Peace AirShed Zone Association

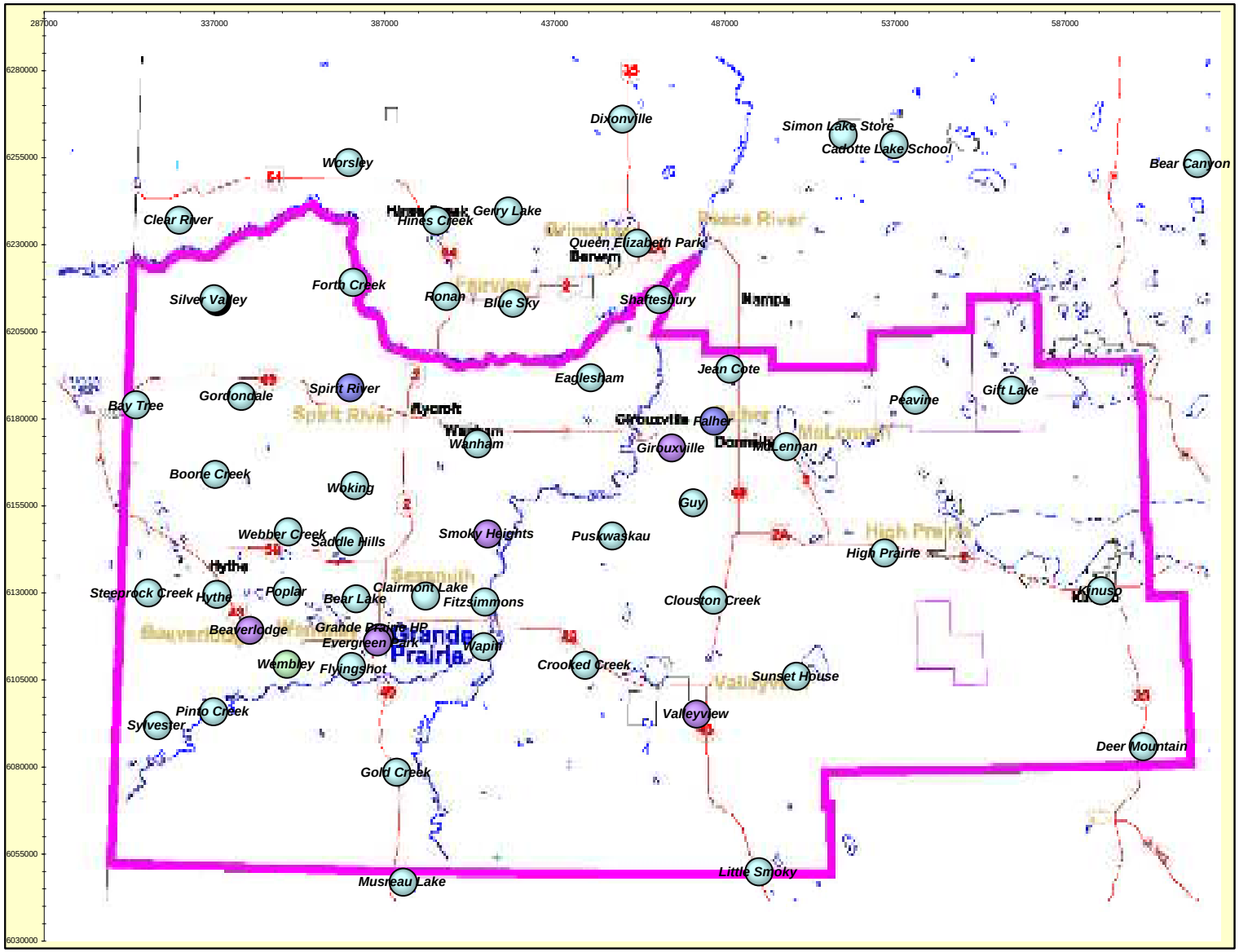
Ambient Air Monitoring Network Summary

Continuous Ambient Air Quality Monitoring Program
Monthly Report
December 2008

Operations and Reporting

FOCUS
AIR QUALITY MONITORING

Location of PASZA Continuous and Passive Monitoring Stations



PASZA
Peace AirShed Zone Association

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January 28, 2009

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RE: Peace Airshed Zone Association (PASZA) – December 2008 Ambient Air Report

Enclosed is the PASZA Ambient Monitoring Network Report for the month of **December 2008**.

Continuous Monitoring: **Six (6) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Spirit River (portable) and Valleyview.**

Included in this report is a summary of the monthly continuous monitoring, detailed hourly average reports and multipoint calibration reports of all instruments. Operational summaries can be found on the "Monthly Summary" and "Continuous Monitoring" pages of the report.

During the month of December the following events were noted:

Henry Pirker Station:

- The measured ambient air quality was within the Alberta Ambient Air Quality Objectives (AAAQO) for the Henry Pirker station.
- All analyzers / sensors at the Henry Pirker station had an operational uptime greater than 90% for the month of December, with the exception of the temperature and relative humidity sensors - **Alberta Environment reference #209512**. The gauges were sent back to factory for repair, as and have been out of service since November 6th.

Evergreen Park Station:

- The measured ambient air quality was within the AAAQO for the Evergreen Park station.
- All analyzers / sensors at the Evergreen Park station had an operational uptime greater than 90% for the month of December.

Smoky Heights Station:

- The measured ambient air quality was within the AAAQO for the Smoky Heights station.
- All analyzers / sensors at the Smoky Heights station had an operational uptime greater than 90% for the month of December.

Beaverlodge Station:

- The measured ambient air quality was within the AAAQO for the Beaverlodge station.
- All analyzers / sensors at the Beaverlodge station had an operational uptime greater than 90% for the month of December.
- A controlled power outage occurred at the station – resulting in twenty-one (21) hours of invalid data for all parameters.

Portable – Spirit River Station:

- The measured ambient air quality was within the AAAQO for the Spirit River station.

- All analyzers / sensors at the Spirit River station had an operational uptime greater than 90% for the month of December.
- In December there was a total of thirty-nine (39) hours of invalid data for all parameters due to power failures.

Valleyview Station:

- The measured ambient air quality was within the AAAQO for the Valleyview station.
- All analyzers / sensors at the Valleyview station had an operational uptime greater than 90% for the month of December.

Passive Monitoring - 54 Stations throughout the PASZA zone:

There were seven duplicate sites sampled in the month of December: Clouston Creek, Valleyview, Sunset House, Gift Lake, Kinuso, Gerry Lake and Grande Prairie HP. The passive sample analyses were performed by MAXXAM Analytics Inc.

A summary of the passive data collected are reported as follows.

- Monthly average concentrations for SO_2 passives ranged from 0.0 ppb to 0.6 ppb, with a mean of 0.2 ppb.
- Monthly average concentrations for NO_2 passives ranged from 1.0 ppb to 10.8 ppb, with a mean of 3.0 ppb.
- Monthly average concentrations for O_3 passives ranged from 16.6 ppb to 33.5 ppb, with a mean of 23.8 ppb.

If you have any questions, please contact the Focus Intec office at 1.403.255.9440 (Kelly Baragar or Sharon Whiteley).

On Behalf of the,
Peace Airshed Zone Association

Michael Bisaga
PASZA Program Manager

Sharon Whiteley, B.Sc..
AQM Data Specialist

PASZA Monthly Continuous Data Summary

Dec-2008	Peace Airshed Zone Assocation						Maximum Recorded Values				
							1-hr		24-hr / 8-hr		
Pollutant (units)	Objectives 1-hr	Objectives 24-hr	Station	Monthly Average	Exceedence 1-hr	Exceedence 24-hr	Conc	Day	Conc	Day	Operational Time (%)
SO_2 (ppb)	172	57	Henry Pirker	0.3	0	0	2.0	Dec-31 10:00	0.7	Dec-22	100.0%
SO_2 (ppb)	172	57	Evergreen Park	0.3	0	0	2.4	Dec-31 10:00	0.9	Dec-29	100.0%
SO_2 (ppb)	172	57	Smoky Heights	0.8	0	0	7.9	Dec-27 12:00	2.2	Dec-10	100.0%
SO_2 (ppb)	172	57	Beaverlodge	0.6	0	0	4.1	Dec-29 10:00	1.7	Dec-22	97.2%
SO_2 (ppb)	172	57	Portable-Spirit River	0.8	0	0	5.4	Dec-19 05:00	2.5	Dec-22	94.8%
SO_2 (ppb)	172	57	Valleyview	0.3	0	0	12.4	Dec-11 00:00	2.1	Dec-11	100.0%
NO (ppb)			Henry Pirker	11.8	-	-	170.7	Dec-22 18:00	48.3	Dec-19	100.0%
NO_2 (ppb)	212	106	Henry Pirker	15.8	0	0	54.9	Dec-22 18:00	31.2	Dec-22	100.0%
NO_X (ppb)			Henry Pirker	41.7	-	-	271.0	Dec-22 18:00	111.6	Dec-22	100.0%
NO (ppb)			Beaverlodge	1.4	-	-	60.7	Dec-22 14:00	6.7	Dec-21	97.2%
NO_2 (ppb)	212	106	Beaverlodge	7.1	0	0	32.0	Dec-20 19:00	17.7	Dec-21	97.2%
NO_X (ppb)			Beaverlodge	8.6	-	-	92.0	Dec-22 14:00	24.5	Dec-21	97.2%
NO (ppb)			Portable-Spirit River	1.1	-	-	74.3	Dec-20 08:00	5.1	Dec-20	94.8%
NO_2 (ppb)	212	106	Portable-Spirit River	5.2	0	0	95.5	Dec-20 08:00	19.8	Dec-23	94.8%
NO_X (ppb)			Portable-Spirit River	6.3	-	-	153.9	Dec-20 08:00	24.8	Dec-23	94.8%
O_3 (ppb)	82		Henry Pirker	16.5	0	-	38.0	Dec-15 23:00	31.2	Dec-11	100.0%
O_3 (ppb) - 8-hr	65		Henry Pirker		0				35.9	Dec-05	
O_3 (ppb)	82		Beaverlodge	24.0	0	-	40.1	Dec-04 18:00	37.2	Dec-10	97.2%
O_3 (ppb) - 8-hr	65		Beaverlodge		0				39.3	Dec-04	
O_3 (ppb)	82		Portable-Spirit River	25.1	0	-	40.5	Dec-10 16:00	37.0	Dec-11	94.8%
O_3 (ppb) - 8-hr	65		Portable-Spirit River		0				39.6	Dec-10	
CO (ppm)	13		Henry Pirker	0.23	0	-	0.9	Dec-22 18:00	0.4	Dec-19	99.9%
CO (ppm) - 8-hr	5		Henry Pirker		0				0.6	Dec-20	
THC (ppm)			Henry Pirker	2.39	-	-	4.2	Dec-24 16:00	3.7	Dec-24	100.0%
TRS (ppb)			Henry Pirker	0.4	-	-	1.0	Dec-22 18:00	0.7	Dec-24	100.0%
TRS (ppb)			Evergreen Park	0.6	-	-	2.8	Dec-04 14:00	1.3	Dec-24	100.0%
TRS (ppb)			Smoky Heights	0.5	-	-	2.3	Dec-18 14:00	0.8	Dec-18	100.0%
TRS (ppb)			Portable-Spirit River	0.9	-	-	1.6	Dec-22 23:00	1.4	Dec-23	94.8%
H_2S (ppb)	10	3	Valleyview	0.2	0	0	1.6	Dec-10 15:00	0.4	Dec-24	100.0%
$PM_{2.5}$ ($\mu g/m^3$)	80	30	Henry Pirker	3.5	0	0	23.0	Dec-22 18:00	8.4	Dec-19	99.9%
$PM_{2.5}$ ($\mu g/m^3$)	80	30	Beaverlodge	2.9	0	0	19.4	Dec-02 23:00	6.1	Dec-07	97.2%
$PM_{2.5}$ ($\mu g/m^3$)	80	30	Evergreen Park	4.0	0	0	30.5	Dec-24 16:00	12.0	Dec-24	99.7%
$PM_{2.5}$ ($\mu g/m^3$)	80	30	Smoky Heights	5.4	0	0	59.4	Dec-13 11:00	20.0	Dec-24	99.7%

PASZA Monthly Continuous Data Summary - continued

Dec-2008	Peace Airshed Zone Assocation						Maximum Recorded Values				
							1-hr		24-hr / 8-hr		
RH (%)			Henry Pirker		-	-		-		-	-
RH (%)			Beaverlodge	74.6	-	-	96.7	Dec-05 20:00	86.5	Dec-06	97.2%
RH (%)			Portable-Spirit River	74.2	-	-	94.1	Dec-07 01:00	92.2	Dec-06	94.8%
RH (%)			Valleyview	75.7	-	-	94.9	Dec-06 05:00	88.5	Dec-06	100.0%
SR (W/m^2)			Henry Pirker	15.1	-	-	158.0	Dec-01 13:00	23.1	Dec-14	100.0%
Temp (°C)			Henry Pirker		-	-		-		-	-
Temp (°C)			Evergreen Park	-15.9	-	-	7.2	Dec-01 06:00	1.4	Dec-05	100.0%
Temp (°C)			Smoky Heights	-17.4	-	-	6.7	Dec-01 05:00	0.6	Dec-01	100.0%
Temp (°C)			Beaverlodge	-15.1	-	-	9.1	Dec-01 03:00	1.6	Dec-05	97.2%
Temp (°C)			Portable-Spirit River	-16.6	-	-	8.3	Dec-01 03:00	1.3	Dec-01	94.8%
Temp (°C)			Valleyview	-17.0	-	-	6.1	Dec-01 07:00	1.4	Dec-01	100.0%
WSPD s (km/hr)			Henry Pirker	8.8	-	-	37.0	Dec-01 08:00	20.9	Dec-01	100.0%
WSPD s (km/hr)			Evergreen Park	5.7	-	-	27.0	Dec-04 17:00	14.7	Dec-11	97.7%
WSPD s (km/hr)			Smoky Heights	11.5	-	-	44.0	Dec-04 19:00	25.2	Dec-01	99.9%
WSPD s (km/hr)			Beaverlodge	7.3	-	-	33.0	Dec-01 03:00	21.9	Dec-10	96.5%
WSPD s (km/hr)			Portable-Spirit River	6.0	-	-	30.0	Dec-17 04:00	13.9	Dec-12	92.5%
WSPD s (km/hr)			Valleyview	6.5	-	-	27.0	Dec-01 13:00	16.3	Dec-01	100.0%
WSPD v (km/hr)			Henry Pirker	6.9	-	-	37.0	Dec-01 08:00	19.9	Dec-11	100.0%
WSPD v (km/hr)			Evergreen Park	4.2	-	-	27.0	Dec-04 17:00	14.0	Dec-11	97.7%
WSPD v (km/hr)			Smoky Heights	7.1	-	-	44.0	Dec-04 19:00	23.7	Dec-01	99.9%
WSPD v (km/hr)			Beaverlodge	5.2	-	-	33.0	Dec-01 03:00	21.7	Dec-01	96.5%
WSPD v (km/hr)			Portable-Spirit River	3.0	-	-	30.0	Dec-17 04:00	13.1	Dec-12	92.5%
WSPD v (km/hr)			Valleyview	4.2	-	-	27.0	Dec-01 13:00	15.0	Dec-01	100.0%
WDIR (deg)			Henry Pirker	WNW	-	-	-	-	-	-	100.0%
WDIR (deg)			Evergreen Park	NW	-	-	-	-	-	-	97.7%
WDIR (deg)			Smoky Heights	WNW	-	-	-	-	-	-	99.9%
WDIR (deg)			Beaverlodge	NW	-	-	-	-	-	-	96.5%
WDIR (deg)			Portable-Spirit River	NW	-	-	-	-	-	-	92.5%
WDIR (deg)			Valleyview	NW	-	-	-	-	-	-	100.0%

Continuous Network Equipment Summary

PASZA – Henry Pirker Station

General Station Issues

Routine monthly calibrations were performed on December 12th (SO_2 & NO_X), December 15th (O3 & TRS) and December 16th (CO & THC).

Parameter	Make	Model	Notes
SO_2	TEI	43C	No operational issues observed.
NOx/NO/NO_2	TEI	42C	On December 23rd, 24th & 26th spans less than 10% of span target. No other operational issues observed.
O_3	TEI	49C	Spans starting to decrease from December 26th to end of month – suspect lamp starting to fail.
CO	TEI	48C	Spans did not stay within span target troughout the month due to dry CO bottle. New bottle ordered.
THC	TEI	51-CLT	No spans from December 9th to the 15th – span pressure dropped – all internal & externa fittings tightened and pressure adjusted on December 16th.
TRS	TEI	43C	No operational issues observed.
$PM_{2.5}$	R&P	1400AB	One (1) hour flagged invalid due to excessive baseline drift.
RH	Met One	083D	Relative humidity sensor is out of service – sent back to factory for repair. **AE reference #209512.**
ET	Met One	083D	Temperature sensor is out of service – sent back to factory for repair. **AE reference #209512.**
SR	Met One	096-1	No operational issues observed.
WS	Met One	010C	No operational issues observed.
WD	Met One	020C	No operational issues observed.

PASZA – Evergreen Park Station

General Station Issues

Routine monthly calibrations were performed on December 17th (SO_2 & TRS).

Parameter	Make	Model	Notes
SO_2	TEI	43i	No operational issues observed.
TRS	TEI	43C	No operational issues observed.
$PM_{2.5}$	R&P	1400AB	Two (2) hours flagged invalid due to excessive baseline drift.
ET	Met One/Gill	083D	No operational issues observed.
WS	Met One/ Gill	010C	Seventeen (17) hours were flagged invalid due to intermittent spiking (probable result of fog and snow).
WD	Met One/ Gill	020C	Seventeen (17) hours were flagged invalid due to intermittent spiking (probable result of fog and snow).

PASZA – Smoky Heights Station

General Station Issues

Routine monthly calibrations were performed on December 19th (TRS & SO_2).

Parameter	Make	Model	Notes
SO_2	TEI	43C	No operational issues observed.
TRS	TEI	43C	On December 25th, 26th & 27th spans less than 10% of span target. No other operational issues observed.
$PM_{2.5}$	R&P	1400AB	Two (2) hours flagged invalid due to excessive baseline drift.
ET	Met One	083D	No operational issues observed.
WS	Met One	010C	One (1) hour was flagged invalid due freezing conditions.
WD	Met One	020C	One (1) hour was flagged invalid due freezing conditions.

PASZA – Beaverlodge Station

General Station Issues

Routine monthly calibrations were performed on December 9th (SO_2, , O3 & NO_X). On December 2nd a controlled power outage occurred at the station - twenty-one (21) hours were flagged invalid for all parameters.

Parameter	Make	Model	Notes
SO_2	TEI	43CTL	No operational issues observed other than above noted power outage.
NOx/NO/NO_2	TEI	42C	No operational issues observed other than above noted power outage.
O_3	TEI	49C	No operational issues observed other than above noted power outage.
$PM_{2.5}$	R&P	1400AB	No operational issues observed other than above noted power outage.
ET	n/a	n/a	No operational issues observed other than above noted power outage.
RH	n/a	n/a	No operational issues observed other than above noted power outage.
WS	Blue Sky	857	In addition to the power outage - an additional five (5) hours were flagged invalid on December 5th – due to freezing conditions.
WD	Blue Sky	857	In addition to the power outage - an additional five (5) hours were flagged invalid on December 5th – due to freezing conditions.

PASZA – Spirit River (Portable) Station

General Station Issues

Routine monthly calibrations were performed on December 4th (SO_2, O_3, TRS & NO_X). There was a total of thirty-nine (39) hours of invalid data due to power failures.

Parameter	Make	Model	Notes
SO_2	TEI	43C	No operational issues observed other than above noted power failures.
NOx/NO/NO_2	TEI	42i	No operational issues observed other than above noted power failures.
TRS	TEI	43C	No operational issues observed other than above noted power failures.
O_3	TEI	49C	No operational issues observed other than above noted power failures.
ET	Gill	Met Pak 3	No operational issues observed other than above noted power failures.
RH	Gill	Met Pak 3	No operational issues observed other than above noted power failures.
WS	Met One		In addition to the noted power failures - seventeen (17) hours flagged due to intermittent spiking occurring (probably due to fog & snow).
WD	Met One		In addition to the noted power failures - seventeen (17) hours flagged due to intermittent spiking occurring (probably due to fog & snow).

PASZA – Valleyview Station

General Station Issues

Routine monthly calibrations were performed on December 22nd (SO_2 & H_2S).

Parameter	Make	Model	Notes
SO_2	TEI	43i	No operational issues observed.
H_2S	TEI	43A	No operational issues observed.
ET	Gill	Met Pak 3	No operational issues observed.
RH	Gill	Met Pak 3	No operational issues observed.
WS	Gill	Met Pak 3	No operational issues observed.
WD	Gill	Met Pak 3	No operational issues observed.

PASZA
Henry Pirker Station
Monthly Summary Tables, Graphs and Roses

Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 2.0 ppb on Dec 31 10:00
Maximum Daily Average: 0.7 ppb on Dec 22

Minimum Value: 0 ppb on Dec 3 14:00
Maximum Diurnal Average: 0.3 ppb at hour 14
Monthly Average: 0.25 ppb

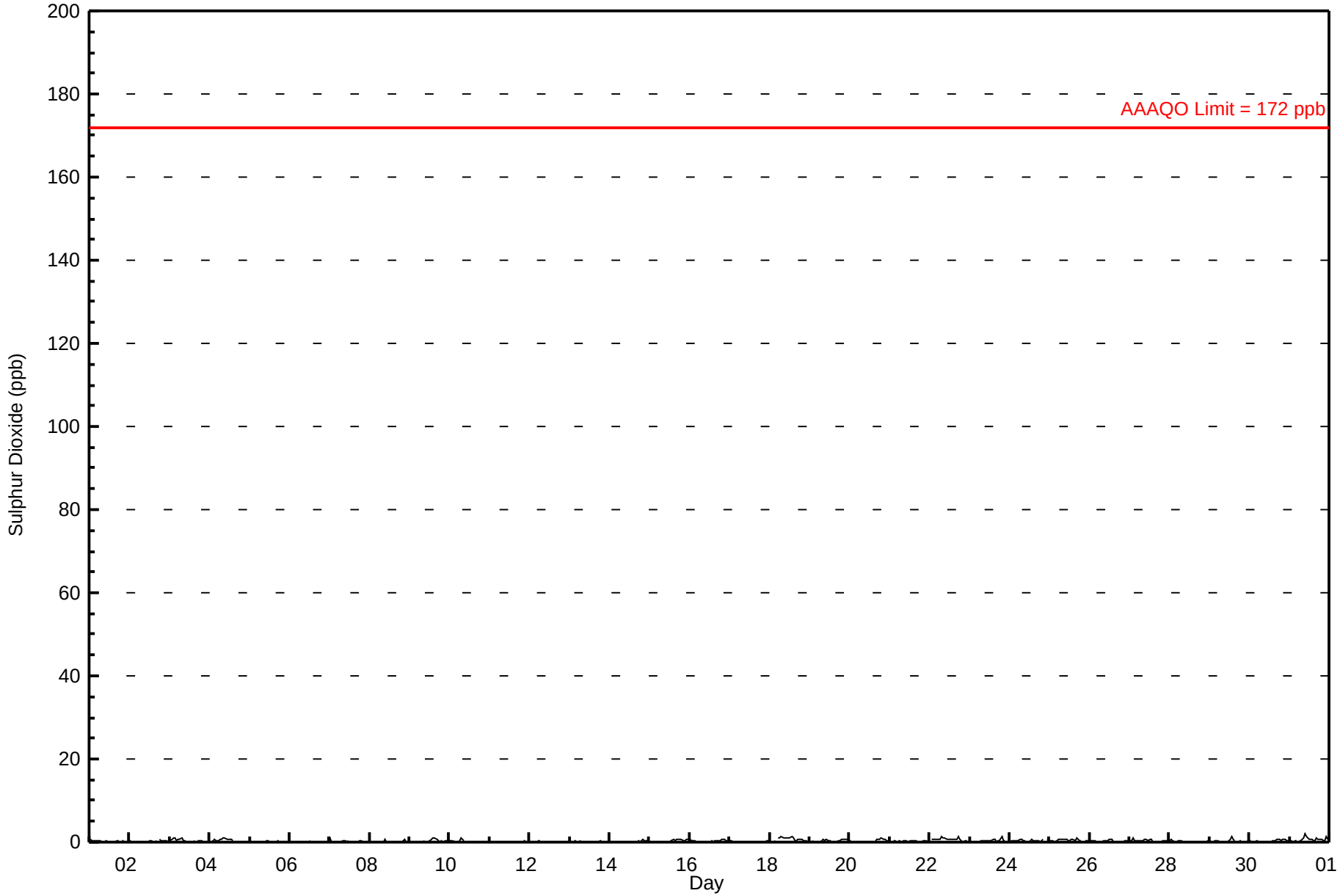
Minimum Daily Average: 0.0 ppb on Dec 11
Minimum Diurnal Average: 0.2 ppb at hour 5
Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.0 Median = 0.2 Q_3 = 0.4 P_{90} = 0.7 P_{99} = 1.2

Hours in Service:	744
Hours of Data:	707
Hours of Missing Data:	37
Hours of Calibration:	37
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.2	0.6
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	0	0	0	0.2	0.8
3-Dec	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.3	0.9
4-Dec	0	0	0	1	0	0	1	1	1	1	1	1	1	1	0	A	0	0	0	0	0	0	0	0	0.4	1.1
5-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.1	0.3
6-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.0	0.5
7-Dec	1	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.1	0.9
8-Dec	0	0	0	0	0	0	0	0	0	1	0	A	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.8
9-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	1	1	1	1	0	0	0	0	0	0	0	0.3	1.2
10-Dec	0	0	0	0	0	0	0	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.9
11-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.4
12-Dec	0	0	0	0	0	0	0	A	0	0	0	C	C	C	C	C	A	0	0	0	0	0	0	0	--	0.3
13-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
14-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.6
15-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	0	1	1	0.3	0.8
16-Dec	1	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0.3	0.6
17-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5
18-Dec	0	0	0	0	A	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0	0.7	1.5
19-Dec	0	0	0	A	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0.3	0.8
20-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0.3	0.9
21-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
22-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	A	0.7	1.5
23-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	A	0	0.3	1.3
24-Dec	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	1	A	1	0	0.3	0.7
25-Dec	0	0	0	0	0	1	1	1	1	1	1	0	0	1	1	0	1	1	0	0	A	0	0	0	0.5	1.0
26-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	A	0	0	0	0	0.2	0.6
27-Dec	0	0	1	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	A	0	0	0	0	0	0.4	1.0
28-Dec	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0.1	0.5
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	A	0	0	0	0	0	0	0	0.2	1.4
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0.2	0.7
31-Dec	0	0	0	0	0	A	0	0	1	2	2	1	1	1	0	0	1	1	1	1	0	0	1	1	0.7	2.0
	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	Diurnal Average	
	0.9	0.8	1.0	0.9	0.6	0.9	0.9	1.5	1.2	2.0	1.5	1.0	1.1	1.5	1.0	1.2	1.0	1.2	0.8	1.3	0.7	0.8	1.2	0.8	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 57 ppb

Hourly Averages for SO_2 at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 10.3 ppb on Dec 22 08:00

Maximum Daily Average: 1.6 ppb on Dec 22

Minimum Value: 0 ppb on Dec 6 09:00

Minimum Daily Average: 0.2 ppb on Dec 6

Maximum Diurnal Average: 0.9 ppb at hour 8

Minimum Diurnal Average: 0.4 ppb at hour 5

Monthly Average: 0.63 ppb

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.3 Median = 0.5 Q_3 = 0.8 P_{90} = 1.1 P_{99} = 2.6

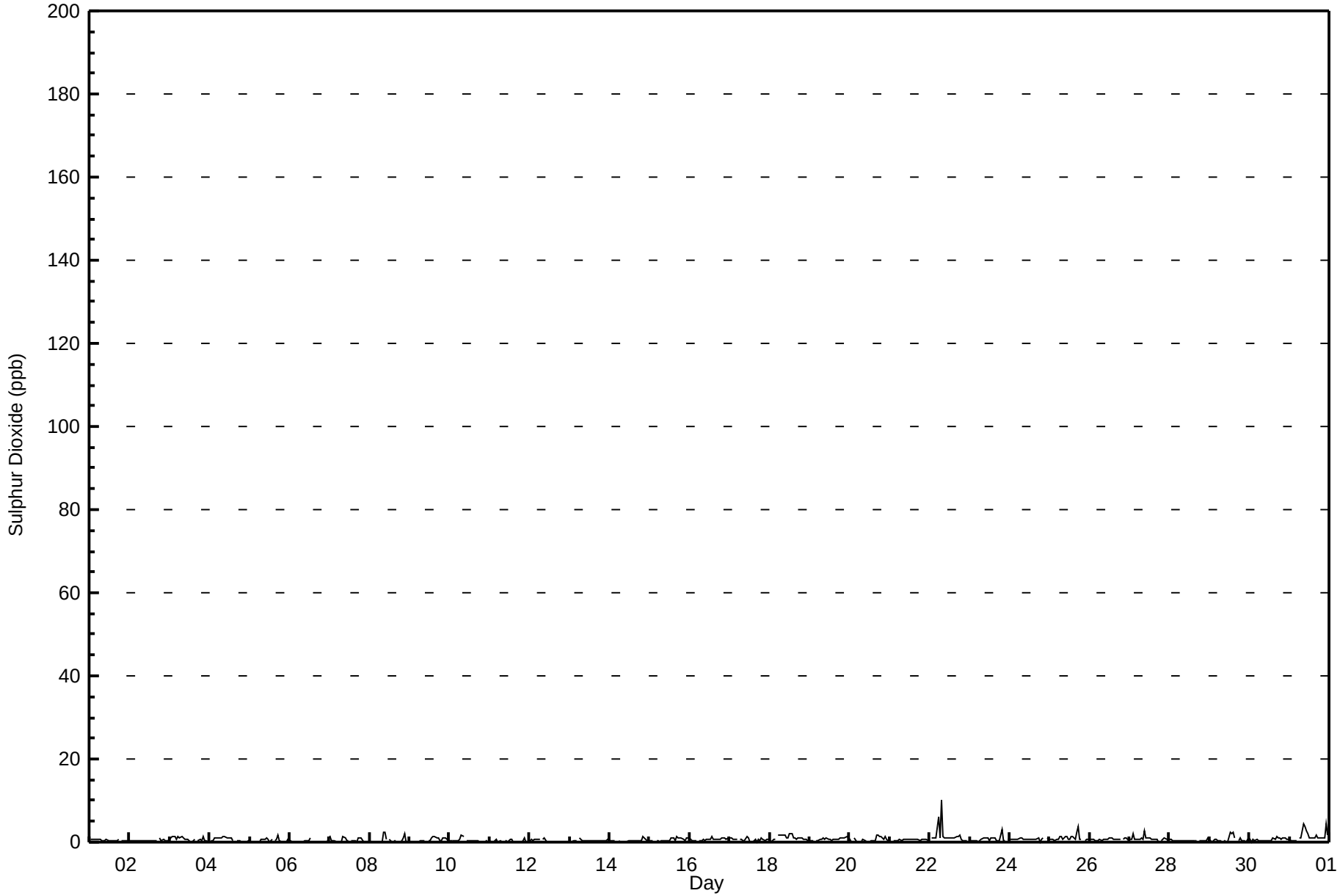
Hours in Service:	744
Hours of Data:	707
Hours of Missing Data:	37
Hours of Calibration:	37
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	1	A	0	0	0	0	0	0.4	0.8
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	1	0	0	0	0.4	1.1
3-Dec	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	A	1	1	1	2	0	0	0	0.7	1.5
4-Dec	0	1	0	1	1	1	1	1	2	2	1	1	1	1	0	A	0	0	0	0	0	0	0	0	0.6	1.5
5-Dec	0	0	0	0	0	0	0	1	1	1	1	1	0	1	A	0	1	2	0	0	0	0	0	1	0.3	1.7
6-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	A	0	0	0	0	0	0	0	0	0	1	0.2	1.0
7-Dec	1	0	0	0	0	0	0	0	2	1	0	0	A	0	0	0	0	1	1	1	0	0	0	0	0.5	1.5
8-Dec	0	0	0	0	0	0	0	0	2	2	1	A	1	0	0	0	0	0	0	0	1	2	0	0	0.4	2.4
9-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	1	1	1	1	1	0	0	1	1	1	0	0.5	1.5
10-Dec	0	0	0	0	0	0	1	2	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.8
11-Dec	0	0	0	0	1	0	0	0	A	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0.2	1.0
12-Dec	0	1	0	1	1	1	1	A	1	1	0	C	C	C	C	C	A	0	0	0	0	0	0	0	--	1.0
13-Dec	0	0	0	1	0	A	1	1	1	0	0	0	0	0	1	0	1	0	1	0	0	1	1	1	0.4	1.0
14-Dec	0	1	1	1	A	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	1	0	0	0.4	1.5
15-Dec	0	0	1	A	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0.7	1.3
16-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.4
17-Dec	1	1	1	1	1	A	1	1	0	0	1	1	0	0	0	1	0	1	0	1	1	0	1	1	0.6	1.4
18-Dec	1	0	1	1	A	2	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	0	1.0	2.0
19-Dec	0	0	0	A	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0.7	1.4
20-Dec	1	0	A	1	0	0	0	0	1	0	0	0	0	0	0	0	2	2	1	1	1	1	1	0	0.6	1.7
21-Dec	0	A	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0.5	0.8
22-Dec	A	1	1	1	1	6	1	10	1	1	1	1	1	1	1	1	1	1	2	1	0	0	0	A	1.6	10.3
23-Dec	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	3	0	0	A	1	0.7	3.0
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	A	1	1	0.7	1.2
25-Dec	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	2	4	1	1	A	0	1	1	1.0	3.8
26-Dec	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.6	1.1
27-Dec	1	1	2	1	1	1	1	1	1	3	1	1	1	1	1	1	1	0	A	0	1	1	1	0	0.8	2.6
28-Dec	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0.4	1.2
29-Dec	1	0	0	1	1	0	0	0	0	0	0	0	2	2	2	1	A	0	1	0	0	0	0	1	0.7	2.4
30-Dec	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	1	1	1	1	0.6	1.5
31-Dec	1	0	0	0	0	A	1	1	4	4	3	2	1	1	1	1	2	1	1	1	1	1	4	2	1.4	4.4
	0.5	0.4	0.5	0.5	0.4	0.6	0.6	0.9	0.9	0.8	0.7	0.6	0.7	0.7	0.6	0.6	0.7	0.8	0.6	0.6	0.6	0.6	0.6	0.5	Diurnal Average	
	1.5	1.3	2.0	1.2	1.0	6.0	1.6	10.3	4.4	3.8	2.9	1.9	2.4	2.2	2.4	1.5	2.3	3.8	1.6	3.0	1.5	1.9	4.4	1.9	Diurnal Maximum	

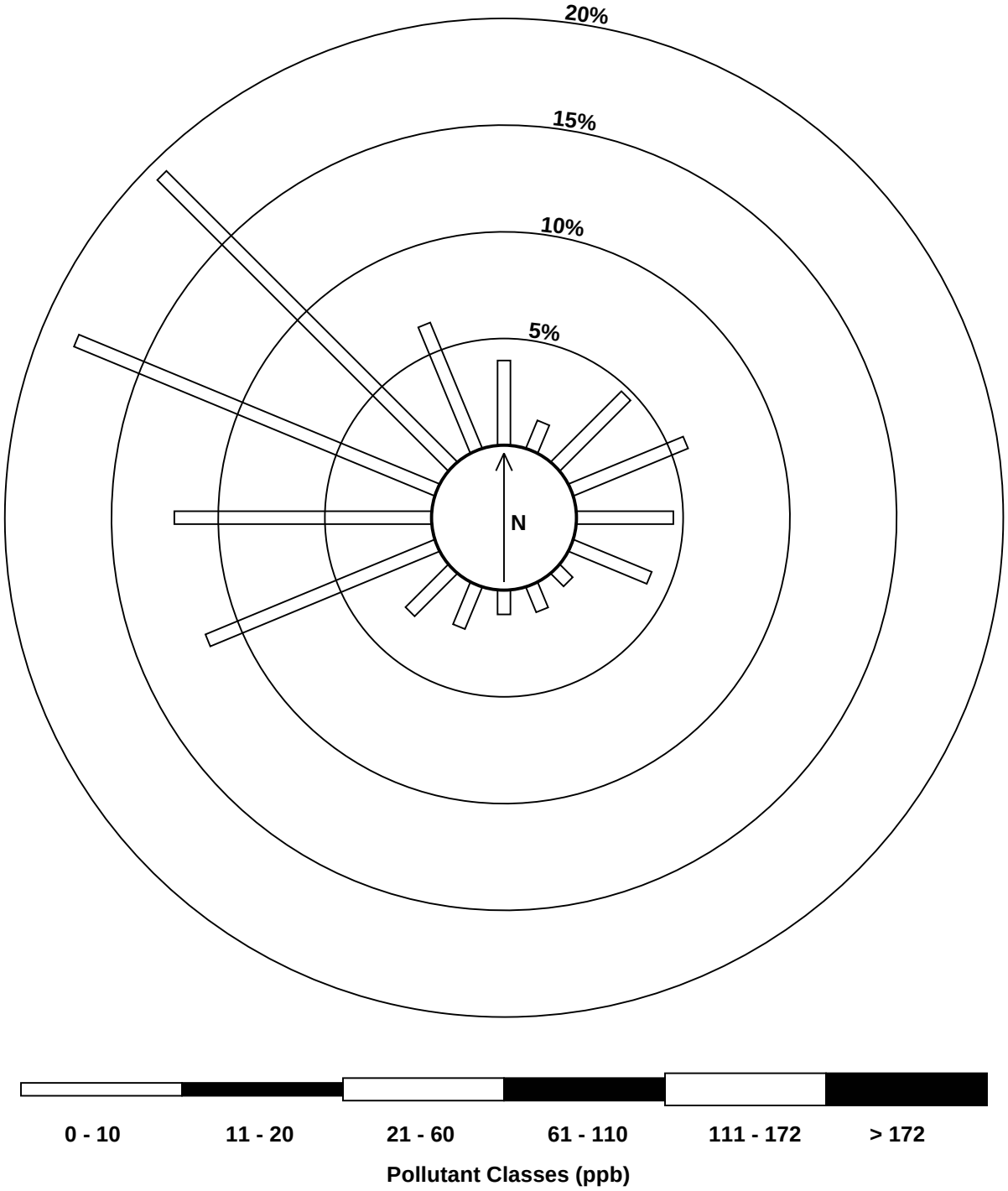
C - Calibration

A - Automated Daily Zero Span

Hourly Maximums for SO_2 at Henry Pirker
December 2008



Pollutant Rose for SO_2 at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 1.0 ppb on Dec 22 18:00
Maximum Daily Average: 0.7 ppb on Dec 24

Minimum Value: 0 ppb on Dec 28 23:00
Maximum Diurnal Average: 0.4 ppb at hour 11
Monthly Average: 0.36 ppb

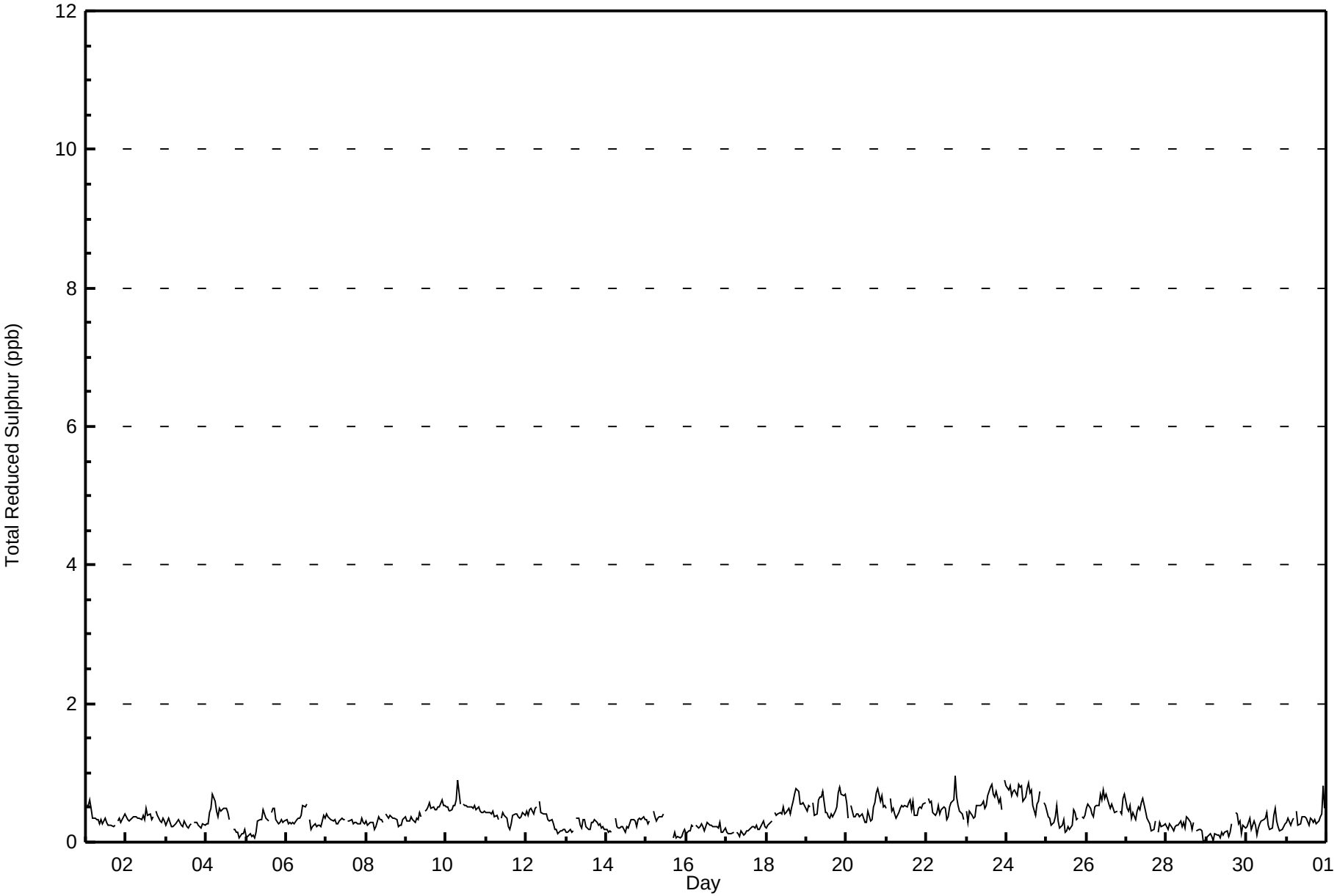
Minimum Daily Average: 0.2 ppb on Dec 29
Minimum Diurnal Average: 0.3 ppb at hour 22
Percentiles: $P_1 = 0.1$ $P_{10} = 0.2$ $Q_1 = 0.2$ Median = 0.3 $Q_3 = 0.5$ $P_{90} = 0.6$ $P_{99} = 0.8$

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.3	0.6
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0.4	0.5
3-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.3	0.3
4-Dec	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.3	0.7
5-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.3	0.5
6-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	A	0	0	0	0	0	0	0	0	0	0	0.3	0.5
7-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
8-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
9-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	1	1	0	0	0	0	1	1	1	1	1	0.4	0.6
10-Dec	1	1	0	0	1	1	1	1	1	A	1	1	1	1	1	1	0	1	0	1	0	0	0	0	0.5	0.9
11-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
12-Dec	0	0	0	0	0	0	1	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
13-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
14-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
15-Dec	0	0	0	A	0	0	0	0	0	0	0	C	C	C	C	A	0	0	0	0	0	0	0	0	0.2	0.5
16-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
17-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
18-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0.5	0.8
19-Dec	0	1	1	A	1	0	0	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	0.5	0.8
20-Dec	1	0	A	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0.5	0.8
21-Dec	0	A	1	0	0	0	0	0	0	1	0	1	0	1	1	0	1	0	0	0	1	0	1	1	0.5	0.6
22-Dec	A	1	1	1	0	0	0	1	0	0	1	0	0	0	1	1	1	1	1	1	0	0	0	A	0.5	1.0
23-Dec	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	A	1	0.6	0.9
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	A	1	1	0.7	0.8
25-Dec	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.3	0.5
26-Dec	0	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	A	0	0	1	1	0.5	0.8
27-Dec	0	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	A	0	0	0	0	0	0.4	0.6
28-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0.2	0.4
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.2	0.4
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
31-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.4	0.8
	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.4	Diurnal Average	
	0.8	0.8	0.8	0.7	0.7	0.8	0.7	0.9	0.8	0.8	0.8	0.6	0.8	0.8	0.8	0.8	0.7	1.0	0.8	0.8	0.8	0.7	0.8	0.9	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb

Hourly Averages for TRS at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 2.6 ppb on Dec 31 23:00

Maximum Daily Average: 1.1 ppb on Dec 24

Minimum Value: 0 ppb on Dec 15 19:00

Minimum Daily Average: 0.5 ppb on Dec 29

Maximum Diurnal Average: 0.8 ppb at hour 11

Minimum Diurnal Average: 0.7 ppb at hour 1

Monthly Average: 0.74 ppb

Percentiles: $P_1 = 0.4$ $P_{10} = 0.5$ $Q_1 = 0.6$ Median = 0.7 $Q_3 = 0.8$ $P_{90} = 1.0$ $P_{99} = 1.3$

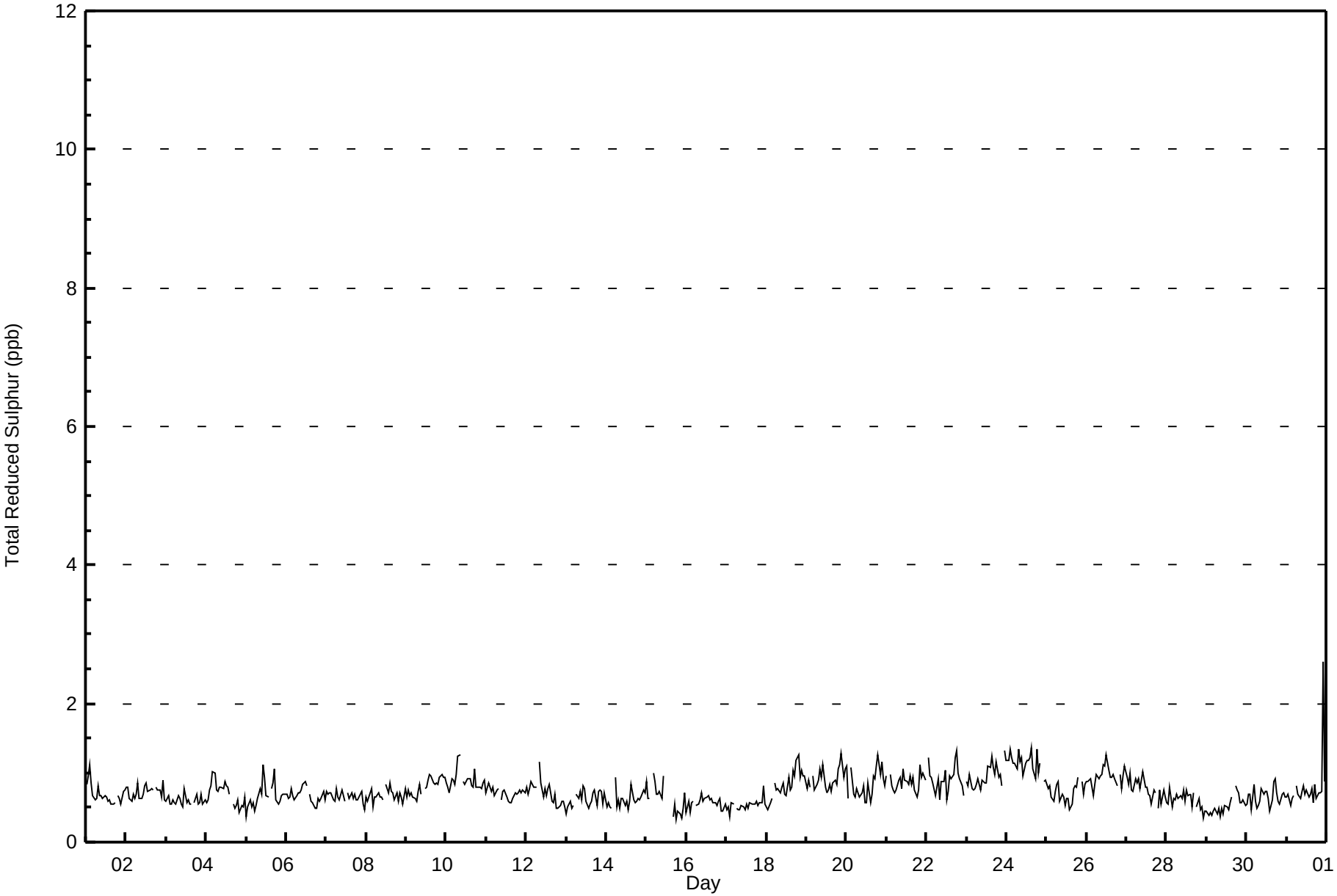
Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0.7	1.1
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.7	0.9
3-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.6	0.8
4-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0	1	1	0	1	1	1	0.7	1.0
5-Dec	0	1	1	1	1	0	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.7	1.1
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0	0	1	1	1	1	1	0.7	0.9
7-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0	0.7	0.8
8-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
9-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
10-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3
11-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
12-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0.7	1.2
13-Dec	0	1	1	0	1	A	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0.6	0.8
14-Dec	1	1	1	0	A	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0.6	0.9
15-Dec	1	1	1	A	1	1	1	1	1	1	1	C	C	C	C	A	0	1	0	0	0	0	0	1	0.6	1.0
16-Dec	0	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0.6	0.7
17-Dec	0	1	0	1	1	A	0	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0.5	0.8
18-Dec	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.3
19-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3
20-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.3
21-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.1
22-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.9	1.3
23-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.9	1.3
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1.1	1.4
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	A	1	1	1	0.7	0.9
26-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.9	1.3
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0	1	1	1	1	0.8	1.0
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0	1	0	1	0	0	0.6	0.8
29-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	A	1	1	1	1	1	1	1	0.5	0.8
30-Dec	1	1	1	0	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0.7	0.9
31-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	0.8	2.6
	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.7	Diurnal Average	
	1.2	1.2	1.4	1.2	1.1	1.1	1.0	1.4	1.3	1.2	1.1	1.1	1.3	1.2	1.2	1.4	1.1	1.2	1.3	1.3	1.1	1.3	2.6	1.3	Diurnal Maximum	

