$

The total volume of gas metered (Vm) in ft³ is:

$$Vm = Vf\ ft^3 - Vi\ ft^3$$

$$Vm = 530.75\ ft^3 - 470.18\ ft^3$$

$$Vm = 60.57\ ft^3$$

The dry gas volume at reference conditions (Vmc) in ft³ is:

$$Vmc = \frac{T_{ref}\ °R}{P_{ref}\ in.Hg} \times \frac{Pm\ in.Hg \times Vm\ ft^3 \times y}{Tm\ °R}$$

$$Vmc = \frac{(77+460R)}{29.92\ in\ Hg} \times \frac{30.07\ in\ Hg \times 60.57\ ft^3 \times 1.040}{531\ °R}$$

$$Vmc = 64.0\ ft^3 \times 1\ m^3 / 35.31\ ft^3 = 1.81\ m^3$$

The stack gas moisture content, i.e. the proportion by volume of water vapour in the gas stream (Bwo) is:

$$Bwo = \frac{Vwc\ ft^3}{Vwc\ ft^3 + Vmc\ ft^3}$$

$$Bwo = \frac{27.9168\ ft^3}{27.9168\ ft^3 + 64.0\ ft^3}$$

$$Bwo = \frac{27.9168\ ft^3}{91.91\ ft^3}$$

$$Bwo = 0.304$$

The Molecular weight of the stack gas on a wet basis (Ms) in lb/lb-mole is:

Ms = Md lb/lb-mole (1-Bwo) + 18 lb/lb-mole x Bwo

Ms = 29.812 lb/lb-mol x (1 - 0.304) + 18 x 0.304

Ms = 29.812 lb/lb-mol x 0.696 + 5.47

Ms = 26.22 lb/lb-mole

E

The average temperature of the stack (Ts_{avg}) in °R is:

$$Ts_{avg} = \frac{\Sigma Ts\ °F}{\#\ points} + 460$$

$$Ts_{avg} = \frac{3776 + 3788}{48} + 460$$

$$Ts_{avg} = \frac{7564}{48} + 460$$

Ts_{avg} = 618 °R

E

The average velocity (Us_{avg}) of the stack in ft/s is:

Point: T4-2-2
Ts = 159°F
ΔP = 0.62 in H_2O

$$Us_{avg} = \frac{\Sigma V}{\#\ points}$$

$$U_{S1} = 85.33 C_P \sqrt{\frac{\Delta P_1 \cdot T_{S1}}{P_S \cdot M_S}} = 85.33(0.838) \times \sqrt{\frac{(0.62)(159+460)}{(30.07)(26.22)}}$$

U_{S1} = 49.9 ft/s

$$Us_{avg} = \frac{2424\ m/s}{48}$$

Us_{avg} = 50.5 ft/s x 1 m / 3.281 ft = 15.4 m/s

Cr

The cross-sectional area of the stack (As) in ft^2 is:

$$As = \frac{\Pi (D\ ft)^2}{4} \qquad D = 138\ in \cdot \frac{1\ ft}{12\ in} = 11.5\ ft$$

$$As = \frac{\Pi}{4} \times (\underline{11.5\ ft})^2$$

$$As = 0.7854 \times \underline{132.25\ ft^2}$$

$$As = \underline{103.9}\ ft^2$$

The volumetric stack gas flowrate on a dry-basis at reference conditions (Qs) in ft^3/hr is:

$$Qs = 3600\ s/hr \times Us\ ft/s \times As\ ft^2 \times (1\text{-}Bwo) \times \frac{T_{ref}\ °R}{Ts_{avg}\ °R} \times \frac{Ps\ in.Hg}{P_{ref}\ in.Hg}$$

$$Qs = 3600 \times \underline{50.5\ ft/s} \times \underline{103.9\ ft^2} \times (1 - \underline{0.304}) \times \frac{77+460\ R}{618\ R} \times \frac{30.09\ in}{29.92}$$

$$Qs = 3600 \times \underline{50.5\ ft/s} \times \underline{103.9\ ft^2} \times \underline{0.696} \times \underline{0.970} \times \underline{1.01}$$

$$Qs = \underline{11494468}\ ft^3/hr \times 1\ hr / 60\ min = \underline{191574.5}\ ft^3/min$$

$$Qs = \underline{191574.5}\ ft^3/min \times 1\ m^3 / 35.31\ ft^3 \times 1\ min / 60\ s = \underline{90.4}\ m^3/s$$

The total amount of particulate matter collected (Mp) in mg is:

Mp = 1,249 mg (excluding impingers)

The concentration of the particulate matter in the stack gas on a dry basis at reference conditions (Cp) in lb/ft³ is:

$$Cp = 2.205 \times 10^{-6}\ lb/mg \times \frac{Mp\ mg}{Vmc\ ft^3}$$

$$Cp = 2.205 \times 10^{-6}\ lb/mg \times \frac{1249\ mg}{64.0\ ft^3}$$

$$Cp = 4.30 \times 10^{-5}\ lb/ft^3 \times 453{,}590\ mg/lb \times 35.31\ ft^3/m^3 = 689\ mg/m^3$$

The emission rate of the particulate matter from the stack on a dry basis at reference conditions (ERp) in lb/hr is:

$$Erp = Cp\ lb/ft^3 \times Qs\ ft^3/hr$$

$$ERp = \frac{4.30 \times 10^{-5}\ lb}{ft^3} \times \frac{11494467\ ft^3}{hr}$$

$$ERp = 495\ lb/hr \times 1\ kg/2.20\ lb = 225\ kg/hr$$ (rounding error)

Stantec

Appendix F

Operational Data

	Kiln				PB			RB		
	ca:6fc8010.pv	ca:6ax8030a.pv	ca:6ax8020.pv	ca:6fc8725.pv	pb:5ax8021.pv	pb:5fc8013.pv	CALC for bark	rb:5fc6584.pv	rb:5fx6570.pv	Daily Oil
	Natural Gas Flow To Burner scfm	KILN BURNER HEAT INPUT 2 mmbtu/hr	Kiln Oil/Gas Ratio %	Mud to Thickener Flow GPM	PB Steam Flow kpph	PB Oil Flow kpph	T/day	Heavy Black Liquor Dry Flow KPPH	Total RB Steam Flow kpph	Usage kpph
8/19/14 7:00 AM	983.3	59.0	0.0	200.1	131.6	0.1	661.0	147.3	407.2	0.0
8/19/14 8:00 AM	983.3	59.0	0.0	199.9	136.5	0.1		149.8	412.2	
8/19/14 9:00 AM	982.3	58.9	0.0	200.0	126.2	0.1		150.7	416.8	
8/19/14 10:00 AM	947.0	56.8	0.0	200.1	131.2	0.1		150.8	412.5	
8/19/14 11:00 AM	916.9	55.1	0.0	199.8	123.3	0.1		151.1	420.5	
8/19/14 12:00 PM	916.7	55.0	0.0	200.3	132.5	0.1		150.9	421.2	
8/19/14 1:00 PM	916.7	55.0	0.0	200.0	133.4	0.1		151.0	415.3	
8/19/14 2:00 PM	945.7	56.7	0.0	200.0	120.5	0.1		151.0	417.5	
8/19/14 3:00 PM	949.9	57.0	0.0	200.0	123.7	0.1		151.0	416.9	
8/19/14 4:00 PM	936.0	56.2	0.0	198.0	129.7	0.1		150.8	422.2	
8/19/14 5:00 PM	916.7	55.0	0.0	200.0	132.2	0.1		151.0	417.5	
8/19/14 6:00 PM	916.7	55.0	0.0	200.0	128.7	0.1		151.1	419.2	
8/19/14 7:00 PM	916.7	55.0	0.0	200.1	128.5	0.1		151.1	418.0	
8/19/14 8:00 PM	916.6	55.0	0.0	200.2	123.3	0.1		150.9	423.9	
8/19/14 9:00 PM	916.6	55.0	0.0	200.1	121.4	0.1		150.8	421.3	
8/19/14 10:00 PM	916.7	55.0	0.0	200.3	119.9	0.1		151.2	422.2	
8/19/14 11:00 PM	916.6	55.0	0.0	200.0	122.0	0.1		151.1	423.3	
8/20/14 12:00 AM	916.7	55.0	0.0	200.0	115.8	0.1		151.0	424.8	
8/20/14 1:00 AM	916.7	55.0	0.0	200.1	126.7	0.1		151.2	416.1	
8/20/14 2:00 AM	916.6	55.0	0.0	199.9	135.3	0.1		148.4	408.1	
8/20/14 3:00 AM	916.7	55.0	0.0	199.8	128.0	0.1		149.4	415.7	
8/20/14 4:00 AM	916.6	55.0	0.0	200.1	123.2	0.1		150.0	423.4	