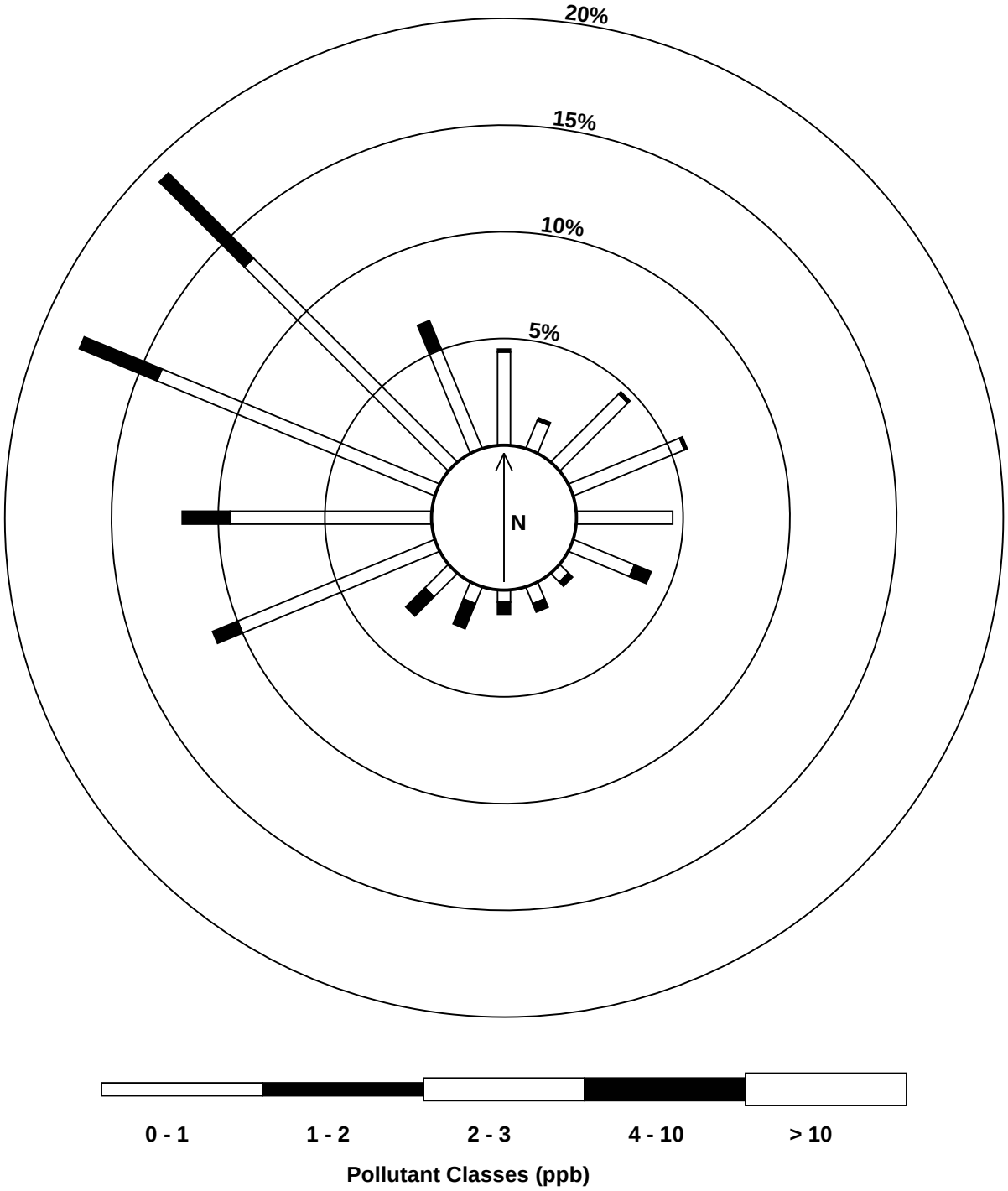
C - Calibration

A - Automated Daily Zero Span

Hourly Maximums for TRS at Henry Pirker
December 2008



Pollutant Rose for TRS at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Nitrogen Dioxide (NO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 54.9 ppb on Dec 22 18:00 Maximum Daily Average: 31.2 ppb on Dec 22

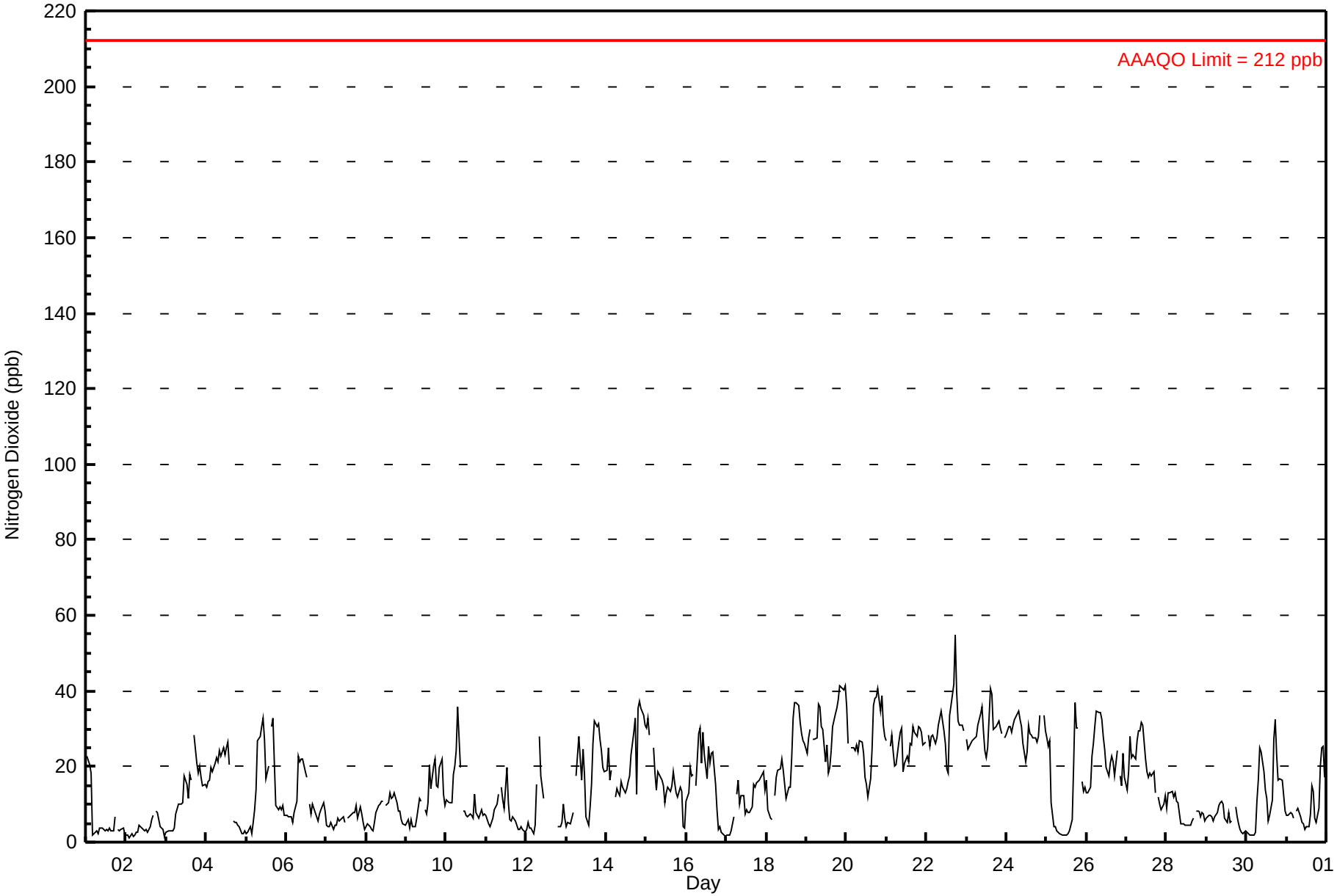
Minimum Value: 1 ppb on Dec 2 03:00 Minimum Daily Average: 3.6 ppb on Dec 2
Maximum Diurnal Average: 21.7 ppb at hour 18 Minimum Diurnal Average: 12.4 ppb at hour 4
Monthly Average: 15.76 ppb Percentiles: P_1 = 1.7 P_{10} = 3.4 Q_1 = 6.3 Median = 13.9 Q_3 = 24.9 P_{90} = 30.7 P_{99} = 40.6

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	39
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	23	22	21	18	2	2	3	2	4	4	4	3	3	3	4	3	3	7	A	3	3	3	4	2	6.3	22.7
2-Dec	2	2	1	2	1	2	3	3	4	4	3	3	3	3	4	6	7	A	8	8	4	4	3	2	3.6	8.2
3-Dec	3	3	3	3	3	4	7	10	10	10	10	18	15	12	18	17	A	29	21	18	20	17	15	15	12.2	28.5
4-Dec	15	16	17	20	19	21	22	21	24	23	25	23	25	26	20	A	5	5	5	5	4	2	2	3	15.2	26.3
5-Dec	2	2	4	2	5	8	14	27	28	31	33	27	17	20	A	31	33	21	10	9	9	9	10	7	15.6	32.9
6-Dec	7	7	7	7	5	8	11	23	21	22	22	18	17	A	10	7	10	8	7	6	7	9	11	8	11.2	22.7
7-Dec	5	4	4	5	3	4	5	6	6	6	7	5	A	6	7	7	8	8	10	6	10	8	5	3	6.0	9.6
8-Dec	4	5	4	3	3	5	8	10	10	11	11	A	10	10	13	11	12	13	10	8	8	6	5	4	8.1	13.1
9-Dec	5	6	4	6	4	4	6	9	11	11	A	9	7	11	20	14	20	22	15	14	20	22	13	10	11.4	21.9
10-Dec	11	11	10	11	18	20	24	36	20	A	8	8	7	7	7	7	6	13	8	6	7	8	7	7	11.7	35.7
11-Dec	7	5	4	5	6	9	10	13	A	14	11	9	20	10	6	6	7	6	4	3	4	4	3	2	7.3	19.6
12-Dec	3	5	4	4	2	4	15	A	28	17	12	C	C	C	C	C	C	C	A	4	4	5	10	6	--	28.1
13-Dec	4	5	5	6	8	A	17	28	22	16	24	18	7	5	9	15	26	32	31	31	27	24	20	19	17.4	32.2
14-Dec	19	25	16	19	A	12	14	13	12	16	15	13	14	16	18	23	29	33	13	36	37	36	34	31	21.4	37.2
15-Dec	30	33	28	A	25	18	14	19	18	16	15	10	13	15	13	15	19	16	13	12	15	14	4	4	16.4	32.7
16-Dec	11	13	20	18	18	A	15	29	30	21	29	23	17	25	21	24	24	15	8	3	4	3	2	2	16.3	30.3
17-Dec	2	2	2	3	7	A	13	16	10	12	12	8	9	8	8	9	15	14	16	16	16	18	19	14	10.8	18.8
18-Dec	16	9	6	6	A	12	17	19	19	22	19	15	12	14	15	22	33	37	37	36	32	29	27	26	20.9	36.9
19-Dec	23	28	30	A	27	27	28	37	36	31	30	21	26	18	20	24	31	34	35	37	41	41	40	41	30.7	41.3
20-Dec	36	26	A	25	25	24	26	24	27	26	23	17	15	12	17	25	36	38	38	41	35	39	31	28	27.6	40.7
21-Dec	27	A	25	28	24	20	20	26	29	30	18	21	23	21	26	26	31	29	28	31	30	29	26	26	25.9	30.7
22-Dec	A	28	25	28	28	26	28	31	33	35	29	26	19	18	34	36	42	55	40	32	31	31	29	A	31.2	54.9
23-Dec	27	25	25	27	27	28	28	31	34	36	29	24	22	25	41	39	30	30	31	32	30	29	A	28	29.5	40.6
24-Dec	28	30	31	29	31	33	34	35	32	30	26	21	24	31	29	28	28	27	27	28	33	A	34	30	29.5	34.7
25-Dec	28	25	27	11	4	4	3	3	2	2	2	2	2	2	3	6	20	37	30	30	A	16	14	15	12.5	37.1
26-Dec	13	13	15	23	26	31	35	34	34	32	28	25	20	17	21	23	21	18	24	A	18	15	24	17	22.9	34.7
27-Dec	14	19	28	23	23	22	27	29	29	32	31	22	19	17	18	18	19	13	A	12	10	9	10	12	19.7	31.8
28-Dec	9	13	13	13	12	13	11	10	5	5	5	4	5	4	4	5	6	A	8	8	7	8	7	6	7.9	13.4
29-Dec	6	7	7	7	6	7	8	10	10	11	10	6	5	8	5	6	A	9	7	5	3	3	2	3	6.5	10.9
30-Dec	3	2	2	2	2	3	11	17	25	24	19	14	11	6	7	11	27	33	23	16	17	16	12	8	12.9	32.6
31-Dec	7	7	8	7	6	A	8	9	7	5	5	3	4	4	7	15	14	6	5	9	20	25	25	17	9.8	25.4
	13.0	13.3	13.2	12.4	12.8	13.8	15.6	19.3	19.4	18.5	17.2	14.4	13.5	12.9	14.6	16.5	20.0	21.7	18.3	16.9	16.9	16.0	14.9	13.2	Diurnal Average	
	35.7	32.7	30.8	29.2	31.1	32.5	34.7	36.7	35.7	35.9	32.9	27.1	25.8	31.0	40.6	39.1	41.8	54.9	39.7	40.7	41.3	40.9	40.3	41.3	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 212 ppb 24-hr 106 ppb

Hourly Averages for NO_2 at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Nitrogen Dioxide (NO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 60.5 ppb on Dec 22 18:00

Maximum Daily Average: 37.4 ppb on Dec 22

Minimum Value: 2 ppb on Dec 2 03:00

Minimum Daily Average: 5.7 ppb on Dec 2

Maximum Diurnal Average: 27.5 ppb at hour 18

Minimum Diurnal Average: 16.4 ppb at hour 4

Monthly Average: 20.80 ppb

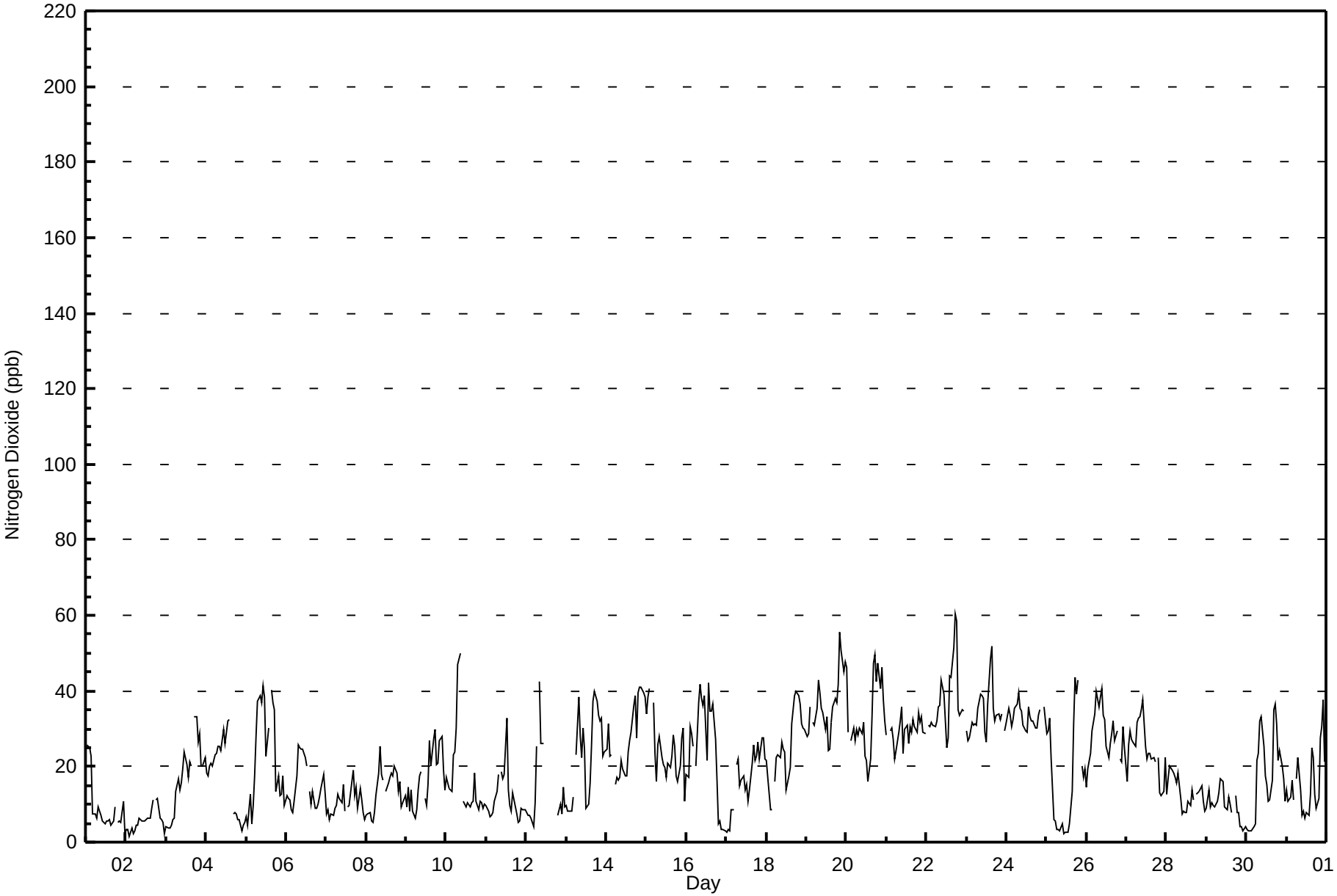
Percentiles: $P_1 = 2.7$ $P_{10} = 6.0$ $Q_1 = 10.1$ Median = 20.1 $Q_3 = 30.2$ $P_{90} = 36.6$ $P_{99} = 49.4$

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	39
Percent Operational Time:	100.0

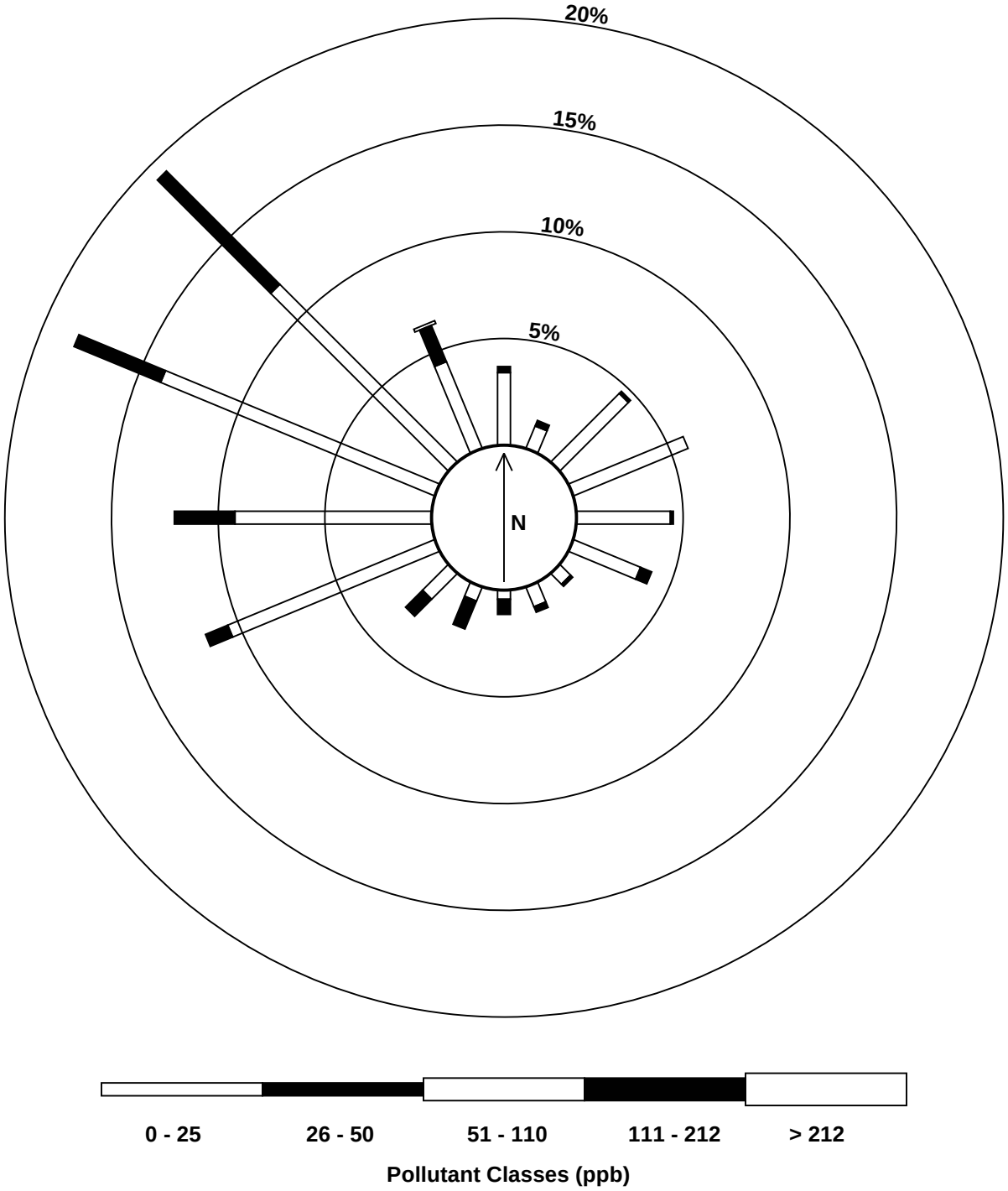
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	26	25	25	23	8	7	6	9	8	7	6	5	6	6	6	5	6	9	A	5	6	5	11	2	9.7	25.8
2-Dec	3	3	2	4	2	3	5	4	6	5	5	5	6	6	6	9	11	A	11	11	6	6	5	2	5.7	11.4
3-Dec	4	4	4	5	6	6	14	17	14	16	20	24	21	17	21	20	A	33	33	26	29	20	20	22	17.1	33.1
4-Dec	18	18	20	21	20	23	24	25	25	24	30	26	29	32	32	A	8	8	7	6	6	3	5	5	18.1	32.3
5-Dec	7	5	13	5	10	18	28	37	39	37	42	39	23	30	A	40	37	35	13	18	12	13	17	10	22.9	41.6
6-Dec	12	11	11	9	8	11	18	26	25	25	24	23	20	A	13	10	14	9	9	10	12	14	18	13	15.0	25.6
7-Dec	7	8	6	7	7	9	10	13	12	11	15	8	A	9	10	16	19	12	15	9	14	11	8	6	10.5	19.1
8-Dec	7	7	8	6	5	8	12	18	25	18	17	A	13	16	17	18	17	20	18	13	16	10	10	12	13.6	25.3
9-Dec	9	15	8	14	8	6	9	14	17	19	A	12	10	15	27	20	27	30	21	21	27	28	19	14	16.9	29.8
10-Dec	17	16	14	13	23	24	30	47	50	A	11	10	9	11	10	10	11	18	11	8	11	10	9	10	16.7	49.9
11-Dec	10	8	7	7	8	11	13	18	A	19	17	18	33	14	10	8	13	9	7	5	6	9	9	9	11.6	32.9
12-Dec	8	7	7	6	4	10	25	A	43	26	26	C	C	C	C	C	C	C	A	7	10	8	14	9	--	42.7
13-Dec	10	8	8	8	12	A	23	38	28	22	30	25	9	10	16	26	37	40	37	33	32	33	23	24	23.2	39.8
14-Dec	25	32	23	23	A	15	17	17	17	22	20	18	17	24	27	29	36	39	28	40	41	41	39	39	27.2	41.1
15-Dec	34	39	41	A	37	24	16	26	28	22	20	20	17	21	20	23	28	25	17	16	20	28	30	11	24.5	40.7
16-Dec	18	17	31	29	25	A	20	37	42	38	36	39	22	42	35	35	36	27	16	5	6	4	4	3	24.5	42.0
17-Dec	3	3	3	8	9	A	21	22	15	17	18	14	15	11	14	21	26	22	23	26	22	28	28	22	16.9	27.6
18-Dec	22	17	9	9	A	16	22	23	22	26	24	24	14	17	20	31	35	39	40	39	37	31	30	30	25.1	39.8
19-Dec	28	29	36	A	32	31	35	43	39	35	34	30	33	24	25	32	36	38	37	42	56	51	45	48	36.4	55.6
20-Dec	46	29	A	27	30	27	30	28	30	29	32	23	22	16	22	33	48	50	42	47	41	46	37	32	33.3	49.7
21-Dec	28	A	30	30	27	22	24	29	32	36	24	30	31	26	31	29	33	31	29	34	32	33	29	29	29.5	35.8
22-Dec	A	31	31	32	31	30	32	36	36	43	39	32	25	28	44	44	51	60	59	35	34	35	35	A	37.4	60.5
23-Dec	30	27	28	32	31	31	31	36	39	39	38	29	26	36	48	52	35	32	34	34	32	34	A	29	34.1	52.0
24-Dec	31	35	34	30	32	35	36	40	36	35	31	29	29	36	33	32	32	30	30	34	35	A	36	32	33.2	39.6
25-Dec	29	29	33	22	6	5	3	3	3	5	2	3	3	3	5	13	31	43	39	43	A	20	17	19	16.6	43.5
26-Dec	15	20	24	30	32	34	40	36	39	41	34	33	25	23	26	29	32	27	30	A	22	21	30	25	28.9	40.6
27-Dec	16	26	30	27	26	25	32	33	33	35	38	25	22	23	23	22	22	21	A	22	13	12	14	23	24.5	37.7
28-Dec	13	17	20	19	18	17	16	18	11	7	8	8	8	11	10	14	11	A	13	14	14	15	11	8	13.1	20.2
29-Dec	9	14	10	11	10	9	11	13	17	16	16	9	8	12	10	8	A	12	8	8	4	4	3	4	9.8	16.7
30-Dec	3	3	3	3	4	5	22	24	32	33	26	18	15	11	11	16	35	37	31	22	24	20	17	11	17.7	36.7
31-Dec	14	11	12	16	11	A	17	22	14	7	8	6	8	7	13	25	22	13	9	12	27	30	38	21	15.8	37.6
	16.7	17.1	17.5	16.4	16.6	17.2	20.7	25.1	25.9	23.8	23.0	20.1	17.9	18.5	20.1	23.1	26.8	27.5	23.8	21.5	21.6	20.8	20.3	17.5	Diurnal Average	
	46.1	38.6	40.7	31.9	37.1	35.3	40.1	47.0	49.9	43.1	41.6	38.6	33.0	42.0	48.4	52.0	51.3	60.5	58.5	47.2	55.6	50.8	45.2	47.8	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Maximums for NO_2 at Henry Pirker
December 2008



Pollutant Rose for NO_2 at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Nitrogen Oxide (NO) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 170.7 ppb on Dec 22 18:00

Maximum Daily Average: 48.3 ppb on Dec 19

Minimum Value: 0 ppb on Dec 16 00:00

Minimum Daily Average: 0.7 ppb on Dec 2

Maximum Diurnal Average: 19.2 ppb at hour 18

Minimum Diurnal Average: 3.1 ppb at hour 4

Monthly Average: 11.75 ppb

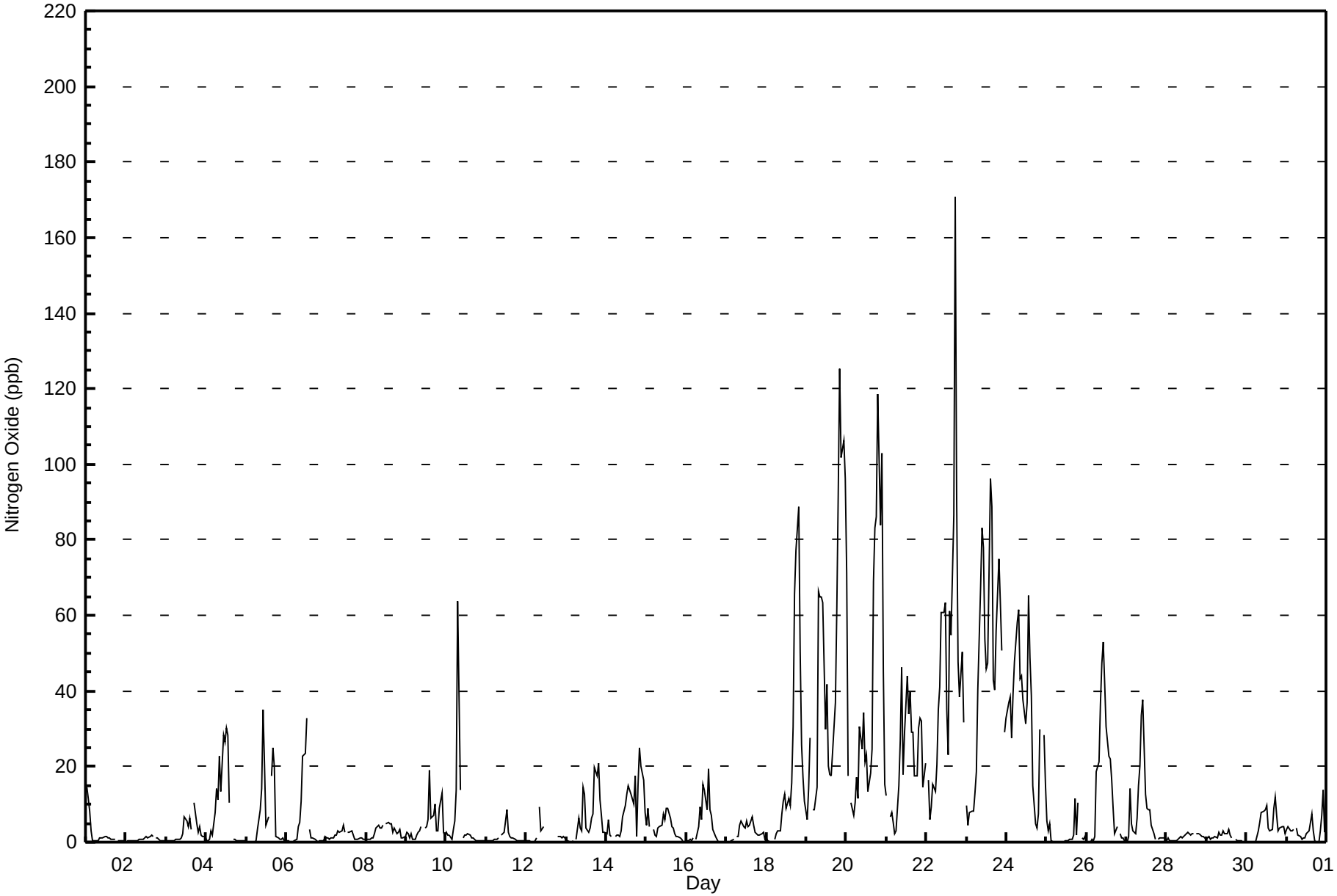
Percentiles: $P_1 = 0.0$ $P_{10} = 0.3$ $Q_1 = 0.8$ Median = 2.8 $Q_3 = 12.8$ $P_{90} = 37.0$ $P_{99} = 93.0$

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	39
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Dec	14	11	8	3	0	1	0	1	1	1	1	1	2	1	1	1	1	1	A	1	0	0	0	0	2.2	14.4
2-Dec	0	0	0	0	0	0	0	1	1	1	1	1	2	1	1	2	1	A	1	1	1	0	1	0	0.7	1.8
3-Dec	0	0	0	0	0	0	1	1	1	1	2	7	6	4	6	4	A	10	5	3	4	2	2	2	2.7	10.5
4-Dec	0	0	1	3	2	8	14	11	23	13	28	27	30	29	11	A	1	1	1	0	0	0	0	0	8.8	30.2
5-Dec	0	0	0	0	0	0	1	3	8	14	35	21	4	7	A	17	25	20	1	1	1	1	1	0	7.0	35.0
6-Dec	0	0	0	0	0	0	1	4	5	11	23	23	33	A	3	1	1	1	1	0	0	0	0	1	4.8	32.8
7-Dec	1	1	1	1	1	2	2	3	3	3	4	3	A	3	3	3	2	1	1	1	1	1	1	1	1.7	4.4
8-Dec	1	1	1	1	1	2	4	4	4	4	4	A	5	5	5	5	3	4	2	3	3	1	1	2	2.9	5.4
9-Dec	3	2	1	2	1	1	2	3	3	4	A	4	4	6	19	6	7	10	3	3	9	13	3	2	4.8	19.0
10-Dec	3	2	2	1	3	6	14	64	14	A	1	2	2	2	2	1	1	1	0	0	0	0	0	0	5.3	63.8
11-Dec	0	0	0	0	0	1	1	1	A	2	2	2	9	2	1	1	1	1	0	0	0	0	0	0	1.3	8.7
12-Dec	0	0	0	0	0	0	1	A	9	3	4	C	C	C	C	C	C	C	A	2	1	1	1	1	--	9.4
13-Dec	1	0	0	0	0	A	1	6	4	3	15	13	4	3	4	6	7	20	18	21	11	7	2	3	6.4	20.7
14-Dec	2	6	2	1	A	1	2	2	1	3	7	10	13	15	14	13	10	17	2	15	25	20	16	8	8.9	24.9
15-Dec	4	9	4	A	3	2	1	4	4	4	7	6	9	9	6	4	4	2	2	1	1	1	0	0	3.9	9.1
16-Dec	0	0	1	0	1	A	1	4	9	6	15	14	9	20	9	7	3	1	1	0	0	0	0	0	4.4	19.5
17-Dec	0	0	0	0	1	A	1	1	5	5	4	4	5	4	4	7	4	3	2	2	2	2	2	1	2.7	6.8
18-Dec	1	0	0	0	A	1	2	3	3	8	11	13	9	11	10	15	31	66	77	89	50	26	17	11	19.7	88.6
19-Dec	6	14	28	A	9	9	15	67	65	65	63	30	42	20	18	18	24	37	62	92	125	102	106	96	48.3	125.4
20-Dec	71	17	A	10	7	10	17	12	30	25	34	21	23	13	18	25	69	83	86	119	84	103	45	15	40.9	118.6
21-Dec	12	A	7	8	5	2	3	15	27	46	18	29	44	34	40	29	29	18	17	30	33	32	15	21	22.3	46.2
22-Dec	A	16	6	9	15	13	20	35	41	61	61	63	35	23	61	55	86	171	91	48	38	50	32	A	46.9	170.7
23-Dec	10	5	8	8	8	13	19	40	68	83	78	54	46	47	96	89	43	40	56	75	63	51	A	29	44.7	96.1
24-Dec	33	37	38	27	39	48	58	62	43	44	38	31	37	65	49	39	15	5	4	8	30	A	28	15	34.4	65.3
25-Dec	6	3	5	1	0	0	0	0	0	0	0	0	1	1	1	1	2	12	2	10	A	1	1	2	2.0	11.6
26-Dec	0	0	0	1	0	2	19	21	37	47	53	42	31	23	22	16	9	2	4	A	2	1	1	0	14.5	52.8
27-Dec	0	1	14	5	3	2	6	15	20	34	38	13	9	9	9	5	2	1	A	1	1	1	1	1	8.3	37.8
28-Dec	1	1	1	1	0	1	0	1	1	1	2	2	2	3	2	2	2	A	2	2	2	1	1	1	1.4	2.8
29-Dec	1	1	1	1	1	1	1	3	2	2	3	2	2	3	2	1	A	1	0	0	0	0	0	0	1.3	3.4
30-Dec	0	0	0	0	0	0	1	3	5	8	8	9	10	4	3	3	9	12	7	3	4	4	4	2	4.1	12.1
31-Dec	3	4	3	3	3	A	4	2	1	1	1	1	2	3	5	8	3	0	0	0	3	7	14	3	3.2	13.9
	5.8	4.5	4.4	3.1	3.7	4.7	6.8	13.0	14.6	16.7	18.7	15.4	14.7	12.8	14.7	13.2	14.2	19.2	16.0	17.7	16.6	14.4	9.9	7.3	Diurnal Average	
	71.2	37.1	38.3	27.5	39.0	47.7	58.3	66.5	67.6	83.1	77.7	63.2	45.9	65.3	96.1	88.8	86.5	170.7	91.3	118.6	125.4	102.8	106.1	96.2	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Averages for NO at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Nitrogen Oxide (NO) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 210.8 ppb on Dec 22 18:00

Maximum Daily Average: 75.4 ppb on Dec 22

Minimum Value: 0 ppb on Dec 25 05:00

Minimum Daily Average: 1.7 ppb on Dec 2

Maximum Diurnal Average: 33.4 ppb at hour 18

Minimum Diurnal Average: 7.2 ppb at hour 4

Monthly Average: 21.58 ppb

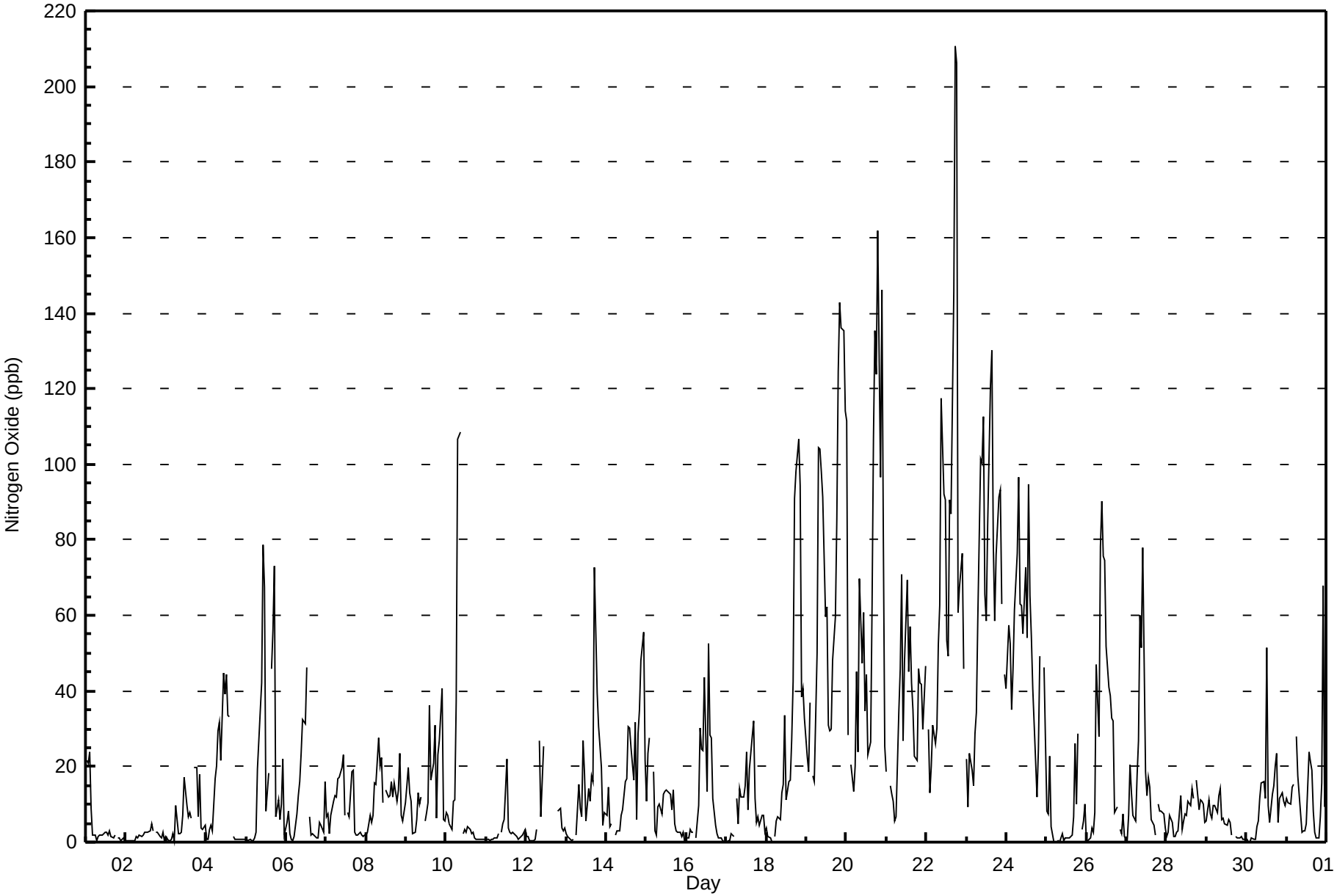
Percentiles: $P_1 = 0.1$ $P_{10} = 0.8$ $Q_1 = 2.5$ Median = 9.9 $Q_3 = 26.8$ $P_{90} = 60.9$ $P_{99} = 132.7$

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	39
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	22	21	24	9	2	2	0	1	2	2	2	2	2	2	3	1	1	2	A	1	1	1	1	1	4.6	24.0
2-Dec	1	1	1	1	1	1	1	1	2	2	2	2	3	2	3	5	3	A	2	3	1	1	2	0	1.7	5.0
3-Dec	2	0	0	1	2	1	10	2	2	2	7	17	10	7	8	6	A	20	20	7	18	4	3	5	6.7	19.9
4-Dec	1	1	3	4	3	17	20	30	32	21	45	39	44	34	33	A	1	1	1	1	1	1	1	1	14.5	44.9
5-Dec	1	0	1	0	0	1	3	20	35	42	79	67	8	18	A	46	56	73	7	11	6	10	22	2	22.1	78.7
6-Dec	5	8	2	1	1	2	8	12	16	24	32	31	46	A	7	2	2	2	1	1	5	5	2	16	10.0	46.3
7-Dec	7	8	2	7	11	12	12	17	17	20	23	7	A	8	7	19	19	3	2	2	3	2	1	2	9.1	23.1
8-Dec	2	3	7	5	7	16	15	28	20	22	10	A	14	12	12	16	12	16	11	14	23	7	6	10	12.5	27.7
9-Dec	15	20	13	11	2	3	6	13	10	12	A	6	8	11	36	16	21	31	6	23	27	41	6	5	14.8	40.5
10-Dec	8	7	5	3	11	11	37	107	108	A	2	3	3	4	3	2	3	1	1	1	1	1	1	1	14.1	108.4
11-Dec	1	1	0	1	1	1	1	2	A	3	5	6	22	4	3	2	3	2	1	1	1	1	2	3	2.9	22.2
12-Dec	1	1	0	0	0	1	3	A	27	7	25	C	C	C	C	C	C	C	A	8	9	4	3	4	--	27.0
13-Dec	2	2	1	1	1	A	2	15	9	7	27	18	6	14	11	18	16	73	40	31	25	20	4	8	15.1	72.8
14-Dec	7	14	4	5	A	2	3	3	3	7	9	16	17	30	30	25	17	32	6	29	35	48	56	22	18.2	55.6
15-Dec	11	24	28	A	19	3	2	9	10	7	13	14	14	13	13	8	14	5	3	2	2	2	2	0	9.5	27.6
16-Dec	1	1	3	2	2	A	1	10	30	25	24	43	14	53	28	28	12	5	2	1	1	1	1	0	12.5	52.6
17-Dec	0	1	1	2	2	A	11	5	14	12	12	15	24	9	19	28	32	12	5	7	5	7	7	3	10.1	32.2
18-Dec	4	1	1	0	A	2	6	7	6	13	15	34	11	16	16	27	42	91	98	107	94	39	40	33	30.5	106.5
19-Dec	23	19	37	A	17	16	50	105	104	98	91	60	62	31	29	30	48	60	86	125	143	136	135	114	70.3	142.6
20-Dec	112	28	A	20	13	20	45	24	70	47	61	35	44	23	27	63	107	136	124	162	96	146	80	25	65.6	161.9
21-Dec	19	A	15	13	11	6	7	35	46	71	27	48	69	45	57	42	35	23	22	46	42	42	30	47	34.6	70.8
22-Dec	A	30	13	20	31	26	30	52	63	117	92	91	53	49	91	87	146	211	206	61	67	76	46	A	75.4	210.8
23-Dec	22	9	24	19	15	29	34	59	101	100	113	66	58	84	121	130	79	59	76	92	93	63	A	44	64.7	130.1
24-Dec	40	57	53	35	46	62	76	96	63	63	55	73	54	95	65	54	40	22	12	24	49	A	46	27	52.5	96.5
25-Dec	8	7	23	4	0	0	0	0	0	2	0	1	1	1	1	2	7	26	10	29	A	3	6	10	6.2	28.8
26-Dec	1	0	1	4	3	8	47	28	78	90	76	75	52	41	39	33	32	8	9	A	4	2	8	1	27.7	90.1
27-Dec	1	7	21	13	7	6	18	27	60	51	78	19	12	17	15	6	5	2	A	10	8	8	8	4	17.4	77.8
28-Dec	2	3	7	5	2	2	3	3	12	4	6	8	7	11	10	14	12	A	16	8	11	11	10	5	7.4	16.3
29-Dec	6	11	7	6	10	10	8	12	14	6	6	5	5	6	5	2	A	2	1	1	1	2	1	1	5.5	14.3
30-Dec	1	0	0	1	1	1	4	6	12	15	16	12	52	10	5	13	15	20	24	5	11	13	11	10	10.6	51.6
31-Dec	11	10	10	15	15	A	28	18	7	3	3	3	5	24	21	19	8	3	1	1	7	16	68	9	13.3	67.9
	11.1	9.8	10.2	7.2	8.1	9.5	15.9	24.9	32.5	29.8	31.9	28.1	24.8	23.2	24.8	25.7	28.1	33.4	28.3	27.0	26.4	23.7	20.3	13.8	Diurnal Average	
	111.5	57.4	52.6	35.1	45.7	61.6	76.5	106.5	108.4	117.5	112.7	90.8	69.4	94.6	120.7	130.1	145.9	210.8	206.2	161.9	142.6	146.3	135.2	114.0	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Maximums for NO at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Oxides of Nitrogen (NO_X) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 225.5 ppb on Dec 22 18:00

Maximum Daily Average: 78.8 ppb on Dec 19

Minimum Value: 1 ppb on Dec 2 03:00

Minimum Daily Average: 4.0 ppb on Dec 2

Maximum Diurnal Average: 40.9 ppb at hour 18

Minimum Diurnal Average: 15.4 ppb at hour 4

Monthly Average: 27.48 ppb

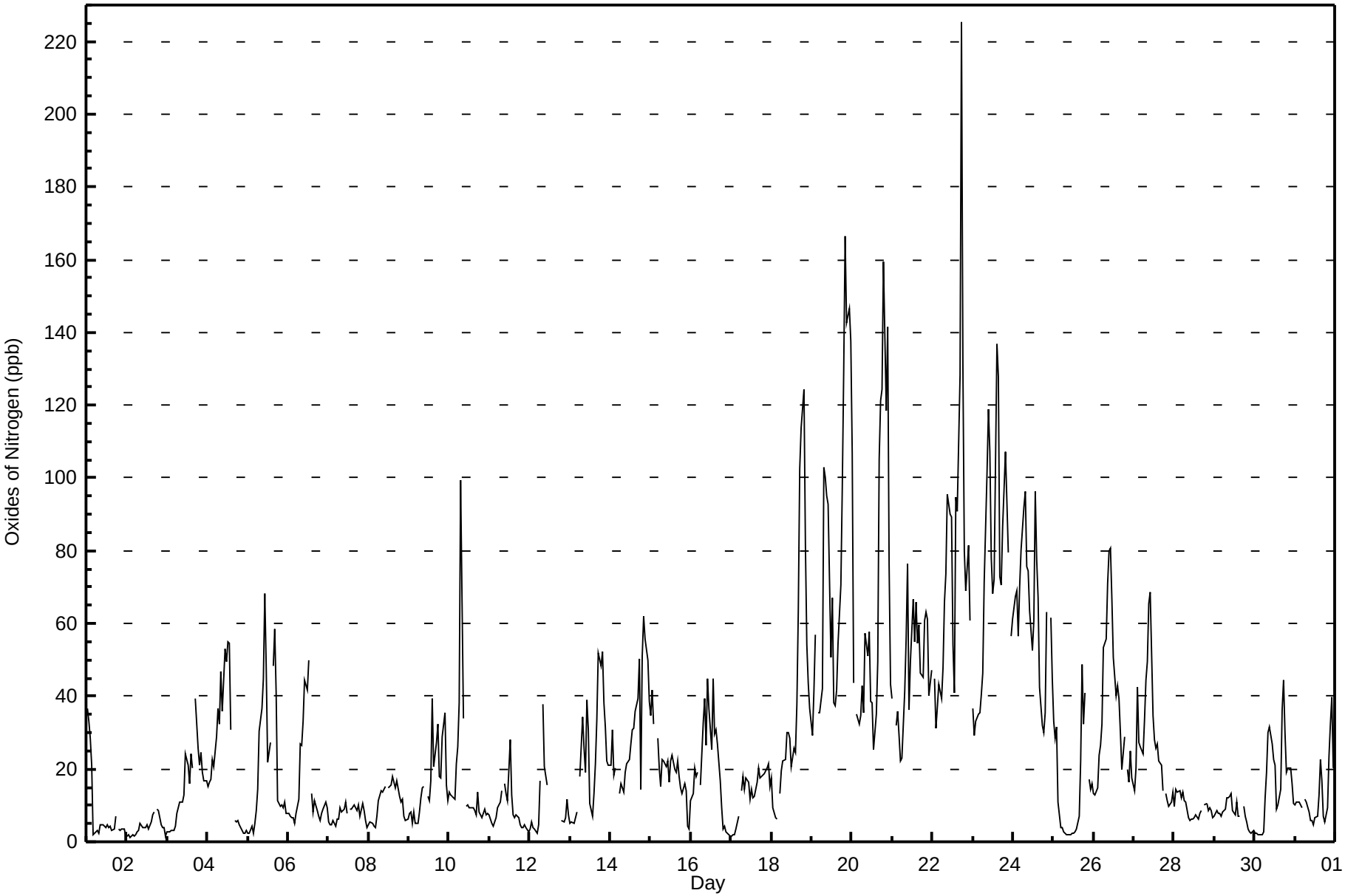
Percentiles: P_1 = 1.7 P_{10} = 3.8 Q_1 = 7.6 Median = 16.6 Q_3 = 36.7 P_{90} = 66.7 P_{99} = 135.2