8/20/14 5:00 AM	916.7	55.0	0.0	200.0	130.2	0.1		150.1	417.0	
8/20/14 6:00 AM	916.7	55.0	0.0	200.0	131.6	0.1		150.6	414.3	
8/20/14 7:00 AM	916.6	55.0	0.0	200.4	123.5	0.1	647.0	154.5	420.3	0.0
8/20/14 8:00 AM	916.6	55.0	0.0	200.2	110.4	0.1		154.9	435.7	
8/20/14 9:00 AM	916.7	55.0	0.0	199.9	116.9	0.1		155.0	433.3	
8/20/14 10:00 AM	916.7	55.0	0.0	200.1	113.6	0.1		154.9	432.3	
8/20/14 11:00 AM	916.7	55.0	0.0	198.8	118.3	0.1		155.0	430.7	
8/20/14 12:00 PM	916.6	55.0	0.0	200.1	105.4	0.1		155.0	430.6	
8/20/14 1:00 PM	916.6	55.0	0.0	200.0	112.2	0.1		155.2	430.6	
8/20/14 2:00 PM	916.7	55.0	0.0	200.0	132.4	0.1		153.8	418.6	
8/20/14 3:00 PM	916.7	55.0	0.0	200.1	128.7	0.1		155.1	423.3	
8/20/14 4:00 PM	916.6	55.0	0.0	199.9	131.6	0.1		154.9	427.2	
8/20/14 5:00 PM	916.7	55.0	0.0	199.6	134.4	0.1		154.9	420.5	
8/20/14 6:00 PM	916.8	55.0	0.0	200.2	120.2	0.1		155.0	429.5	
8/20/14 7:00 PM	916.8	55.0	0.0	199.8	126.2	0.1		154.9	426.5	
8/20/14 8:00 PM	916.6	55.0	0.0	199.8	118.2	0.1		154.8	426.5	
8/20/14 9:00 PM	916.7	55.0	0.0	195.6	124.8	0.1		154.9	426.7	
8/20/14 10:00 PM	916.7	55.0	0.0	198.0	128.3	0.1		155.0	424.7	
8/20/14 11:00 PM	916.7	55.0	0.0	203.0	132.3	0.1		154.7	419.3	
8/21/14 12:00 AM	902.0	54.1	0.0	203.9	125.5	0.1		155.0	424.4	
8/21/14 1:00 AM	883.4	53.0	0.0	205.1	126.8	0.1		155.0	426.3	
8/21/14 2:00 AM	883.3	53.0	0.0	205.3	128.2	0.1		154.1	418.4	
8/21/14 3:00 AM	883.2	53.0	0.0	205.1	127.4	0.1		154.4	420.0	
8/21/14 4:00 AM	895.5	53.7	0.0	205.0	141.7	0.1		153.1	412.6	
8/21/14 5:00 AM	911.6	54.7	0.0	201.8	147.8	0.1		149.6	407.3	
8/21/14 6:00 AM	937.9	56.3	0.0	199.8	142.8	0.1		150.7	412.5	
8/21/14 7:00 AM	950.0	57.0	0.0	200.0	139.6	0.1	578.0	150.1	408.4	0.0
8/21/14 8:00 AM	950.0	57.0	0.0	199.9	41.1	0.1		150.2	412.7	
8/21/14 9:00 AM	950.1	57.0	0.0	200.1	42.1	0.1		148.5	409.2	
8/21/14 10:00 AM	942.9	56.6	0.0	199.9	51.7	0.1		131.4	368.9	
8/21/14 11:00 AM	933.3	56.1	0.0	200.2	93.4	0.1		129.1	357.7	
8/21/14 12:00 PM	933.3	56.0	0.0	202.3	54.4	0.1		135.5	371.4	
8/21/14 1:00 PM	935.6	56.2	0.0	200.4	96.2	0.1		118.3	325.7	
8/21/14 2:00 PM	949.5	56.9	0.0	199.9	118.3	0.1		124.1	325.6	
8/21/14 3:00 PM	950.0	57.0	0.0	199.9	120.2	0.1		123.9	337.4	
8/21/14 4:00 PM	950.1	57.0	0.0	200.0	153.3	0.1		125.2	336.1	
8/21/14 5:00 PM	950.0	57.0	0.0	200.0	128.9	0.1		126.3	338.7	
8/21/14 6:00 PM	950.0	57.0	0.0	200.0	127.4	0.1		126.3	342.6	
8/21/14 7:00 PM	950.0	57.0	0.0	199.7	176.6	2.0		126.0	345.3	
8/21/14 8:00 PM	916.5	55.0	0.0	200.1	182.6	3.7		126.0	343.3	
8/21/14 9:00 PM	900.1	54.1	0.0	205.1	178.8	4.3		130.4	352.8	
8/21/14 10:00 PM	900.0	54.0	0.0	205.0	144.7	1.3		139.6	386.3	