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	39
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	37	33	29	21	2	3	3	2	5	5	5	4	5	4	4	3	3	7	A	3	3	3	4	2	8.2	36.8
2-Dec	2	2	1	2	1	2	3	3	5	4	4	4	5	4	5	7	8	A	9	9	5	4	4	2	4.0	9.0
3-Dec	3	3	3	3	3	4	8	11	11	11	13	24	21	16	24	20	A	39	26	21	25	19	17	17	14.9	39.2
4-Dec	15	16	17	22	21	29	37	32	47	36	53	49	55	55	31	A	6	6	6	5	4	2	2	3	23.9	54.9
5-Dec	2	2	4	2	5	9	15	31	37	45	68	48	22	27	A	48	58	41	11	10	10	10	11	8	22.8	68.2
6-Dec	8	7	7	7	5	8	12	27	27	33	45	42	50	A	13	8	11	8	7	6	8	9	11	10	15.9	49.7
7-Dec	5	5	5	6	4	6	6	9	8	9	11	8	A	9	9	10	9	9	10	7	11	8	6	4	7.6	11.0
8-Dec	5	6	5	4	4	7	11	14	14	14	15	A	15	16	18	16	15	17	12	11	12	7	6	6	10.8	17.8
9-Dec	8	8	5	8	5	5	8	12	15	15	A	12	11	17	40	21	27	32	18	18	29	35	16	11	16.4	39.5
10-Dec	14	13	13	12	22	26	38	100	34	A	10	10	9	9	9	8	8	14	8	7	8	9	8	8	17.1	99.6
11-Dec	7	5	4	6	7	9	11	14	A	16	13	11	28	13	7	7	7	6	5	4	4	5	4	3	8.5	28.2
12-Dec	3	5	4	4	2	5	17	A	38	20	16	C	C	C	C	C	C	C	A	6	5	7	12	7	--	37.6
13-Dec	5	5	5	7	8	A	18	34	26	19	39	31	11	7	13	22	33	52	48	52	38	32	22	21	23.9	52.1
14-Dec	21	31	18	20	A	13	16	15	14	19	21	23	27	31	31	36	39	50	14	51	62	56	50	39	30.3	62.2
15-Dec	35	42	32	A	29	20	15	22	22	21	22	16	22	24	20	19	22	18	15	13	16	14	4	3	20.3	41.7
16-Dec	11	13	20	18	19	A	15	33	40	27	45	37	25	45	30	31	27	17	9	4	4	3	2	2	20.7	44.8
17-Dec	2	2	2	4	7	A	14	18	15	18	17	12	14	12	12	16	20	17	18	18	19	20	21	15	13.6	21.5
18-Dec	18	9	7	6	A	13	20	22	22	30	30	28	20	26	25	38	63	103	114	125	82	54	44	37	40.7	124.5
19-Dec	29	41	57	A	36	36	42	103	100	95	93	51	67	38	38	42	55	71	97	129	167	143	146	137	78.8	166.6
20-Dec	107	44	A	35	32	35	43	36	57	51	58	38	38	25	35	49	105	121	124	159	118	142	76	43	68.4	159.3
21-Dec	39	A	32	36	29	22	23	41	56	76	36	49	67	55	66	55	60	46	45	61	63	61	40	47	48.1	76.3
22-Dec	A	45	31	37	43	40	48	66	74	95	90	89	54	41	95	91	128	225	131	80	69	81	61	A	78.0	225.5
23-Dec	37	29	33	35	35	41	46	71	101	119	107	78	68	72	137	128	73	70	87	107	94	79	A	57	74.1	136.7
24-Dec	61	68	69	57	70	80	92	96	76	75	64	52	61	96	78	67	42	32	30	36	63	A	62	45	64.0	96.2
25-Dec	33	28	32	11	4	4	3	2	2	2	2	2	2	3	4	7	22	49	32	41	A	17	14	16	14.5	48.7
26-Dec	13	13	15	24	27	32	53	56	71	80	81	67	51	40	43	39	30	20	29	A	20	16	25	18	37.4	80.7
27-Dec	14	20	42	27	26	24	33	45	49	66	69	35	28	26	27	22	21	14	A	13	11	10	11	13	28.1	68.6
28-Dec	10	14	14	14	12	14	11	11	7	6	6	6	7	7	6	8	9	A	10	11	9	9	9	7	9.4	14.4
29-Dec	7	9	8	8	7	8	9	12	12	13	13	8	7	11	7	7	A	10	7	5	3	3	2	3	7.8	13.3
30-Dec	3	2	2	2	2	3	12	19	30	32	27	22	21	9	10	15	36	45	30	19	20	20	16	10	17.0	44.6
31-Dec	10	11	11	10	9	A	12	11	8	6	6	5	6	7	13	23	17	7	6	9	23	32	40	20	13.2	39.7
	18.8	17.7	17.6	15.4	16.5	18.4	22.4	32.3	34.0	35.2	35.9	29.8	28.2	25.7	29.3	29.8	34.2	40.9	34.3	34.6	33.5	30.4	24.8	20.4	Diurnal Average	
	106.9	67.5	69.0	56.7	70.0	80.3	92.0	103.0	101.4	118.9	107.0	89.3	68.4	96.2	136.7	127.8	128.2	225.5	130.9	159.3	166.6	142.7	146.5	137.5	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Averages for NO_X at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Oxides of Nitrogen (NO_X) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 271.0 ppb on Dec 22 18:00

Maximum Daily Average: 111.6 ppb on Dec 22

Minimum Value: 2 ppb on Dec 2 03:00

Minimum Daily Average: 7.0 ppb on Dec 2

Maximum Diurnal Average: 60.0 ppb at hour 18

Minimum Diurnal Average: 23.0 ppb at hour 4

Monthly Average: 41.65 ppb

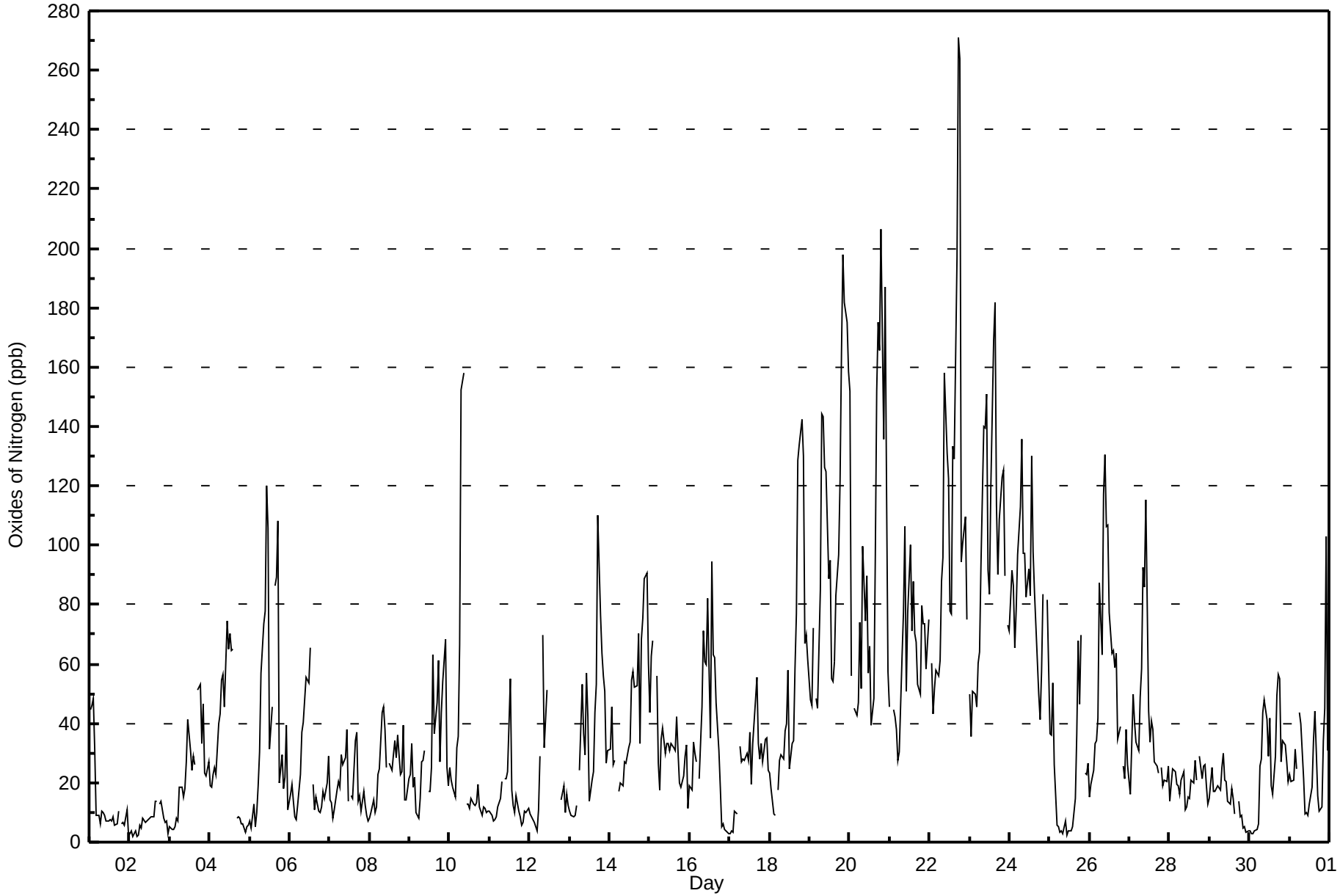
Percentiles: P_1 = 3.0 P_{10} = 7.3 Q_1 = 14.0 Median = 28.5 Q_3 = 56.2 P_{90} = 93.6 P_{99} = 179.0

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	39
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	44	46	49	31	9	9	6	10	10	9	7	7	8	7	9	6	6	11	A	6	6	6	11	2	13.7	48.5
2-Dec	3	4	2	4	2	3	6	5	8	7	7	7	8	9	9	14	14	A	13	14	8	6	7	3	7.0	13.6
3-Dec	5	4	4	5	8	7	18	19	15	18	27	41	31	24	29	26	A	51	53	33	47	23	22	27	23.4	53.0
4-Dec	19	18	23	25	23	40	43	54	56	45	74	65	70	64	65	A	8	9	8	6	6	3	5	6	32.1	74.3
5-Dec	7	5	13	5	10	19	30	57	74	78	120	106	31	46	A	86	89	108	20	29	18	22	39	11	44.5	120.3
6-Dec	16	19	14	9	8	12	23	37	40	48	55	54	65	A	19	11	15	10	10	12	17	15	20	29	24.3	65.5
7-Dec	14	13	8	11	18	20	19	29	26	29	38	14	A	16	15	34	37	14	16	10	17	13	9	7	18.5	38.2
8-Dec	8	10	14	10	12	23	25	44	45	38	25	A	26	24	29	34	29	36	23	24	39	14	14	22	24.7	45.5
9-Dec	23	33	19	22	10	8	15	27	27	31	A	17	17	25	63	36	47	61	27	44	54	69	25	19	31.3	68.6
10-Dec	25	21	19	15	32	36	66	152	158	A	13	13	12	15	13	12	14	19	12	9	12	12	10	10	30.3	158.1
11-Dec	10	9	7	7	8	12	15	20	A	21	21	24	55	18	12	10	15	11	9	6	7	10	10	12	14.3	55.1
12-Dec	9	9	7	7	4	11	29	A	70	32	51	C	C	C	C	C	C	C	A	14	19	10	16	12	--	69.8
13-Dec	11	9	8	9	13	A	24	53	37	29	57	42	14	21	24	44	53	110	76	64	56	51	27	31	37.4	109.9
14-Dec	31	46	26	28	A	17	20	20	19	27	27	32	34	54	57	52	52	70	33	68	76	89	91	60	44.8	90.8
15-Dec	44	63	68	A	56	27	18	35	38	30	33	33	31	33	32	31	42	30	20	18	22	29	33	11	33.8	68.0
16-Dec	19	17	34	30	27	A	21	46	71	61	60	82	35	95	63	62	47	31	19	5	6	4	4	3	36.6	94.6
17-Dec	3	4	4	11	9	A	32	27	28	27	30	28	37	20	33	48	56	33	28	33	27	35	35	24	26.6	55.6
18-Dec	23	18	9	9	A	18	27	30	28	38	40	58	25	33	34	59	77	129	134	142	130	67	70	62	54.7	142.4
19-Dec	48	46	72	A	49	45	85	144	143	126	125	89	95	55	54	61	83	97	122	164	198	182	175	159	105.1	197.8
20-Dec	152	56	A	45	43	47	74	52	99	74	90	57	66	39	48	96	152	175	166	206	136	187	118	57	97.2	206.4
21-Dec	46	A	44	42	38	28	30	63	77	106	51	78	100	71	88	70	67	53	50	80	74	74	58	75	63.6	106.2
22-Dec	A	60	43	52	58	56	61	88	96	158	131	123	78	77	134	129	197	271	264	94	101	110	75	A	111.6	271.0
23-Dec	50	35	51	50	46	60	64	94	140	139	151	91	84	120	169	182	114	90	109	123	125	90	A	73	97.8	181.8
24-Dec	71	91	86	66	78	97	113	136	97	97	83	92	83	130	98	84	72	50	41	58	84	A	81	59	84.7	135.6
25-Dec	37	36	53	26	6	5	3	4	3	7	3	4	4	4	5	15	37	68	47	70	A	23	23	26	22.1	69.9
26-Dec	15	20	24	33	34	42	87	63	117	131	106	107	77	64	65	59	64	35	39	A	26	22	38	26	56.2	130.7
27-Dec	16	33	50	40	34	31	49	58	92	86	116	44	34	41	38	27	26	23	A	25	19	21	20	26	41.2	115.5
28-Dec	14	20	25	24	20	19	16	21	24	11	12	15	15	21	20	28	21	A	29	21	25	26	19	13	19.8	28.9
29-Dec	15	25	17	17	18	19	18	25	30	21	20	14	13	18	15	10	A	14	9	9	5	5	4	4	14.9	29.7
30-Dec	4	3	3	4	4	6	26	28	44	48	42	29	42	19	16	29	49	57	55	27	34	33	27	20	27.0	56.6
31-Dec	23	20	21	32	25	A	44	40	21	10	10	9	13	19	34	44	30	16	11	12	34	45	103	31	28.0	102.8
	26.8	26.4	27.2	23.0	24.1	26.5	35.7	49.4	57.9	52.7	54.1	47.3	41.4	40.7	44.5	48.2	54.0	60.0	51.4	47.6	47.6	43.1	39.6	30.7	Diurnal Average	
	151.7	91.4	86.2	65.6	78.2	97.0	113.1	152.5	158.1	158.3	151.0	122.6	100.2	130.0	169.1	181.8	197.0	271.0	263.8	206.4	197.8	187.2	175.0	158.6	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Maximums for NO_X at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 38.0 ppb on Dec 15 23:00
Maximum Daily Average: 31.2 ppb on Dec 11

Minimum Value: 0 ppb on Dec 27 09:00
Maximum Diurnal Average: 20.0 ppb at hour 14
Monthly Average: 16.51 ppb

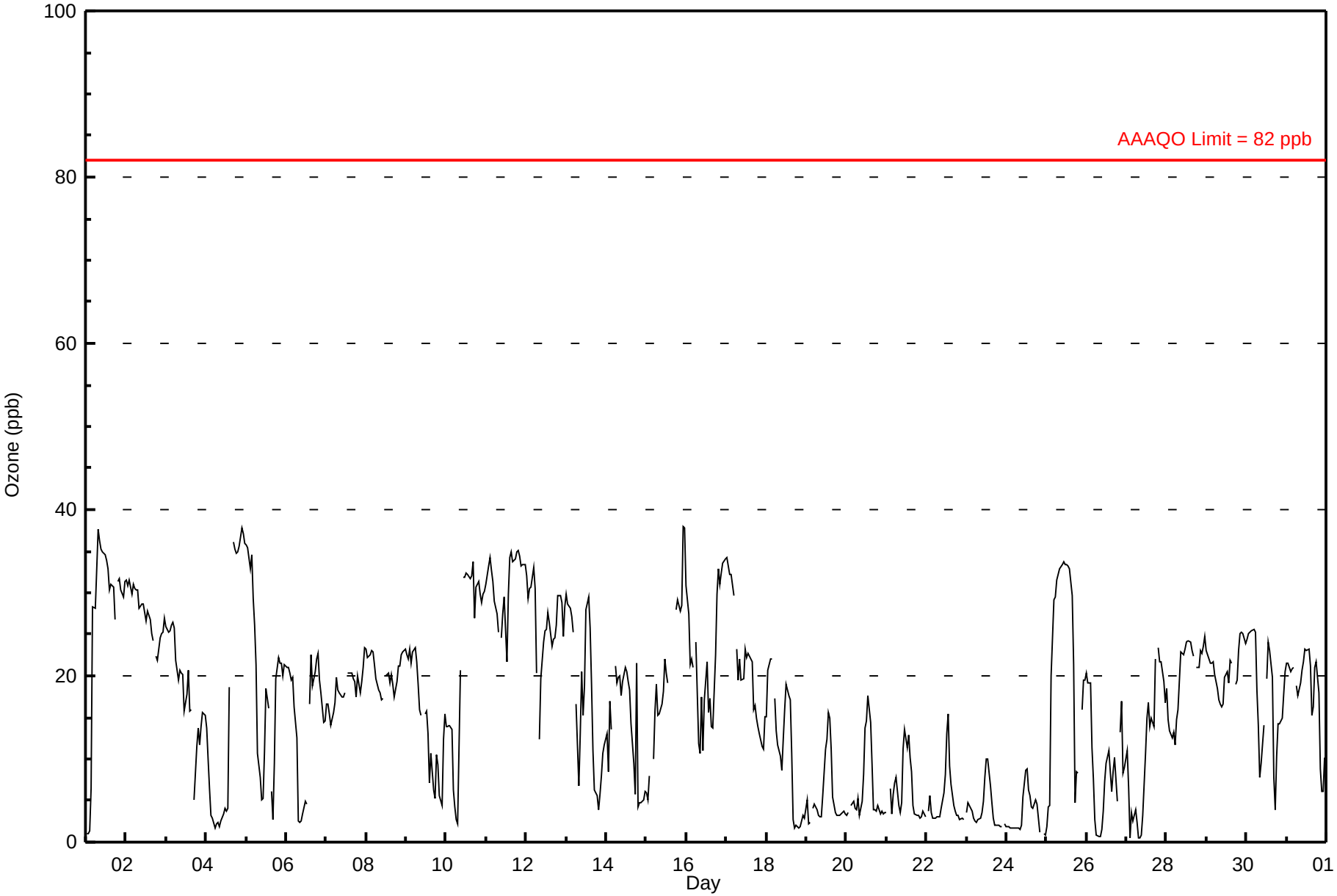
Minimum Daily Average: 3.3 ppb on Dec 24
Minimum Diurnal Average: 13.0 ppb at hour 8
Percentiles: P_1 = 0.9 P_{10} = 3.0 Q_1 = 6.2 Median = 17.4 Q_3 = 23.3 P_{90} = 31.0 P_{99} = 35.9

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	1	1	6	28	28	33	38	36	35	35	35	34	33	30	31	31	27	A	31	32	30	29	31	26.9	37.7
2-Dec	32	31	31	30	31	31	30	30	28	29	29	28	27	28	27	25	24	A	22	22	25	25	25	27	27.6	31.5
3-Dec	26	25	26	26	26	26	22	20	21	20	20	16	18	21	16	16	A	5	12	14	12	14	16	15	18.7	26.4
4-Dec	14	10	7	3	3	2	2	2	2	3	3	4	4	4	19	A	36	35	35	35	36	38	37	36	16.0	37.9
5-Dec	36	35	33	35	29	26	21	11	8	5	5	11	18	16	A	6	3	9	20	22	22	22	20	21	18.9	35.8
6-Dec	21	21	20	19	20	16	13	3	2	2	3	5	5	A	17	23	19	20	22	23	19	18	14	15	14.8	22.7
7-Dec	17	17	15	14	16	17	20	18	18	17	17	18	A	20	20	20	20	19	17	20	18	19	21	23	18.4	23.4
8-Dec	23	22	23	23	23	21	20	18	18	17	17	A	20	20	19	20	19	18	19	21	21	23	23	23	20.5	23.2
9-Dec	23	22	23	22	23	23	22	19	16	15	A	15	16	13	7	11	6	5	11	9	6	4	12	15	14.7	23.3
10-Dec	14	14	14	14	6	4	3	2	21	A	32	32	32	32	32	32	34	27	31	31	30	29	30	30	22.8	33.7
11-Dec	31	33	34	33	31	29	27	25	A	25	28	30	22	30	34	35	34	34	35	35	34	33	33	33	31.2	35.1
12-Dec	32	29	30	31	33	31	20	A	12	20	24	25	26	28	26	24	24	25	26	30	30	29	25	28	26.4	33.0
13-Dec	30	29	28	27	25	A	17	7	13	21	15	19	28	30	26	19	11	6	6	4	6	8	11	12	17.2	29.8
14-Dec	13	9	17	14	A	21	19	20	20	18	19	21	21	19	18	14	10	6	21	4	5	5	5	6	14.1	21.5
15-Dec	6	5	8	A	10	16	19	15	15	17	18	22	20	19	C	C	C	A	28	29	28	28	38	38	20.0	38.0
16-Dec	31	27	21	22	21	A	24	12	11	17	11	17	22	16	17	14	14	23	30	33	31	32	34	34	22.3	34.0
17-Dec	34	33	32	32	30	A	23	20	22	19	20	23	22	23	22	22	16	16	15	14	13	11	11	15	21.3	34.2
18-Dec	15	21	22	22	A	17	13	12	10	9	12	16	19	18	17	11	3	2	2	2	2	2	3	3	11.0	22.0
19-Dec	5	2	2	A	4	5	4	3	3	3	6	11	12	16	15	11	5	4	3	3	3	3	4	3	5.7	15.6
20-Dec	3	3	A	4	5	4	4	5	3	5	8	14	15	18	14	9	4	4	4	4	3	4	3	4	6.3	17.7
21-Dec	4	A	6	3	6	7	8	4	4	5	11	14	11	13	10	8	4	3	3	3	3	3	4	3	6.2	13.5
22-Dec	A	4	6	4	3	3	3	3	3	4	6	8	13	15	9	7	4	4	3	3	3	3	3	A	5.1	15.4
23-Dec	3	5	4	4	3	3	2	3	3	3	5	8	10	10	7	5	3	2	2	2	2	2	A	2	4.0	10.1
24-Dec	2	2	2	2	2	2	2	2	1	2	5	9	9	6	6	4	4	5	5	3	1	A	1	1	3.3	8.8
25-Dec	2	4	4	20	29	30	32	32	33	33	34	33	33	33	33	30	21	5	9	8	A	16	19	19	22.3	33.7
26-Dec	20	19	19	11	8	3	1	1	1	2	4	7	9	11	9	6	8	10	5	A	13	17	8	9	8.7	20.3
27-Dec	11	7	1	3	3	4	2	1	0	1	3	11	15	17	14	15	14	22	A	23	22	22	19	17	10.7	23.4
28-Dec	18	15	13	12	13	12	15	16	23	23	23	23	24	24	24	23	22	A	21	21	23	23	24	25	20.0	24.7
29-Dec	23	22	21	22	22	20	19	17	17	16	17	20	21	19	22	21	A	19	20	23	25	25	25	24	20.8	25.2
30-Dec	24	25	25	25	26	25	18	14	8	9	14	A	20	24	23	20	8	4	10	14	14	15	18	20	17.6	25.6
31-Dec	22	22	21	21	21	A	19	18	19	21	22	23	23	23	21	15	16	21	22	18	9	6	6	10	18.2	23.2
	17.8	17.1	17.1	17.4	17.2	15.7	15.4	13.0	13.0	13.9	15.6	17.8	18.9	20.0	19.1	17.1	14.9	13.6	15.8	16.9	16.3	17.0	17.4	18.2	Diurnal Average	
	35.8	35.4	34.2	34.5	33.0	30.6	32.9	37.7	36.3	35.3	35.0	34.6	33.9	33.2	34.3	34.8	36.1	35.3	34.8	35.1	35.6	37.9	38.0	37.7	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb 24-hr na

Hourly Averages for O_3 at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 55.4 ppb on Dec 25 18:00

Maximum Daily Average: 33.9 ppb on Dec 11

Minimum Value: 1 ppb on Dec 26 09:00

Minimum Daily Average: 4.7 ppb on Dec 24

Maximum Diurnal Average: 22.9 ppb at hour 14

Minimum Diurnal Average: 16.3 ppb at hour 8

Monthly Average: 19.52 ppb

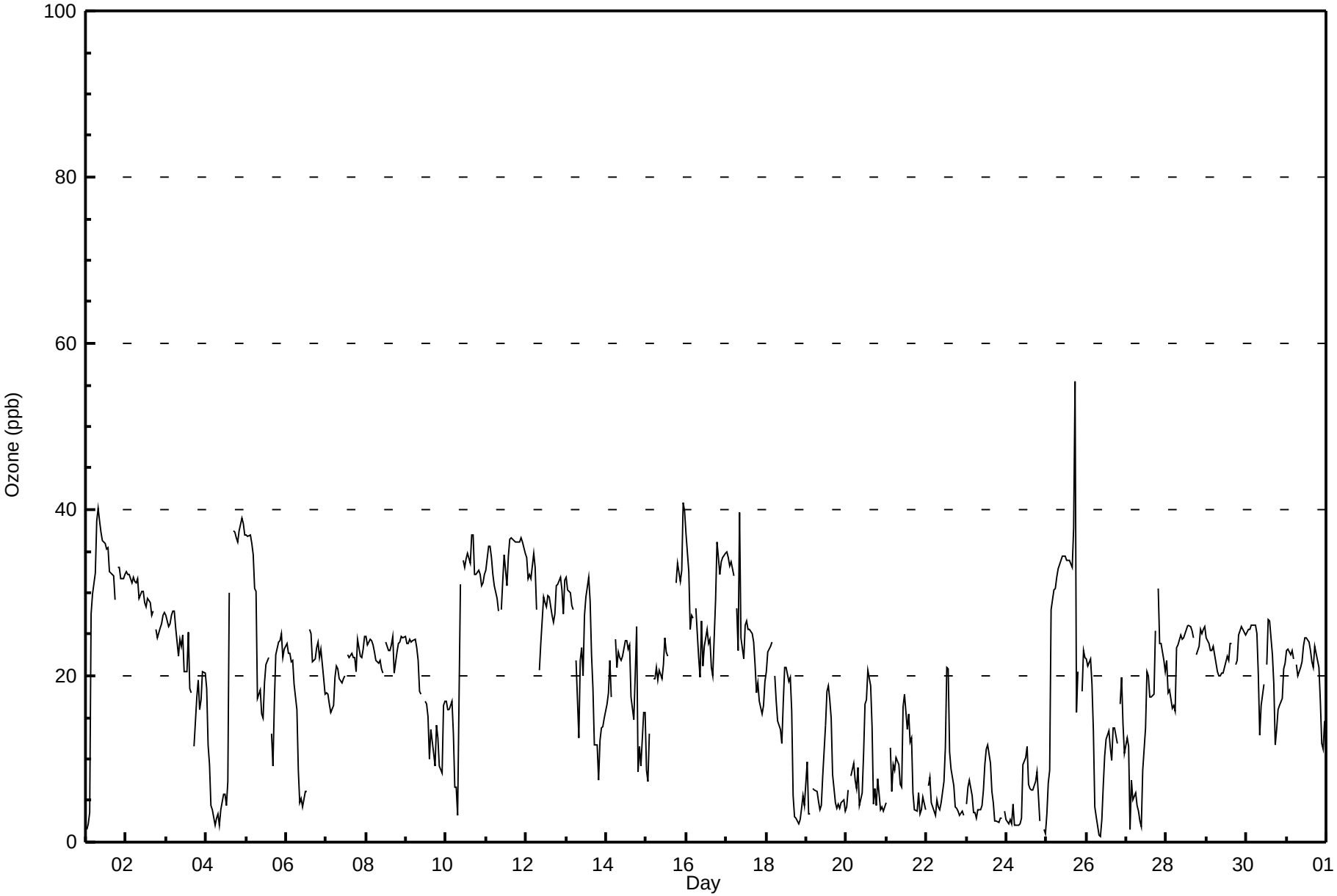
Percentiles: P_1 = 2.0 P_{10} = 4.3 Q_1 = 10.7 Median = 21.0 Q_3 = 26.0 P_{90} = 33.0 P_{99} = 38.5

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

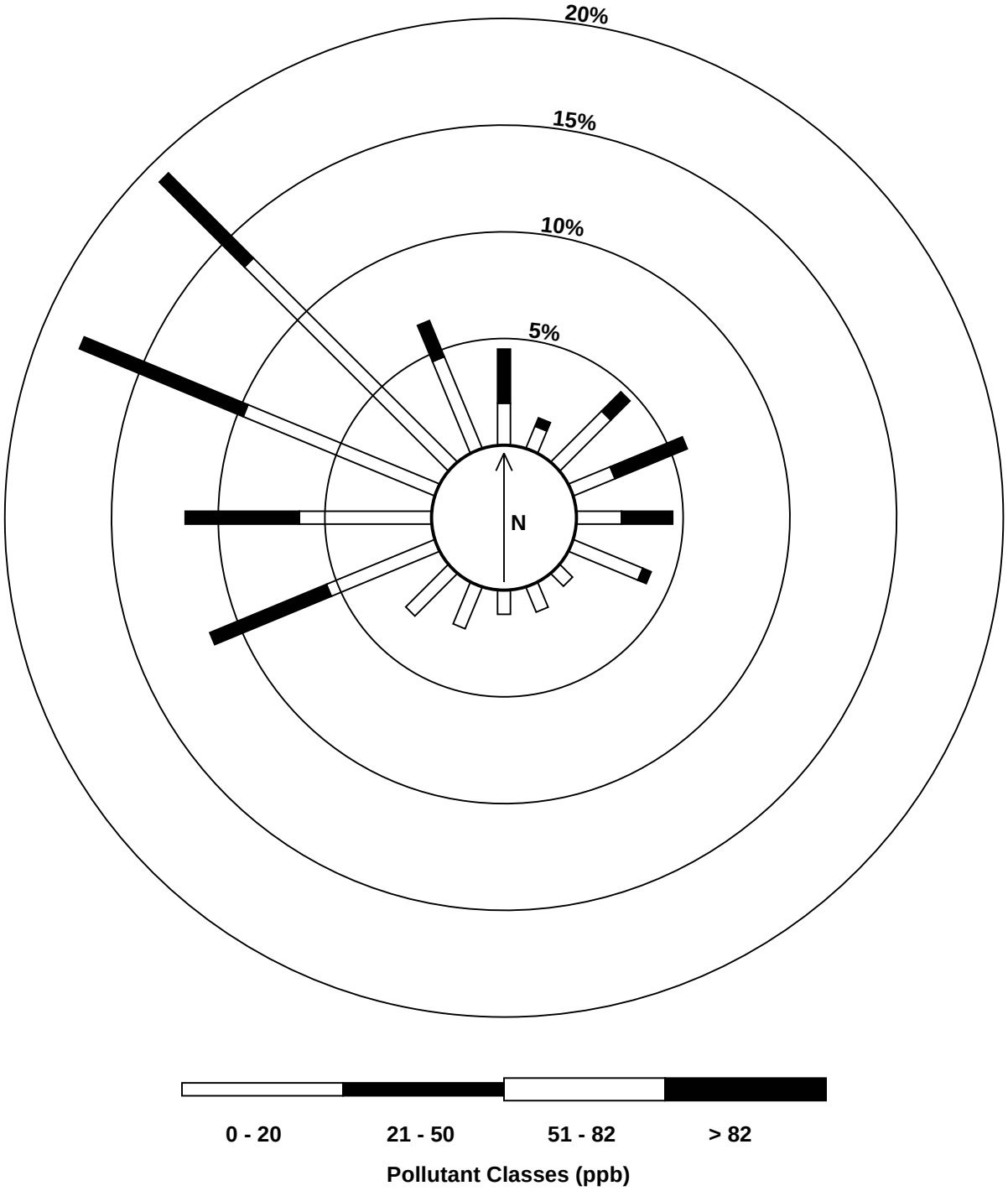
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	2	2	4	27	30	32	39	40	39	37	36	36	35	35	33	32	32	29	A	33	33	32	32	32	29.7	40.1
2-Dec	33	32	32	31	32	31	31	32	29	30	30	29	28	29	29	27	28	A	26	25	26	26	27	28	29.2	32.6
3-Dec	27	26	26	27	28	28	26	22	24	24	25	20	20	25	18	18	A	12	18	19	16	17	20	20	22.1	27.8
4-Dec	19	12	9	4	4	2	3	3	2	4	6	6	4	7	30	A	37	37	37	36	37	39	38	37	18.0	38.9
5-Dec	37	37	37	36	34	31	30	17	18	15	15	19	21	22	A	13	9	17	23	24	24	25	22	23	24.0	37.0
6-Dec	24	23	23	22	22	19	16	9	5	5	4	6	6	A	26	25	22	22	23	24	22	23	20	18	17.7	25.6
7-Dec	18	18	17	16	16	20	21	21	20	19	20	20	A	23	22	23	22	22	21	24	22	22	23	25	20.6	24.7
8-Dec	25	24	24	24	24	23	22	22	22	21	20	A	24	23	23	24	25	20	23	24	24	25	25	25	23.2	24.8
9-Dec	24	24	24	24	24	24	23	22	18	18	A	17	17	15	10	14	11	9	14	13	9	8	16	17	17.2	24.3
10-Dec	17	16	16	17	13	7	7	3	31	A	34	33	34	35	34	37	37	32	32	33	32	31	31	32	25.8	37.0
11-Dec	33	36	36	34	32	31	29	28	A	28	31	35	31	34	36	37	36	36	36	36	36	37	36	35	33.9	36.7
12-Dec	34	32	32	32	35	33	28	A	21	24	29	29	28	30	30	27	26	27	31	31	32	30	27	31	29.6	34.7
13-Dec	32	30	30	29	28	A	22	13	22	23	20	27	29	32	29	22	18	12	12	7	12	14	14	15	21.4	31.9
14-Dec	17	18	22	17	A	24	21	23	22	22	22	24	24	23	24	18	15	20	26	9	11	9	16	16	19.3	26.0
15-Dec	9	7	13	A	20	20	21	20	21	20	21	25	23	22	C	C	C	A	31	33	31	33	41	40	23.7	40.8
16-Dec	37	33	26	27	27	A	28	22	20	27	21	23	26	24	24	21	20	29	36	34	32	34	34	35	27.8	37.2
17-Dec	35	34	33	34	32	A	28	23	40	25	22	26	27	26	26	25	24	21	18	19	17	15	16	19	25.4	39.7
18-Dec	20	23	23	24	A	20	17	15	14	12	17	21	21	19	20	16	6	3	3	2	3	4	6	4	13.6	24.0
19-Dec	10	3	3	A	6	6	6	5	4	4	8	14	18	19	17	15	8	5	4	5	4	5	5	4	7.8	18.8
20-Dec	4	6	A	8	9	7	6	9	4	6	11	17	17	21	19	14	5	6	4	8	4	4	4	4	8.6	20.7
21-Dec	5	A	11	6	9	9	10	9	7	7	16	18	13	15	12	13	6	4	4	6	3	4	5	4	8.6	17.7
22-Dec	A	7	8	5	4	3	5	4	4	5	7	11	21	21	11	9	7	4	4	4	3	4	3	A	7.0	21.0
23-Dec	4	7	7	6	4	3	3	4	4	4	6	9	11	12	10	6	5	3	2	2	3	3	A	4	5.3	11.8
24-Dec	3	2	3	2	5	2	2	2	2	3	9	10	11	7	7	6	6	7	9	6	3	A	2	1	4.7	11.5
25-Dec	3	7	9	28	30	31	32	33	33	34	34	34	34	34	34	33	38	55	16	21	A	18	23	22	27.7	55.4
26-Dec	22	21	22	19	13	4	3	1	1	3	7	10	12	13	11	10	14	14	12	A	17	20	14	11	11.9	22.1
27-Dec	13	11	1	8	5	6	4	4	3	2	9	14	21	20	17	17	18	26	A	31	24	24	22	20	13.9	30.5
28-Dec	22	18	18	16	16	16	23	24	25	24	25	25	26	26	26	25	25	A	22	23	26	25	26	26	22.9	26.0
29-Dec	24	24	23	23	23	22	20	20	20	20	20	21	22	22	24	24	A	21	22	25	26	26	26	25	22.8	26.0
30-Dec	25	26	26	26	26	26	25	20	13	16	19	A	21	27	27	23	19	12	14	16	16	17	21	22	20.9	26.9
31-Dec	23	23	23	23	22	A	21	20	21	22	24	25	25	24	23	22	21	24	23	21	17	12	11	14	21.0	24.7
	20.0	19.4	19.4	20.5	19.9	17.8	18.5	16.3	16.9	16.8	19.0	20.9	21.8	22.9	22.4	20.5	19.3	18.9	18.8	19.8	18.9	19.5	20.2	20.3	Diurnal Average	
	37.2	36.8	36.9	35.9	34.7	33.1	38.7	40.1	39.7	37.2	36.3	36.0	35.3	35.4	36.5	37.0	37.8	55.4	36.7	36.2	37.5	38.9	40.8	39.8	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Maximums for O_3 at Henry Pirker
December 2008



Pollutant Rose for O_3 at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Eight Hour Running Averages

Henry Pirker - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedences (AAAQO): 8-hr: 0
Maximum Value: 35.9 ppb on Dec 5 00:00

Minimum Value: 1.7 ppb on Dec 24 09:00

Percentiles: P_1 = 1.9 P_{10} = 3.7 Q_1 = 8.3 Median = 16.9 Q_3 = 22.6 P_{90} = 30.3 P_{99} = 34.2

Hours in Service:	744
Hours of Data:	737
Hours of Missing Data:	7
Hours of Calibration:	7
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	7	6	5	5	7	9	13	17	22	26	30	34	34	35	34	34	33	32	31	31	31	30	30	30	34.8
2-Dec	30	31	31	31	31	31	31	31	30	30	30	29	29	29	28	27	27	27	26	25	25	24	24	24	31.0
3-Dec	25	25	25	26	26	26	25	25	24	23	23	21	20	20	19	18	18	16	15	14	13	12	12	12	25.9
4-Dec	13	13	13	11	10	9	7	5	4	3	3	3	3	3	5	5	10	15	20	24	28	33	36	36	35.9
5-Dec	36	36	36	36	35	33	31	28	25	21	18	15	13	12	11	10	9	10	12	14	14	15	15	17	35.9
6-Dec	20	21	21	21	21	20	19	17	14	12	10	8	6	5	5	8	11	13	16	18	20	20	20	19	21.1
7-Dec	19	18	17	16	16	16	16	17	17	17	17	18	18	18	19	19	19	19	19	20	19	19	19	20	19.8
8-Dec	20	21	21	22	22	22	22	22	21	20	20	19	19	19	19	19	19	19	19	20	20	20	21	21	22.5
9-Dec	21	22	22	22	23	23	23	22	21	20	20	19	18	17	15	13	12	10	10	10	8	7	8	9	22.7
10-Dec	10	11	11	12	12	12	11	9	10	9	12	14	18	22	26	30	32	32	31	31	31	31	30	30	32.2
11-Dec	30	31	31	31	31	31	31	31	30	29	28	28	26	27	28	29	29	31	32	32	34	34	34	34	34.3
12-Dec	34	33	33	32	32	32	30	29	27	25	24	24	23	22	23	23	25	25	25	26	27	27	26	27	33.8
13-Dec	28	28	28	28	28	27	26	23	21	20	18	17	17	19	20	21	21	19	18	16	13	11	9	8	28.5
14-Dec	8	8	10	11	12	14	15	16	17	18	19	20	20	20	19	19	17	16	16	14	12	10	9	8	19.8
15-Dec	7	7	5	6	6	8	10	11	13	14	16	17	18	18	18	19	N	N	N	N	N	N	N	32	31.5
16-Dec	31	31	30	29	28	28	26	23	20	18	17	16	16	16	15	16	16	17	19	21	22	24	26	29	31.4
17-Dec	31	33	33	33	33	33	31	29	27	25	24	22	21	22	21	22	21	21	20	19	18	16	15	14	33.0
18-Dec	14	14	15	16	17	18	18	17	17	15	14	13	14	14	14	14	13	12	11	9	7	5	3	2	18.0
19-Dec	3	3	3	3	3	3	4	4	3	3	4	5	6	7	9	10	10	10	10	9	8	6	5	4	10.0
20-Dec	3	3	3	4	4	4	4	4	4	4	5	6	7	9	10	11	11	11	10	9	8	6	4	4	10.8
21-Dec	4	4	4	4	4	5	5	6	6	5	6	7	8	9	9	9	10	9	8	7	6	5	4	3	9.6
22-Dec	3	3	4	4	4	4	4	4	3	4	4	4	5	7	8	8	8	8	8	7	6	5	4	3	8.4
23-Dec	3	3	3	4	4	3	3	3	3	3	3	4	5	6	6	6	6	6	6	5	4	3	3	2	6.3
24-Dec	2	2	2	2	2	2	2	2	2	2	2	3	4	4	5	5	6	6	6	5	4	4	3	3	6.0
25-Dec	3	2	2	5	9	11	15	19	23	27	30	32	33	33	33	33	31	28	25	22	20	17	15	14	33.2
26-Dec	14	16	17	18	17	15	13	10	8	6	4	3	3	4	5	6	7	8	8	8	9	10	10	10	17.8
27-Dec	11	10	9	9	7	6	5	4	3	2	2	3	5	6	8	9	11	14	15	17	18	19	20	20	19.8
28-Dec	20	19	19	17	16	15	14	14	15	16	17	18	20	21	22	23	23	23	23	23	23	22	22	23	23.4
29-Dec	23	23	23	23	23	22	22	21	20	19	19	18	18	18	18	19	19	20	20	21	21	22	23	23	23.0
30-Dec	23	24	25	25	25	25	24	23	21	19	18	16	16	15	16	17	17	16	16	15	15	14	13	13	25.0
31-Dec	15	17	18	19	20	21	21	20	20	20	20	20	21	21	21	21	21	21	21	20	18	16	14	14	21.2
Diurnal Maximums	35.9	35.9	35.7	35.6	34.9	33.4	31.4	30.7	30.5	30.0	30.3	33.5	34.2	34.8	34.5	33.7	33.0	31.9	31.6	32.3	33.9	34.3	35.9	35.9	

N - Not Valid
Alberta Ambient Air Quality Objectives (AAAQO): 8-hr 65 ppb

Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Carbon Monoxide (CO) - ppm
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 0.92 ppm on Dec 22 18:00 Maximum Daily Average: 0.41 ppm on Dec 19

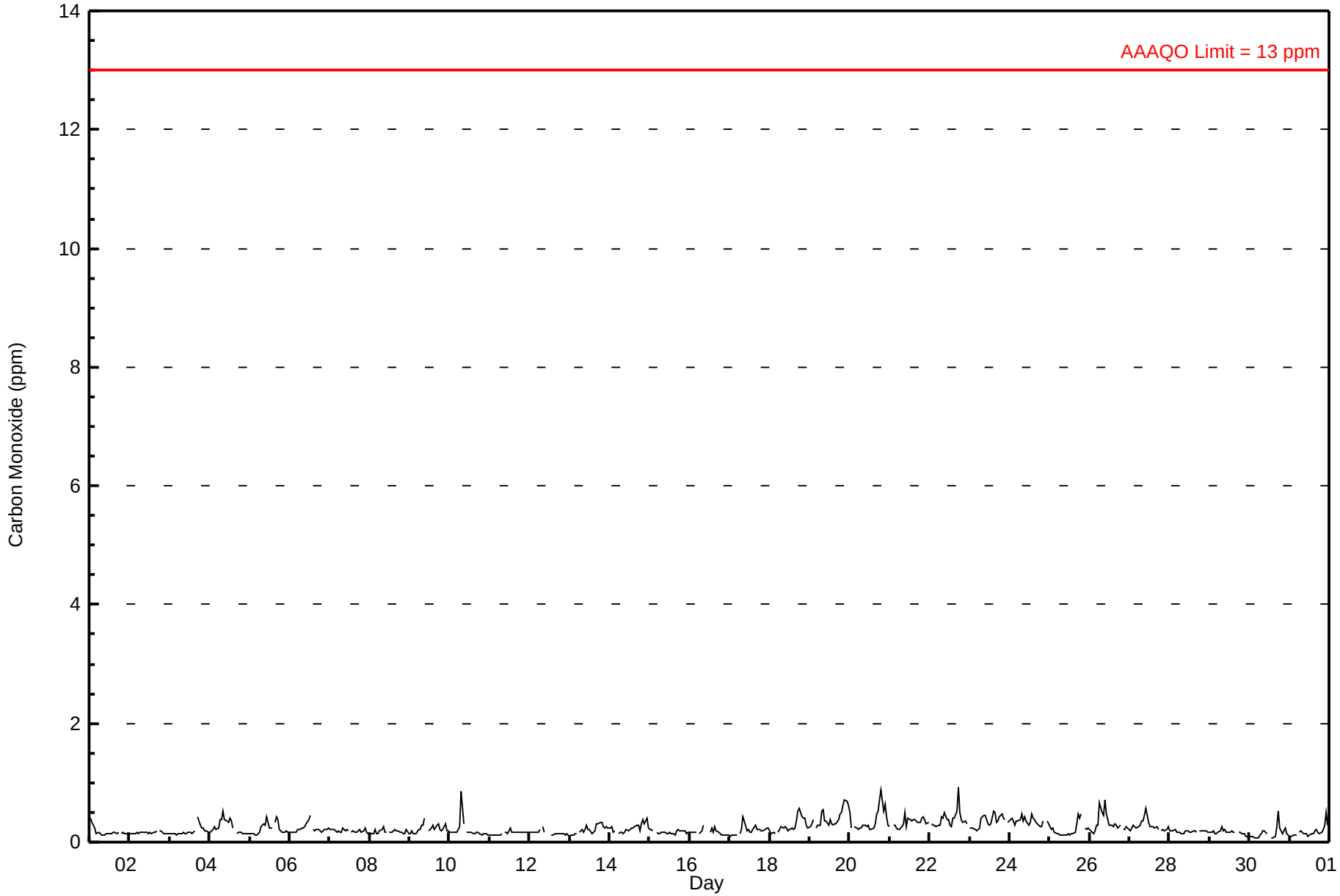
Minimum Value: 0.1 ppm on Dec 30 14:00 Minimum Daily Average: 0.15 ppm on Dec 11
Maximum Diurnal Average: 0.30 ppm at hour 18 Minimum Diurnal Average: 0.18 ppm at hour 5
Monthly Average: 0.234 ppm Percentiles: P_1 = 0.10 P_{10} = 0.13 Q_1 = 0.16 Median = 0.20 Q_3 = 0.28 P_{90} = 0.39 P_{99} = 0.68

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	38
Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	A	0.2	0.2	0.1	0.1	0.1	0.17	0.39
2-Dec	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.1	0.1	0.1	0.1	0.16	0.18
3-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	A	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.18	0.42
4-Dec	0.2	0.2	0.2	0.3	0.2	0.2	0.4	0.4	0.5	0.4	0.4	0.3	0.4	0.4	0.2	A	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.25	0.51
5-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.2	A	0.3	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.23	0.44
6-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.23	0.44
7-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19	0.24
8-Dec	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.17	0.26
9-Dec	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	A	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.22	0.40
10-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.9	0.3	A	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.20	0.86
11-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.15	0.24
12-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.3	0.2	A	A	A	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.15	0.26
13-Dec	0.1	0.1	0.1	0.1	0.1	A	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.21	0.34
14-Dec	0.2	0.3	0.2	0.2	A	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.4	0.2	0.23	0.40
15-Dec	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.17	0.22
16-Dec	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.3	C	C	A	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.17	0.27
17-Dec	0.1	0.1	0.1	0.1	0.1	A	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.20	0.42
18-Dec	0.2	0.2	0.2	0.2	A	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.6	0.4	0.4	0.4	0.3	0.2	0.28	0.56
19-Dec	0.3	0.3	0.4	A	0.2	0.3	0.3	0.5	0.5	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.6	0.41	0.70
20-Dec	0.5	0.2	A	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.5	0.5	0.7	0.9	0.5	0.6	0.4	0.3	0.37	0.88
21-Dec	0.3	A	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.33	0.50
22-Dec	A	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.9	0.5	0.4	0.3	0.4	0.3	A	0.38	0.92
23-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.5	0.5	0.3	0.4	0.4	0.5	0.4	0.4	A	0.3	0.34	0.52
24-Dec	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.4	A	0.4	0.3	0.36	0.48
25-Dec	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.4	0.5	A	0.2	0.2	0.2	0.21	0.49
26-Dec	0.2	0.2	0.2	0.2	0.3	0.3	0.7	0.5	0.5	0.7	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	A	0.2	0.2	0.3	0.2	0.32	0.71
27-Dec	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.6	0.3	0.3	0.3	0.3	0.2	0.3	0.2	A	0.2	0.2	0.2	0.2	0.3	0.28	0.58
28-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.18	0.21
29-Dec	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.16	0.26
30-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	M	A	0.1	0.1	0.1	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.1	0.15	0.52
31-Dec	0.1	0.1	0.1	0.1	0.1	A	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.3	0.17	0.49
	0.20	0.20	0.19	0.18	0.18	0.19	0.21	0.27	0.27	0.28	0.25	0.24	0.23	0.21	0.22	0.24	0.26	0.30	0.27	0.26	0.24	0.25	0.24	0.21	Diurnal Average	
	0.50	0.41	0.37	0.29	0.36	0.35	0.67	0.86	0.53	0.71	0.58	0.40	0.44	0.48	0.52	0.49	0.53	0.92	0.70	0.88	0.61	0.70	0.69	0.62	Diurnal Maximum	

C - Calibration M - Maintenance A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm 24-hr na

Hourly Averages for CO at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Carbon Monoxide (CO) - ppm
December 1, 2008 to January 1, 2009

Maximum Value: 6.52 ppm on Dec 17 09:00

Maximum Daily Average: 0.77 ppm on Dec 17

Minimum Value: 0.1 ppm on Dec 17 01:00

Minimum Daily Average: 0.18 ppm on Dec 11

Maximum Diurnal Average: 0.69 ppm at hour 9

Minimum Diurnal Average: 0.25 ppm at hour 5

Monthly Average: 0.404 ppm

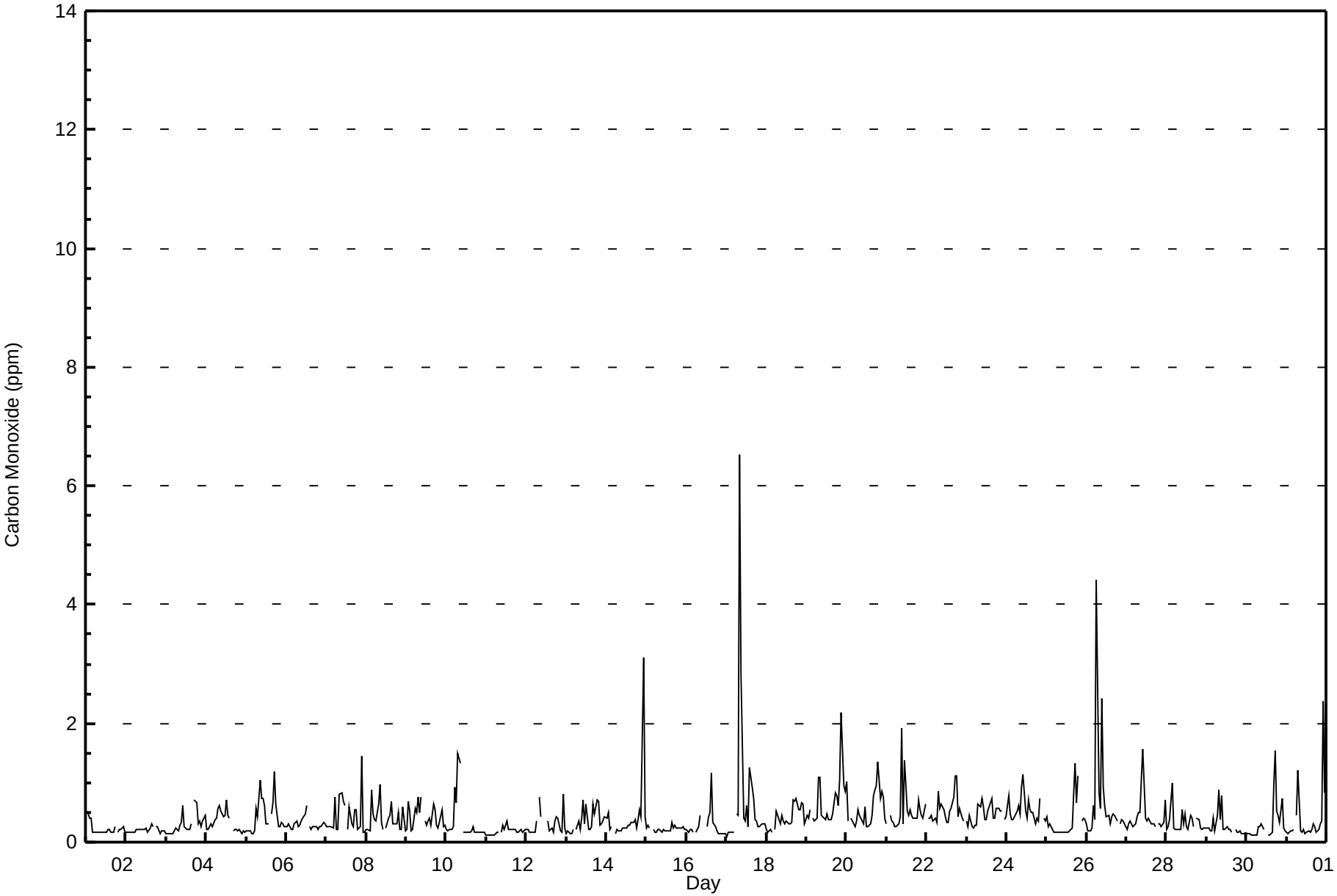
Percentiles: $P_1 = 0.12$ $P_{10} = 0.16$ $Q_1 = 0.20$ Median = 0.30 $Q_3 = 0.46$ $P_{90} = 0.73$ $P_{99} = 2.09$

Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	38
Percent Operational Time:	99.9

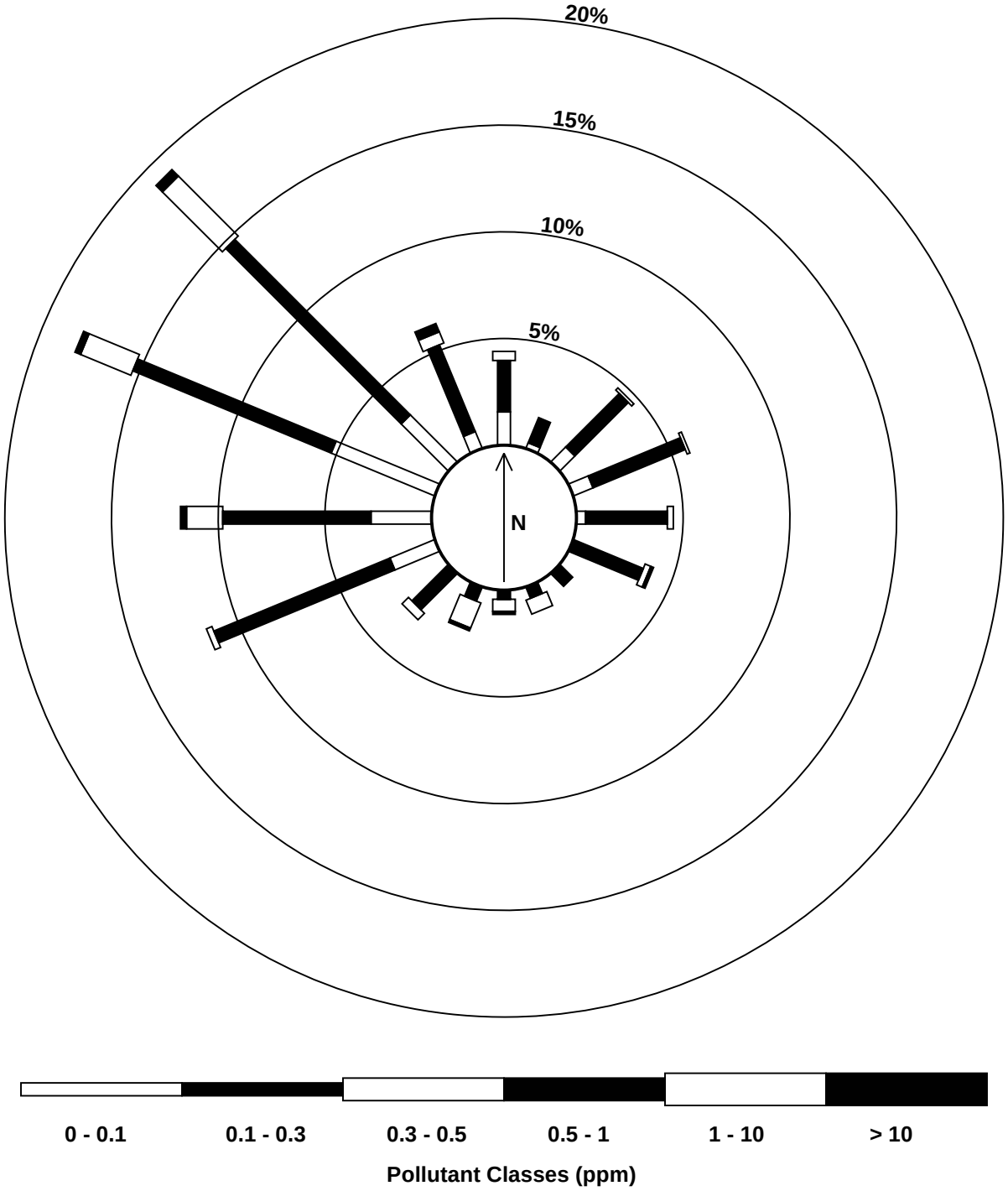
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0.5	0.5	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	A	0.2	0.2	0.2	0.3	0.2	0.23	0.52
2-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	A	0.3	0.3	0.2	0.2	0.2	0.2	0.20	0.31
3-Dec	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.6	0.3	0.2	0.2	0.2	0.3	A	0.7	0.7	0.3	0.4	0.3	0.4	0.5	0.30	0.71
4-Dec	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.6	0.6	0.5	0.4	0.5	0.7	0.5	0.4	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.34	0.71
5-Dec	0.2	0.2	0.2	0.1	0.1	0.2	0.6	0.4	1.0	0.7	0.7	0.6	0.3	0.3	A	0.5	0.7	1.2	0.6	0.3	0.3	0.3	0.3	0.3	0.44	1.18
6-Dec	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	A	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.30	0.62
7-Dec	0.3	0.3	0.3	0.3	0.2	0.8	0.2	0.2	0.8	0.8	0.7	0.6	A	0.2	0.6	0.3	0.3	0.6	0.5	0.2	0.3	1.4	0.2	0.2	0.44	1.44
8-Dec	0.2	0.2	0.2	0.9	0.5	0.4	0.4	0.6	1.0	0.3	0.2	A	0.2	0.4	0.5	0.7	0.3	0.3	0.3	0.5	0.2	0.2	0.6	0.2	0.40	0.98
9-Dec	0.2	0.7	0.5	0.2	0.2	0.6	0.5	0.8	0.5	0.8	A	0.3	0.3	0.3	0.4	0.3	0.6	0.5	0.3	0.2	0.3	0.5	0.3	0.3	0.42	0.76
10-Dec	0.2	0.2	0.2	0.2	0.3	0.9	0.7	1.5	1.3	A	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.35	1.50
11-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	A	0.2	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.18	0.36
12-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.4	A	0.8	0.4	A	A	A	0.3	0.2	0.2	0.2	0.4	0.4	0.4	0.2	0.2	0.8	0.2	0.31	0.80
13-Dec	0.1	0.2	0.2	0.2	0.2	A	0.2	0.4	0.2	0.4	0.7	0.3	0.6	0.2	0.2	0.3	0.6	0.5	0.7	0.7	0.3	0.3	0.4	0.4	0.36	0.72
14-Dec	0.4	0.5	0.2	0.3	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.2	0.4	0.5	0.4	3.1	0.4	0.43	3.10
15-Dec	0.2	0.3	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.22	0.32
16-Dec	0.2	0.2	0.2	0.2	0.2	A	0.2	0.3	0.5	C	C	A	0.3	0.4	0.5	1.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.29	1.16
17-Dec	0.1	0.2	0.2	0.2	0.2	A	0.5	0.5	6.5	2.9	0.4	0.3	0.6	0.3	1.2	0.9	0.7	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.77	6.52
18-Dec	0.2	0.2	0.2	0.2	A	0.2	0.5	0.5	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.7	0.7	0.7	0.6	0.6	0.7	0.6	0.3	0.41	0.74
19-Dec	0.5	0.4	0.6	A	0.4	0.3	0.4	1.1	1.1	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.8	0.8	0.6	1.0	2.2	1.0	0.9	0.67	2.19
20-Dec	1.0	0.4	A	0.4	0.3	0.3	0.4	0.5	0.5	0.4	0.3	0.6	0.3	0.3	0.3	0.5	0.8	0.9	1.0	1.4	0.7	0.9	0.8	0.4	0.56	1.36
21-Dec	0.3	A	0.5	0.4	0.3	0.3	0.3	0.3	0.4	1.9	0.3	1.4	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.7	0.6	0.5	0.4	0.6	0.53	1.91
22-Dec	A	0.4	0.4	0.4	0.3	0.4	0.3	0.9	0.6	0.6	0.6	0.4	0.3	0.3	0.5	0.6	0.8	1.1	1.1	0.4	0.6	0.4	0.4	A	0.54	1.12
23-Dec	0.4	0.3	0.4	0.3	0.2	0.3	0.3	0.6	0.6	0.7	0.6	0.4	0.4	0.5	0.7	0.7	0.4	0.4	0.6	0.6	0.5	0.5	A	0.4	0.47	0.74
24-Dec	0.4	0.8	0.5	0.4	0.4	0.4	0.5	0.6	0.5	0.9	1.1	0.5	0.4	0.7	0.6	0.5	0.5	0.3	0.4	0.4	0.7	A	0.4	0.4	0.53	1.14
25-Dec	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8	1.3	0.7	1.1	A	0.4	0.4	0.4	0.36	1.33
26-Dec	0.3	0.2	0.2	0.2	0.6	0.4	4.4	0.8	0.6	2.4	0.9	0.6	0.4	0.5	0.3	0.4	0.5	0.5	0.4	A	0.3	0.4	0.4	0.3	0.69	4.40
27-Dec	0.2	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.5	1.1	1.6	0.4	0.4	0.4	0.4	0.3	0.3	0.3	A	0.3	0.3	0.3	0.3	0.7	0.44	1.57
28-Dec	0.2	0.3	0.4	1.0	0.2	0.2	0.2	0.2	0.2	0.6	0.3	0.5	0.3	0.2	0.5	0.4	0.3	A	0.4	0.4	0.2	0.2	0.2	0.2	0.33	1.00
29-Dec	0.2	0.2	0.2	0.2	0.4	0.2	0.4	0.9	0.4	0.8	0.2	0.2	0.3	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.28	0.89
30-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.2	M	A	0.1	0.1	0.2	1.0	1.5	0.5	0.5	0.3	0.7	0.2	0.2	0.33	1.53
31-Dec	0.2	0.1	0.2	0.2	0.2	A	0.5	1.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.4	2.4	0.8	0.38	2.38
	0.28	0.28	0.27	0.29	0.25	0.30	0.46	0.51	0.69	0.67	0.45	0.40	0.34	0.30	0.36	0.39	0.44	0.52	0.44	0.40	0.35	0.44	0.52	0.33	Diurnal Average	
	1.03	0.78	0.56	1.00	0.61	0.92	4.40	1.50	6.52	2.86	1.57	1.38	0.71	0.71	1.25	1.16	0.96	1.53	1.12	1.36	1.03	2.19	3.10	0.86	Diurnal Maximum	

C - Calibration M - Maintenance A - Automated Daily Zero Span

Hourly Maximums for CO at Henry Pirker
December 2008



Pollutant Rose for CO at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Eight Hour Running Averages

Henry Pirker - Carbon Monoxide (CO) - ppm
December 1, 2008 to January 1, 2009

Number of Exceedences (AAAQO): 8-hr: 0
Maximum Value: 0.56 ppm on Dec 20 01:00

Minimum Value: 0.09 ppm on Dec 30 06:00

Percentiles: P_1 = 0.11 P_{10} = 0.14 Q_1 = 0.16 Median = 0.20 Q_3 = 0.29 P_{90} = 0.37 P_{99} = 0.54

Hours in Service:	744
Hours of Data:	730
Hours of Missing Data:	14
Hours of Calibration:	14
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Maximum
1-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.34
2-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17
3-Dec	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25
4-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.39
5-Dec	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.34
6-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.30
7-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.22
8-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19
9-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.27
10-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.31
11-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17
12-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	N	N	N	N	N	N	N	0.1	0.1	0.1	0.1	0.1	0.1	0.18
13-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.28
14-Dec	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.30
15-Dec	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.29
16-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	N	N	N	N	N	N	N	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.20
17-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25
18-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.40
19-Dec	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.54
20-Dec	0.6	0.5	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.56
21-Dec	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.53
22-Dec	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.48
23-Dec	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.43
24-Dec	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.40
25-Dec	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.33
26-Dec	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.47
27-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.36
28-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.21
29-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.19
30-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.23
31-Dec	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.24
Diurnal Maximums	0.56	0.54	0.55	0.52	0.46	0.39	0.35	0.37	0.37	0.40	0.44	0.47	0.47	0.47	0.42	0.40	0.39	0.44	0.46	0.46	0.48	0.54	0.56	0.56	

N - Not Valid
Alberta Ambient Air Quality Objectives (AAAQO): 8-hr 5 ppm

Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Total Hydrocarbons (THC) - ppm
December 1, 2008 to January 1, 2009

Maximum Value: 4.17 ppm on Dec 24 16:00

Maximum Daily Average: 3.71 ppm on Dec 24

Minimum Value: 1.7 ppm on Dec 1 05:00

Minimum Daily Average: 1.88 ppm on Dec 1

Maximum Diurnal Average: 2.46 ppm at hour 12

Minimum Diurnal Average: 2.34 ppm at hour 22

Monthly Average: 2.394 ppm

Percentiles: P_1 = 1.80 P_{10} = 1.93 Q_1 = 2.02 Median = 2.21 Q_3 = 2.53 P_{90} = 3.37 P_{99} = 3.90

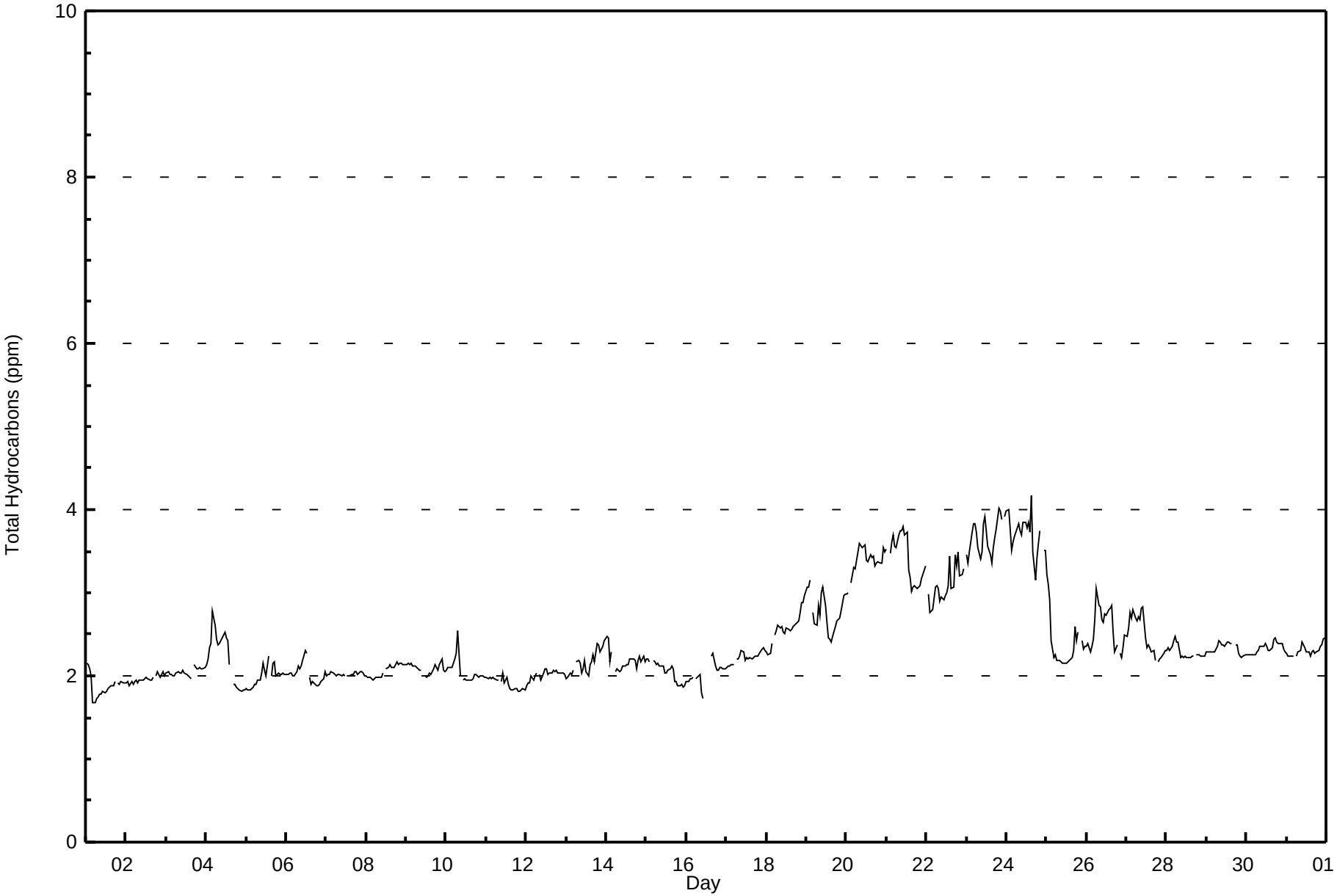
Hours in Service:	744
Hours of Data:	709
Hours of Missing Data:	35
Hours of Calibration:	35
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	2.2	2.1	2.1	2.0	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.88	2.16
2-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	1.96	2.05
3-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.04	2.14
4-Dec	2.1	2.2	2.3	2.4	2.8	2.6	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.1	A	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	2.22	2.78
5-Dec	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	1.9	2.0	2.1	2.1	2.0	2.2	A	2.0	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	1.99	2.24
6-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.3	A	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.02	2.30
7-Dec	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.02	2.05
8-Dec	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	A	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.06	2.17
9-Dec	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	A	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.09	2.20
10-Dec	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.5	2.0	A	1.9	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.05	2.54
11-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	1.9	2.0	1.9	2.0	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.91	2.04
12-Dec	1.9	1.9	1.9	2.0	1.9	2.0	2.0	A	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.01	2.08
13-Dec	2.0	2.0	2.0	2.0	2.1	A	2.2	2.2	2.2	2.0	2.1	2.2	2.1	2.0	2.1	2.2	2.2	2.2	2.4	2.4	2.3	2.3	2.4	2.4	2.17	2.43
14-Dec	2.5	2.5	2.2	2.3	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.18	2.47
15-Dec	2.2	2.2	2.2	A	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.06	2.21
16-Dec	1.9	1.9	2.0	2.0	2.0	A	2.0	2.0	2.0	1.8	1.7	C	C	C	A	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.02	2.27
17-Dec	2.1	2.1	2.1	2.1	2.1	A	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.22	2.33
18-Dec	2.3	2.3	2.3	2.4	A	2.5	2.5	2.6	2.6	2.6	2.5	2.5	2.6	2.6	2.5	2.6	2.6	2.6	2.6	2.7	2.8	2.9	2.9	3.0	2.58	2.96
19-Dec	3.1	3.1	3.2	A	2.8	2.6	2.6	2.8	2.7	3.0	3.1	2.9	2.6	2.5	2.4	2.4	2.5	2.6	2.7	2.7	2.7	2.8	3.0	3.0	2.76	3.15
20-Dec	3.0	3.0	A	3.1	3.3	3.3	3.4	3.5	3.6	3.5	3.6	3.6	3.4	3.4	3.5	3.4	3.4	3.3	3.4	3.4	3.4	3.4	3.5	3.5	3.38	3.60
21-Dec	3.5	A	3.5	3.6	3.7	3.6	3.5	3.7	3.7	3.8	3.8	3.7	3.7	3.3	3.2	3.0	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.41	3.80
22-Dec	A	3.0	2.8	2.8	2.8	3.1	3.1	3.0	2.9	3.0	2.9	3.0	3.0	3.1	3.4	3.0	3.1	3.5	3.3	3.5	3.2	3.2	3.3	A	3.09	3.49
23-Dec	3.5	3.4	3.5	3.7	3.8	3.8	3.7	3.5	3.4	3.5	3.8	3.9	3.8	3.6	3.5	3.4	3.5	3.7	3.8	4.0	4.0	3.9	A	3.9	3.67	4.02
24-Dec	4.0	4.0	3.8	3.5	3.6	3.7	3.8	3.8	3.7	3.7	3.8	3.8	3.8	3.9	3.7	4.2	3.5	3.2	3.4	3.6	3.7	A	3.5	3.5	3.71	4.17
25-Dec	3.2	3.1	2.9	2.4	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.6	2.4	2.5	A	2.4	2.3	2.4	2.38	3.22
26-Dec	2.3	2.4	2.3	2.4	2.4	2.7	3.0	2.8	2.8	2.7	2.6	2.7	2.7	2.8	2.8	2.9	2.5	2.3	2.4	A	2.3	2.2	2.3	2.5	2.56	3.05
27-Dec	2.5	2.6	2.8	2.7	2.8	2.7	2.7	2.7	2.7	2.8	2.8	2.5	2.3	2.4	2.3	2.3	2.3	2.2	A	2.2	2.2	2.2	2.3	2.3	2.49	2.83
28-Dec	2.3	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	A	2.2	2.3	2.2	2.2	2.2	2.2	2.28	2.47
29-Dec	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	A	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.33	2.43
30-Dec	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.33	2.46
31-Dec	2.3	2.2	2.2	2.2	2.2	A	2.2	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.31	2.46
	2.38	2.36	2.36	2.37	2.39	2.44	2.41	2.45	2.42	2.42	2.45	2.46	2.43	2.40	2.39	2.37	2.37	2.38	2.38	2.38	2.38	2.34	2.35	2.38	Diurnal Average	
	3.98	4.00	3.77	3.73	3.84	3.83	3.77	3.83	3.75	3.75	3.85	3.92	3.78	3.85	3.73	4.17	3.53	3.66	3.77	4.02	3.99	3.89	3.55	3.91	Diurnal Maximum	

C - Calibration

A - Automated Daily Zero Span

Hourly Averages for THC at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Henry Pirker - Total Hydrocarbons (THC) - ppm
December 1, 2008 to January 1, 2009

Maximum Value: 5.73 ppm on Dec 24 16:00

Maximum Daily Average: 3.99 ppm on Dec 24

Minimum Value: 1.7 ppm on Dec 1 06:00

Minimum Daily Average: 1.94 ppm on Dec 1

Maximum Diurnal Average: 2.63 ppm at hour 9

Minimum Diurnal Average: 2.41 ppm at hour 22

Monthly Average: 2.505 ppm

Percentiles: P_1 = 1.83 P_{10} = 1.98 Q_1 = 2.08 Median = 2.28 Q_3 = 2.69 P_{90} = 3.54 P_{99} = 4.17

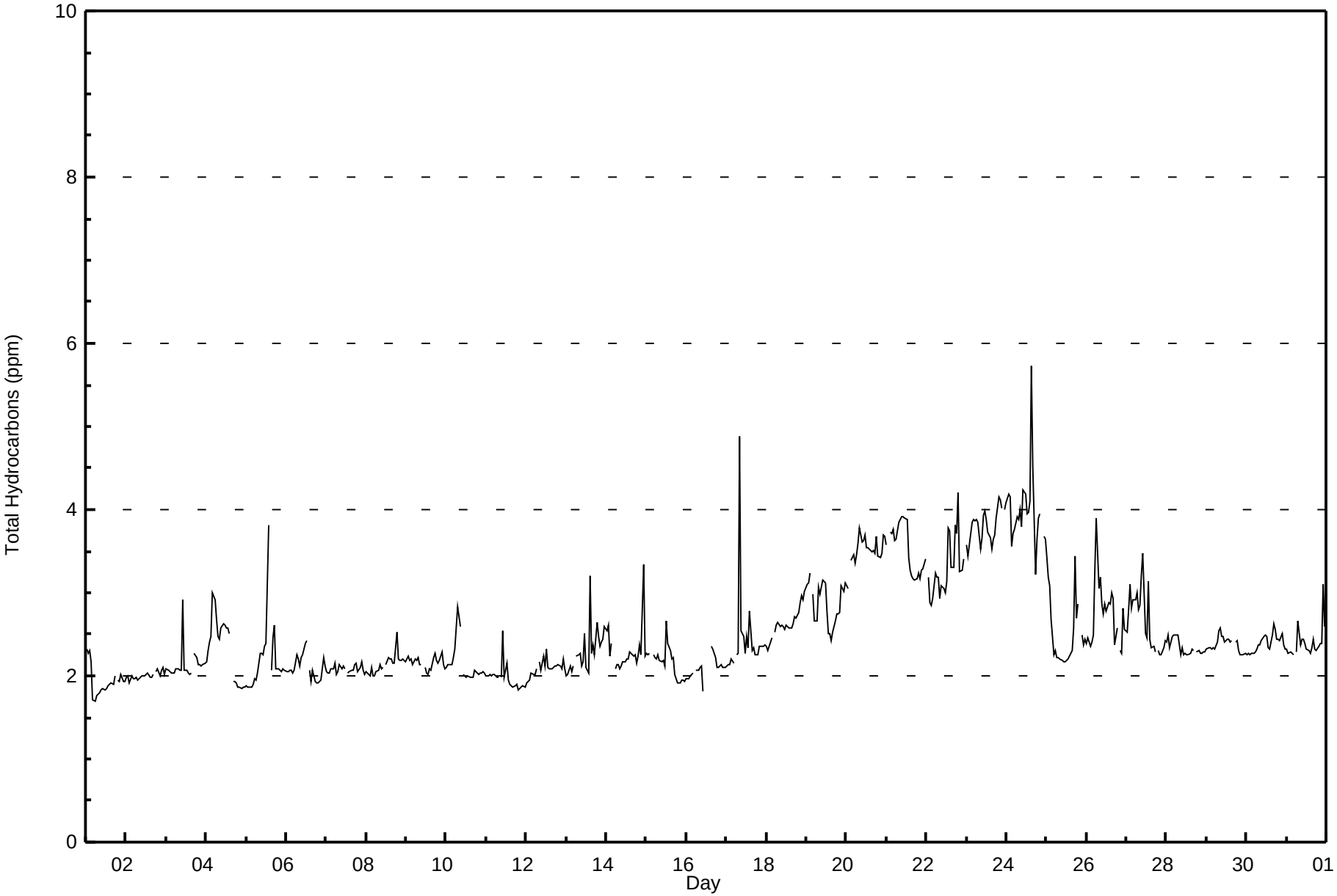
Hours in Service:	744
Hours of Data:	709
Hours of Missing Data:	35
Hours of Calibration:	35
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	2.3	2.3	2.3	2.2	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	A	1.9	1.9	2.0	1.9	1.9	1.94	2.32
2-Dec	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.1	2.1	2.0	2.1	2.1	2.0	2.00	2.11
3-Dec	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.9	2.1	2.1	2.0	2.0	2.0	A	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.13	2.91
4-Dec	2.2	2.3	2.4	2.5	3.0	2.9	2.7	2.5	2.4	2.6	2.6	2.6	2.6	2.6	2.5	A	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	2.32	3.01
5-Dec	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.3	2.3	2.3	2.4	2.4	3.8	A	2.1	2.5	2.6	2.1	2.1	2.1	2.0	2.1	2.1	2.19	3.82
6-Dec	2.0	2.1	2.1	2.1	2.0	2.1	2.3	2.2	2.1	2.2	2.3	2.4	2.4	A	2.1	1.9	2.1	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.10	2.42
7-Dec	2.0	2.0	2.0	2.1	2.1	2.2	2.0	2.1	2.1	2.1	2.1	2.1	A	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.0	2.08	2.17
8-Dec	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	A	2.1	2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.2	2.2	2.14	2.52
9-Dec	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.1	A	2.1	2.0	2.0	2.1	2.1	2.2	2.3	2.2	2.2	2.2	2.3	2.1	2.1	2.16	2.28
10-Dec	2.1	2.1	2.1	2.1	2.2	2.3	2.6	2.8	2.6	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.14	2.83
11-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.5	2.0	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.97	2.55
12-Dec	1.9	1.9	1.9	2.0	2.0	2.0	2.1	A	2.2	2.1	2.2	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.09	2.32
13-Dec	2.0	2.0	2.1	2.1	2.1	A	2.2	2.2	2.3	2.1	2.2	2.5	2.1	2.0	3.2	2.3	2.4	2.3	2.6	2.5	2.3	2.4	2.4	2.6	2.30	3.20
14-Dec	2.5	2.6	2.2	2.4	A	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.1	2.2	2.4	2.3	3.3	2.2	2.29	3.34
15-Dec	2.3	2.3	2.3	A	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.7	2.4	2.3	2.2	2.2	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.17	2.66
16-Dec	2.0	2.0	2.0	2.0	2.0	A	2.1	2.1	2.1	2.1	1.8	C	C	C	A	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.09	2.35
17-Dec	2.1	2.1	2.1	2.2	2.2	A	2.3	2.3	4.9	2.5	2.5	2.3	2.5	2.3	2.8	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.43	4.89
18-Dec	2.4	2.3	2.4	2.5	A	2.5	2.6	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.8	2.9	3.0	2.9	3.0	2.63	3.02
19-Dec	3.1	3.1	3.2	A	3.0	2.7	2.7	3.1	3.0	3.1	3.2	3.1	2.8	2.5	2.5	2.4	2.5	2.7	2.7	2.7	2.8	3.1	3.0	3.1	2.87	3.23
20-Dec	3.1	3.1	A	3.4	3.5	3.4	3.5	3.6	3.8	3.6	3.6	3.7	3.5	3.5	3.5	3.5	3.5	3.5	3.7	3.4	3.4	3.5	3.7	3.7	3.50	3.77
21-Dec	3.6	A	3.7	3.7	3.8	3.6	3.7	3.8	3.9	3.9	3.9	3.9	3.9	3.4	3.3	3.2	3.2	3.1	3.2	3.2	3.2	3.3	3.3	3.4	3.53	3.92
22-Dec	A	3.2	2.9	2.8	2.9	3.2	3.2	3.2	2.9	3.1	3.1	3.0	3.1	3.8	3.7	3.3	3.3	3.8	3.7	4.2	3.2	3.3	3.4	A	3.29	4.20
23-Dec	3.6	3.4	3.6	3.8	3.9	3.9	3.9	3.8	3.5	3.7	3.9	4.0	3.9	3.7	3.7	3.5	3.6	3.7	3.9	4.1	4.1	4.0	A	4.0	3.80	4.14
24-Dec	4.1	4.2	4.2	3.6	3.7	3.8	3.9	3.9	4.0	3.8	4.2	4.2	3.9	4.0	4.1	5.7	4.5	3.2	3.6	3.9	4.0	A	3.7	3.6	3.99	5.73
25-Dec	3.4	3.2	3.1	2.7	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.6	3.4	2.7	2.9	A	2.5	2.4	2.4	2.52	3.44
26-Dec	2.4	2.5	2.3	2.4	2.5	3.2	3.9	3.1	3.2	2.9	2.7	2.9	2.8	2.9	2.9	3.0	2.9	2.4	2.6	A	2.3	2.3	2.8	2.6	2.75	3.90
27-Dec	2.5	2.8	3.1	2.8	2.9	2.9	3.0	2.8	2.8	3.2	3.5	2.5	2.5	3.1	2.4	2.3	2.3	2.3	A	2.3	2.3	2.3	2.3	2.4	2.67	3.47
28-Dec	2.4	2.5	2.3	2.5	2.5	2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	A	2.3	2.3	2.3	2.3	2.3	2.3	2.34	2.49
29-Dec	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4	A	2.4	2.4	2.3	2.3	2.2	2.2	2.3	2.38	2.57
30-Dec	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.3	2.3	2.5	2.6	2.6	2.4	2.4	2.4	2.5	2.4	2.3	2.39	2.62
31-Dec	2.3	2.3	2.3	2.3	2.3	A	2.3	2.7	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.4	2.4	3.1	2.6	2.40	3.09
	2.44	2.43	2.45	2.45	2.46	2.53	2.53	2.56	2.63	2.53	2.61	2.56	2.55	2.58	2.54	2.50	2.51	2.50	2.50	2.48	2.43	2.41	2.49	2.45	Diurnal Average	
	4.09	4.18	4.15	3.84	3.89	3.87	3.91	3.89	4.89	3.92	4.24	4.19	3.95	3.97	4.10	5.73	4.53	3.81	3.91	4.20	4.12	4.02	3.69	4.01	Diurnal Maximum	

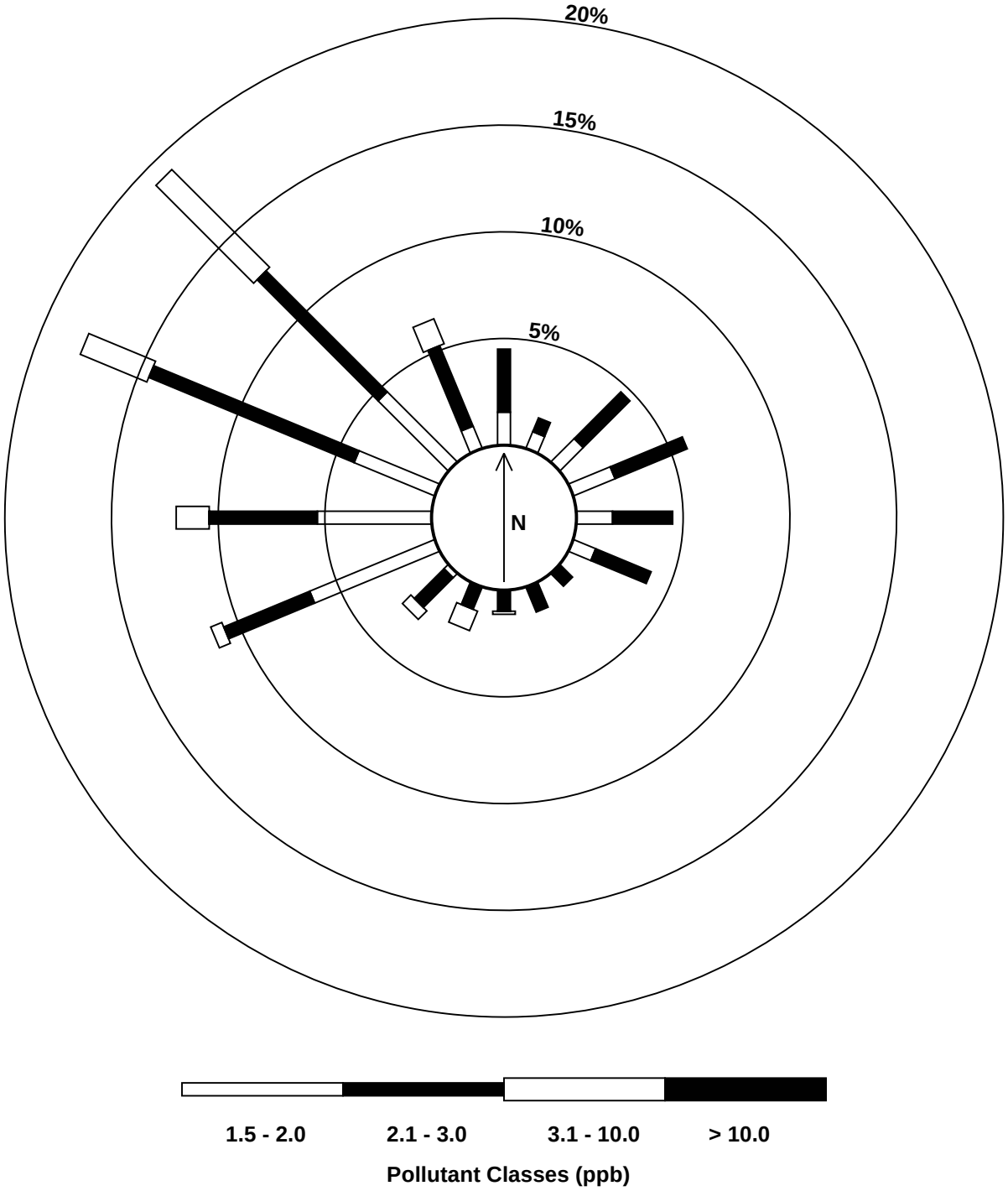
C - Calibration

A - Automated Daily Zero Span

Hourly Maximums for THC at Henry Pirker
December 2008



Pollutant Rose for THC at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker - Particulate Matter 2.5 ($PM_{2.5}$) - $\mu g/m^3$
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0

Maximum Value: 23.0 $\mu g/m^3$ on Dec 22 18:00

Maximum Daily Average: 8.4 $\mu g/m^3$ on Dec 19

Minimum Value: 0 $\mu g/m^3$ on Dec 1 05:00

Minimum Daily Average: 0.1 $\mu g/m^3$ on Dec 11

Maximum Diurnal Average: 4.7 $\mu g/m^3$ at hour 18

Minimum Diurnal Average: 2.4 $\mu g/m^3$ at hour 5

Monthly Average: 3.53 $\mu g/m^3$

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 1.0 Median = 2.7 Q_3 = 5.3 P_{90} = 7.8 P_{99} = 14.7

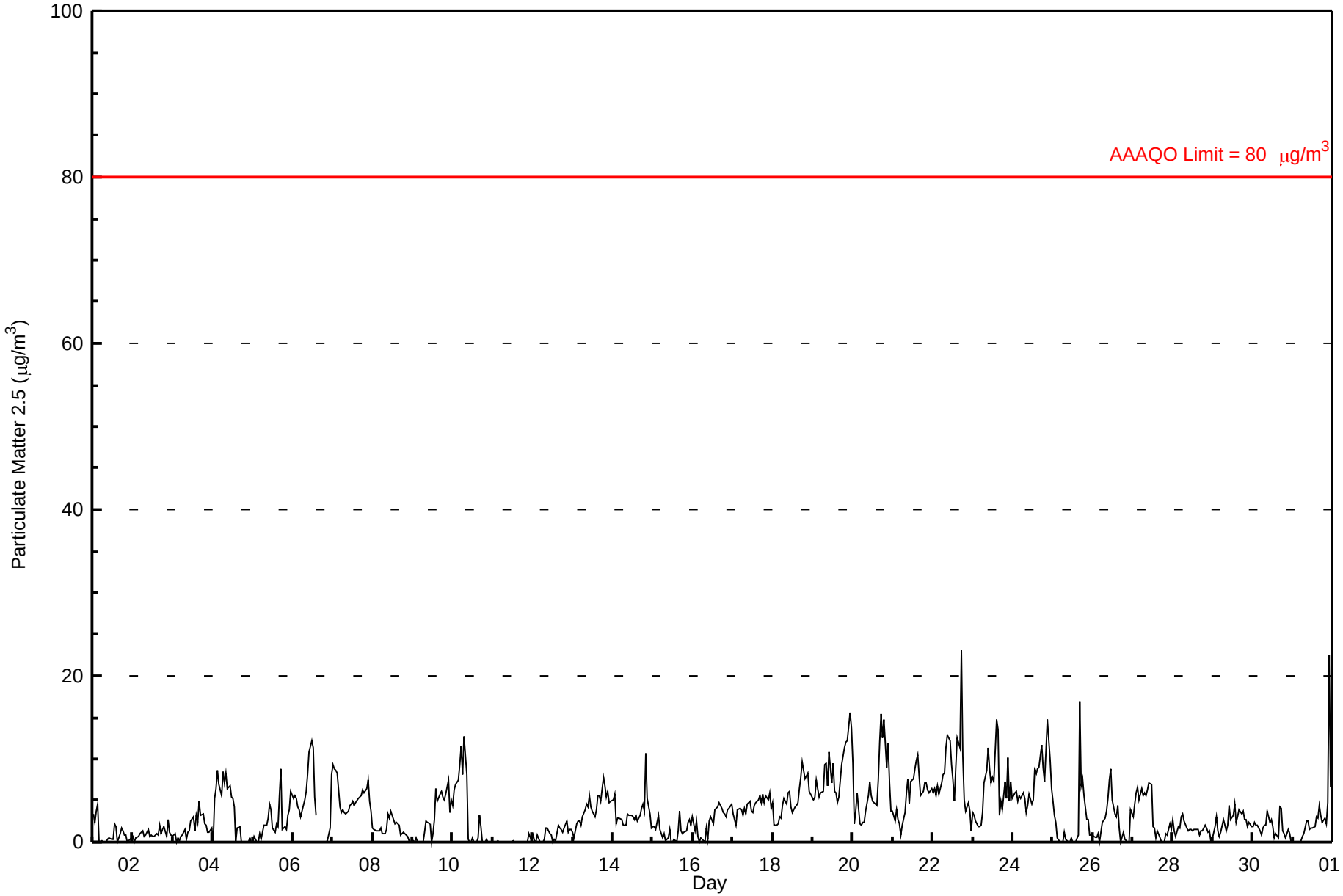
Hours in Service:	744
Hours of Data:	743
Hours of Missing Data:	1
Hours of Calibration:	0
Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	3	2	4	5	0	0	0	0	0	0	1	0	0	2	2	0	1	2	1	1	1	0	0	0	1.1	4.6
2-Dec	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	1	3	1	1	1.0	2.7
3-Dec	1	1	0	0	0	1	1	1	0	1	1	3	3	1	3	2	5	3	3	2	2	1	1	2	1.7	4.8
4-Dec	0	5	6	9	7	6	8	7	8	6	7	5	5	4	0	2	2	0	0	0	0	0	0	0	3.7	8.6
5-Dec	0	1	0	0	1	0	1	2	2	3	5	4	2	1	2	2	6	9	1	2	2	3	4	6	2.4	8.8
6-Dec	5	6	5	4	4	3	4	5	6	8	11	12	11	5	3	BD	0	0	0	0	0	0	2	8	4.5	12.1
7-Dec	9	9	9	8	4	4	4	4	3	4	4	4	5	4	5	5	5	6	6	6	6	7	5	4	5.5	9.4
8-Dec	2	2	1	1	1	2	1	1	2	3	3	4	3	2	2	2	2	1	1	1	1	1	0	0	1.6	3.7
9-Dec	0	0	0	0	0	0	0	1	3	2	2	0	1	3	6	5	6	6	5	5	6	8	4	5	2.8	7.5
10-Dec	4	6	7	8	9	12	8	13	8	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3.4	12.7
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.1	1.1
12-Dec	1	0	0	1	0	0	0	0	2	2	1	1	0	0	0	2	2	2	1	2	2	1	2	2	1.0	2.5
13-Dec	1	1	2	2	2	2	3	4	5	4	6	4	4	3	4	6	6	5	8	7	5	6	5	5	4.1	7.9
14-Dec	5	6	2	3	3	3	2	2	2	3	3	3	3	3	3	3	3	4	5	4	11	5	3	2	3.6	10.6
15-Dec	2	2	2	3	2	1	0	1	0	1	2	0	0	0	0	1	4	1	1	1	1	2	3	2	1.4	3.8
16-Dec	3	1	2	1	0	0	0	0	2	0	3	3	2	4	4	4	5	4	4	3	3	4	4	5	2.6	4.8
17-Dec	3	3	2	4	4	4	3	4	3	5	5	4	4	4	5	5	6	5	6	5	6	5	6	4	4.3	5.9
18-Dec	5	2	2	2	3	3	4	5	5	6	6	4	3	4	4	5	6	8	10	8	8	8	6	6	5.2	9.7
19-Dec	5	5	8	6	5	6	6	9	10	7	11	7	10	6	6	5	5	9	10	11	12	12	16	14	8.4	15.7
20-Dec	9	2	4	6	2	2	2	2	4	6	7	6	5	5	4	8	12	15	13	15	9	12	7	4	6.7	15.4
21-Dec	4	3	4	3	2	1	2	4	6	8	5	7	8	9	10	10	8	6	6	7	7	6	6	6	5.7	10.4
22-Dec	6	6	6	7	6	7	8	8	11	13	12	9	8	5	9	13	11	23	10	5	4	5	4	1	8.2	23.0
23-Dec	4	3	3	2	2	2	4	7	9	11	9	7	8	7	15	14	3	5	4	7	5	10	5	7	6.3	14.8
24-Dec	5	6	6	5	6	5	6	5	4	4	6	4	5	9	8	9	9	12	9	7	11	15	10	6	7.2	14.7
25-Dec	5	3	2	0	0	0	0	1	0	0	0	0	0	0	0	1	17	7	8	6	3	3	1	1	2.4	16.9
26-Dec	1	1	1	1	0	1	2	3	4	5	8	9	5	3	3	4	2	0	1	0	0	0	0	4	2.4	8.8
27-Dec	3	5	6	7	5	6	6	6	6	6	7	7	2	2	0	1	1	0	0	0	1	1	2	1	3.4	7.1
28-Dec	3	1	1	2	2	3	3	3	2	1	2	2	1	1	2	1	1	1	1	2	2	1	1	0	1.6	3.5
29-Dec	0	2	3	1	1	1	3	2	1	2	4	3	3	5	2	3	4	3	4	3	3	2	2	2	2.5	4.5
30-Dec	2	2	2	2	1	1	2	2	2	4	2	3	2	1	1	0	4	4	1	1	1	2	1	0	1.8	4.3
31-Dec	0	0	0	0	0	0	1	1	3	3	2	2	2	2	3	3	4	3	2	3	2	5	23	7	2.9	22.6
	3.0	2.8	2.9	3.0	2.4	2.5	2.8	3.4	3.6	3.9	4.3	3.8	3.4	3.2	3.5	3.9	4.7	4.7	4.0	3.7	3.7	4.1	4.0	3.4	Diurnal Average	
	9.5	8.9	8.7	8.6	9.3	11.5	8.5	12.7	11.3	12.8	12.2	12.1	11.3	8.8	14.8	13.5	16.9	23.0	12.6	14.8	12.1	14.7	22.6	13.7	Diurnal Maximum	

BD - Baseline Drift

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 $\mu g/m^3$ 24-hr 30 $\mu g/m^3$