	Kiln				PB			RB		
	ca:8fc8010.pv	ca:6ax8030a.pv	ca:6ax8020.pv	ca:8fc6728.pv	pb:5ax6021.pv	pb:5fc6013.pv	CALC for bark	rb:5fc6554.pv	rb:5fx6570.pv	Daily Oil
	Natural Gas Flow To Burner scfm	KILN BURNER HEAT INPUT 2 mmbtu/hr	Kiln Oil/Gas Ratio %	Mud to Thickener Flow GPM	PB Steam Flow kpph	PB Oil Flow kpph	T/day	Heavy Black Liquor Dry Flow KPPH	Total RB Steam Flow kpph	Usage kpph
8/24/14 3:00 PM	902.1	54.2	0.0	200.1	89.7	0.1		155.0	434.6	
8/24/14 4:00 PM	900.0	54.0	0.0	202.7	89.0	0.1		155.1	433.6	
8/24/14 5:00 PM	900.2	54.0	0.0	200.1	74.3	0.1		154.9	436.5	
8/24/14 6:00 PM	900.0	54.0	0.0	200.0	75.4	0.1		155.8	436.3	
8/24/14 7:00 PM	900.0	54.0	0.0	200.1	98.8	0.1		152.1	425.4	
8/24/14 8:00 PM	900.0	54.0	0.0	200.1	92.9	0.1		152.7	426.1	
8/24/14 9:00 PM	900.0	54.0	0.0	200.0	79.9	0.1		152.8	429.5	
8/24/14 10:00 PM	900.0	54.0	0.0	199.9	85.2	0.1		153.1	431.1	
8/24/14 11:00 PM	900.0	54.0	0.0	200.0	93.4	0.1		154.4	432.9	
8/25/14 12:00 AM	900.0	54.0	0.0	200.1	93.8	0.1		154.8	431.7	
8/25/14 1:00 AM	900.0	54.0	0.0	195.6	93.2	0.1		154.9	431.9	
8/25/14 2:00 AM	929.4	55.7	0.0	199.9	97.6	0.1		155.0	435.4	
8/25/14 3:00 AM	933.3	55.9	0.0	200.1	108.5	0.1		154.9	431.8	
8/25/14 4:00 AM	933.4	56.9	0.0	200.0	86.3	0.1		155.2	438.9	
8/25/14 5:00 AM	933.3	56.0	0.0	200.0	95.9	0.1		156.0	439.4	
8/25/14 6:00 AM	933.3	56.0	0.0	200.1	112.7	0.1		155.2	430.3	
8/25/14 7:00 AM	933.3	56.0	0.0	200.1	101.1	0.1	517.0	156.3	434.8	0.0
8/25/14 8:00 AM	933.4	56.0	0.0	199.9	89.7	0.1		157.1	434.7	
8/25/14 9:00 AM	933.2	56.0	0.0	200.3	78.3	0.1		157.2	438.7	
8/25/14 10:00 AM	933.2	56.0	0.0	199.9	71.1	0.1		158.9	442.3	
8/25/14 11:00 AM	933.4	56.0	0.0	199.8	78.8	0.1		157.3	434.8	
8/25/14 12:00 PM	933.3	56.0	0.0	200.1	77.0	0.1		155.4	434.3	
8/25/14 1:00 PM	933.3	56.0	0.0	200.0	90.9	0.1		150.3	418.4	
8/25/14 2:00 PM	933.3	56.0	0.0	200.0	81.1	0.1		150.1	419.1	
8/25/14 3:00 PM	933.3	56.0	0.0	200.0	83.5	0.1		153.9	436.7	
8/25/14 4:00 PM	933.4	56.0	0.0	200.0	99.2	0.1		157.1	435.1	
8/25/14 5:00 PM	933.3	56.0	0.0	200.1	102.1	0.1		156.9	429.4	
8/25/14 6:00 PM	933.4	56.0	0.0	200.0	103.7	0.1		157.2	436.2	
8/25/14 7:00 PM	933.3	56.0	0.0	200.0	104.3	0.1		157.1	433.2	