Hourly Averages for $PM_{2.5}$ at Henry Pirker
December 2008



Maximum Value: 63.1 $\mu g/m^3$ on Dec 31 23:00

Maximum Daily Average: 12.1 $\mu g/m^3$ on Dec 22

Minimum Value: 0 $\mu g/m^3$ on Dec 4 18:00

Maximum Diurnal Average: 8.9 $\mu g/m^3$ at hour 18

Monthly Average: 6.35 $\mu g/m^3$

Minimum Daily Average: 1.4 $\mu g/m^3$ on Dec 11

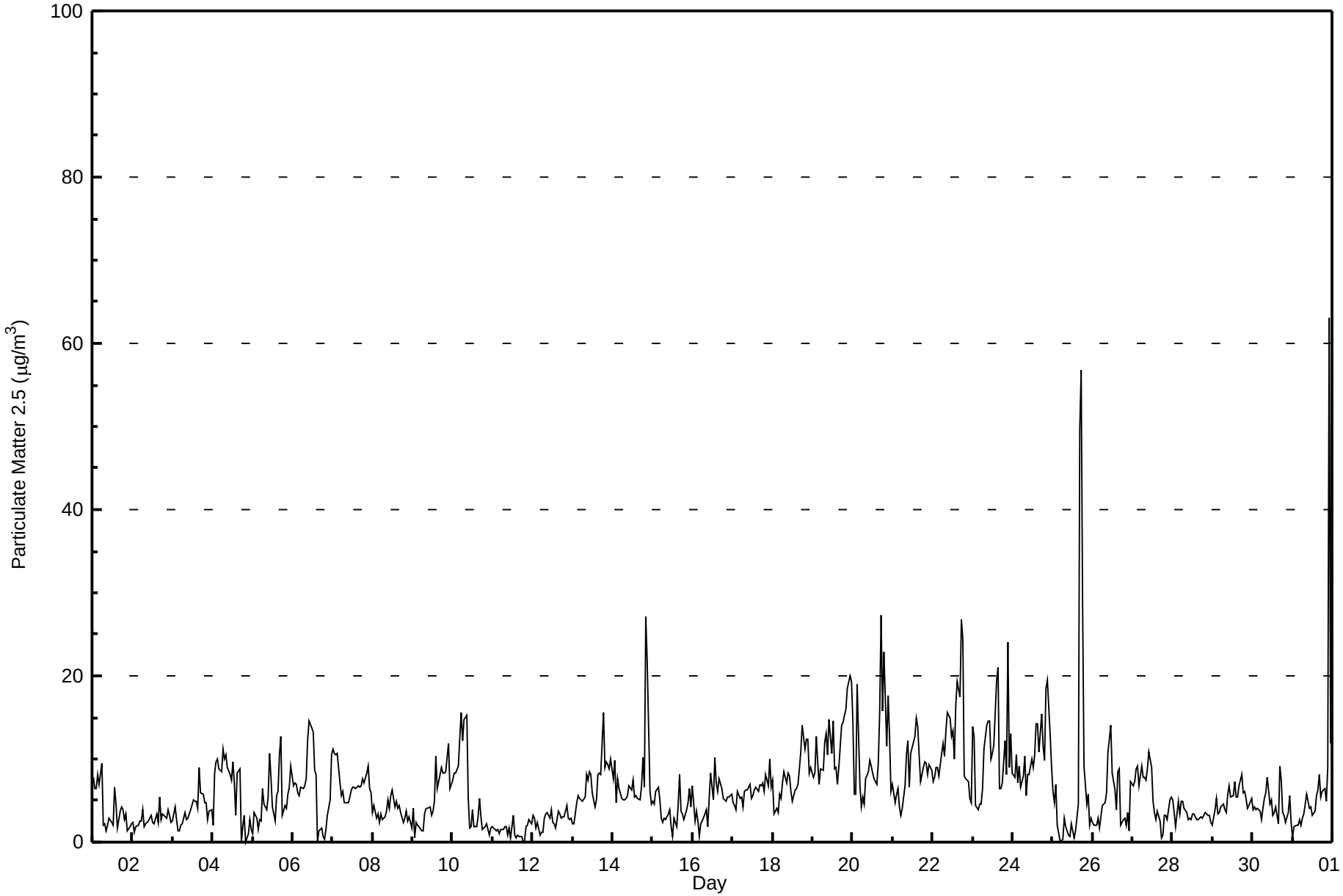
Minimum Diurnal Average: 4.6 $\mu g/m^3$ at hour 5

Percentiles: $P_1 = 0.3$ $P_{10} = 1.9$ $Q_1 = 3.0$ Median = 5.3 $Q_3 = 8.2$ $P_{90} = 11.9$ $P_{99} = 26.4$

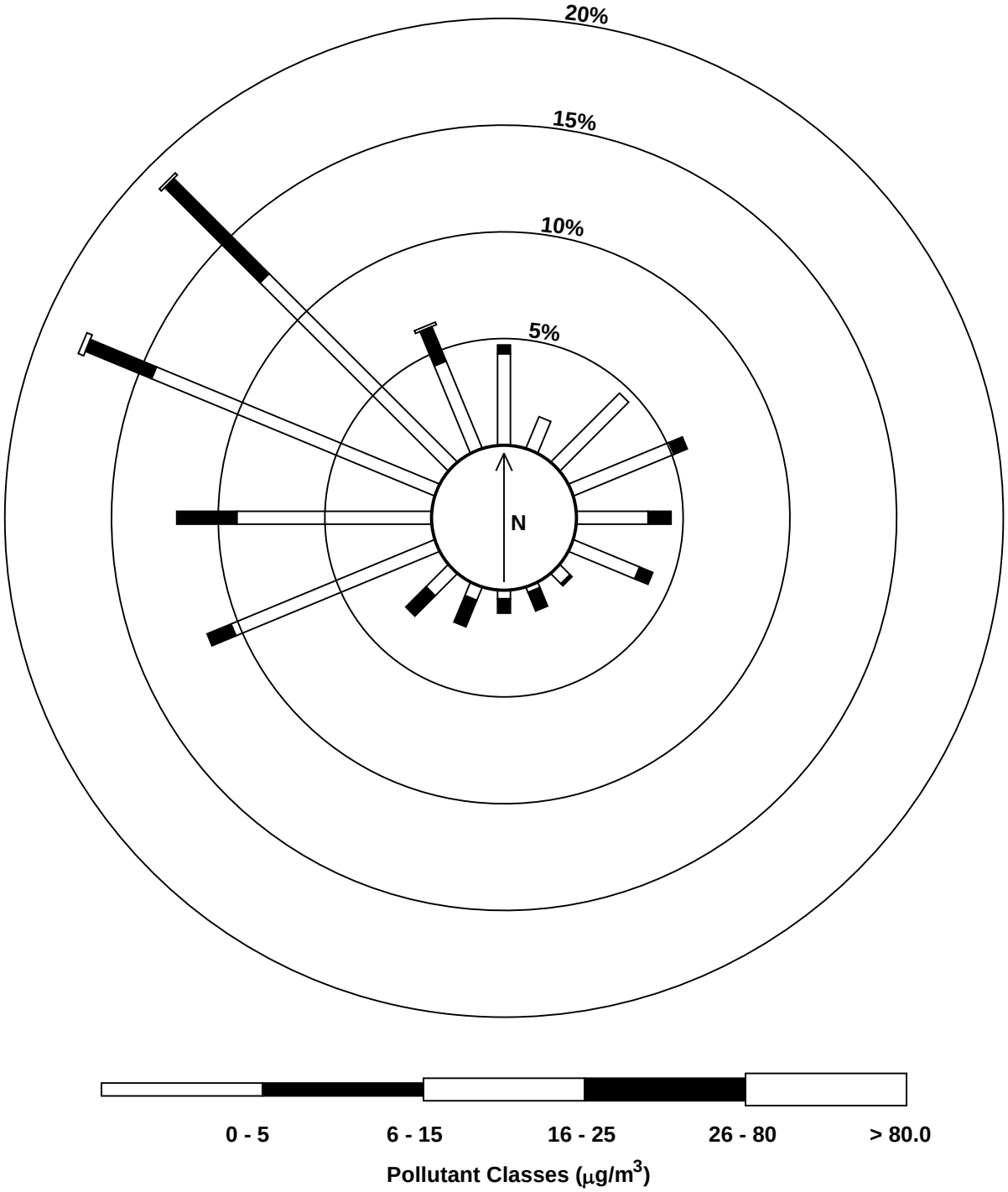
Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Dec	8	6	7	8	7	9	2	2	1	2	3	2	2	7	5	2	4	4	4	3	3	1	2	2	4.0	9.5
2-Dec	2	1	2	2	3	3	4	2	2	3	3	3	2	2	3	2	5	3	3	3	3	4	3	2	2.8	5.5
3-Dec	3	4	3	1	1	2	2	4	3	3	3	4	5	5	5	4	9	6	6	5	5	3	4	4	3.9	9.0
4-Dec	2	8	10	10	9	8	11	10	11	9	8	8	10	7	3	8	9	0	2	3	0	1	3	2	6.3	11.2
5-Dec	1	3	3	2	3	3	6	5	4	5	11	8	4	3	6	6	11	13	3	4	4	6	7	9	5.3	12.8
6-Dec	7	7	7	6	6	7	6	7	8	12	15	14	13	9	8	0	1	2	1	0	1	3	5	11	6.5	14.7
7-Dec	11	11	11	11	7	6	6	5	5	5	5	6	7	7	6	7	7	7	8	7	8	9	6	6	7.2	11.3
8-Dec	4	4	3	3	2	3	3	3	4	5	4	6	6	4	5	4	4	4	2	3	4	3	3	2	3.7	6.3
9-Dec	4	0	2	2	2	1	1	3	4	4	4	3	4	5	10	6	8	9	8	8	9	12	6	7	5.2	11.9
10-Dec	7	8	8	9	13	16	12	15	15	5	2	2	4	2	2	3	5	3	2	2	2	1	1	2	5.9	15.6
11-Dec	2	2	1	2	1	1	2	2	2	1	2	0	3	1	0	1	1	1	0	0	2	2	3	2	1.4	3.2
12-Dec	3	3	2	2	1	1	1	3	3	3	3	4	2	2	2	4	3	3	3	3	4	3	3	3	2.7	4.5
13-Dec	2	2	5	6	5	5	5	5	8	7	8	8	6	4	5	8	8	8	16	9	10	9	9	10	7.1	15.5
14-Dec	8	10	5	8	6	5	5	5	5	6	7	6	7	5	6	5	5	7	10	7	27	22	6	5	7.8	27.1
15-Dec	5	4	6	7	5	3	2	3	3	3	4	2	1	3	2	5	8	4	3	3	4	5	6	4	3.9	8.1
16-Dec	7	3	4	3	1	2	3	3	4	2	5	8	5	10	7	6	8	6	5	5	5	5	5	6	4.9	10.2
17-Dec	5	4	4	6	5	5	4	6	6	6	7	5	6	6	7	6	7	7	7	6	8	7	10	7	6.2	10.1
18-Dec	7	3	4	4	6	5	7	9	7	8	8	6	5	6	6	7	9	11	14	11	12	12	8	9	7.8	14.1
19-Dec	8	8	13	10	7	9	9	12	13	11	15	11	15	9	9	7	9	14	14	15	16	18	20	19	12.1	20.0
20-Dec	14	6	6	19	7	4	5	5	8	9	10	9	8	8	7	9	16	27	16	23	11	18	13	6	10.9	27.3
21-Dec	7	5	6	6	4	3	4	7	11	12	7	11	12	13	15	14	11	7	9	10	10	8	9	9	8.7	14.8
22-Dec	7	8	9	9	8	11	12	10	13	16	15	13	13	10	17	19	17	27	24	8	8	7	5	5	12.1	26.7
23-Dec	14	13	4	4	5	5	6	11	14	15	15	10	11	12	19	21	6	6	7	12	8	24	9	13	11.0	24.0
24-Dec	8	8	11	7	9	7	8	10	6	8	8	10	9	10	14	14	11	15	12	10	18	20	13	9	10.6	19.5
25-Dec	6	5	7	2	0	0	0	3	2	1	1	2	1	1	1	5	50	57	29	9	5	6	2	3	8.2	56.8
26-Dec	2	2	2	3	2	3	4	5	6	11	12	14	8	6	4	9	9	2	3	3	2	4	1	7	5.2	14.0
27-Dec	7	7	9	9	7	9	8	8	7	9	11	9	5	4	3	4	3	0	1	3	3	3	5	5	5.7	10.9
28-Dec	5	4	2	5	3	5	5	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3.4	5.1
29-Dec	2	4	5	3	4	4	5	4	4	6	7	5	6	7	5	5	7	8	6	6	5	4	4	5	5.1	8.2
30-Dec	4	4	4	4	4	3	4	5	6	8	5	5	3	3	4	2	9	7	4	3	2	4	6	2	4.4	9.1
31-Dec	1	2	2	2	3	2	3	3	6	5	4	4	3	4	6	6	8	5	6	6	5	9	63	12	7.1	63.1
	5.6	5.2	5.3	5.6	4.6	4.9	5.1	5.8	6.2	6.5	6.9	6.5	6.2	5.7	6.3	6.5	8.7	8.9	7.4	6.3	6.7	7.6	7.9	6.1	Diurnal Average	
	14.3	12.7	12.7	18.9	12.5	15.6	12.2	14.7	15.3	15.6	14.8	14.0	14.5	12.8	19.5	21.1	49.7	56.8	28.8	22.9	27.1	24.0	63.1	19.3	Diurnal Maximum	

Hourly Maximums for $PM_{2.5}$ at Henry Pirker
December 2008



Pollutant Rose for $PM_{2.5}$ at Henry Pirker
December 2008



Maximum Value: 158.0 W/m^2 on Dec 1 13:00

Maximum Daily Average: 23.1 W/m^2 on Dec 14

Minimum Value: 0 W/m^2 on Dec 1 01:00

Maximum Diurnal Average: 86.0 W/m^2 at hour 14

Monthly Average: 15.11 W/m^2

Minimum Daily Average: 7.2 W/m^2 on Dec 12

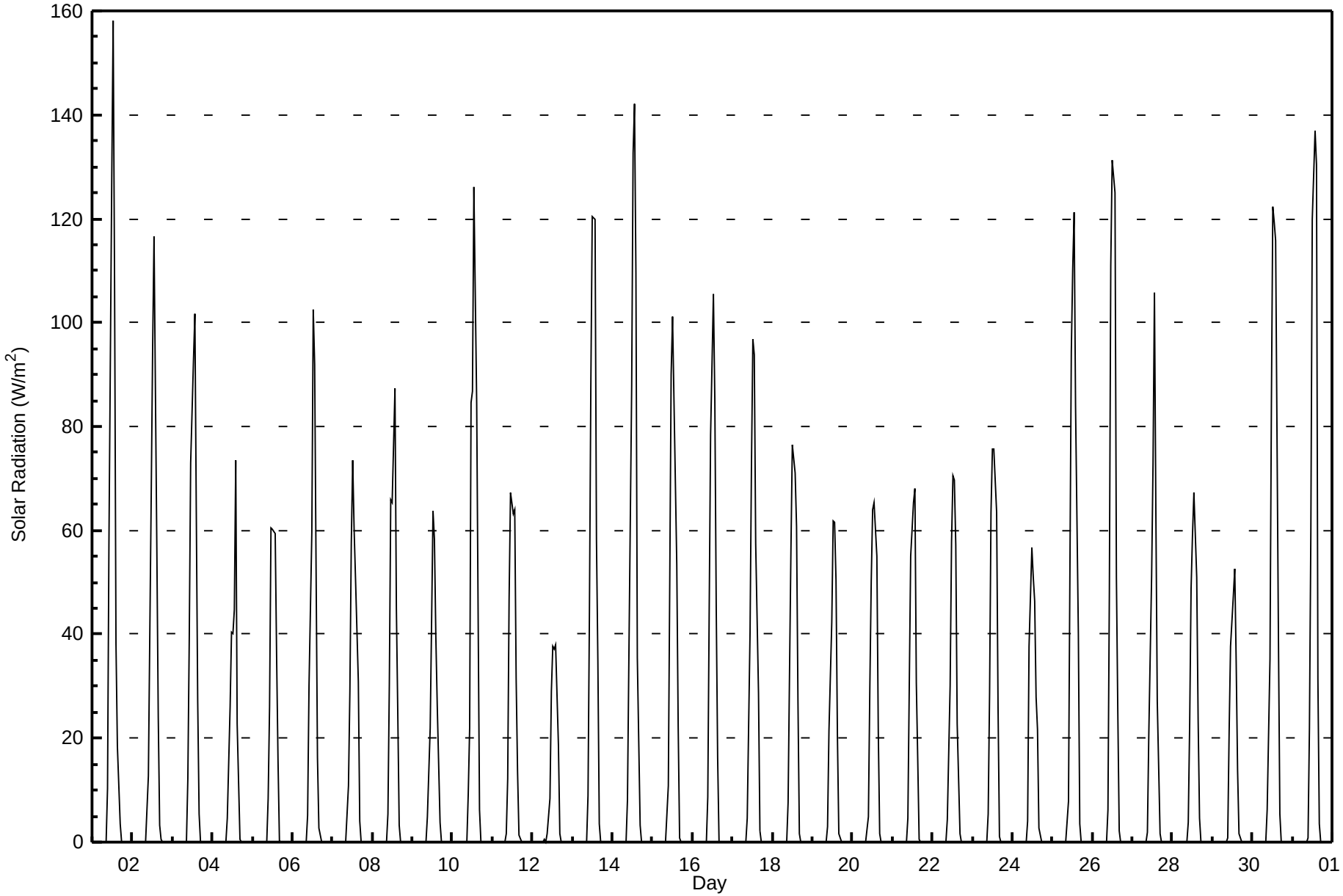
Minimum Diurnal Average: 0.0 W/m^2 at hour 1

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.0 Median = 0.0 Q_3 = 12.3 P_{90} = 60.3 P_{99} = 124.8

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Dec	0	0	0	0	0	0	0	0	0	10	58	128	158	107	38	18	4	0	0	0	0	0	0	0	21.7	158.0
2-Dec	0	0	0	0	0	0	0	0	0	13	40	66	95	117	56	24	3	1	0	0	0	0	0	0	17.3	116.6
3-Dec	0	0	0	0	0	0	0	0	0	12	39	73	93	102	63	27	5	0	0	0	0	0	0	0	17.3	101.7
4-Dec	0	0	0	0	0	0	0	0	0	5	26	40	40	45	74	23	0	0	0	0	0	0	0	0	10.5	73.5
5-Dec	0	0	0	0	0	0	0	0	0	8	26	61	60	59	36	16	0	0	0	0	0	0	0	0	11.1	60.5
6-Dec	0	0	0	0	0	0	0	0	0	5	30	60	103	92	53	16	3	0	0	0	0	0	0	0	15.1	102.6
7-Dec	0	0	0	0	0	0	0	0	0	11	29	57	74	60	51	31	4	0	0	0	0	0	0	0	13.2	73.6
8-Dec	0	0	0	0	0	0	0	0	0	5	30	66	65	87	45	25	3	0	0	0	0	0	0	0	13.6	87.3
9-Dec	0	0	0	0	0	0	0	0	0	5	22	43	64	58	40	26	4	0	0	0	0	0	0	0	10.9	63.7
10-Dec	0	0	0	0	0	0	0	0	0	9	22	84	87	126	84	44	6	0	0	0	0	0	0	0	19.3	126.2
11-Dec	0	0	0	0	0	0	0	0	2	12	47	67	63	64	31	14	1	0	0	0	0	0	0	0	12.6	67.2
12-Dec	0	0	0	0	0	0	0	1	0	2	8	29	38	37	38	19	2	0	0	0	0	0	0	0	7.2	38.0
13-Dec	0	0	0	0	0	0	0	0	0	9	44	88	120	120	58	35	4	0	0	0	0	0	0	0	19.9	120.4
14-Dec	0	0	0	0	0	0	0	0	0	8	35	88	132	142	109	36	3	0	0	0	0	0	0	0	23.1	142.0
15-Dec	0	0	0	0	0	0	0	0	0	11	49	90	101	85	53	22	1	0	0	0	0	0	0	0	17.2	101.1
16-Dec	0	0	0	0	0	0	0	0	0	9	45	78	105	85	45	16	0	0	0	0	0	0	0	0	16.0	105.5
17-Dec	0	0	0	0	0	0	0	0	0	5	40	72	97	94	58	29	2	0	0	0	0	0	0	0	16.5	96.8
18-Dec	0	0	0	0	0	0	0	0	0	8	32	56	77	71	61	27	2	0	0	0	0	0	0	0	13.9	76.5
19-Dec	0	0	0	0	0	0	0	0	0	3	22	42	62	62	51	20	2	0	0	0	0	0	0	0	11.0	61.9
20-Dec	0	0	0	0	0	0	0	0	0	5	30	50	64	65	55	21	2	0	0	0	0	0	0	0	12.2	65.4
21-Dec	0	0	0	0	0	0	0	0	0	5	30	55	65	68	31	16	1	0	0	0	0	0	0	0	11.3	68.1
22-Dec	0	0	0	0	0	0	0	0	0	4	30	58	71	70	57	23	2	0	0	0	0	0	0	0	13.1	70.5
23-Dec	0	0	0	0	0	0	0	0	0	5	29	63	76	76	63	26	1	0	0	0	0	0	0	0	14.1	75.7
24-Dec	0	0	0	0	0	0	0	0	0	4	38	57	51	46	28	22	3	0	0	0	0	0	0	0	10.3	56.6
25-Dec	0	0	0	0	0	0	0	0	0	8	52	94	110	121	84	40	4	0	0	0	0	0	0	0	21.4	121.2
26-Dec	0	0	0	0	0	0	0	0	0	6	48	111	131	125	51	25	2	0	0	0	0	0	0	0	20.8	131.1
27-Dec	0	0	0	0	0	0	0	0	0	2	21	51	73	106	64	27	2	0	0	0	0	0	0	0	14.4	105.6
28-Dec	0	0	0	0	0	0	0	0	0	4	23	49	59	67	51	24	4	0	0	0	0	0	0	0	11.7	67.2
29-Dec	0	0	0	0	0	0	0	0	0	1	21	38	48	53	35	14	2	0	0	0	0	0	0	0	8.8	52.6
30-Dec	0	0	0	0	0	0	0	0	0	6	35	84	122	119	116	39	5	0	0	0	0	0	0	0	22.0	122.3
31-Dec	0	0	0	0	0	0	0	0	0	1	22	60	120	137	131	32	3	0	0	0	0	0	0	0	21.0	136.9
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.5	33.0	66.4	84.6	86.0	58.4	25.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Diurnal Average	
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	12.8	57.6	127.6	158.0	142.0	130.5	44.4	6.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	Diurnal Maximum	

Hourly Averages for Solar Radiation at Henry Pirker
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	0	1	3	5	27	31	28	37	37	31	31	35	34	26	20	23	22	13	15	17	15	13	12	12	19.9	37.2
Dir	10	204	322	307	271	273	274	285	274	272	269	274	277	292	310	290	292	304	308	303	302	295	286	290	283.7	285.3
2 Spd	13	15	16	13	17	16	18	18	15	15	18	20	17	19	16	16	15	13	10	10	10	11	13	13	14.7	19.8
Dir	305	298	298	297	302	301	301	300	296	302	307	310	308	304	311	312	319	330	329	316	304	299	313	310	306.6	309.7
3 Spd	10	8	8	8	6	6	6	7	5	6	5	4	2	3	2	3	3	4	6	7	6	6	7	7	2.5	10.4
Dir	316	313	323	328	339	327	312	309	318	320	343	351	1	272	290	298	26	81	104	104	107	110	104	107	349.1	316.4
4 Spd	5	4	5	6	5	4	4	4	3	4	6	4	3	4	13	24	33	28	25	19	24	31	24	19	10.2	32.8
Dir	141	160	155	156	157	146	147	161	159	172	205	203	192	190	247	260	256	250	246	252	254	260	266	272	242.9	255.9
5 Spd	18	16	11	15	12	10	7	7	7	4	4	8	10	8	5	6	2	6	8	6	5	4	5	6	4.3	18.4
Dir	273	274	274	267	279	268	269	261	287	286	261	249	248	238	235	232	266	74	77	68	73	77	77	90	268.4	272.7
6 Spd	7	4	5	5	5	3	1	1	3	1	2	2	5	8	16	21	17	23	21	18	8	7	4	7	4.4	22.6
Dir	82	80	85	106	111	81	34	313	284	264	272	201	230	283	263	251	246	248	249	252	315	327	326	71	258.9	248.1
7 Spd	8	10	11	9	9	7	7	8	7	7	7	7	6	9	8	6	6	5	5	5	5	7	9	9	6.6	10.8
Dir	71	77	96	88	74	48	53	57	53	55	58	42	40	12	35	48	77	91	115	98	91	102	115	104	70.8	95.5
8 Spd	10	8	8	9	10	8	7	7	8	9	9	12	9	8	7	5	5	5	6	6	6	7	8	8	6.6	12.1
Dir	103	95	82	78	81	60	55	55	45	31	20	10	354	360	17	46	37	44	43	57	64	74	82	77	52.5	9.5
9 Spd	8	9	9	9	12	12	12	12	10	10	8	8	5	0	4	6	5	7	9	9	7	6	10	10	4.3	12.4
Dir	63	79	78	78	86	81	82	88	82	87	92	98	107	38	231	245	250	240	246	284	252	74	107	106	92.7	87.6
10 Spd	9	7	7	3	3	4	3	4	20	31	23	25	26	23	26	26	30	19	20	18	20	20	17	18	14.2	30.9
Dir	109	104	106	96	327	311	338	338	250	249	251	249	250	251	252	262	271	259	256	253	250	249	246	248	253.2	249.4
11 Spd	19	21	24	23	22	20	21	20	17	17	12	14	9	16	28	30	26	27	27	28	24	22	16	10	19.7	30.1
Dir	246	247	248	248	246	245	246	246	242	246	273	269	239	259	269	270	275	275	261	253	264	278	310	301	260.0	269.6
12 Spd	7	5	6	8	9	7	6	4	8	11	11	10	15	19	18	17	19	17	16	17	17	17	12	15	11.5	19.2
Dir	315	335	320	301	306	311	327	357	23	355	347	341	1	357	2	14	10	358	351	349	351	5	360	353	351.9	357.1
13 Spd	15	7	7	6	7	6	5	5	5	7	5	4	6	5	4	6	5	4	5	5	4	5	5	5	5.0	14.9
Dir	349	324	314	325	322	326	319	307	336	27	342	317	35	63	356	304	339	325	307	329	297	305	307	296	331.7	349.2
14 Spd	6	4	7	6	9	12	12	14	12	9	10	9	7	7	7	7	8	9	10	4	1	5	5	4	7.3	13.8
Dir	296	235	256	290	254	242	244	248	246	249	246	261	265	278	279	240	255	291	297	240	207	254	266	259	258.9	247.9
15 Spd	4	4	3	3	6	9	11	12	12	13	12	16	13	12	12	7	11	13	15	16	15	12	17	14	10.6	17.1
Dir	230	240	270	242	248	250	252	254	259	256	257	256	248	268	276	299	258	262	266	262	251	253	291	289	261.7	291.5
16 Spd	10	9	7	7	8	9	14	11	8	8	3	6	8	4	7	6	6	13	21	23	20	20	17	17	9.8	22.7
Dir	249	248	242	242	246	242	253	262	296	305	290	247	289	257	301	312	288	270	289	305	302	307	311	312	283.9	304.8
17 Spd	15	13	15	16	14	16	10	7	16	16	13	13	14	13	14	16	11	9	8	6	6	6	5	5	11.0	16.1
Dir	325	315	327	353	20	10	10	338	344	359	356	342	356	351	347	350	349	336	327	314	308	315	324	334	345.0	349.7
18 Spd	6	7	5	4	6	8	8	6	6	6	7	8	7	7	7	5	4	4	4	4	3	4	4	4	5.5	8.4
Dir	341	332	315	300	320	327	323	320	300	315	314	308	292	313	314	305	316	329	324	320	302	315	309	312	315.7	323.2
19 Spd	4	4	4	5	6	5	6	5	6	4	3	3	5	7	8	7	5	4	4	3	3	3	3	3	4.2	7.7
Dir	286	298	280	275	265	271	261	284	287	320	323	300	244	251	242	266	293	307	314	318	321	264	302	287	280.6	242.3
20 Spd	3	3	4	4	3	3	3	3	4	4	4	5	4	4	4	2	2	3	2	2	3	1	5	4	3.1	5.2
Dir	329	289	294	299	315	328	307	311	328	331	316	321	289	278	284	307	317	322	336	267	304	304	316	316	309.2	321.0
21 Spd	4	4	3	2	5	3	3	3	3	3	4	3	3	4	4	3	2	4	4	1	3	5	5	4	2.8	4.8
Dir	318	294	318	301	312	300	307	305	319	321	278	294	285	281	289	259	208	197	211	251	218	300	318	297	287.8	299.5
22 Spd	4	3	3	2	3	3	2	2	2	1	2	4	4	2	2	1	2	3	4	4	2	3	3	3	2.2	3.9
Dir	265	216	224	326	281	307	309	316	315	171	299	288	302	253	273	200	307	333	301	323	313	312	330	298	294.4	300.8

Peace Airshed Zone Association
Summary of Hourly Averages

Henry Pirker
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
23 Spd	3	3	4	3	2	2	1	2	2	3	3	3	3	3	3	3	4	3	4	3	3	4	4	2	2.8	3.9
Dir	304	306	307	328	321	310	191	310	296	318	291	279	273	280	293	293	312	310	322	322	307	315	312	315	304.6	312.0
24 Spd	2	1	2	3	1	1	1	2	2	3	3	3	3	4	3	4	6	7	3	1	2	1	2	4	2.0	6.5
Dir	344	219	306	290	211	216	207	301	272	297	315	294	302	312	286	316	316	326	300	252	280	301	199	172	295.4	326.4
25 Spd	3	5	6	9	11	12	11	11	12	14	15	14	15	13	9	4	4	5	1	6	6	7	6	3	5.7	14.9
Dir	226	254	295	302	305	299	299	299	287	291	291	297	294	292	296	270	315	10	0	108	115	118	106	64	297.1	294.5
26 Spd	2	0	4	4	3	2	2	3	1	1	1	2	4	4	4	3	5	4	2	6	7	8	1	4	1.0	7.6
Dir	317	180	138	130	121	125	107	111	162	210	264	276	307	298	298	279	125	107	51	114	109	111	233	300	121.0	110.5
27 Spd	4	4	2	4	3	3	1	5	3	2	2	10	11	12	10	10	10	16	17	3	8	8	5	4	3.8	17.2
Dir	286	291	218	282	190	215	310	154	278	169	190	229	235	232	215	232	226	246	261	302	75	80	79	32	235.7	261.1
28 Spd	5	6	3	5	4	4	1	1	5	6	6	6	6	5	5	4	6	6	5	5	5	5	4	5	3.3	6.5
Dir	358	356	309	332	315	307	340	296	78	86	93	91	91	68	89	71	66	73	63	58	60	70	53	73	56.3	93.2
29 Spd	4	3	3	3	5	3	3	4	3	3	5	6	5	2	7	6	5	6	11	13	15	17	18	20	5.4	19.6
Dir	74	61	35	48	42	53	38	46	42	7	306	327	304	290	302	293	304	292	286	297	303	308	295	294	313.7	293.7
30 Spd	20	18	18	17	16	15	12	11	9	8	8	9	7	6	4	4	5	4	6	8	7	7	7	7	6.1	19.9
Dir	291	293	291	287	285	286	279	278	269	256	259	265	270	291	339	337	14	44	75	86	65	57	51	44	297.9	291.1
31 Spd	9	11	9	9	11	7	7	8	10	12	9	12	13	14	11	10	11	15	13	7	6	6	5	5	5.6	15.2
Dir	54	56	51	51	64	58	44	328	299	296	308	282	283	282	282	277	271	285	296	293	277	290	301	312	311.7	284.6
Spd	3.4	2.9	3.0	3.2	3.7	4.3	4.1	4.7	5.3	4.9	5.3	6.3	6.0	6.3	6.7	6.9	6.3	5.9	6.3	4.9	4.3	4.1	4.0	3.7	Diurnal Average	
Dir	312.6	298.7	299.8	304.4	297.6	294.8	291.5	291.0	290.3	293.0	292.9	286.0	285.8	290.9	289.7	284.7	288.2	287.3	284.2	289.4	291.9	299.6	307.7	312.7		
Spd	19.9	21.5	23.6	23.1	27.5	31.4	28.2	37.2	37.1	31.3	31.3	34.5	33.5	26.3	28.0	30.1	32.8	28.4	27.5	27.5	24.1	31.0	24.2	19.6	Diurnal Maximum	
Dir	291.1	247.1	248.1	248.0	270.9	272.7	273.6	285.3	273.9	271.7	269.2	273.7	276.5	291.7	269.1	269.6	255.9	250.3	261.0	253.0	264.4	259.8	265.6	293.7		

Maximum Speed Value: 37 km/h on Dec 1 08:00
Maximum Daily Speed Average: 19.9 km/h on Dec 11
Maximum Diurnal Speed Average: 6.9 km/h at hour 16

Minimum Speed Value: 0 km/h on Dec 1 01:00
Minimum Daily Speed Average: 1.0 km/h on Dec 24
Minimum Diurnal Speed Average: 2.9 km/h at hour 2

Monthly Average Velocity: 4.82 km/h 292.74 deg

Speed Percentiles: $P_1 = 0.8$ $P_{10} = 2.7$ $Q_1 = 3.9$ Median = 6.4 $Q_3 = 11.4$ $P_{90} = 17.5$ $P_{99} = 31.3$

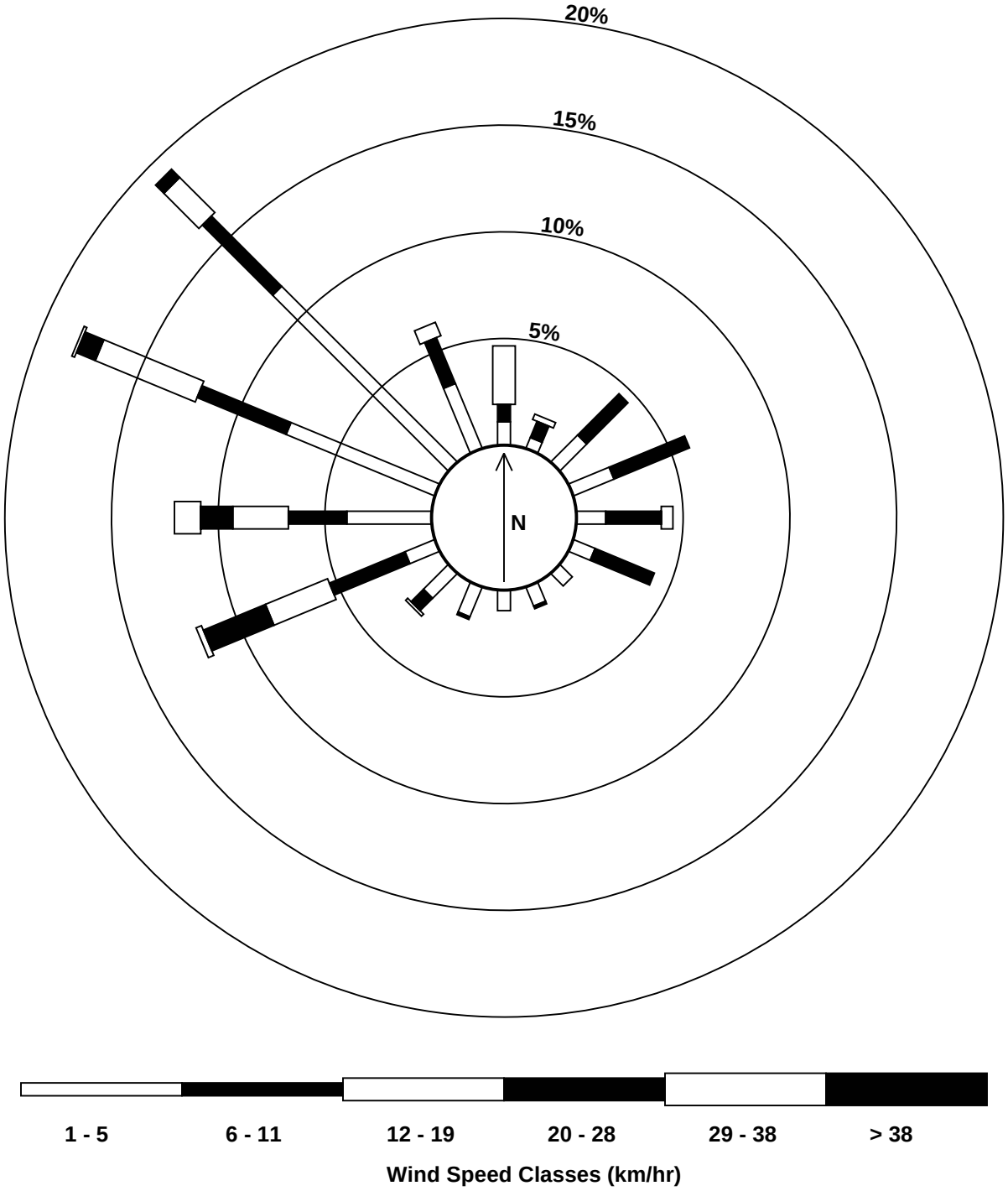
All monthly, daily, and diurnal averages have been calculated using vector methods

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Percent Operational Time:	100.0

Percentage Frequency Distribution

Direction	Speed Range (km/h) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	1.88	2.15	3.49	0.13	0.00	0.00	7.66
NorthEast	2.82	4.84	0.00	0.00	0.00	0.00	7.66
East	2.28	8.33	0.54	0.00	0.00	0.00	11.16
SouthEast	1.48	0.81	0.00	0.00	0.00	0.00	2.28
South	2.42	0.00	0.00	0.00	0.00	0.00	2.42
SouthWest	3.36	2.69	1.61	0.81	0.00	0.00	8.47
West	6.99	6.45	7.26	4.03	2.02	0.00	26.75
NorthWest	16.80	10.35	5.51	0.94	0.00	0.00	33.60
Total	38.04	35.62	18.41	5.91	2.02	0.00	100.00

Wind Rose for WS at Henry Pirker
December 2008



Maximum Speed: 37 km/h on Dec 1 08:00

Maximum Daily Speed Average: 20.9 km/h on Dec 1

Minimum Speed: 2 km/h on Dec 20 20:00

Minimum Daily Speed Average: 3.0 km/h on Dec 22

Maximum Diurnal Speed Average: 10.1 km/h at hour 19

Minimum Diurnal Speed Average: 7.4 km/h at hour 3

Monthly Average Speed: 8.81 km/h

Percentiles: $P_1 = 2.3$ $P_{10} = 3.2$ $Q_1 = 4.1$ Median = 6.6 $Q_3 = 11.5$ $P_{90} = 17.8$ $P_{99} = 31.3$

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	4	3	5	7	28	32	29	37	37	31	31	35	34	27	20	23	22	13	15	17	15	13	12	12	20.9	37.4
2-Dec	14	15	16	13	17	17	18	18	15	15	18	20	17	19	17	16	15	13	10	10	11	11	13	13	15.0	19.9
3-Dec	11	8	8	8	6	6	6	7	5	6	6	4	3	4	3	3	4	4	6	7	6	6	7	7	5.9	10.5
4-Dec	5	4	5	6	5	4	4	4	3	4	6	5	5	5	14	24	33	28	25	19	24	31	24	19	12.8	33.0
5-Dec	18	16	11	15	12	10	7	7	7	4	4	8	10	8	5	6	5	7	8	7	5	5	6	7	8.2	18.5
6-Dec	7	4	5	6	5	4	5	3	3	4	3	3	5	9	16	21	17	23	21	18	9	7	5	8	8.8	22.6
7-Dec	9	10	11	9	9	7	7	9	7	7	7	7	6	10	8	7	7	5	5	6	5	7	9	9	7.6	11.0
8-Dec	10	8	9	9	10	8	7	7	8	9	10	12	9	8	7	6	5	6	6	7	7	7	8	8	7.9	12.2
9-Dec	8	9	9	9	12	12	12	12	10	10	8	8	6	3	5	6	6	8	10	10	9	7	10	10	8.7	12.5
10-Dec	10	8	7	4	3	4	4	5	20	31	23	25	26	23	26	26	30	19	20	18	20	20	17	18	17.0	31.0
11-Dec	19	22	24	23	22	20	21	20	17	17	13	15	9	16	28	30	26	27	28	28	24	22	17	10	20.7	30.1
12-Dec	7	5	6	8	9	7	6	4	8	11	11	10	15	19	18	18	19	18	16	17	18	17	12	15	12.3	19.4
13-Dec	15	7	7	6	7	6	5	5	6	7	6	5	7	5	5	6	5	5	5	5	5	5	5	5	6.1	15.0
14-Dec	6	5	8	6	9	12	12	14	12	9	10	10	8	7	7	7	8	9	10	4	2	5	5	5	7.9	13.9
15-Dec	4	5	4	4	6	10	11	12	13	13	13	16	14	13	12	7	12	14	15	16	15	12	17	14	11.3	17.4
16-Dec	11	9	7	7	8	9	14	11	9	8	4	7	8	5	7	6	7	13	22	23	20	20	17	18	11.1	22.9
17-Dec	16	14	16	16	14	16	10	7	16	16	13	13	15	13	14	16	11	9	8	6	6	6	5	6	11.7	16.3
18-Dec	7	7	5	4	6	8	8	6	6	6	7	8	7	7	7	5	4	4	4	4	4	4	5	4	5.7	8.5
19-Dec	4	4	5	5	6	5	6	5	6	4	3	3	5	7	8	7	5	4	4	3	3	3	3	3	4.7	7.9
20-Dec	3	3	4	4	3	3	3	4	4	4	4	5	4	4	4	2	2	3	3	2	3	2	5	4	3.4	5.3
21-Dec	4	4	3	2	5	3	3	3	3	4	4	3	4	4	4	4	3	4	4	2	4	5	5	4	3.7	5.2
22-Dec	4	3	3	3	3	3	2	2	3	3	3	4	4	2	3	2	3	3	4	4	3	3	3	4	3.0	4.0
23-Dec	3	3	4	3	2	2	2	3	2	3	3	3	3	3	3	3	4	4	4	3	3	4	4	3	3.1	4.0
24-Dec	3	2	3	3	2	2	2	3	3	3	4	3	3	4	4	4	6	7	4	4	3	2	3	5	3.5	6.6
25-Dec	3	5	6	9	11	12	11	11	12	14	15	14	15	13	9	5	4	5	3	6	7	7	6	4	8.6	14.9
26-Dec	3	3	4	4	3	2	3	3	3	2	3	4	4	5	4	4	6	5	4	7	7	8	3	4	4.1	7.8
27-Dec	4	4	3	5	4	4	5	5	3	3	5	10	11	12	10	10	10	16	17	10	8	8	5	5	7.4	17.3
28-Dec	6	6	4	5	4	4	3	4	5	6	7	7	6	6	5	5	7	6	5	5	5	5	4	5	5.1	6.8
29-Dec	4	4	4	3	5	4	3	4	3	4	5	6	6	3	7	6	5	6	11	14	15	18	18	20	7.3	19.7
30-Dec	20	18	18	18	16	15	12	11	9	8	8	9	7	6	4	4	5	4	6	8	7	7	7	7	9.8	20.0
31-Dec	9	11	9	9	11	7	7	9	10	12	10	12	13	14	11	10	12	15	13	7	6	6	5	6	9.6	15.3
Diurnal Average	8.0	7.5	7.4	7.6	8.5	8.3	8.1	8.2	8.7	8.9	8.6	9.5	9.3	9.1	9.5	9.7	9.9	9.9	10.1	9.6	8.9	9.2	8.6	8.3		
Diurnal Maximum	20.0	21.5	23.6	23.2	27.6	31.5	28.7	37.4	37.1	31.4	31.4	34.6	33.6	27.2	28.1	30.1	33.0	28.4	27.7	27.7	24.3	31.2	24.4	19.7		

All monthly, daily, and diurnal averages have been calculated using scalar methods

Maximum Value: 97.8 deg on Dec 9 14:00

Minimum Value: 2.9 deg on Dec 11 03:00

Percentiles: P_1 = 3.4 P_{10} = 5.1 Q_1 = 7.8 Median = 12.5 Q_3 = 20.7 P_{90} = 37.7 P_{99} = 81.8

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Maximum
1-Dec	92	76	61	54	5	6	11	7	4	4	3	4	4	15	6	5	5	4	7	4	4	5	7	7	92.1
2-Dec	7	5	4	6	5	5	5	5	5	5	8	6	6	7	5	5	6	6	8	7	6	5	5	5	8.0
3-Dec	8	8	9	7	18	11	15	7	15	8	22	32	62	67	48	29	41	12	7	7	7	7	5	6	66.6
4-Dec	15	12	8	11	14	16	21	20	20	13	22	41	66	37	11	6	7	5	6	9	8	5	6	5	65.7
5-Dec	6	8	13	4	7	11	13	14	20	16	9	12	7	10	15	15	70	20	10	11	15	26	22	14	70.4
6-Dec	12	17	15	19	14	59	70	82	20	82	39	67	11	26	17	5	7	4	3	8	19	17	36	18	81.8
7-Dec	10	14	10	10	11	17	13	9	11	15	13	16	30	20	15	17	12	13	19	20	15	14	11	13	29.7
8-Dec	10	13	9	9	9	14	13	16	15	13	13	9	10	15	17	22	22	16	13	14	13	15	8	12	22.5
9-Dec	12	10	10	11	6	7	8	7	8	7	10	12	21	98	31	21	34	34	28	14	49	43	15	14	97.8
10-Dec	10	17	13	38	33	37	52	27	13	3	4	3	4	5	5	8	4	5	4	5	4	4	4	4	51.8
11-Dec	3	4	3	3	4	4	4	4	4	4	15	14	22	9	4	3	4	6	7	6	8	7	21	7	21.9
12-Dec	9	15	16	6	6	8	9	36	16	9	5	9	9	7	8	12	6	11	10	6	9	8	8	8	36.4
13-Dec	7	15	12	7	8	8	11	19	38	13	25	37	29	32	36	18	11	34	12	12	30	25	9	12	37.6
14-Dec	7	42	15	16	13	8	8	7	8	7	5	12	13	9	11	15	15	10	9	36	69	13	28	22	69.3
15-Dec	26	34	31	45	23	7	5	10	9	6	9	7	10	10	14	13	21	11	8	8	9	10	11	13	44.7
16-Dec	10	11	15	9	11	13	7	8	22	9	34	36	18	58	11	12	12	8	15	5	4	4	4	7	57.7
17-Dec	7	6	14	12	9	10	11	21	5	7	10	9	11	9	9	7	9	9	5	16	5	5	6	9	20.9
18-Dec	15	8	16	14	17	6	5	8	9	6	6	9	10	8	7	16	4	9	8	10	20	13	11	7	19.6
19-Dec	12	10	12	9	12	10	8	11	11	12	21	16	34	13	12	11	5	9	8	15	10	29	35	23	35.1
20-Dec	24	16	10	14	10	17	9	7	8	14	16	11	20	9	17	12	17	14	54	30	27	71	16	19	70.7
21-Dec	13	17	38	62	14	20	26	25	19	22	16	21	25	12	12	42	26	16	21	48	24	21	12	7	61.8
22-Dec	20	15	21	25	31	16	54	15	9	81	24	14	14	41	32	54	50	17	12	7	22	10	6	11	80.6
23-Dec	13	17	12	9	13	13	46	52	58	27	12	15	12	16	16	21	11	18	18	22	16	17	13	41	57.8
24-Dec	76	80	54	36	69	83	72	40	64	29	28	26	21	14	27	12	13	9	56	75	61	65	39	15	82.6
25-Dec	27	9	12	5	4	5	9	8	7	5	7	8	4	5	12	37	29	18	73	10	16	14	23	35	72.8
26-Dec	52	86	19	28	14	27	44	28	72	66	84	83	16	20	15	50	47	23	69	21	10	24	71	24	86.3
27-Dec	20	26	60	50	55	40	79	25	35	77	71	7	10	15	13	6	8	6	7	78	14	14	34	30	78.5
28-Dec	23	21	23	17	8	13	80	86	21	18	18	20	19	17	29	22	11	13	13	16	16	14	17	18	85.8
29-Dec	15	22	20	24	17	26	27	20	22	34	10	12	26	53	11	11	18	13	5	6	5	4	6	5	52.6
30-Dec	6	6	5	5	3	3	4	6	8	10	10	10	11	19	26	26	18	24	16	8	13	13	13	11	25.8
31-Dec	11	8	12	14	12	20	21	24	9	7	14	6	5	3	3	7	9	7	5	5	10	14	11	13	23.6
	92.1	86.3	61.2	61.8	68.5	82.6	79.5	85.8	72.5	81.8	84.2	83.4	65.7	97.8	48.2	53.8	70.4	34.3	72.8	77.9	69.3	70.7	70.7	40.8	

PASZA
Evergreen Park Station
Monthly Summary Tables, Graphs and Roses

Peace Airshed Zone Association
Summary of Hourly Averages

Evergreen Park - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 2.4 ppb on Dec 31 10:00
Maximum Daily Average: 0.9 ppb on Dec 29

Minimum Value: 0 ppb on Dec 8 02:00
Maximum Diurnal Average: 0.6 ppb at hour 15
Monthly Average: 0.34 ppb

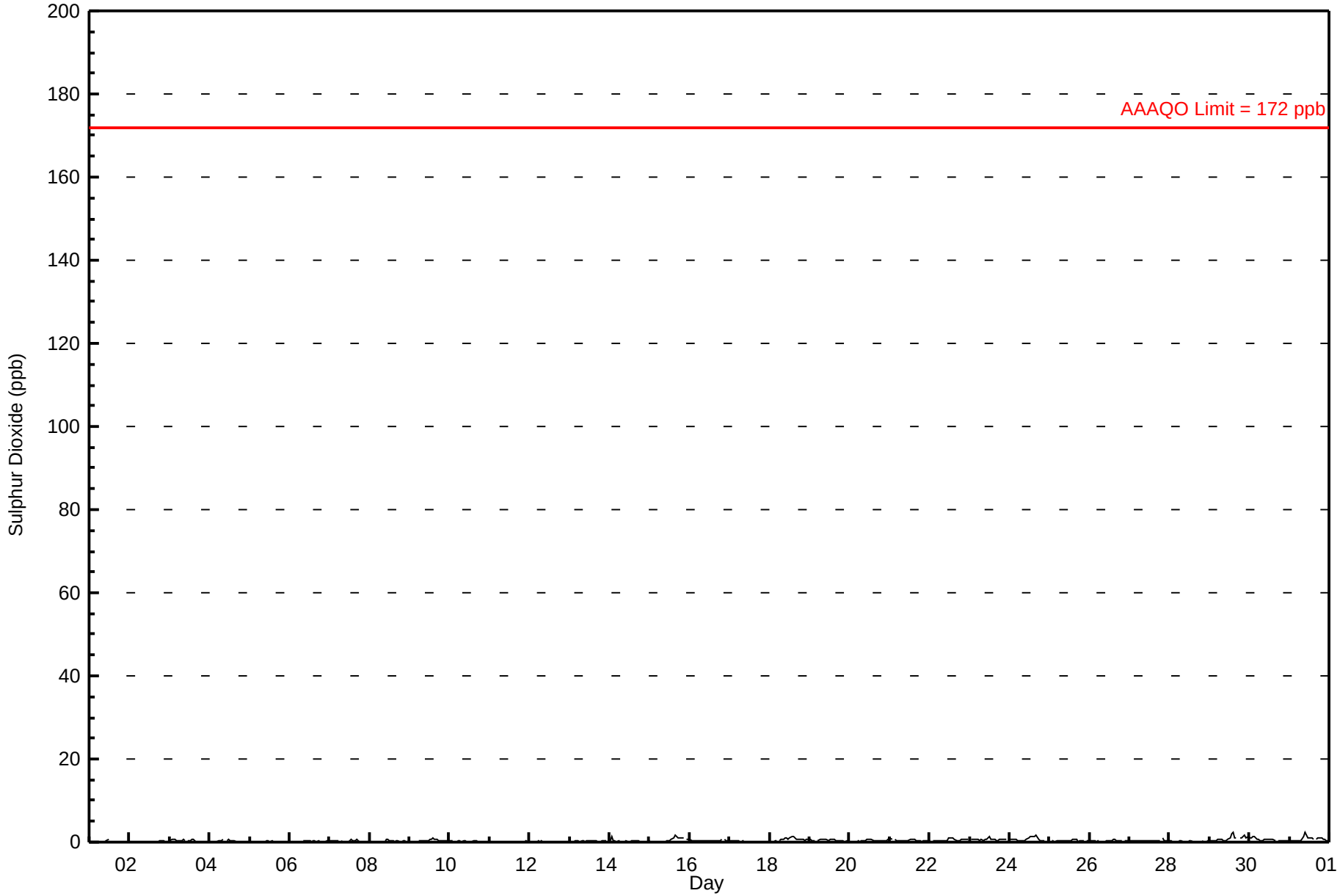
Minimum Daily Average: 0.1 ppb on Dec 11
Minimum Diurnal Average: 0.2 ppb at hour 5
Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.1$ Median = 0.3 $Q_3 = 0.5$ $P_{90} = 0.7$ $P_{99} = 1.5$

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	0	0	0	0	0	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0	0.1	0.7
2-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
3-Dec	0	1	1	1	0	0	0	0	1	0	A	0	0	1	1	0	0	0	0	0	0	0	0	0	0.3	0.8
4-Dec	0	0	0	0	0	0	0	0	1	A	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5
5-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
6-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
7-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0.2	0.5
8-Dec	0	0	0	0	0	A	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.8
9-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0.4	1.2
10-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
11-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
12-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
13-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.2	0.4
14-Dec	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0.2	1.5
15-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	1	1	A	1	1	0.5	1.7
16-Dec	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	1	0	0	0.4	0.6
17-Dec	0	1	0	0	0	0	0	0	0	0	0	C	C	C	A	0	0	0	0	0	0	0	0	0	0.2	0.5
18-Dec	0	0	0	0	0	A	0	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0	1	1	0.6	1.5
19-Dec	1	0	0	0	A	0	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0.5	0.7
20-Dec	0	0	0	A	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.4	0.8
21-Dec	1	1	A	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0.4	1.0
22-Dec	0	A	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	1	1	1	1	1	0.5	1.0
23-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	A	0.7	1.3
24-Dec	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	2	1	0	0	0	0	A	0	0.7	1.5
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	A	0	0	0.3	0.8
26-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	A	0	0	0	0.3	0.8
27-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	0	0.3	1.0
28-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.1	0.3
29-Dec	0	0	0	0	0	1	1	1	0	0	0	1	1	2	2	1	1	A	1	1	1	2	1	1	0.9	2.3
30-Dec	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	0	A	0	0	0	0	0	0	0	0.6	1.3
31-Dec	0	0	0	0	0	0	0	0	1	2	2	1	1	1	1	A	1	1	1	1	1	1	0	0	0.8	2.4
	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Diurnal Average	
	1.1	1.5	1.2	1.3	0.7	0.8	0.7	0.7	1.4	2.4	1.8	1.2	1.3	2.1	2.3	1.7	1.5	1.0	1.0	1.0	1.3	1.6	1.1	1.3	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 57 ppb

Hourly Averages for SO_2 at Evergreen Park
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Evergreen Park - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 14.4 ppb on Dec 26 16:00

Maximum Daily Average: 1.7 ppb on Dec 26

Minimum Value: 0 ppb on Dec 12 00:00

Maximum Diurnal Average: 1.5 ppb at hour 15

Monthly Average: 0.77 ppb

Minimum Daily Average: 0.4 ppb on Dec 2

Minimum Diurnal Average: 0.5 ppb at hour 5

Percentiles: $P_1 = 0.2$ $P_{10} = 0.3$ $Q_1 = 0.4$ Median = 0.6 $Q_3 = 0.9$ $P_{90} = 1.3$ $P_{99} = 3.0$

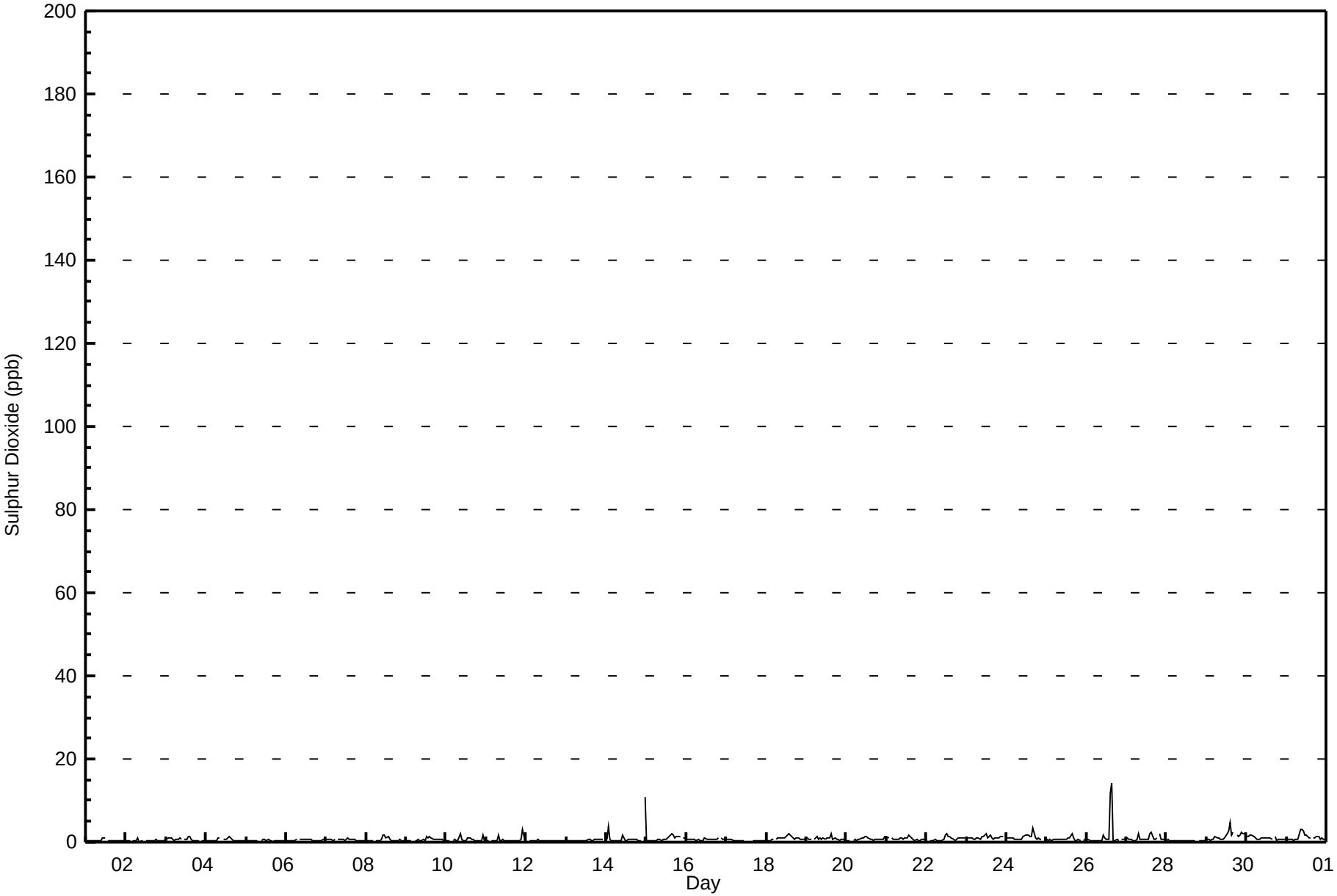
Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	0	0	0	0	0	0	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0.4	1.1
2-Dec	0	0	0	0	0	0	0	1	0	0	0	A	0	0	0	0	0	0	1	0	0	0	0	0	0.4	1.0
3-Dec	1	1	1	1	1	0	1	1	1	1	A	1	1	1	1	1	0	0	0	0	0	0	0	0	0.7	1.3
4-Dec	0	0	0	0	0	0	0	1	1	A	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0.6	1.2
5-Dec	0	0	0	0	0	0	0	0	A	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0.4	0.7
6-Dec	0	0	0	0	0	0	1	A	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	0.4	0.6
7-Dec	1	1	1	1	0	1	A	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0.5	0.9
8-Dec	0	0	0	0	0	A	0	0	0	1	2	2	1	1	1	0	0	0	0	0	1	0	0	0	0.6	1.6
9-Dec	0	0	1	0	A	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0.7	1.4
10-Dec	0	0	0	A	0	1	0	0	2	1	0	0	0	1	1	1	1	0	0	0	0	0	2	0	0.6	2.2
11-Dec	0	0	A	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3	0	0.5	3.0
12-Dec	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.4	0.5
13-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	1	1	A	0.5	0.8
14-Dec	1	4	1	0	0	0	0	0	0	0	2	0	0	1	1	1	1	1	1	0	0	0	A	11	1.1	10.9
15-Dec	0	0	0	0	0	0	0	1	1	0	1	1	1	1	2	2	2	1	1	1	1	A	1	1	0.9	2.2
16-Dec	1	1	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	A	1	1	1	0.7	1.0
17-Dec	1	1	1	1	0	0	0	0	0	0	0	C	C	C	A	0	0	0	0	0	0	0	0	0	0.4	0.7
18-Dec	0	0	0	1	1	A	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1.0	2.0
19-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	0	1	1	0	0.9	2.2
20-Dec	0	0	0	A	0	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0.7	1.3
21-Dec	2	1	A	1	1	1	1	1	1	1	1	1	1	2	1	1	1	0	1	0	0	1	1	1	0.9	1.5
22-Dec	0	A	0	0	0	1	0	0	0	0	1	2	2	1	1	1	1	0	1	1	1	1	1	1	0.9	1.9
23-Dec	A	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1	1	1	1	1	1	A	1.1	2.2
24-Dec	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	4	1	1	1	1	1	A	0	1.1	3.5
25-Dec	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	2	1	0	0	1	0	A	0	1	0.7	1.9
26-Dec	1	1	0	0	0	0	0	0	0	0	2	1	1	1	12	14	0	0	1	0	A	1	1	1	1.7	14.4
27-Dec	1	1	1	1	0	0	1	2	1	1	1	1	1	1	2	2	1	1	1	A	2	1	1	1	0.9	2.4
28-Dec	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.4	0.6
29-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	2	2	A	2	1	2	2	2	2	1.5	4.8
30-Dec	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0	1	1	1	1	1	1.0	1.7
31-Dec	1	1	1	1	0	1	1	1	3	3	3	2	2	1	1	A	1	1	1	1	1	1	1	1	1.2	3.2
	0.6	0.7	0.6	0.6	0.5	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.5	1.4	0.8	0.6	0.7	0.6	0.6	0.7	0.8	1.0	Diurnal Average	
	1.5	3.9	1.7	1.7	1.3	1.3	1.4	2.2	3.1	3.2	2.6	1.8	2.2	2.8	11.8	14.4	3.5	1.3	1.6	1.4	2.1	2.2	3.0	10.9	Diurnal Maximum	

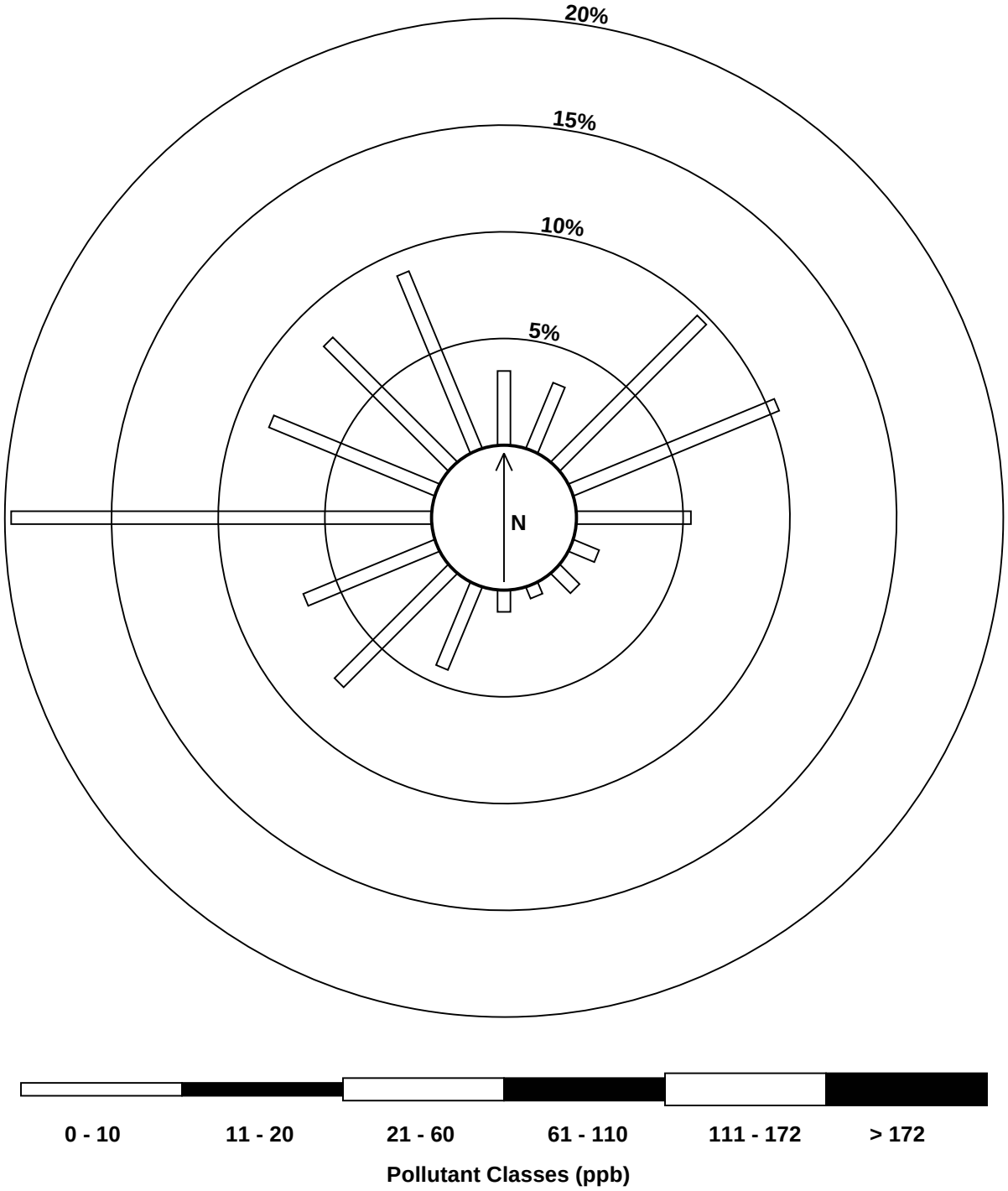
C - Calibration

A - Automated Daily Zero Span

Hourly Maximums for SO_2 at Evergreen Park
December 2008



Pollutant Rose for SO_2 at Evergreen Park
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Evergreen Park - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 2.8 ppb on Dec 4 14:00 Maximum Daily Average: 1.3 ppb on Dec 24

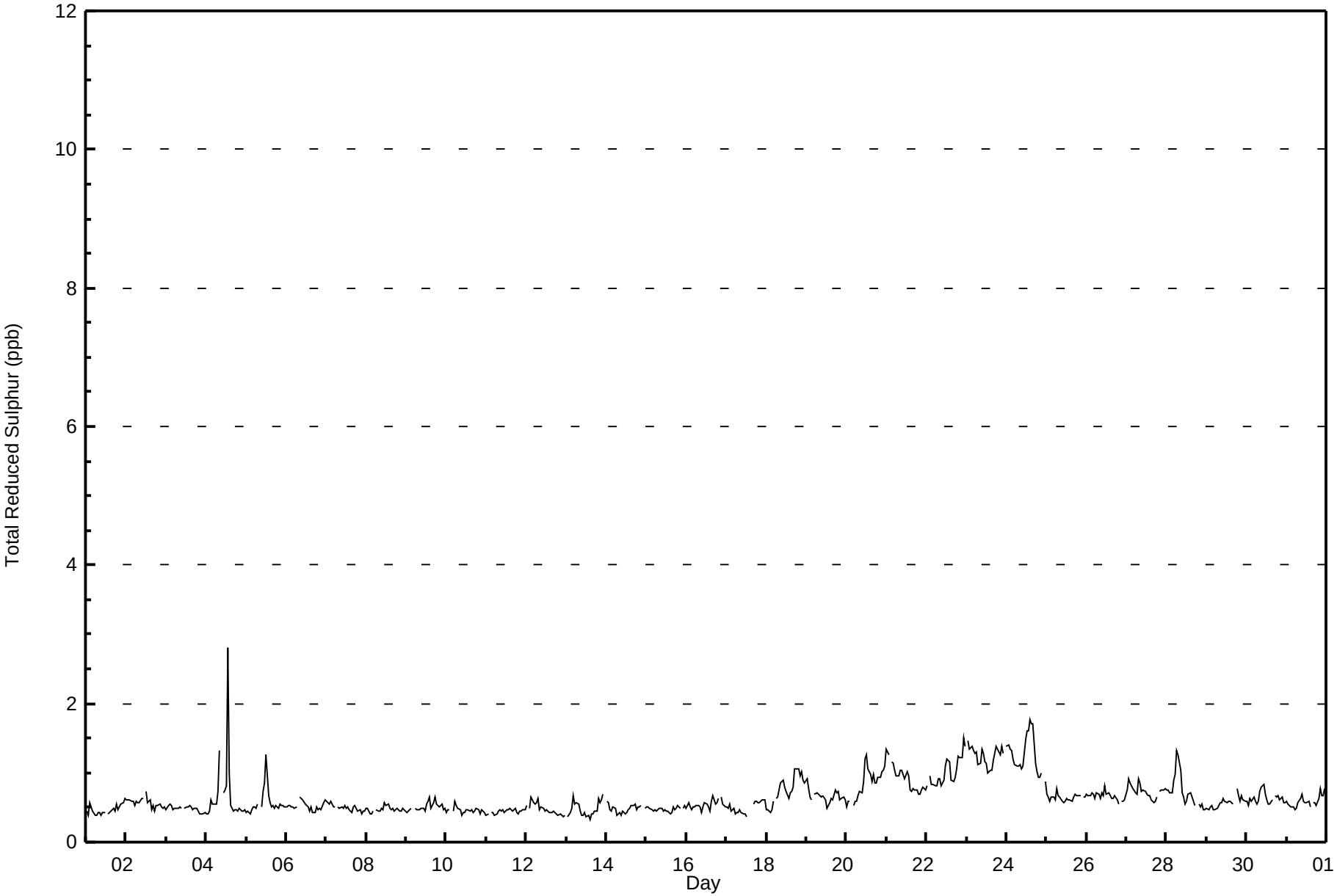
Minimum Value: 0 ppb on Dec 13 15:00 Minimum Daily Average: 0.4 ppb on Dec 11
Maximum Diurnal Average: 0.7 ppb at hour 14 Minimum Diurnal Average: 0.6 ppb at hour 3
Monthly Average: 0.64 ppb Percentiles: $P_1 = 0.4$ $P_{10} = 0.4$ $Q_1 = 0.5$ Median = 0.6 $Q_3 = 0.7$ $P_{90} = 1.0$ $P_{99} = 1.5$

Hours in Service:	744
Hours of Data:	709
Hours of Missing Data:	35
Hours of Calibration:	35
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	1	1	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0	1	1	1	1	0.5	0.6
2-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0	1	0	1	1	1	1	0	1	0.6	0.7
3-Dec	0	1	1	1	0	0	0	0	1	0	A	0	1	0	1	1	0	0	0	0	0	0	0	0	0.5	0.6
4-Dec	0	0	0	1	1	1	1	1	1	A	1	1	1	3	1	1	0	0	0	0	0	0	0	0	0.7	2.8
5-Dec	0	0	0	0	1	1	0	1	A	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	0.6	1.3
6-Dec	1	1	1	0	0	0	1	A	1	1	1	1	1	1	0	1	0	0	1	0	0	0	1	1	0.5	0.7
7-Dec	1	1	1	1	0	1	A	1	0	1	0	1	0	1	0	0	1	1	0	0	0	0	0	0	0.5	0.6
8-Dec	0	0	0	0	0	A	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0.5	0.6
9-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	1	0	0	0.5	0.7
10-Dec	0	0	0	A	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.6
11-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
12-Dec	1	A	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.6
13-Dec	A	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	A	0.5	0.7
14-Dec	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	A	0	0.5	0.6
15-Dec	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	A	0	1	0.5	0.5
16-Dec	0	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	A	1	1	1	0.5	0.7
17-Dec	1	0	1	0	0	0	0	0	0	0	0	0	0	C	C	A	1	1	1	1	1	1	1	1	0.5	0.6
18-Dec	0	0	0	0	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.1
19-Dec	1	1	1	1	A	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
20-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.3
21-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3
22-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1.0	1.5
23-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1.2	1.5
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	A	1	1.3	1.8
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.6	0.8
26-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.7	0.8
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.7	0.9
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0	0	0.7	1.3
29-Dec	0	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.6	0.8
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.6	0.8
31-Dec	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0.6	0.8
	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	Diurnal Average	
	1.4	1.5	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.5	1.6	2.8	1.8	1.7	1.7	1.3	1.4	1.3	1.3	1.4	1.5	1.4	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb

Hourly Averages for TRS at Evergreen Park
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Evergreen Park - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 5.1 ppb on Dec 5 13:00

Maximum Daily Average: 1.6 ppb on Dec 23

Minimum Value: 1 ppb on Dec 1 07:00

Maximum Diurnal Average: 1.2 ppb at hour 13

Monthly Average: 0.99 ppb

Minimum Daily Average: 0.8 ppb on Dec 1

Minimum Diurnal Average: 0.9 ppb at hour 1

Percentiles: $P_1 = 0.6$ $P_{10} = 0.7$ $Q_1 = 0.8$ Median = 0.9 $Q_3 = 1.0$ $P_{90} = 1.4$ $P_{99} = 2.2$

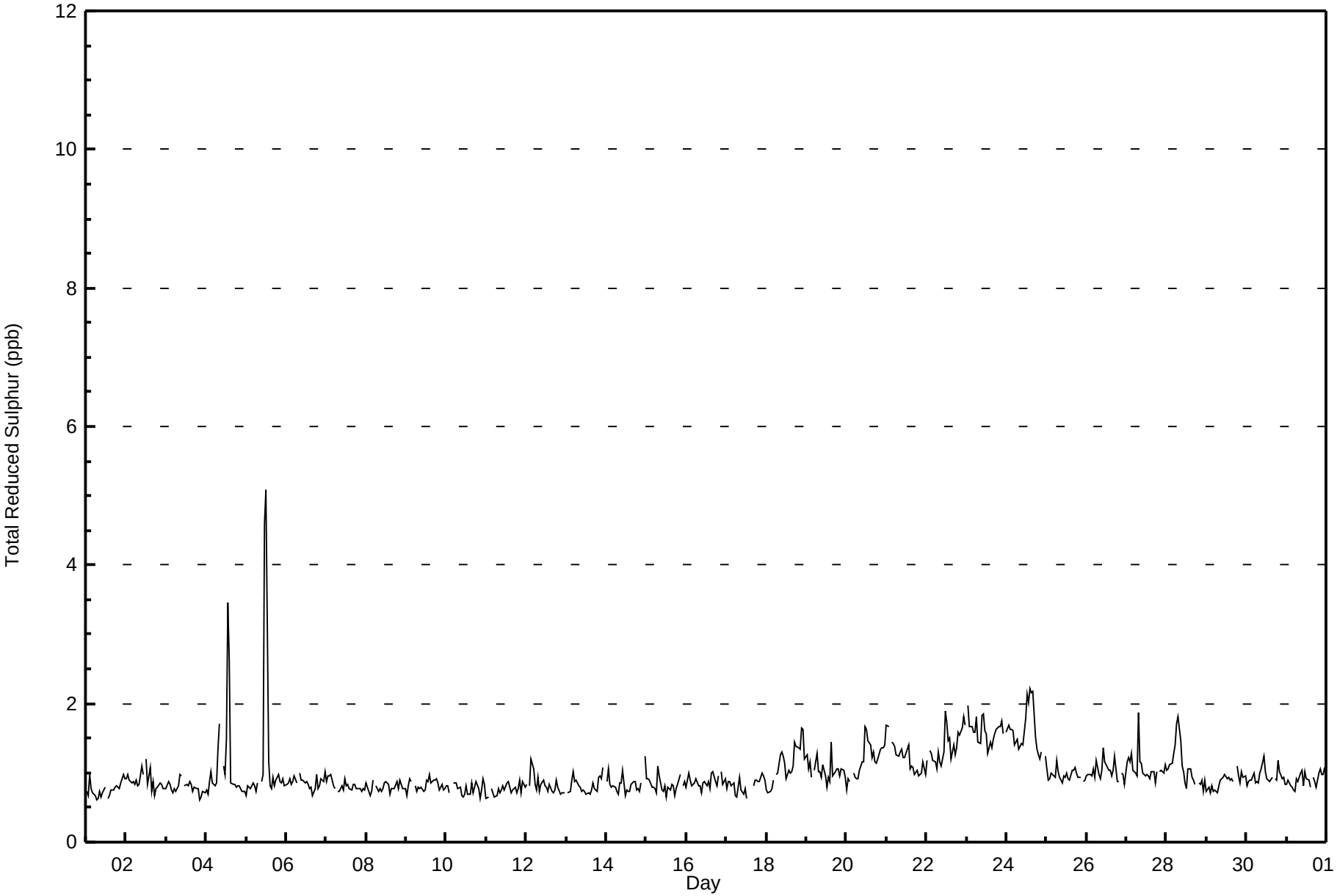
Hours in Service:	744
Hours of Data:	709
Hours of Missing Data:	35
Hours of Calibration:	35
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
2-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.2
3-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
4-Dec	1	1	1	1	1	1	1	1	2	A	1	1	1	3	3	1	1	1	1	1	1	1	1	1	1.1	3.5
5-Dec	1	1	1	1	1	1	1	1	A	1	1	5	5	1	1	1	1	1	1	1	1	1	1	1	1.2	5.1
6-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0
7-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
8-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	0.9
9-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
10-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	0.9
11-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	0.9
12-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2
13-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.8	1.1
14-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.8	1.2
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.8	1.1
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.9	1.0
17-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	C	C	A	1	1	1	1	1	1	1	1	0.8	1.0
18-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1.1	1.6
19-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4
20-Dec	1	1	1	A	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1.2	1.7
21-Dec	2	2	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	1.7
22-Dec	1	A	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1	1	2	2	2	2	2	1.4	1.9
23-Dec	A	2	2	2	2	2	2	1	1	2	2	2	2	1	1	1	1	2	2	2	2	2	2	A	1.6	2.0
24-Dec	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	A	1	1.6	2.2
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1.0	1.2
26-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1.0	1.4
27-Dec	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1.1	1.9
28-Dec	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1.1	1.8
29-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.9	1.1
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.9	1.2
31-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0.9	1.1
	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.1	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	Diurnal Average	
	1.7	2.0	1.7	1.7	1.6	1.6	1.8	1.9	1.7	1.8	1.9	4.6	5.1	3.5	2.6	2.2	2.2	1.6	1.6	1.7	1.7	1.7	1.8	1.7	Diurnal Maximum	

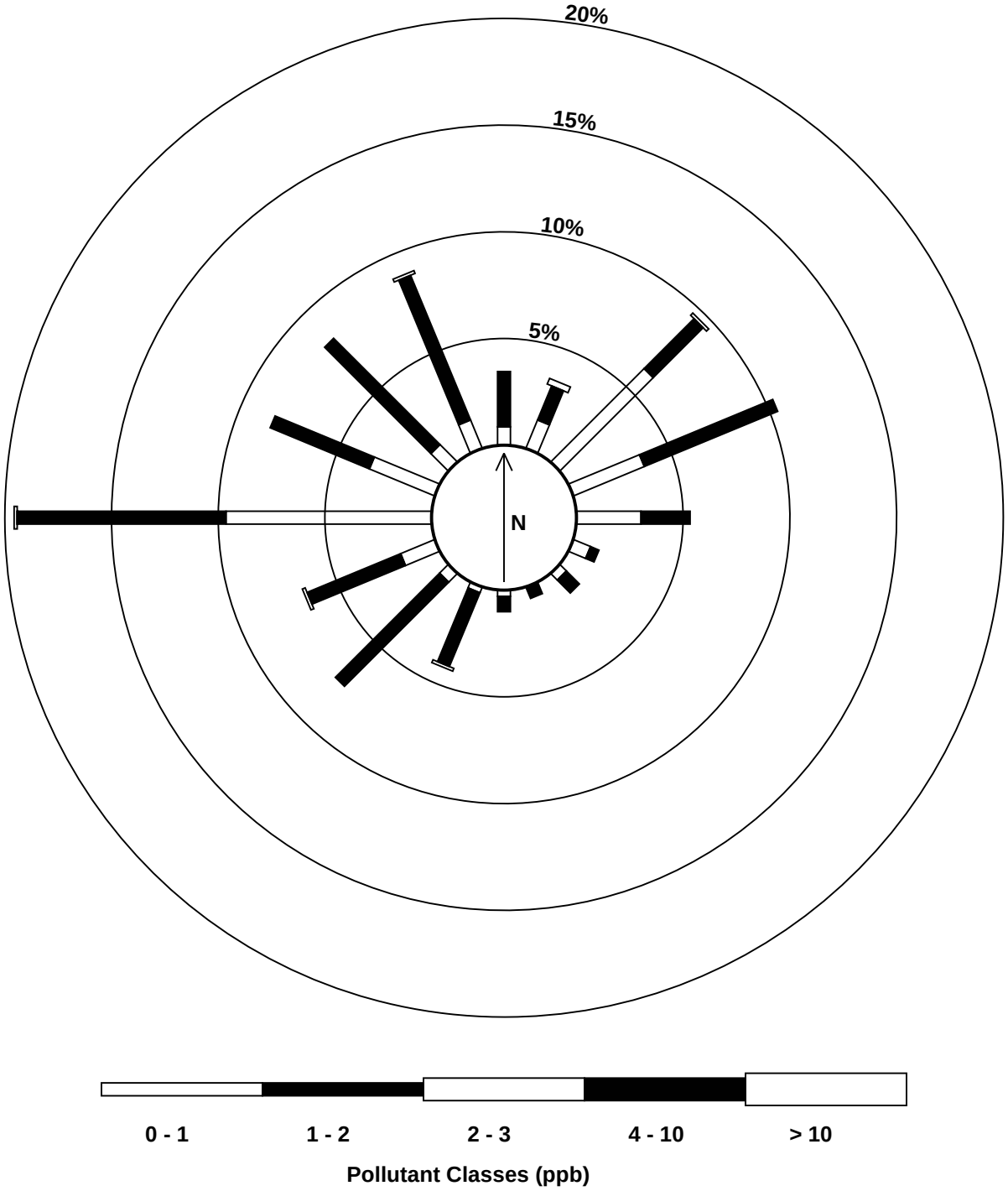
C - Calibration

A - Automated Daily Zero Span

Hourly Maximums for TRS at Evergreen Park
December 2008



Pollutant Rose for TRS at Evergreen Park
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Evergreen Park - Particulate Matter 2.5 ($PM_{2.5}$) - $\mu g/m^3$
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0

Maximum Value: 30.5 $\mu g/m^3$ on Dec 24 16:00

Maximum Daily Average: 12.0 $\mu g/m^3$ on Dec 24

Minimum Value: 0 $\mu g/m^3$ on Dec 1 06:00

Maximum Diurnal Average: 5.8 $\mu g/m^3$ at hour 12

Monthly Average: 3.96 $\mu g/m^3$

Minimum Daily Average: 0.1 $\mu g/m^3$ on Dec 11

Minimum Diurnal Average: 2.9 $\mu g/m^3$ at hour 5

Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.9$ Median = 2.8 $Q_3 = 5.7$ $P_{90} = 9.4$ $P_{99} = 16.1$

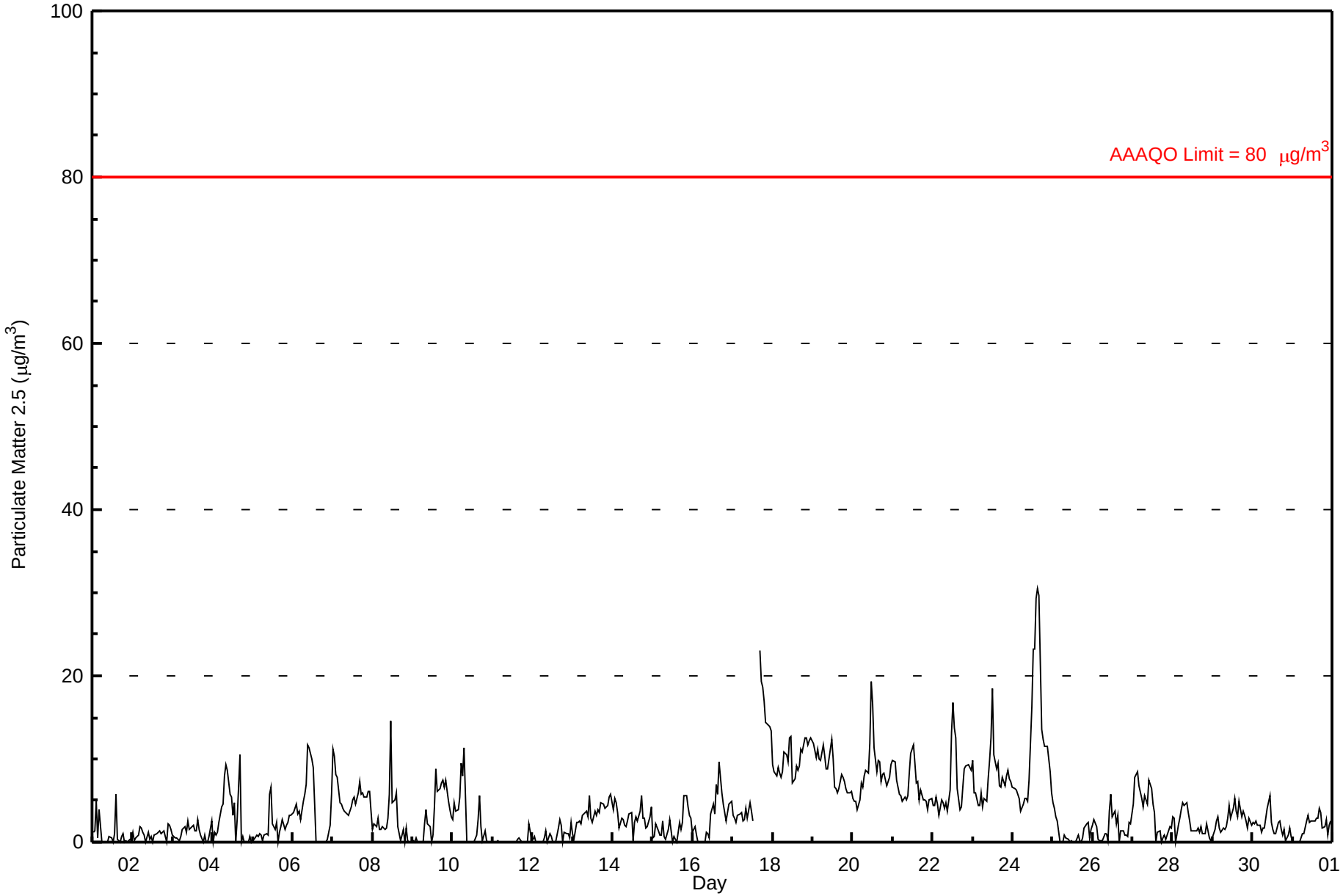
Hours in Service:	744
Hours of Data:	739
Hours of Missing Data:	5
Hours of Calibration:	3
Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	1	5	0	4	0	0	BD	0	0	1	1	0	1	6	0	0	1	1	0	0	0	0	0	1.0	5.7
2-Dec	1	0	0	1	2	2	1	1	0	1	0	1	0	1	1	1	1	1	1	1	0	2	2	2	1.0	2.2
3-Dec	1	0	1	0	0	1	1	2	1	3	1	2	2	1	1	3	2	1	0	1	0	0	1	3	1.1	2.8
4-Dec	0	1	1	1	2	4	5	8	9	9	6	5	3	5	0	3	11	0	1	0	BD	0	1	0	3.2	10.5
5-Dec	0	0	1	1	1	1	0	1	1	1	6	7	2	2	2	0	1	2	3	1	2	2	3	3	1.8	6.7
6-Dec	4	4	5	3	4	3	5	6	7	12	11	10	9	4	0	0	0	0	0	0	0	0	2	6	3.9	11.7
7-Dec	11	10	8	8	5	5	4	4	4	3	4	4	5	5	5	6	7	6	6	6	5	6	6	4	5.7	11.1
8-Dec	2	2	2	3	2	1	2	2	2	3	6	15	5	5	6	2	1	0	2	0	2	0	0	0	2.6	14.6
9-Dec	0	0	1	0	0	0	0	2	4	2	2	0	1	4	9	6	6	7	7	7	7	5	4	3	3.3	8.9
10-Dec	3	5	4	4	5	10	8	11	0	0	0	0	0	0	1	3	6	2	0	1	0	0	0	0	2.6	11.4
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0.1	2.2
12-Dec	0	1	0	0	0	0	0	0	1	0	1	1	0	0	0	2	3	2	0	1	1	1	0	2	0.7	2.7
13-Dec	1	0	2	2	3	2	3	4	4	3	6	3	2	4	3	4	4	5	5	4	4	4	5	6	3.5	5.7
14-Dec	4	5	5	4	2	3	3	2	2	3	3	4	0	2	3	3	4	6	3	3	2	2	3	4	3.0	5.6
15-Dec	0	1	2	1	1	1	2	1	0	2	3	1	0	1	0	1	2	2	2	6	6	4	3	3	1.9	5.7
16-Dec	1	2	1	0	0	0	0	0	1	1	0	3	5	3	7	6	10	6	5	4	3	4	4	5	2.9	9.7
17-Dec	3	3	2	3	3	4	2	3	4	3	5	4	3	C	C	C	23	19	19	17	14	14	14	13	8.4	23.0
18-Dec	9	8	8	9	8	8	8	11	11	10	13	13	7	8	9	9	9	11	11	13	12	12	12	12	10.0	12.6
19-Dec	12	11	10	11	10	10	12	10	9	9	10	12	10	7	6	6	7	8	8	7	6	6	6	6	8.7	12.3
20-Dec	5	5	5	4	5	7	7	8	9	8	12	19	17	11	8	10	10	7	8	8	7	7	8	9	8.5	19.3
21-Dec	10	10	7	7	6	6	5	5	5	6	8	11	12	9	7	7	5	6	5	5	5	4	5	5	6.7	11.6
22-Dec	4	4	5	5	3	5	5	4	5	4	6	13	17	14	13	6	4	4	7	9	9	9	9	9	7.2	16.9
23-Dec	10	6	6	4	4	6	4	5	5	8	10	13	18	11	9	10	7	7	8	7	8	9	8	7	7.8	18.5
24-Dec	7	7	6	6	5	4	5	5	5	5	7	16	23	23	29	30	30	14	12	12	12	12	9	6	12.0	30.5
25-Dec	5	4	3	3	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	2	2	2	1	2	1.1	4.7
26-Dec	2	3	2	0	0	0	0	1	1	0	4	6	3	4	2	3	0	1	1	1	1	1	2	2	1.7	5.8
27-Dec	5	8	8	9	7	5	4	6	5	5	7	6	5	4	0	1	1	0	1	1	0	1	2	2	3.8	8.5
28-Dec	3	3	0	2	3	4	5	4	5	4	2	1	1	1	1	2	1	2	1	1	2	1	1	0	2.1	4.7
29-Dec	0	1	3	3	2	1	2	1	2	3	4	3	4	5	4	3	5	3	4	3	2	2	3	2	2.7	5.2
30-Dec	2	2	3	2	2	1	2	2	3	4	6	2	2	1	1	2	2	2	1	2	0	1	2	1	1.9	5.6
31-Dec	0	0	0	0	0	1	1	1	3	3	2	3	3	3	3	3	4	4	2	2	3	1	2	3	1.8	4.1
	3.5	3.5	3.4	3.1	2.9	3.0	3.1	3.7	3.4	3.6	4.7	5.8	5.1	4.6	4.6	4.4	5.3	4.1	3.9	4.0	3.9	3.6	3.9	3.9	Diurnal Average	
	11.9	11.0	10.2	11.1	10.0	9.9	11.6	11.4	10.5	11.7	12.6	19.3	23.2	23.3	29.3	30.5	29.6	19.2	18.7	17.0	14.5	14.1	13.9	13.3	Diurnal Maximum	

C - Calibration BD - Baseline Drift

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 $\mu g/m^3$ 24-hr 30 $\mu g/m^3$

Hourly Averages for $PM_{2.5}$ at Evergreen Park
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Evergreen Park - Particulate Matter 2.5 ($PM_{2.5}$) - $\mu g/m^3$
December 1, 2008 to January 1, 2009

Maximum Value: 40.1 $\mu g/m^3$ on Dec 4 17:00

Maximum Daily Average: 15.8 $\mu g/m^3$ on Dec 24

Minimum Value: 1 $\mu g/m^3$ on Dec 4 21:00

Maximum Diurnal Average: 10.7 $\mu g/m^3$ at hour 12

Monthly Average: 8.04 $\mu g/m^3$

Minimum Daily Average: 3.9 $\mu g/m^3$ on Dec 11

Minimum Diurnal Average: 6.4 $\mu g/m^3$ at hour 6

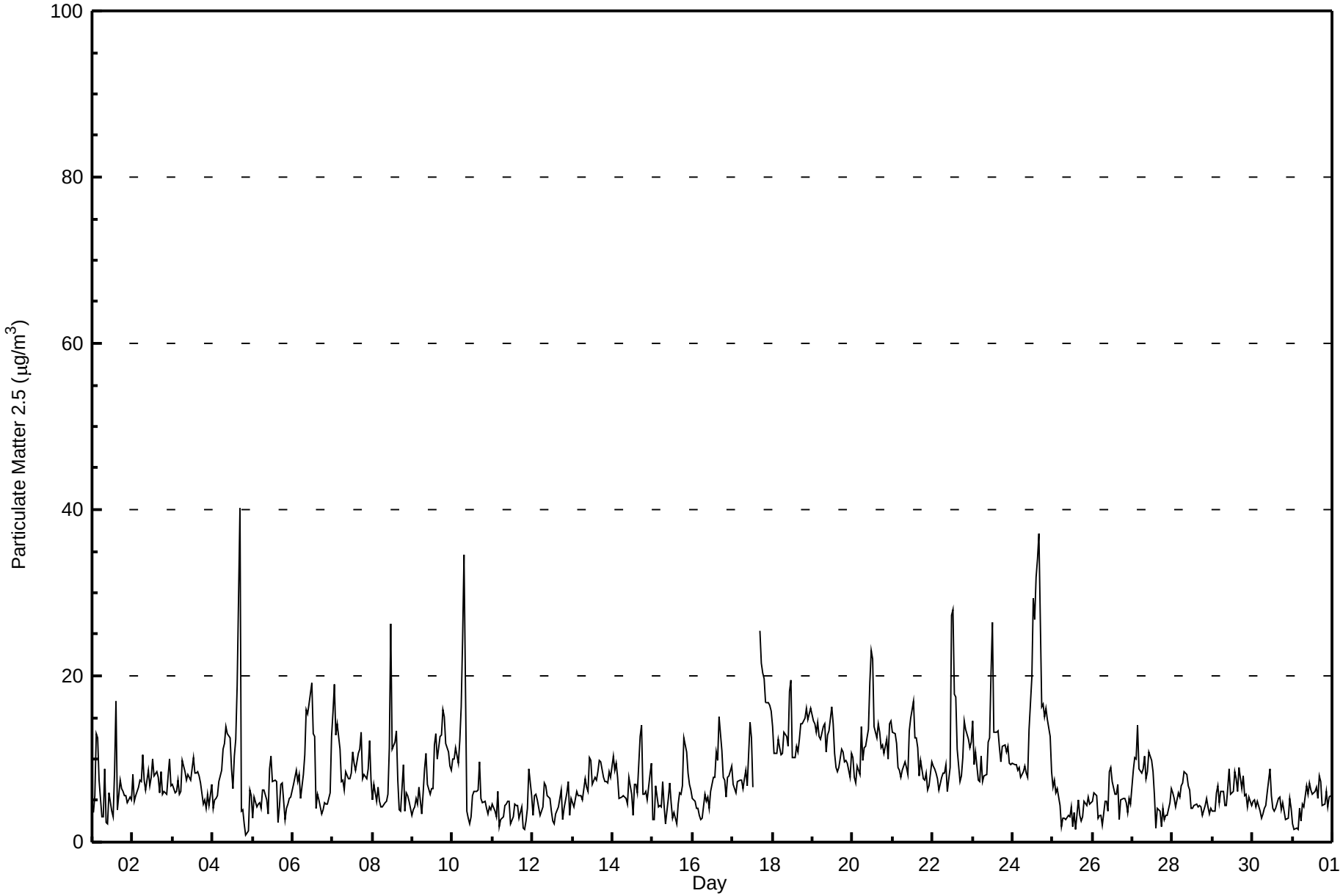
Percentiles: P_1 = 1.7 P_{10} = 3.4 Q_1 = 4.8 Median = 7.0 Q_3 = 10.0 P_{90} = 13.8 P_{99} = 26.7

Hours in Service:	744
Hours of Data:	741
Hours of Missing Data:	3
Hours of Calibration:	3
Percent Operational Time:	100.0