8/25/14 8:00 PM	933.4	56.0	0.0	200.0	107.8	0.1		156.7	434.7	
8/25/14 9:00 PM	933.3	56.0	0.0	200.0	108.7	0.1		156.8	430.9	
8/25/14 10:00 PM	933.4	56.0	0.0	199.9	113.7	0.1		156.8	429.2	
8/25/14 11:00 PM	933.4	56.0	0.0	200.2	111.8	0.1		157.2	429.6	
8/26/14 12:00 AM	933.3	56.0	0.0	200.0	120.3	0.1		156.9	427.2	
8/26/14 1:00 AM	933.3	56.0	0.0	202.8	114.7	0.1		157.1	431.7	
8/26/14 2:00 AM	933.4	56.0	0.0	200.2	117.8	0.1		157.0	430.8	
8/26/14 3:00 AM	933.3	56.0	0.0	200.1	109.1	0.1		156.9	435.3	
8/26/14 4:00 AM	933.3	56.0	0.0	200.1	116.5	0.1		156.8	429.3	
8/26/14 5:00 AM	933.3	56.0	0.0	200.0	114.7	0.1		157.0	431.7	
8/26/14 6:00 AM	933.3	56.0	0.0	200.1	118.8	0.1		158.0	426.1	
8/26/14 7:00 AM	933.3	56.0	0.0	200.0	112.1	0.1	522.0	158.2	428.1	0.0
8/26/14 8:00 AM	933.3	56.0	0.0	200.1	107.3	0.1		157.8	438.6	
8/26/14 9:00 AM	933.3	56.0	0.0	200.1	111.7	0.1		158.1	436.4	
8/26/14 10:00 AM	933.4	56.0	0.0	199.9	98.1	0.1		157.8	437.1	
8/26/14 11:00 AM	933.3	56.0	0.0	199.8	85.8	0.1		158.0	440.4	
8/26/14 12:00 PM	933.4	56.0	0.0	201.8	99.2	0.1		158.1	437.2	
8/26/14 1:00 PM	933.4	56.0	0.0	199.9	95.2	0.1		157.9	437.1	
8/26/14 2:00 PM	933.4	56.0	0.0	200.8	105.7	0.1		158.0	430.4	
8/26/14 3:00 PM	933.2	56.0	0.0	199.9	104.0	0.1		158.0	434.4	
8/26/14 4:00 PM	933.4	56.0	0.0	199.9	94.9	0.1		158.0	441.6	
8/26/14 5:00 PM	933.3	56.0	0.0	199.9	102.4	0.1		157.9	433.3	
8/26/14 6:00 PM	933.4	56.0	0.0	200.1	104.0	0.1		157.8	436.9	
8/26/14 7:00 PM	933.4	56.0	0.0	199.9	101.2	0.1		157.9	433.8	
8/26/14 8:00 PM	933.4	56.0	0.0	200.0	84.3	0.1		158.0	437.3	
8/26/14 9:00 PM	933.3	56.0	0.0	199.9	92.2	0.1		158.0	438.8	
8/26/14 10:00 PM	933.3	56.0	0.0	200.1	102.4	0.1		158.2	432.4	
8/26/14 11:00 PM	933.4	56.0	0.0	199.9	88.2	0.1		157.8	435.1	
8/27/14 12:00 AM	933.4	56.0	0.0	200.1	98.7	0.1		156.4	431.4	
8/27/14 1:00 AM	933.3	56.0	0.0	200.5	101.9	0.1		158.1	429.8	
8/27/14 2:00 AM	933.3	56.0	0.0	199.9	111.1	0.1		158.0	430.7	
8/27/14 3:00 AM	933.3	56.0	0.0	200.0	114.9	0.1		157.9	432.4	
8/27/14 4:00 AM	933.3	56.0	0.0	199.8	109.2	0.1		157.9	430.4	
8/27/14 5:00 AM	933.3	56.0	0.0	199.8	83.0	0.1		157.9	436.8	
8/27/14 6:00 AM	933.4	56.0	0.0	200.0	82.8	0.1		158.0	434.8	