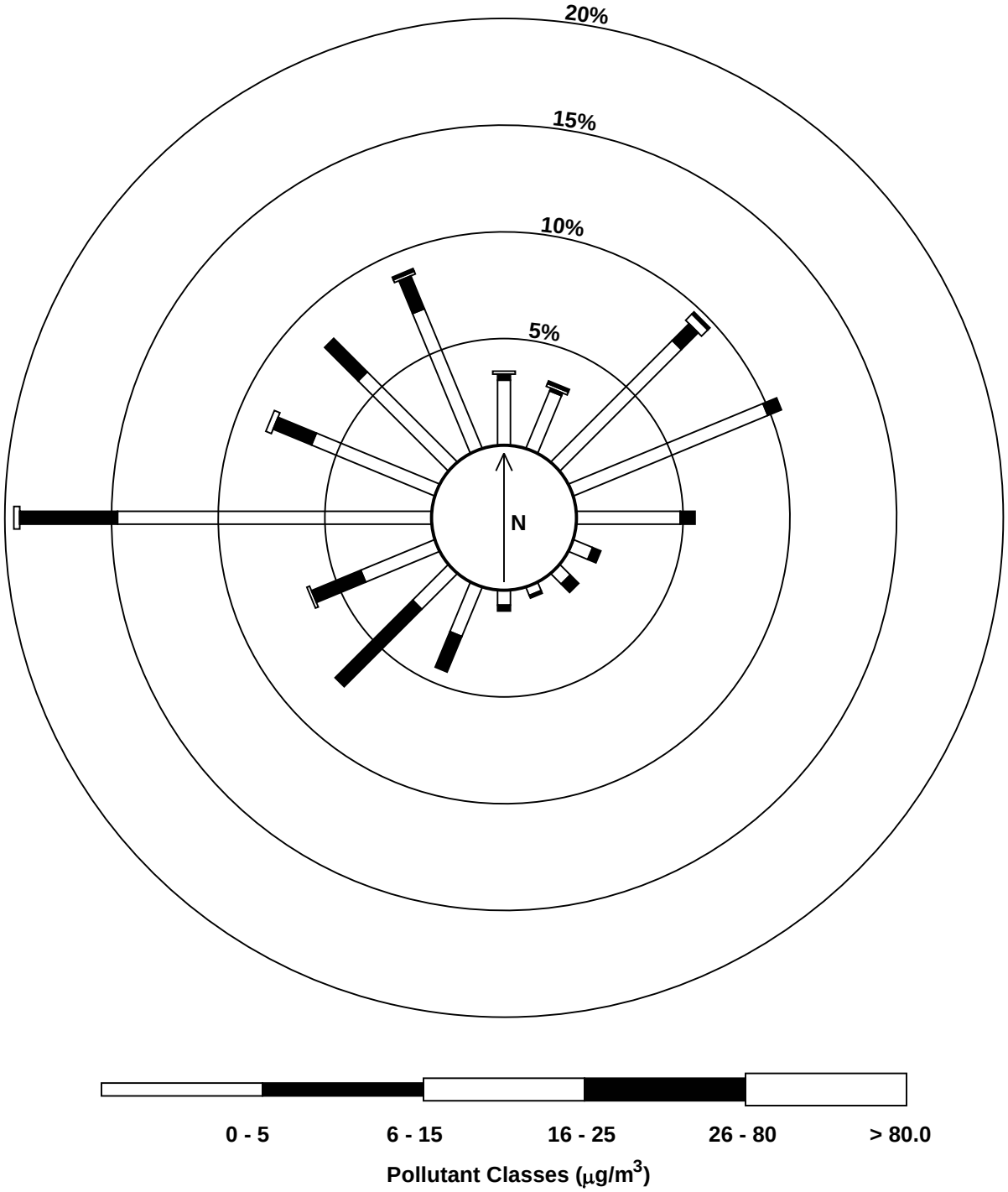
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	4	6	13	13	7	3	3	9	2	2	6	4	3	8	17	4	7	6	6	6	6	5	5	5	6.3	17.0
2-Dec	8	5	6	7	7	7	10	7	6	9	7	8	10	8	8	8	6	8	6	6	6	8	10	7	7.4	10.5
3-Dec	7	6	6	8	6	6	10	9	7	8	8	8	10	8	8	8	8	7	5	5	4	6	4	7	7.0	10.2
4-Dec	4	5	5	6	7	9	11	12	14	13	12	9	6	10	12	19	40	4	4	2	1	1	6	6	9.1	40.1
5-Dec	3	5	4	5	5	4	6	6	5	3	9	10	7	7	7	2	4	7	7	3	4	5	5	5	5.5	10.3
6-Dec	7	8	9	7	8	5	8	10	16	15	17	19	13	13	4	6	5	3	4	5	5	5	6	13	8.8	19.1
7-Dec	16	19	13	14	11	7	7	6	9	8	8	8	11	9	9	11	11	13	8	8	8	9	12	7	10.1	19.0
8-Dec	5	7	5	7	5	4	4	5	5	6	11	26	11	12	13	8	4	4	9	4	6	6	5	3	7.3	26.2
9-Dec	4	4	5	5	7	3	6	9	11	7	6	7	6	12	13	10	13	13	16	15	12	11	9	9	8.8	16.0
10-Dec	10	10	11	9	12	16	24	34	4	3	2	3	6	6	6	6	10	5	5	5	4	3	4	4	8.5	34.5
11-Dec	4	4	3	6	2	3	3	4	5	5	5	2	3	5	4	4	3	4	2	2	3	4	9	6	3.9	8.9
12-Dec	3	6	6	5	3	4	4	7	7	6	5	4	3	2	3	4	5	6	3	4	6	7	3	5	4.6	7.3
13-Dec	5	4	6	6	6	6	5	8	7	6	10	10	7	8	7	8	10	10	8	7	7	7	9	8	7.2	10.2
14-Dec	10	9	9	8	5	5	6	5	5	5	8	6	3	7	7	6	13	14	6	6	6	5	8	9	7.1	14.1
15-Dec	3	3	7	4	4	4	7	4	2	5	7	5	3	4	2	5	6	6	7	13	11	8	7	6	5.5	12.6
16-Dec	5	5	4	4	3	3	3	6	5	5	4	6	8	8	11	10	15	11	8	8	6	8	8	9	6.7	15.1
17-Dec	7	6	6	7	7	7	6	8	9	7	14	12	7	C	C	C	25	22	20	20	17	17	16	16	12.2	25.4
18-Dec	14	11	11	12	11	10	11	13	13	12	18	19	10	10	12	11	12	14	14	15	16	15	15	16	13.2	19.5
19-Dec	15	14	13	14	13	12	14	14	11	13	13	16	14	11	9	8	9	11	11	10	10	10	8	11	11.8	16.2
20-Dec	10	8	7	9	8	14	10	11	12	14	19	23	22	14	13	14	13	11	12	11	12	10	14	15	12.7	23.0
21-Dec	13	13	12	9	9	8	9	10	9	8	13	15	17	13	13	11	8	10	8	7	8	6	7	10	10.2	16.9
22-Dec	9	9	8	8	6	8	8	8	9	6	9	27	28	18	17	11	7	8	10	15	14	12	11	12	11.7	28.0
23-Dec	15	9	11	7	7	10	7	8	8	12	13	20	26	13	13	13	11	10	12	12	11	12	9	9	11.6	26.4
24-Dec	10	9	9	9	9	8	9	9	8	8	14	20	29	27	32	34	37	16	17	15	16	15	13	8	15.8	37.2
25-Dec	7	7	6	7	4	2	3	3	3	3	3	4	2	4	1	5	3	3	3	5	4	5	5	5	4.0	7.4
26-Dec	5	6	6	3	3	3	2	5	5	4	9	9	7	6	6	7	3	5	5	5	5	3	5	5	5.0	9.0
27-Dec	9	10	10	14	9	8	9	10	8	8	11	10	8	6	2	4	4	2	4	3	3	3	5	6	6.9	14.0
28-Dec	6	5	4	6	5	7	7	9	8	7	6	4	4	4	5	4	4	4	3	4	5	4	3	4	5.2	8.5
29-Dec	4	4	6	7	5	6	6	4	4	7	9	6	6	8	8	6	9	6	8	6	6	4	5	4	6.0	8.9
30-Dec	5	5	4	5	4	3	3	4	4	6	9	6	4	4	4	5	5	4	5	4	3	3	5	4	4.5	8.8
31-Dec	2	2	2	1	4	3	5	4	7	6	7	6	6	6	7	5	8	7	4	5	6	4	5	6	4.9	8.0
	7.3	7.2	7.3	7.4	6.6	6.4	7.3	8.5	7.3	7.3	9.4	10.7	9.7	9.0	9.1	8.6	10.3	8.2	7.6	7.5	7.4	7.1	7.7	7.7	Diurnal Average	
	15.5	19.0	13.3	14.4	12.7	16.3	24.5	34.5	16.0	15.4	19.1	27.2	29.4	26.8	31.8	34.1	40.1	21.5	20.3	19.7	16.9	16.8	16.4	16.0	Diurnal Maximum	

C - Calibration

Hourly Maximums for $PM_{2.5}$ at Evergreen Park
December 2008



Pollutant Rose for $PM_{2.5}$ at Evergreen Park
December 2008



Evergreen Park - External Temperature (ET) - ^{o}C
December 1, 2008 to January 1, 2009

Maximum Value: 7.2 ^{o}C on Dec 1 06:00

Maximum Daily Average: 1.4 ^{o}C on Dec 5

Minimum Value: -38 ^{o}C on Dec 21 10:00

Maximum Diurnal Average: -13.5 ^{o}C at hour 16

Monthly Average: -15.94 ^{o}C

Minimum Daily Average: -34.2 ^{o}C on Dec 21

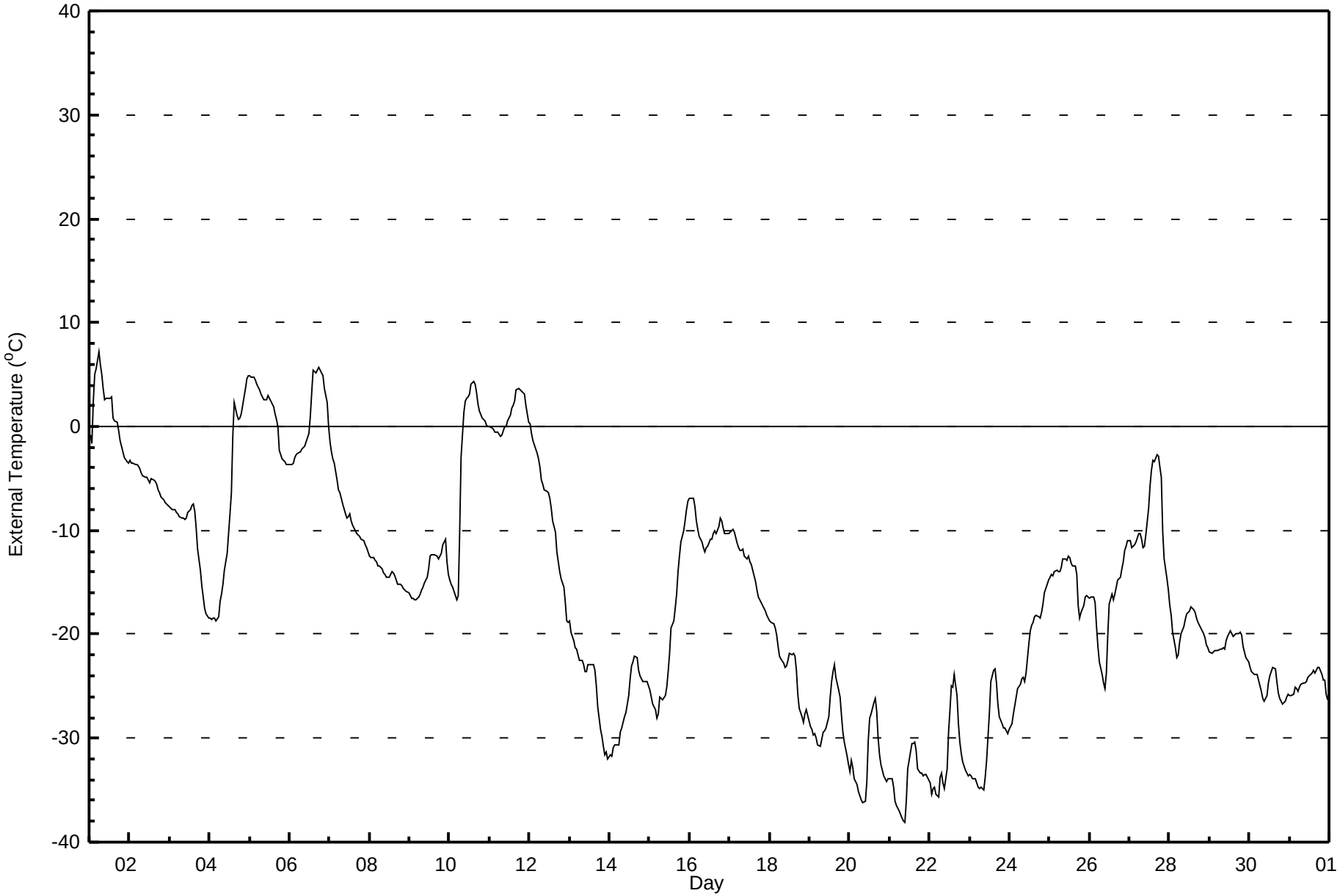
Minimum Diurnal Average: -17.3 ^{o}C at hour 6

Percentiles: P_1 = -36.1 P_{10} = -30.7 Q_1 = -24.6 Median = -16.3 Q_3 = -7.8 P_{90} = 0.7 P_{99} = 5.3

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	-1	-2	2	5	6	7	6	5	4	3	3	3	3	3	1	1	0	0	-1	-2	-2	-3	-3	-3	1.3	7.2
2-Dec	-3	-3	-3	-4	-4	-4	-4	-5	-5	-5	-5	-5	-5	-5	-5	-5	-6	-6	-6	-7	-7	-7	-7	-8	-5.2	-3.3
3-Dec	-8	-8	-8	-8	-8	-8	-9	-9	-9	-9	-9	-8	-8	-8	-7	-8	-10	-12	-14	-15	-16	-17	-18	-18	-10.5	-7.5
4-Dec	-18	-19	-19	-18	-19	-18	-17	-16	-15	-14	-12	-10	-8	-6	-1	2	1	1	1	1	2	4	5	5	-7.9	4.9
5-Dec	5	5	5	4	4	4	4	3	3	3	3	3	3	2	2	1	1	0	-2	-3	-3	-3	-4	-4	1.4	4.9
6-Dec	-4	-4	-3	-3	-3	-3	-2	-2	-2	-2	-2	-1	1	3	5	5	5	6	5	5	5	4	2	0	0.7	5.7
7-Dec	-1	-2	-3	-4	-5	-6	-6	-7	-7	-8	-9	-9	-8	-9	-10	-10	-10	-11	-11	-11	-11	-11	-12	-12	-8.1	-1.4
8-Dec	-12	-13	-13	-13	-13	-13	-13	-14	-14	-14	-15	-15	-14	-14	-14	-14	-15	-15	-15	-15	-16	-16	-16	-16	-14.3	-12.5
9-Dec	-16	-17	-17	-17	-17	-16	-16	-16	-15	-15	-14	-14	-13	-12	-12	-12	-12	-13	-12	-12	-11	-11	-13	-14	-14.1	-10.9
10-Dec	-15	-15	-15	-16	-17	-16	-10	-3	1	2	3	3	3	4	4	4	3	2	1	1	1	1	0	0	-3.1	4.3
11-Dec	0	0	0	0	-1	-1	-1	-1	0	0	0	1	1	2	2	2	3	4	3	3	3	3	2	0	1.1	3.7
12-Dec	0	-1	-1	-2	-3	-3	-4	-5	-6	-6	-6	-6	-7	-8	-9	-10	-12	-13	-14	-15	-15	-17	-19	-19	-8.3	0.2
13-Dec	-19	-20	-21	-21	-21	-22	-23	-23	-23	-24	-24	-23	-23	-23	-23	-23	-25	-27	-29	-30	-31	-32	-31	-32	-24.6	-18.7
14-Dec	-32	-32	-31	-31	-31	-31	-29	-29	-29	-28	-27	-26	-24	-23	-23	-22	-22	-23	-24	-24	-24	-25	-25	-25	-26.6	-22.0
15-Dec	-25	-26	-27	-27	-28	-28	-26	-26	-26	-26	-25	-24	-22	-19	-19	-18	-16	-14	-13	-11	-10	-9	-8	-7	-20.0	-7.2
16-Dec	-7	-7	-7	-8	-9	-10	-11	-11	-12	-12	-12	-12	-11	-11	-10	-10	-10	-10	-9	-9	-10	-10	-10	-10	-9.8	-6.9
17-Dec	-10	-10	-10	-10	-11	-12	-12	-12	-12	-12	-13	-12	-13	-13	-14	-15	-16	-16	-17	-17	-17	-18	-18	-18	-13.7	-9.9
18-Dec	-19	-19	-19	-19	-20	-21	-22	-22	-23	-23	-23	-23	-22	-22	-22	-22	-23	-26	-27	-28	-28	-28	-27	-28	-23.2	-18.6
19-Dec	-29	-29	-30	-30	-30	-31	-31	-30	-29	-29	-29	-28	-26	-25	-24	-23	-24	-25	-26	-28	-29	-30	-32	-33	-28.3	-23.0
20-Dec	-33	-32	-33	-34	-34	-35	-36	-36	-36	-36	-34	-30	-28	-28	-27	-26	-27	-30	-32	-33	-34	-34	-34	-34	-32.3	-26.2
21-Dec	-34	-34	-35	-36	-37	-37	-37	-38	-38	-38	-36	-33	-31	-30	-31	-30	-31	-33	-33	-33	-34	-33	-34	-34	-34.2	-30.4
22-Dec	-34	-35	-35	-35	-35	-36	-34	-33	-34	-35	-33	-29	-27	-25	-25	-24	-26	-29	-30	-31	-32	-33	-33	-34	-31.6	-23.8
23-Dec	-33	-34	-34	-34	-34	-35	-35	-35	-35	-34	-32	-30	-28	-25	-24	-23	-25	-27	-28	-29	-29	-29	-29	-30	-30.3	-23.4
24-Dec	-29	-29	-28	-27	-26	-25	-25	-24	-24	-25	-24	-21	-20	-19	-19	-18	-18	-18	-18	-18	-17	-16	-15	-15	-21.6	-14.8
25-Dec	-15	-14	-14	-14	-14	-14	-14	-14	-13	-13	-13	-12	-13	-13	-13	-13	-14	-17	-18	-18	-17	-16	-16	-16	-14.6	-12.5
26-Dec	-17	-16	-16	-17	-19	-21	-23	-24	-25	-25	-24	-20	-17	-16	-17	-16	-15	-15	-14	-14	-13	-12	-12	-11	-17.5	-11.0
27-Dec	-11	-12	-11	-11	-11	-10	-10	-11	-12	-12	-10	-8	-6	-4	-3	-3	-3	-3	-4	-5	-10	-13	-15	-16	-8.9	-2.7
28-Dec	-17	-18	-20	-21	-22	-22	-21	-20	-19	-19	-18	-18	-18	-17	-18	-18	-18	-19	-19	-20	-20	-20	-21	-21	-19.4	-17.2
29-Dec	-22	-22	-22	-22	-21	-22	-21	-21	-21	-21	-21	-20	-20	-20	-20	-20	-20	-20	-20	-20	-21	-22	-22	-23	-21.0	-19.7
30-Dec	-23	-24	-24	-24	-24	-24	-25	-25	-26	-26	-26	-25	-24	-24	-23	-23	-25	-26	-26	-26	-27	-26	-26	-26	-24.9	-23.2
31-Dec	-26	-26	-26	-25	-25	-25	-25	-25	-25	-25	-25	-24	-24	-24	-23	-24	-24	-23	-23	-24	-24	-24	-26	-26	-24.6	-23.2
	-16.4	-16.6	-16.7	-16.8	-17.2	-17.3	-17.2	-17.0	-17.0	-17.0	-16.5	-15.4	-14.5	-13.8	-13.5	-13.5	-14.0	-14.8	-15.4	-15.7	-16.1	-16.3	-16.7	-17.0	Diurnal Average	
	4.9	4.8	4.7	5.0	5.6	7.2	6.0	5.1	3.7	2.6	2.7	2.9	3.2	4.1	5.4	5.4	5.2	5.7	5.5	5.1	4.8	3.7	4.6	4.9	Diurnal Maximum	

Hourly Averages for External Temperature at Evergreen Park
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Evergreen Park
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	1	0	7	4	10	18	19	17	20	19	19	19	22	17	17	12	12	11	10	12	9	8	7	7	11.5	22.2
Dir	39	219	258	308	297	284	287	302	283	284	286	290	290	300	347	320	321	338	340	334	330	327	309	321	303.4	289.6
2 Spd	8	8	7	5	8	10	10	11	8	9	11	15	13	14	13	12	10	8	9	7	9	8	6	7	9.2	15.1
Dir	335	322	318	317	326	329	328	329	314	332	335	343	343	341	341	344	347	352	347	347	345	346	322	337	336.4	342.8
3 Spd	7	5	3	3	6	3	3	4	2	1	2	1	2	1	1	1	1	0	0	0	0	0	0	0	1.7	7.0
Dir	350	360	20	344	350	360	336	347	338	325	351	349	8	271	250	233	56	28	76	174	39	79	80	228	349.1	350.2
4 Spd	1	1	1	1	0	0	1	2	1	0	5	1	0	1	10	17	27	21	22	20	18	25	25	25	8.8	27.3
Dir	205	51	183	211	51	171	162	82	73	88	246	252	173	242	256	271	273	261	272	255	255	265	274	278	265.8	273.5
5 Spd	19	16	11	12	8	9	5	4	4	1	2	3	6	5	4	4	3	3	5	5	4	3	3	2	3.6	18.6
Dir	281	281	297	285	289	274	300	329	336	350	267	267	280	270	251	244	213	87	73	64	70	65	70	67	291.0	280.8
6 Spd	2	2	2	1	1	2	2	0	1	2	1	1	4	6	14	12	14	16	17	17	10	6	3	5	4.2	16.9
Dir	55	31	59	80	52	56	17	299	254	215	264	229	263	268	268	263	255	268	263	265	279	343	16	79	272.8	262.8
7 Spd	6	6	5	4	6	7	6	5	6	6	5	6	5	7	6	4	4	2	2	2	1	3	3	4	4.3	7.2
Dir	77	88	78	76	72	61	63	73	67	59	61	56	61	62	55	48	78	110	121	100	130	124	137	111	73.7	61.6
8 Spd	4	3	4	5	5	6	5	6	7	7	8	8	7	5	5	5	4	5	3	3	4	3	4	4	4.7	8.5
Dir	101	87	80	75	82	67	71	70	62	46	49	41	39	45	46	64	60	55	60	70	64	75	89	77	62.4	41.0
9 Spd	5	4	4	5	5	4	5	4	3	3	2	1	1	2	3	5	2	3	5	5	6	3	3	3	1.1	6.2
Dir	81	80	76	81	84	78	85	90	83	91	85	59	135	335	265	219	266	256	255	289	268	65	104	101	85.8	267.7
10 Spd	2	2	1	1	1	4	3	12	19	23	16	20	22	20	21	20	17	18	16	16	19	18	16	16	12.8	22.7
Dir	124	112	96	47	5	239	263	251	255	260	256	260	261	267	273	275	281	273	269	268	266	266	269	267	265.2	259.7
11 Spd	15	16	17	17	17	17	16	16	15	14	13	9	8	12	11	9	15	22	24	22	15	14	9	9	14.0	24.0
Dir	263	266	269	270	268	266	265	265	265	262	256	249	252	250	253	267	275	275	274	274	279	291	324	345	270.4	274.4
12 Spd	N	1	N	6	5	3	2	2	5	6	5	6	10	12	14	13	11	9	12	10	11	13	7	5	7.0	14.3
Dir	N	99	N	332	321	323	354	30	59	45	33	40	43	39	39	45	55	48	37	37	37	41	39	42	37.2	38.9
13 Spd	9	4	4	3	2	2	1	2	3	2	1	3	3	3	3	2	2	1	0	1	1	0	1	2	1.6	8.7
Dir	38	26	337	325	290	334	359	17	37	44	35	54	50	84	24	53	28	224	208	223	215	317	267	300	19.0	37.7
14 Spd	2	3	4	7	8	6	8	8	5	6	6	5	7	5	7	6	5	4	4	3	2	2	3	3	5.0	8.1
Dir	304	225	268	269	271	271	276	269	279	281	273	282	278	289	274	265	272	271	268	256	263	294	277	282	273.0	270.8
15 Spd	3	3	2	2	2	3	7	6	7	7	7	9	8	9	6	5	8	14	11	11	12	15	13	9	7.4	15.1
Dir	279	258	275	283	237	270	265	268	274	275	267	277	271	271	295	287	258	265	277	279	287	278	282	281	274.9	278.3
16 Spd	8	8	10	10	10	8	7	4	5	5	6	4	4	5	6	4	4	9	11	17	12	14	14	14	7.3	17.0
Dir	271	279	279	282	282	279	291	301	301	319	299	264	281	255	294	335	299	278	301	338	332	339	341	343	305.3	338.3
17 Spd	14	11	9	10	12	12	9	3	6	8	8	6	10	8	8	9	7	5	3	2	3	1	2	2	6.5	13.7
Dir	353	347	351	38	47	43	48	35	20	42	38	32	40	40	37	40	38	38	11	344	341	330	344	6	26.6	352.8
18 Spd	3	4	2	2	2	1	4	4	3	2	2	3	4	6	4	4	1	1	1	1	1	2	3	3	2.0	6.1
Dir	35	43	37	307	307	325	355	340	310	312	277	293	310	345	335	343	256	232	223	193	214	318	301	307	328.9	344.6
19 Spd	2	2	2	2	0	0	1	2	2	4	2	3	4	7	7	6	4	3	2	1	1	2	2	2	2.4	7.0
Dir	307	310	319	320	275	176	234	264	276	277	292	307	277	274	278	275	291	258	254	205	222	208	208	216	274.1	278.4
20 Spd	2	3	1	1	2	1	N	N	N	N	1	1	1	3	2	1	0	0	0	1	0	1	0	1	0.9	3.0
Dir	206	204	210	208	221	223	N	N	N	N	226	302	286	261	317	286	280	221	189	206	157	216	232	243	237.1	204.2
21 Spd	1	2	1	N	N	N	N	N	N	N	2	1	2	3	4	3	1	1	2	0	1	1	1	2	--	4.3
Dir	246	238	214	N	N	N	N	N	N	N	219	237	277	299	284	279	242	203	205	121	217	270	218	232	--	284.4
22 Spd	1	N	N	0	N	N	1	1	1	1	0	1	1	1	3	1	1	1	0	1	0	0	1	1	0.5	2.8
Dir	223	N	N	116	N	N	201	78	209	203	135	233	35	261	236	216	52	53	125	235	214	237	207	213	216.1	235.6

Peace Airshed Zone Association
Summary of Hourly Averages

Evergreen Park
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
23 Spd	1	1	1	1	1	2	0	1	1	0	2	2	2	1	2	2	1	1	0	1	1	0	1	1	0.8	2.3
Dir	239	212	230	207	214	208	285	225	249	303	212	248	265	278	336	339	335	224	256	214	232	231	234	210	247.2	264.9
24 Spd	0	0	1	1	1	0	1	1	1	0	1	1	1	2	1	1	2	1	3	2	2	1	3	4	0.7	4.3
Dir	315	141	234	220	211	146	97	81	195	206	213	238	265	19	32	40	335	307	223	223	274	253	233	236	243.8	235.8
25 Spd	4	6	6	5	7	7	7	7	8	8	9	7	11	9	9	4	1	0	0	1	1	2	2	2	4.3	11.3
Dir	260	270	271	297	330	327	325	310	316	310	314	319	328	341	348	346	14	35	128	223	88	120	96	65	319.5	327.9
26 Spd	1	1	1	1	0	0	0	0	0	1	0	1	2	3	2	1	1	0	3	1	3	1	1	1	0.8	3.2
Dir	56	93	180	167	48	348	34	95	45	67	37	31	9	7	21	39	67	43	63	75	72	79	288	262	46.2	7.2
27 Spd	2	2	2	5	4	1	1	2	2	6	1	5	7	5	7	6	9	11	8	5	7	6	4	1	2.8	11.3
Dir	267	278	268	226	223	294	209	230	226	213	236	279	271	253	259	257	262	265	273	267	70	74	77	29	258.5	264.6
28 Spd	1	1	0	0	0	1	0	0	1	1	2	3	3	3	4	4	5	3	4	5	4	4	4	3	2.3	5.3
Dir	39	36	35	357	69	356	262	353	90	91	89	96	91	70	73	62	76	78	69	70	76	77	78	82	73.4	70.1
29 Spd	3	2	2	2	1	2	1	1	0	0	2	6	5	6	7	5	5	5	6	8	11	10	10	10	3.9	10.9
Dir	69	67	61	44	60	30	23	70	151	220	318	354	351	287	326	323	307	319	300	326	339	325	324	322	333.4	339.0
30 Spd	9	9	8	8	7	7	5	6	3	3	3	5	6	4	2	2	2	1	2	3	4	3	4	5	2.9	9.1
Dir	324	321	309	304	298	316	327	296	264	253	272	286	290	289	293	30	54	64	76	81	71	77	69	67	319.3	321.4
31 Spd	7	7	6	5	5	3	2	3	6	6	5	8	11	10	10	8	6	7	6	4	2	2	1	3	3.0	10.9
Dir	74	67	69	60	67	55	23	356	324	312	312	280	273	279	280	283	278	288	322	333	288	321	252	276	312.9	273.2
Spd	2.0	1.8	2.1	2.1	2.3	2.5	2.6	2.7	2.9	2.8	2.8	3.2	3.8	3.7	4.2	3.5	3.5	3.8	3.8	3.5	2.9	2.8	2.6	2.5	Diurnal Average	
Dir	327.9	315.4	305.4	308.7	313.1	311.5	311.8	304.4	298.2	296.3	295.3	302.7	303.3	304.4	308.8	305.0	295.1	285.8	291.2	297.0	306.0	314.5	308.3	313.1		
Spd	18.6	15.9	16.6	16.5	17.1	17.8	19.0	17.3	20.4	22.7	19.4	20.0	22.5	19.6	20.7	20.2	27.3	22.4	24.0	22.1	18.5	24.6	24.8	25.4	Diurnal Maximum	
Dir	280.8	280.9	268.9	269.5	268.1	283.6	287.1	302.1	283.3	259.7	285.5	260.1	260.5	266.7	272.8	274.7	273.5	275.0	274.4	274.4	265.9	264.5	273.5	278.0		

Maximum Speed Value: 27 km/h on Dec 4 17:00
Minimum Speed Value: 0 km/h on Dec 22 19:00
Maximum Daily Speed Average: 14.0 km/h on Dec 11
Minimum Daily Speed Average: 0.5 km/h on Dec 22
Maximum Diurnal Speed Average: 4.2 km/h at hour 15
Minimum Diurnal Speed Average: 1.8 km/h at hour 2

Monthly Average Velocity: 2.92 km/h 303.81 deg
Speed Percentiles: $P_1 = 0.2$ $P_{10} = 0.6$ $Q_1 = 1.5$ Median = 3.7 $Q_3 = 7.4$ $P_{90} = 12.6$ $P_{99} = 22.3$
All monthly, daily, and diurnal averages have been calculated using vector methods

Hours in Service: 744
Hours of Data: 727
Hours of Missing Data: 17

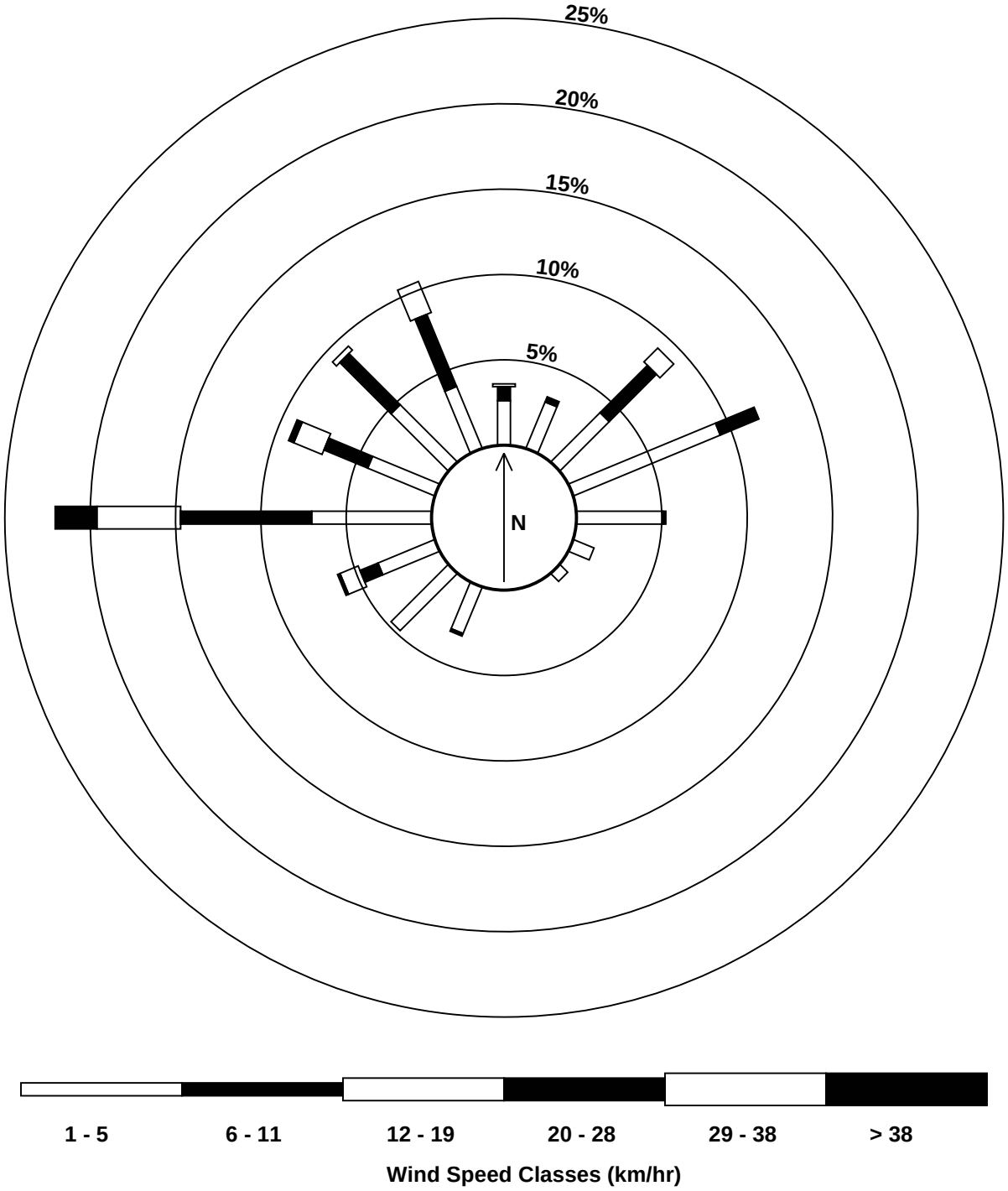
Percent Operational Time: 97.7

N - Not Valid

Percentage Frequency Distribution

Direction	Speed Range (km/h) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	4.95	2.75	1.65	0.00	0.00	0.00	9.35
NorthEast	10.73	4.95	1.10	0.00	0.00	0.00	16.78
East	10.45	1.65	0.00	0.00	0.00	0.00	12.10
SouthEast	2.20	0.00	0.00	0.00	0.00	0.00	2.20
South	1.65	0.00	0.00	0.00	0.00	0.00	1.65
SouthWest	12.79	0.28	0.00	0.00	0.00	0.00	13.07
West	10.45	9.63	6.05	2.89	0.00	0.00	29.02
NorthWest	7.70	6.88	1.24	0.00	0.00	0.00	15.82
Total	60.94	26.13	10.04	2.89	0.00	0.00	100.00

Wind Rose for WS at Evergreen Park
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages - Wind Speed (Scalar)

Evergreen Park - Wind Speed (WS) - km/h
December 1, 2008 to January 1, 2009

Maximum Speed: 27 km/h on Dec 4 17:00

Maximum Daily Speed Average: 14.7 km/h on Dec 11

Minimum Speed: 1 km/h on Dec 18 20:00

Minimum Daily Speed Average: 1.3 km/h on Dec 22

Maximum Diurnal Speed Average: 7.1 km/h at hour 15

Minimum Diurnal Speed Average: 4.6 km/h at hour 3

Monthly Average Speed: 5.65 km/h

Percentiles: $P_1 = 0.8$ $P_{10} = 1.2$ $Q_1 = 1.9$ Median = 3.9 $Q_3 = 7.6$ $P_{90} = 12.7$ $P_{99} = 21.7$

Hours in Service: 744

Hours of Data: 727

Hours of Missing Data: 17

Percent Operational Time: 97.7

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	2	7	6	10	18	19	18	21	19	20	19	22	18	17	13	13	11	10	13	9	8	7	8	12.9	22.3
2-Dec	8	8	7	5	8	10	10	12	8	9	12	15	13	15	13	13	10	8	9	8	9	9	6	7	9.6	15.3
3-Dec	7	5	3	3	7	3	4	5	2	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2.4	7.3
4-Dec	1	1	1	2	1	1	1	2	2	1	6	2	3	3	10	17	27	21	26	20	18	25	25	26	10.0	27.5
5-Dec	19	16	11	12	9	9	5	4	4	1	2	4	6	5	4	4	3	4	5	5	4	3	4	3	6.0	18.8
6-Dec	2	2	2	2	1	2	4	2	1	2	2	2	4	7	14	12	14	16	17	17	11	6	3	5	6.3	16.9
7-Dec	6	6	5	4	6	7	6	5	6	6	5	6	5	7	6	5	4	2	2	3	1	3	4	4	4.8	7.3
8-Dec	4	3	4	5	6	6	5	6	7	7	8	9	7	5	5	5	4	5	3	3	4	3	4	4	5.1	8.6
9-Dec	5	5	4	5	5	4	5	4	3	4	2	2	2	2	3	5	3	4	6	6	7	5	4	4	4.0	6.6
10-Dec	3	2	2	1	1	4	6	12	19	23	16	20	23	20	21	20	17	18	16	16	19	18	16	16	13.7	22.8
11-Dec	15	16	17	17	17	17	16	16	15	14	13	9	8	12	11	9	15	22	24	22	15	14	11	9	14.7	24.1
12-Dec	N	5	N	6	5	3	3	2	6	6	5	6	10	12	14	13	12	9	12	10	11	13	7	5	8.0	14.5
13-Dec	9	4	5	3	2	2	2	2	3	2	1	3	3	4	3	2	2	1	1	1	1	1	2	2	2.6	8.8
14-Dec	2	3	4	8	8	7	8	8	5	6	6	6	7	6	7	7	5	4	4	3	2	2	4	3	5.2	8.2
15-Dec	3	3	3	2	2	3	7	6	7	7	8	9	8	9	7	6	8	14	11	11	12	15	13	9	7.7	15.2
16-Dec	8	8	10	10	10	8	7	4	5	5	7	4	4	6	6	4	5	9	12	17	12	14	14	14	8.5	17.3
17-Dec	14	11	9	11	12	12	9	3	6	9	8	7	11	8	8	9	7	5	3	2	4	2	2	2	7.2	13.8
18-Dec	4	4	3	2	2	2	4	4	3	2	2	3	5	6	4	4	1	1	1	1	1	2	3	3	2.8	6.3
19-Dec	2	2	2	2	1	1	1	2	2	4	2	4	5	7	7	6	4	3	2	1	1	2	2	2	2.9	7.0
20-Dec	2	3	1	1	2	1	N	N	N	N	1	1	1	3	3	2	1	1	1	1	1	2	1	1	1.5	3.1
21-Dec	1	2	2	N	N	N	N	N	N	N	2	2	3	4	5	4	2	2	2	1	1	2	2	2	--	4.5
22-Dec	2	N	N	1	N	N	1	1	1	2	1	1	1	1	3	1	1	2	1	1	1	1	1	1	1.3	2.9
23-Dec	1	1	1	1	1	2	2	1	1	1	2	2	2	1	2	2	1	1	1	1	1	1	1	2	1.4	2.4
24-Dec	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	2	2	3	2	2	2	3	4	1.8	4.4
25-Dec	5	6	7	5	7	7	7	7	9	8	9	8	12	9	9	5	1	1	1	1	2	2	2	2	5.5	11.7
26-Dec	2	1	1	1	1	1	1	1	1	1	2	1	2	3	2	1	2	1	3	2	3	2	1	1	1.5	3.3
27-Dec	2	3	3	5	4	3	2	3	3	6	3	5	7	5	7	6	9	11	8	9	7	7	5	2	5.2	11.3
28-Dec	1	1	1	1	1	1	1	1	1	2	3	4	3	3	4	5	5	3	4	5	4	5	4	3	2.8	5.5
29-Dec	3	3	2	2	2	2	2	2	1	1	3	6	5	6	8	5	5	5	6	8	11	11	11	11	5.0	11.0
30-Dec	9	9	8	8	7	7	5	6	4	3	3	5	6	5	3	2	2	2	2	3	4	3	4	5	4.8	9.4
31-Dec	7	7	6	5	5	3	2	3	6	6	5	9	11	10	10	8	7	7	7	4	2	2	2	3	5.7	11.0
	4.9	4.9	4.6	4.6	5.0	5.1	5.1	4.9	5.3	5.5	5.2	5.7	6.6	6.6	7.1	6.3	6.3	6.3	6.5	6.4	5.9	6.0	5.4	5.2	Diurnal Average	
	18.8	16.1	16.6	16.6	17.1	18.1	19.3	17.9	20.6	22.8	19.6	20.1	22.5	19.7	20.8	20.3	27.5	22.5	25.6	22.2	18.6	24.8	25.0	25.6	Diurnal Maximum	

N - Not Valid

All monthly, daily, and diurnal averages have been calculated using scalar methods

Peace Airshed Zone Association
Summary of Hourly Standard Deviations

Evergreen Park - Wind Direction (WD) - deg
December 1, 2008 to January 1, 2009

Maximum Value: 98.1 deg on Dec 22 19:00

Minimum Value: 3.7 deg on Dec 11 07:00

Percentiles: P_1 = 4.5 P_{10} = 8.0 Q_1 = 12.2 Median = 19.2 Q_3 = 41.8 P_{90} = 69.8 P_{99} = 93.5

Hours in Service:	744
Hours of Data:	727
Hours of Missing Data:	17
Hours of Calibration:	0
Percent Operational Time:	97.7

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	84	94	21	47	41	9	11	15	8	7	8	7	7	16	8	17	14	11	9	11	15	16	16	16	93.7
2-Dec	16	19	16	20	21	13	13	13	14	11	15	10	11	12	10	10	10	11	10	12	9	13	18	14	20.8
3-Dec	19	15	23	29	15	29	17	13	50	33	29	54	39	71	58	60	67	91	79	80	55	95	71	57	95.5
4-Dec	48	58	52	44	77	70	69	27	55	91	22	72	91	73	15	7	7	5	24	7	6	7	6	7	90.9
5-Dec	8	9	12	10	11	9	24	19	16	66	24	23	12	14	14	17	11	50	13	13	19	31	22	25	65.7
6-Dec	40	36	34	59	51	29	72	92	56	43	52	73	29	21	6	9	6	5	4	4	32	21	23	17	92.4
7-Dec	15	20	18	23	19	9	14	19	16	14	13	13	19	11	15	25	18	35	18	32	22	22	27	17	34.6
8-Dec	19	28	17	18	20	16	20	18	13	11	14	10	14	14	15	19	13	14	13	17	18	22	22	18	28.1
9-Dec	22	18	14	15	16	17	17	26	23	24	35	62	70	51	48	10	55	47	41	31	24	63	40	29	69.8
10-Dec	36	56	56	49	64	31	71	16	5	4	6	6	4	7	6	6	9	5	5	5	5	5	5	5	70.9
11-Dec	4	6	5	5	4	4	4	5	5	6	8	11	8	8	8	11	7	5	6	6	7	11	31	9	31.5
12-Dec	N	68	N	25	18	27	47	35	24	12	19	15	12	10	8	10	11	10	10	11	12	8	7	13	67.6
13-Dec	11	20	16	18	30	32	64	41	15	17	47	17	23	27	27	30	54	49	95	78	46	72	50	50	95.4
14-Dec	34	32	19	9	10	12	11	11	16	12	11	17	12	27	11	6	8	16	11	14	36	26	14	19	35.8
15-Dec	14	21	26	30	23	12	8	8	6	6	9	9	12	17	21	25	16	7	11	14	12	8	7	10	29.9
16-Dec	8	11	8	7	8	6	13	15	31	13	16	14	15	21	17	22	27	9	23	11	12	10	8	8	30.8
17-Dec	8	10	18	12	8	8	11	15	21	10	9	14	11	10	11	10	11	10	20	17	14	40	16	22	40.4
18-Dec	12	9	25	19	12	32	12	12	13	13	23	22	18	15	14	12	63	45	35	50	34	35	13	12	63.2
19-Dec	32	32	38	13	82	67	44	15	26	14	33	27	26	9	8	7	19	15	15	43	49	28	23	13	81.6
20-Dec	19	11	23	27	24	78	N	N	N	N	42	74	48	14	34	42	68	80	80	58	85	69	92	72	92.1
21-Dec	77	62	32	N	N	N	N	N	N	N	42	61	30	35	21	18	62	44	34	85	56	66	72	48	85.1
22-Dec	23	N	N	76	N	N	69	69	46	87	89	46	65	39	17	51	61	39	98	64	80	72	48	11	98.1
23-Dec	52	33	41	49	41	31	92	40	62	85	11	26	18	44	41	9	38	60	77	57	47	78	68	57	92.4
24-Dec	92	96	68	94	56	70	55	59	85	86	36	53	59	26	76	31	66	29	26	47	47	61	20	14	96.2
25-Dec	9	6	9	18	12	14	16	16	17	14	15	15	14	14	11	16	43	76	92	72	52	51	33	25	92.1
26-Dec	59	59	69	60	74	97	88	87	88	60	88	42	27	14	23	34	74	87	37	35	29	57	73	55	97.1
27-Dec	27	34	51	32	18	76	87	59	71	5	71	14	12	26	10	11	8	7	8	71	17	17	20	47	87.5
28-Dec	42	58	86	74	92	40	75	66	37	35	26	34	36	37	20	16	13	16	15	16	14	14	15	36	92.5
29-Dec	19	28	42	37	58	57	40	46	90	82	34	15	25	23	19	20	23	19	15	14	11	15	13	13	90.4
30-Dec	15	15	16	15	12	11	14	15	34	21	17	22	26	28	55	38	25	16	19	12	10	10	14	9	55.2
31-Dec	15	13	17	22	22	39	27	27	16	16	19	14	9	10	10	11	12	15	20	15	37	26	48	18	47.9
	91.6	96.2	86.1	93.9	92.5	97.1	92.4	92.4	90.4	90.6	89.4	74.0	90.9	72.8	76.3	60.3	74.0	90.8	98.1	85.1	84.9	95.5	92.1	71.7	

N - Not Valid

PASZA
Smoky Heights Station
Monthly Summary Tables, Graphs and Roses

Peace Airshed Zone Association
Summary of Hourly Averages

Smoky Heights - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 7.9 ppb on Dec 27 12:00
Maximum Daily Average: 2.2 ppb on Dec 10

Minimum Value: 0 ppb on Dec 13 17:00
Maximum Diurnal Average: 1.2 ppb at hour 12
Monthly Average: 0.80 ppb

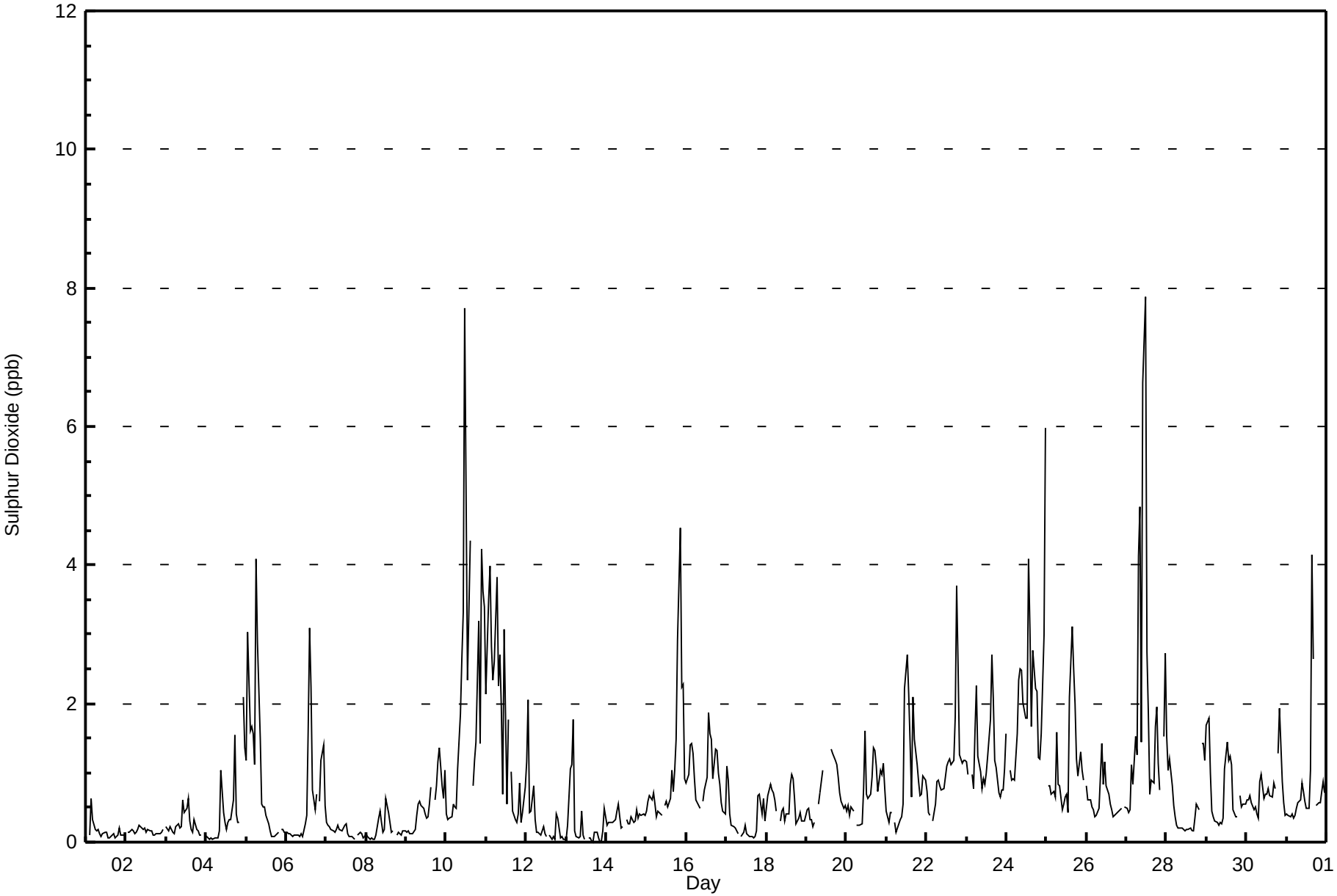
Minimum Daily Average: 0.1 ppb on Dec 1
Minimum Diurnal Average: 0.5 ppb at hour 6
Percentiles: P_1 = 0.0 P_{10} = 0.1 Q_1 = 0.2 Median = 0.5 Q_3 = 1.0 P_{90} = 1.8 P_{99} = 4.4

Hours in Service:	744
Hours of Data:	707
Hours of Missing Data:	37
Hours of Calibration:	37
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	A	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.6
2-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.2	0.2
3-Dec	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	A	0	0.2	0.6
4-Dec	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2	0	0	0	A	2	1	0.4	2.1
5-Dec	1	3	2	2	2	1	4	3	2	1	1	1	0	0	0	0	0	0	0	0	A	0	0	0	1.0	4.1
6-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	2	1	0	1	A	1	1	1	1	0.6	3.1
7-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.2	0.3
8-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	A	0	0	0	0	0	0	0.2	0.6
9-Dec	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	1	A	1	1	1	1	1	1	1	0.5	1.4
10-Dec	0	0	0	0	1	1	0	1	2	3	3	8	5	2	4	A	1	1	1	3	1	4	4	3	2.2	7.7
11-Dec	2	3	4	3	2	3	4	2	3	2	1	3	1	2	A	1	0	0	0	0	1	0	0	1	1.7	4.0
12-Dec	1	2	0	0	1	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.3	2.1
13-Dec	0	0	1	1	2	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.3	1.8
14-Dec	0	0	0	0	0	0	0	1	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
15-Dec	0	1	1	1	1	1	0	0	0	0	A	1	1	0	1	1	1	1	1	3	5	2	2	1	1.1	4.5
16-Dec	1	1	1	1	1	1	1	1	0	A	1	1	1	2	2	1	1	1	1	1	1	1	0	0	1.0	1.9
17-Dec	1	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0.3	1.1
18-Dec	0	1	1	1	1	1	0	A	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0.5	1.0
19-Dec	0	0	0	0	0	0	A	1	1	1	1	C	C	C	A	1	1	1	1	1	1	1	0	1	0.7	1.3
20-Dec	0	1	0	1	0	A	0	0	0	0	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.6
21-Dec	0	0	0	0	A	0	0	0	0	0	1	2	3	2	1	1	2	1	1	1	1	1	1	1	0.9	2.7
22-Dec	1	0	0	A	0	1	1	1	1	1	1	1	1	1	1	1	1	2	4	3	1	1	1	1	1.1	3.7
23-Dec	1	1	A	1	1	2	2	1	1	1	1	1	1	1	2	3	2	1	1	1	1	1	1	1	1.2	2.7
24-Dec	2	A	1	1	1	1	2	2	2	2	2	2	2	4	3	2	3	2	2	1	1	2	3	6	2.1	6.0
25-Dec	A	1	1	1	1	1	2	1	1	0	1	1	1	0	2	3	3	2	1	1	1	1	1	A	1.1	3.1
26-Dec	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	A	1	0.6	1.4
27-Dec	0	0	0	1	1	2	1	4	5	1	7	8	3	2	1	1	1	2	2	1	1	A	2	3	2.1	7.9
28-Dec	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	A	1	1	1	0.6	1.5
29-Dec	2	2	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	A	1	1	1	1	0.7	1.8
30-Dec	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	A	1	2	1	1	0	0.7	1.9
31-Dec	0	0	0	0	0	0	0	1	1	1	1	1	0	0	1	4	3	A	1	1	1	1	1	1	0.8	4.2
	0.7	0.8	0.7	0.6	0.6	0.5	0.7	0.7	0.8	0.7	0.8	1.2	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	Diurnal Average	
	2.1	3.5	4.0	2.8	2.3	2.6	4.1	4.1	4.8	2.6	6.6	7.9	5.1	4.1	4.4	4.2	2.8	2.2	3.7	3.2	4.5	4.2	3.6	6.0	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 57 ppb

Hourly Averages for SO_2 at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Smoky Heights - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 23.5 ppb on Dec 27 12:00

Maximum Daily Average: 5.7 ppb on Dec 27

Minimum Value: 0 ppb on Dec 8 05:00

Maximum Diurnal Average: 2.7 ppb at hour 12

Monthly Average: 1.55 ppb

Minimum Daily Average: 0.4 ppb on Dec 2

Minimum Diurnal Average: 1.0 ppb at hour 4

Percentiles: $P_1 = 0.3$ $P_{10} = 0.4$ $Q_1 = 0.5$ Median = 0.8 $Q_3 = 1.6$ $P_{90} = 3.4$ $P_{99} = 9.7$

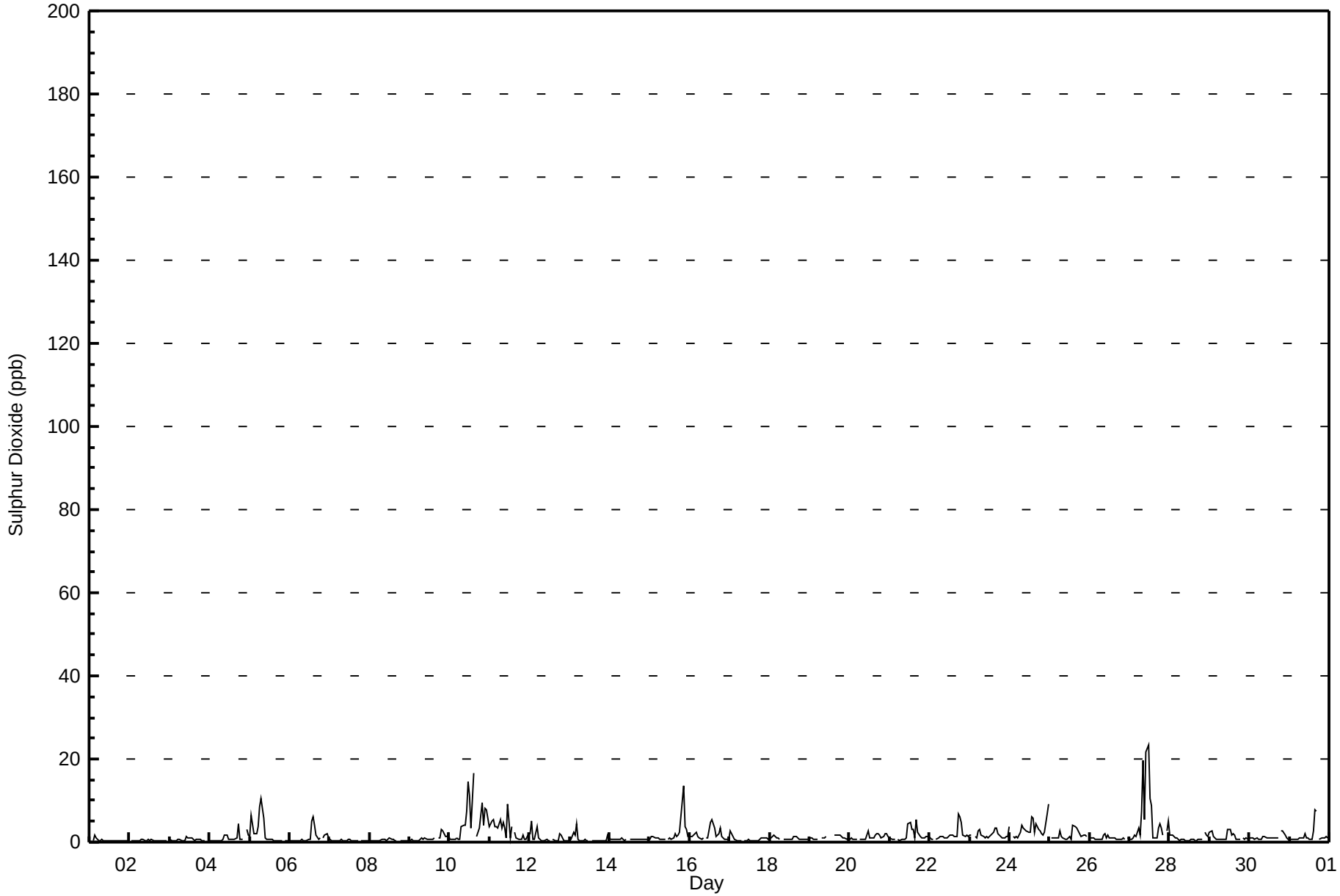
Hours in Service:	744
Hours of Data:	707
Hours of Missing Data:	37
Hours of Calibration:	37
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	A	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1.7
2-Dec	A	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	A	0.4	0.6
3-Dec	1	1	0	0	0	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0	A	0	0.6	1.4
4-Dec	0	0	0	0	0	0	0	0	1	2	2	1	1	1	1	1	1	4	1	1	1	A	3	2	1.0	4.5
5-Dec	1	6	2	2	2	4	8	10	6	1	1	1	1	1	0	0	0	0	0	0	A	0	0	0	2.2	10.5
6-Dec	0	0	0	0	0	0	0	1	0	0	0	1	1	5	6	4	2	1	1	A	1	2	2	1	1.3	6.2
7-Dec	1	1	1	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0	A	0	0	0	0	0	0.4	0.6
8-Dec	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	0	0	A	0	0	0	0	0	1	0.5	1.0
9-Dec	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	A	1	1	3	3	1	1	2	1.0	3.0
10-Dec	1	1	1	1	1	1	1	4	4	4	7	15	11	3	17	A	1	2	3	10	4	8	8	6	4.9	16.6
11-Dec	4	5	5	4	4	3	5	3	5	3	1	9	1	4	A	2	1	1	1	1	2	1	1	2	2.9	9.1
12-Dec	2	5	1	1	4	1	1	1	0	0	1	0	0	A	1	0	0	0	2	2	0	0	0	0	1.0	5.0
13-Dec	0	1	2	2	4	1	0	0	0	1	0	0	A	0	0	0	0	0	0	0	0	0	0	2	0.8	4.3
14-Dec	1	1	1	1	1	1	1	1	1	0	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
15-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	2	1	2	3	6	13	4	3	1	2.1	13.5
16-Dec	1	1	2	2	2	1	1	1	1	A	1	1	5	5	4	3	1	2	3	1	1	1	1	1	1.9	5.4
17-Dec	3	2	1	1	0	0	1	0	A	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1	0.8	2.9
18-Dec	1	1	2	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.7
19-Dec	1	1	1	1	1	1	A	1	1	1	1	C	C	C	A	2	2	2	2	1	1	1	1	1	1.1	1.7
20-Dec	1	1	1	1	1	A	1	1	1	1	2	3	1	1	1	2	2	2	2	1	1	2	2	1	1.3	2.7
21-Dec	1	1	1	1	A	1	0	1	1	1	1	4	5	3	3	1	5	2	1	1	1	1	1	1	1.7	5.3
22-Dec	1	1	1	A	1	1	1	1	1	1	1	1	2	2	2	1	1	7	6	5	2	1	2	1	1.9	6.8
23-Dec	2	2	A	1	1	3	3	2	1	1	1	1	2	2	3	3	3	2	2	1	1	1	1	1	1.7	3.4
24-Dec	4	A	1	1	1	1	2	4	3	3	3	2	2	6	6	2	5	3	3	2	2	2	7	9	3.3	9.1
25-Dec	A	1	1	1	1	1	3	1	1	1	1	1	1	1	4	4	3	3	2	1	2	2	1	A	1.7	4.1
26-Dec	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1	1	1	1	1	1	1	1	A	1	1.0	2.1
27-Dec	1	1	1	2	1	3	2	7	20	5	22	23	11	9	1	1	1	3	4	3	2	A	3	5	5.7	23.5
28-Dec	2	2	2	1	1	1	1	1	1	0	0	1	0	1	1	0	0	1	1	1	A	2	2	1	0.9	2.4
29-Dec	2	3	1	1	1	1	1	1	1	1	1	3	3	2	2	2	1	1	1	A	1	1	1	1	1.3	3.1
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	3	3	2	1	1	1.2	2.6
31-Dec	1	1	1	1	1	1	1	1	1	2	1	1	1	1	3	8	7	A	1	1	1	1	1	1	1.6	7.8
	1.2	1.4	1.1	1.0	1.1	1.0	1.3	1.6	1.9	1.2	1.8	2.7	1.9	1.8	2.1	1.6	1.5	1.6	1.5	1.7	1.6	1.3	1.6	1.6	Diurnal Average	
	3.9	6.4	5.3	3.7	4.3	3.8	8.4	10.5	19.7	5.3	21.6	23.5	11.1	8.7	16.6	7.8	7.4	6.8	6.1	9.6	13.5	8.2	7.9	9.1	Diurnal Maximum	

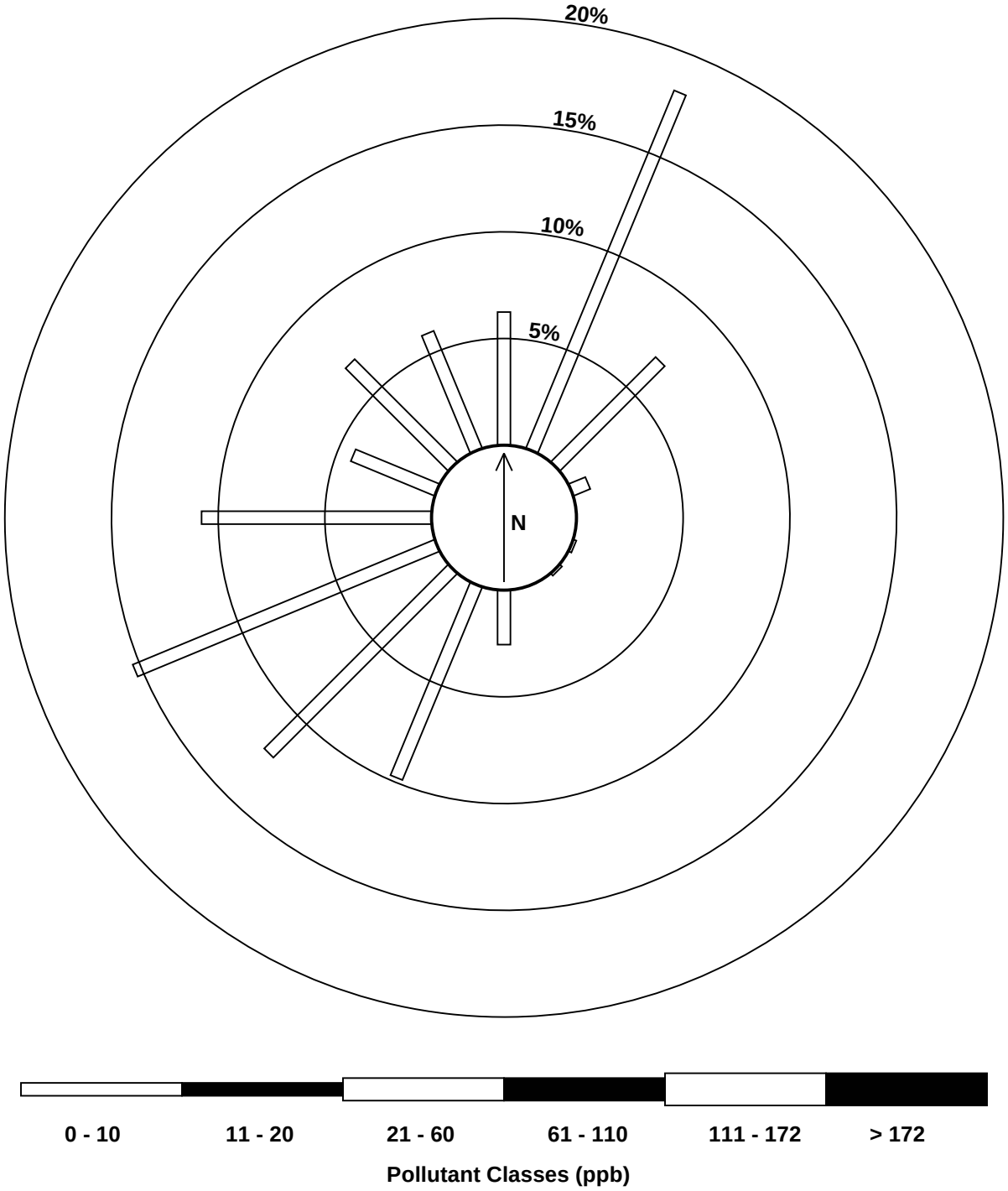
C - Calibration

A - Automated Daily Zero Span

Hourly Maximums for SO_2 at Smoky Heights
December 2008



Pollutant Rose for SO_2 at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Smoky Heights - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 2.3 ppb on Dec 18 14:00
Maximum Daily Average: 0.8 ppb on Dec 18

Minimum Value: 0 ppb on Dec 8 03:00
Maximum Diurnal Average: 0.5 ppb at hour 18
Monthly Average: 0.45 ppb

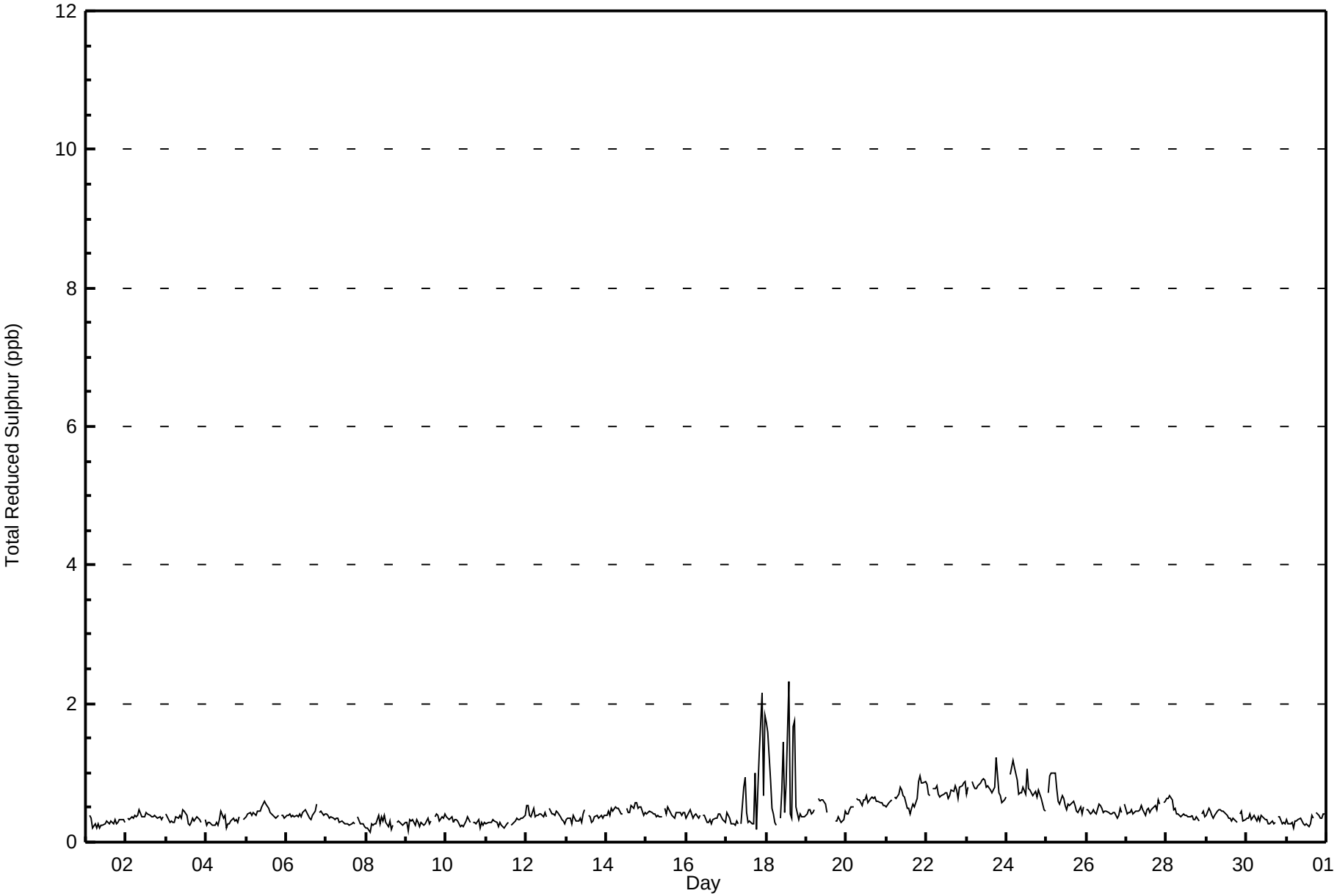
Minimum Daily Average: 0.3 ppb on Dec 8
Minimum Diurnal Average: 0.4 ppb at hour 15
Percentiles: $P_1 = 0.2$ $P_{10} = 0.3$ $Q_1 = 0.3$ Median = 0.4 $Q_3 = 0.5$ $P_{90} = 0.7$ $P_{99} = 1.5$

Hours in Service:	744
Hours of Data:	707
Hours of Missing Data:	37
Hours of Calibration:	37
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
2-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.4	0.5
3-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0.3	0.5
4-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.3	0.4
5-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	A	0	0	0	0.4	0.6
6-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	0	0	0	0	0.4	0.6
7-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.3	0.4
8-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0.3	0.4
9-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.3	0.4
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.3	0.4
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.3	0.4
12-Dec	1	1	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.4	0.5
13-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
14-Dec	0	0	0	0	0	1	0	0	0	0	0	A	0	0	0	1	0	1	1	0	1	1	0	0	0.5	0.6
15-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	1	0	0	0	0	0	0	0	0	0	0	0.4	0.5
16-Dec	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
17-Dec	0	0	0	0	0	0	0	0	A	0	1	1	0	0	0	0	0	1	0	1	1	2	1	2	0.6	2.2
18-Dec	2	2	1	0	0	0	0	A	0	1	1	0	1	2	0	0	2	2	1	0	0	0	0	0	0.8	2.3
19-Dec	0	0	0	0	0	0	A	1	1	1	1	1	0	C	C	C	A	0	0	0	0	0	0	0	0.4	0.6
20-Dec	0	0	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.7
21-Dec	1	1	1	1	A	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	0.7	1.0
22-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
23-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2
24-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0.8	1.2
25-Dec	A	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	0	1	A	0.6	1.0
26-Dec	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0.4	0.6
27-Dec	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1	1	A	1	1	0.5	0.6
28-Dec	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.4	0.7
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0.4	0.5
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.3	0.4
31-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0.3	0.4
	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.5	Diurnal Average	
	1.7	1.6	1.0	1.1	1.2	1.1	0.9	0.8	0.9	0.9	1.4	0.9	1.1	2.3	0.7	0.8	1.7	1.7	1.2	0.9	1.3	2.2	0.9	1.8	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb

Hourly Averages for TRS at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Smoky Heights - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 5.8 ppb on Dec 18 14:00

Maximum Daily Average: 1.7 ppb on Dec 18

Minimum Value: 0 ppb on Dec 1 07:00

Minimum Daily Average: 0.6 ppb on Dec 1

Maximum Diurnal Average: 1.0 ppb at hour 18

Minimum Diurnal Average: 0.8 ppb at hour 16

Monthly Average: 0.86 ppb

Percentiles: $P_1 = 0.5$ $P_{10} = 0.6$ $Q_1 = 0.7$ Median = 0.8 $Q_3 = 0.9$ $P_{90} = 1.1$ $P_{99} = 2.7$

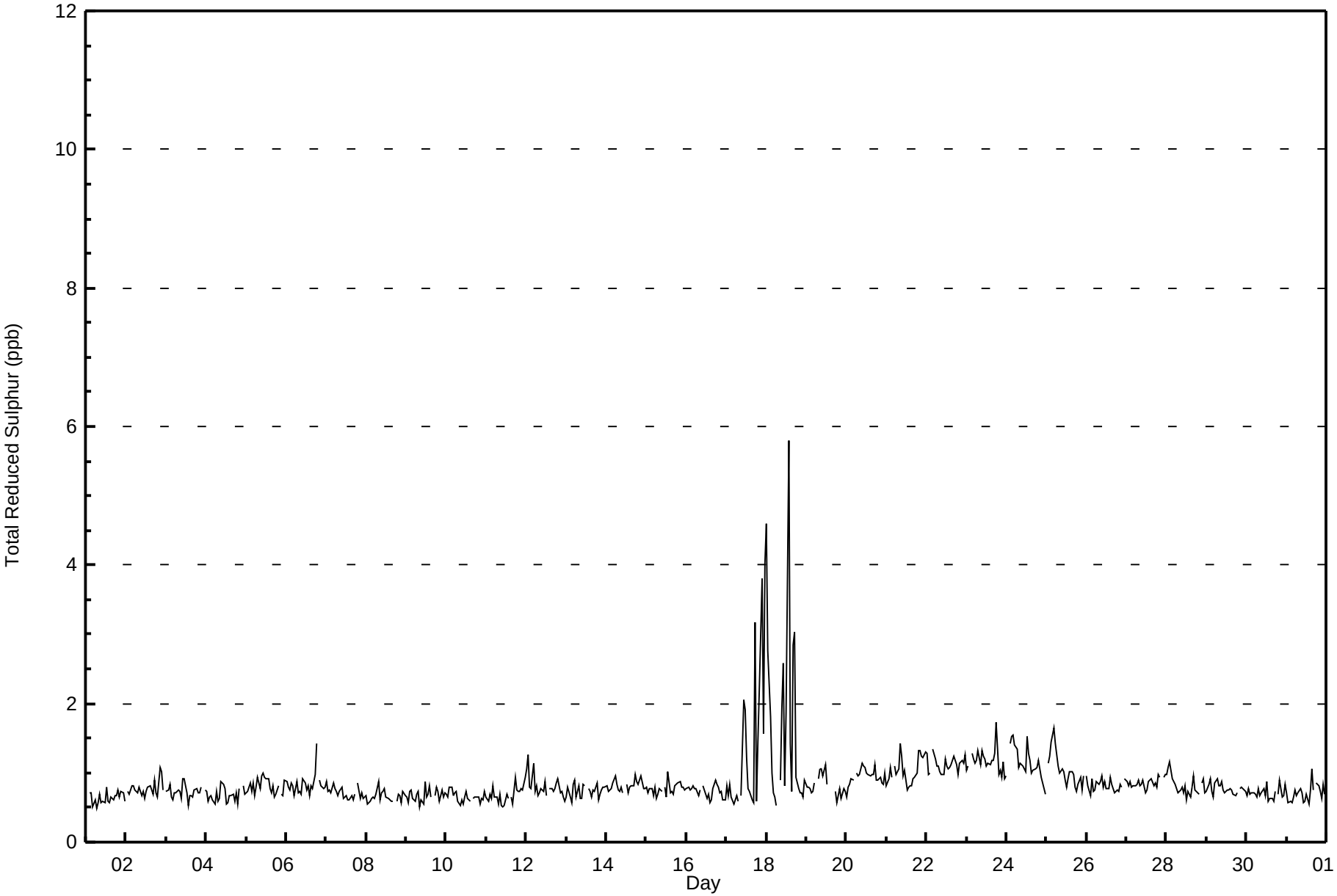
Hours in Service:	744
Hours of Data:	707
Hours of Missing Data:	37
Hours of Calibration:	37
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	A	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.8
2-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.8	1.1
3-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.7	0.9
4-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.7	0.9
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.8	1.0
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.8	1.4
7-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0.7	0.9
8-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.7	0.9
9-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.7	0.9
10-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0.7	0.8
11-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.7	0.9
12-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.8	1.3
13-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
14-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
15-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
16-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
17-Dec	1	1	1	1	1	1	1	1	A	1	2	2	1	1	1	1	1	3	1	1	2	4	2	4	1.3	4.0
18-Dec	5	3	2	1	1	1	1	A	1	2	3	1	2	6	1	1	3	3	1	1	1	1	1	1	1.7	5.8
19-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	C	C	C	A	1	1	1	1	1	1	1	0.8	1.1
20-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.1
21-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4
22-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.4
23-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1.2	1.7
24-Dec	1	A	1	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1.1	1.5
25-Dec	A	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1.0	1.6
26-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.8	1.0
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.9	1.0
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.8	1.2
29-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.8	0.9
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0.7	0.9
31-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.7	1.0
	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	1.0	0.8	0.8	0.9	1.0	0.8	0.8	0.9	0.9	0.8	0.9	Diurnal Average	
	4.6	2.8	1.8	1.5	1.6	1.4	1.3	1.3	1.4	1.9	2.6	1.9	1.9	5.8	1.4	1.2	2.8	3.2	1.7	1.4	2.2	3.8	1.6	4.0	Diurnal Maximum	

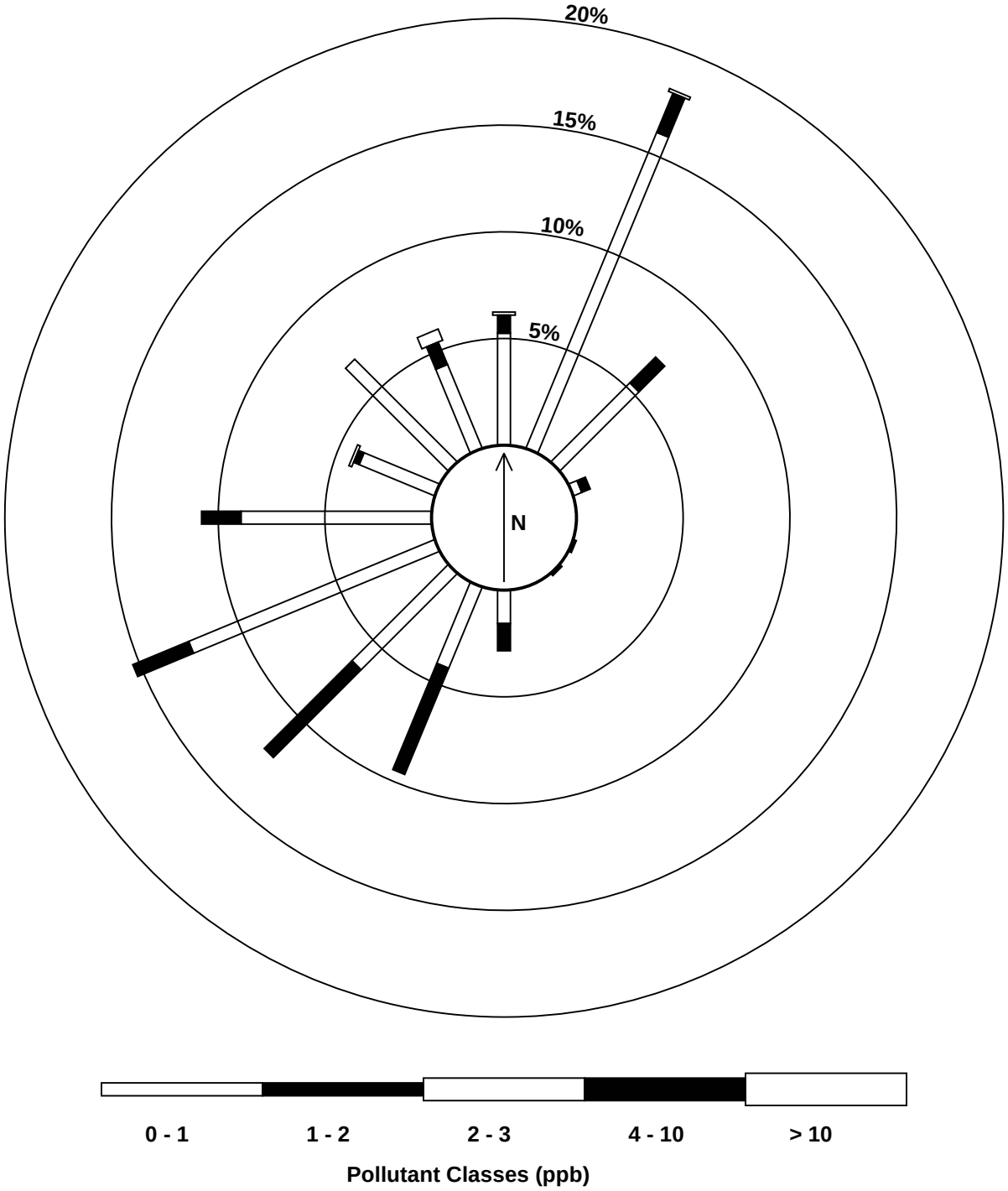
C - Calibration

A - Automated Daily Zero Span

Hourly Maximums for TRS at Smoky Heights
December 2008



Pollutant Rose for TRS at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Smoky Heights - Particulate Matter 2.5 ($PM_{2.5}$) - $\mu g/m^3$
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0

Maximum Value: 59.4 $\mu g/m^3$ on Dec 13 11:00

Maximum Daily Average: 20.0 $\mu g/m^3$ on Dec 24

Minimum Value: 0 $\mu g/m^3$ on Dec 1 02:00

Maximum Diurnal Average: 8.1 $\mu g/m^3$ at hour 11

Monthly Average: 5.37 $\mu g/m^3$

Minimum Daily Average: 0.6 $\mu g/m^3$ on Dec 11

Minimum Diurnal Average: 3.9 $\mu g/m^3$ at hour 5

Percentiles: P_1 = 0.0 P_{10} = 0.1 Q_1 = 1.0 Median = 2.8 Q_3 = 8.0 P_{90} = 13.4 P_{99} = 35.0

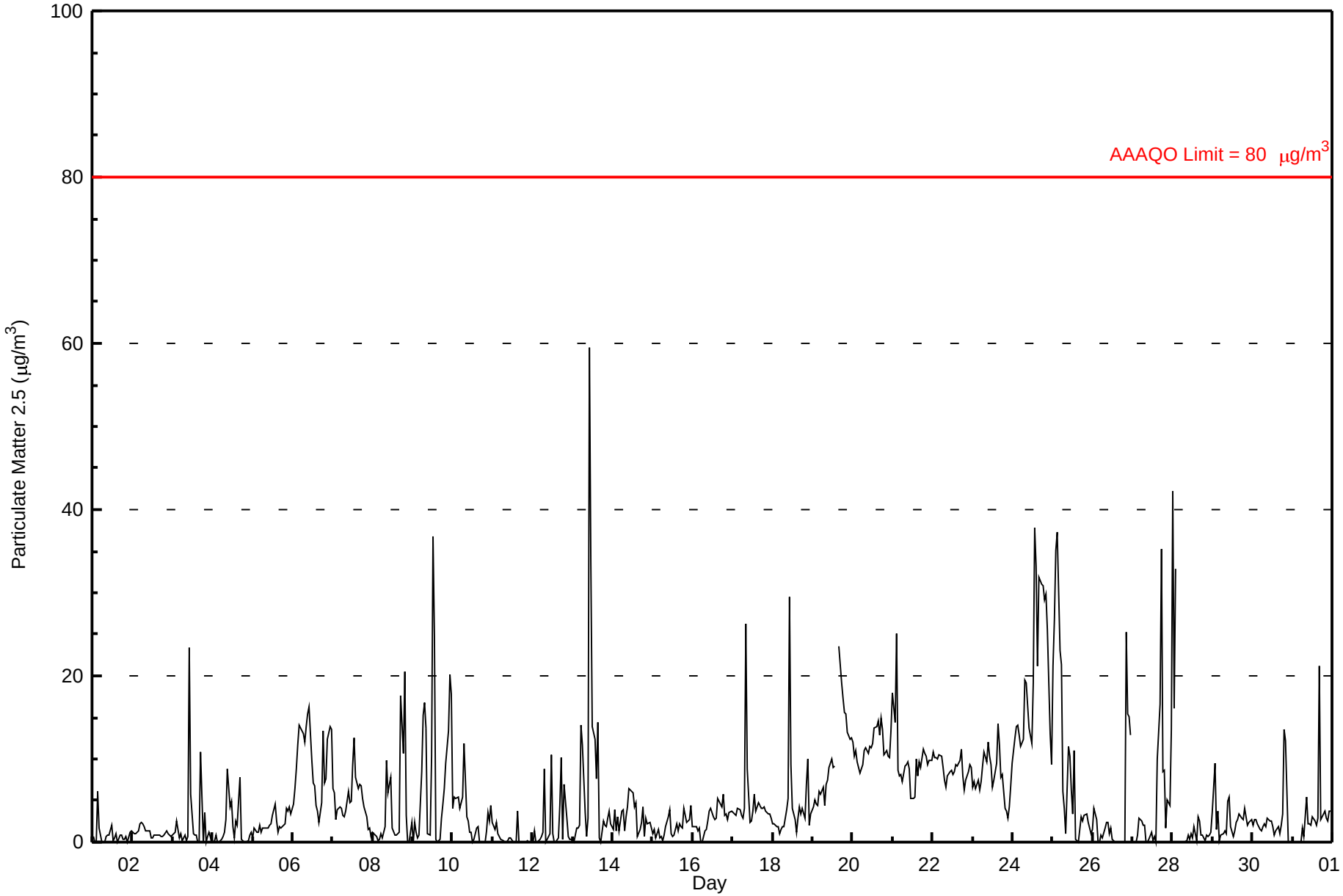
Hours in Service:	744
Hours of Data:	740
Hours of Missing Data:	4
Hours of Calibration:	2
Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	0	0	6	2	0	0	0	1	1	1	2	0	1	1	0	1	1	0	0	1	0	1	1	0.8	6.1
2-Dec	1	1	1	1	2	2	2	2	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1.2	2.3
3-Dec	1	1	3	2	0	1	0	1	0	1	23	6	1	1	1	0	0	11	0	4	0	1	1	0	2.4	23.4
4-Dec	0	0	1	0	0	0	1	1	3	9	4	5	2	0	2	2	8	0	0	0	0	0	1	1	1.7	8.9
5-Dec	0	2	1	1	2	1	2	2	2	2	2	2	3	5	3	1	2	2	2	2	4	4	4	3	2.2	4.6
6-Dec	5	6	9	12	14	14	13	12	14	15	16	10	7	7	4	4	2	5	13	7	8	12	14	14	9.9	16.2
7-Dec	6	6	3	4	4	4	3	3	4	6	5	5	9	13	8	6	7	7	5	4	3	2	2	1	5.0	12.5
8-Dec	1	1	1	0	0	1	1	2	10	6	7	8	2	1	1	1	1	18	11	20	3	0	0	2	4.0	20.4
9-Dec	0	2	1	1	1	9	15	17	14	1	1	10	37	25	0	0	0	3	5	6	9	13	20	18	8.7	36.9
10-Dec	4	5	5	5	4	5	5	12	3	3	1	1	0	0	2	2	0	0	0	0	1	3	3	4	2.9	11.9
11-Dec	2	2	2	1	1	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0.6	3.7
12-Dec	0	1	0	0	0	1	1	9	0	0	1	11	1	0	0	1	4	10	0	7	3	1	0	0	2.2	10.5
13-Dec	0	0	2	2	2	14	12	4	1	3	59	34	14	12	8	14	0	0	3	2	2	3	4	2	8.1	59.4
14-Dec	2	4	1	3	1	4	4	1	3	4	6	6	6	4	5	1	2	2	4	1	3	2	2	2	3.1	6.5
15-Dec	1	2	1	1	1	1	0	1	2	3	4	1	1	1	2	1	2	2	2	4	2	3	3	4	1.8	4.5
16-Dec	2	2	2	1	2	0	0	1	2	3	4	4	3	3	3	5	5	4	6	3	3	3	3	4	2.8	5.8
17-Dec	4	3	3	4	4	3	3	4	26	9	2	2	4	6	4	5	4	4	4	4	4	3	3	3	4.8	26.3
18-Dec	2	2	2	2	1	2	2	2	4	5	29	9	4	3	1	3	4	3	4	3	7	10	2	3	4.6	29.4
19-Dec	4	5	5	4	6	6	7	4	7	7	9	10	9	9	C	C	24	19	17	16	15	13	12	13	10.1	23.5
20-Dec	12	10	11	10	8	9	9	11	11	11	11	11	12	14	14	15	13	15	14	11	11	10	10	13	11.5	14.9
21-Dec	18	14	25	9	8	8	7	9	9	10	9	5	5	5	10	8	10	9	11	11	10	9	10	10	10.0	25.0
22-Dec	11	10	10	10	10	10	9	7	7	8	8	9	8	8	9	9	10	11	8	6	7	8	9	9	8.9	11.2
23-Dec	7	7	6	7	6	7	9	11	10	12	10	9	7	7	9	14	12	8	8	4	4	3	4	7	7.9	14.2
24-Dec	9	13	14	14	13	12	12	19	19	17	14	12	19	38	33	21	32	31	31	29	30	26	13	9	20.0	37.7
25-Dec	21	27	35	37	23	21	6	4	1	11	10	6	3	11	0	0	2	3	3	3	3	2	2	1	9.9	37.2
26-Dec	2	4	3	0	0	1	1	2	2	2	1	2	0	0	0	0	0	0	0	0	25	15	15	13	3.6	25.3
27-Dec	BD	0	0	1	3	3	2	2	0	0	0	1	0	1	0	10	17	35	8	9	2	5	4	14	5.1	35.3
28-Dec	42	16	33	BD	0	0	0	0	0	1	0	1	1	2	0	3	3	1	1	0	1	1	1	1	4.7	42.2
29-Dec	4	10	1	4	0	1	1	1	1	5	5	2	1	1	2	3	3	3	3	4	3	2	2	3	2.7	9.6
30-Dec	2	3	3	2	1	1	2	2	2	3	2	3	2	1	1	2	1	2	3	14	12	0	0	0	2.7	13.6
31-Dec	0	0	0	0	0	0	2	1	5	2	2	2	3	3	2	3	21	3	3	4	3	3	4	4	2.9	21.2
	5.5	5.2	5.9	4.8	3.9	4.5	4.2	4.7	5.3	5.2	8.1	6.1	5.3	5.9	4.2	4.6	6.1	6.8	5.5	5.8	5.9	5.1	4.9	5.2	Diurnal Average	
	42.2	26.8	35.1	37.2	23.0	21.3	15.3	19.4	26.3	16.5	59.4	33.6	36.9	37.7	33.2	21.2	31.9	35.3	30.8	29.1	29.8	25.6	20.2	17.7	Diurnal Maximum	

C - Calibration BD - Baseline Drift

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 $\mu g/m^3$ 24-hr 30 $\mu g/m^3$

Hourly Averages for $PM_{2.5}$ at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Smoky Heights - Particulate Matter 2.5 ($PM_{2.5}$) - $\mu g/m^3$
December 1, 2008 to January 1, 2009

Maximum Value: 186.7 $\mu g/m^3$ on Dec 13 12:00

Maximum Daily Average: 26.0 $\mu g/m^3$ on Dec 13

Minimum Value: 0 $\mu g/m^3$ on Dec 11 19:00

Minimum Daily Average: 2.9 $\mu g/m^3$ on Dec 2

Maximum Diurnal Average: 17.6 $\mu g/m^3$ at hour 11

Minimum Diurnal Average: 6.5 $\mu g/m^3$ at hour 5

Monthly Average: 11.69 $\mu g/m^3$

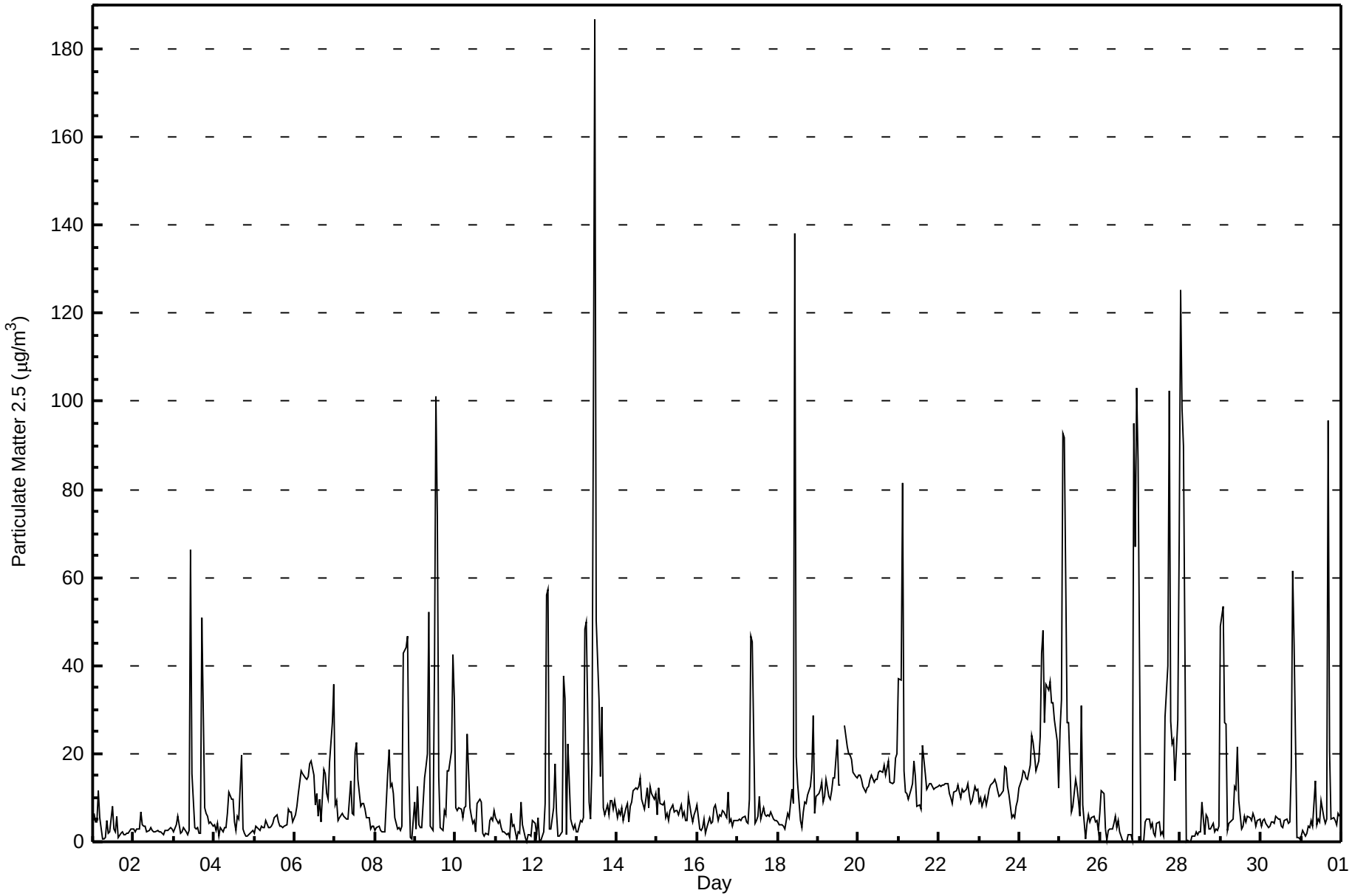
Percentiles: P_1 = 0.0 P_{10} = 2.1 Q_1 = 3.4 Median = 6.2 Q_3 = 12.7 P_{90} = 22.7 P_{99} = 95.9

Hours in Service:	744
Hours of Data:	742
Hours of Missing Data:	2
Hours of Calibration:	2
Percent Operational Time:	100.0

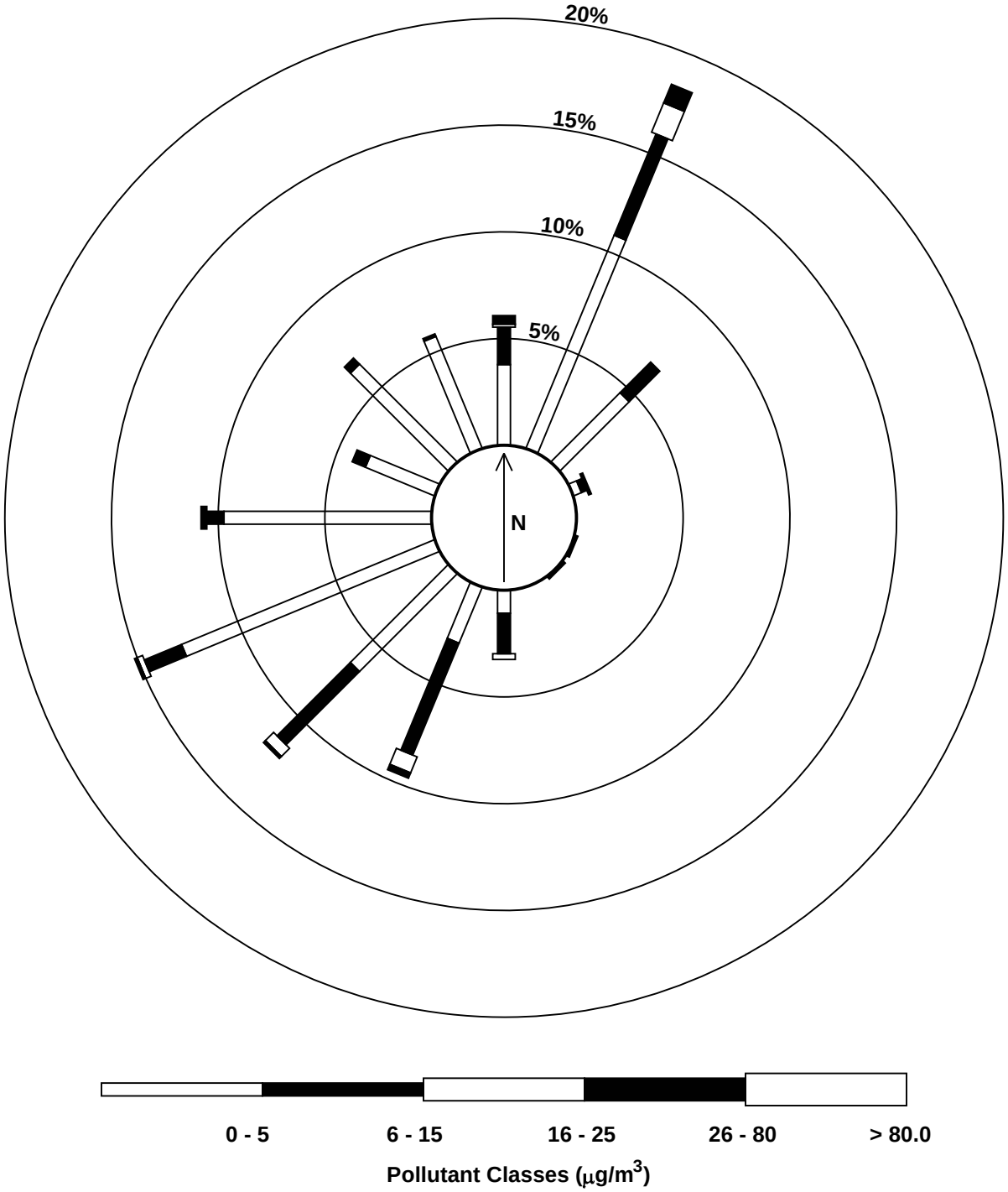
Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Dec	7	4	5	12	6	1	1	1	5	2	2	8	3	2	6	1	2	2	2	1	2	2	3	3	3.4	11.7
2-Dec	3	2	3	3	7	4	3	4	2	3	3	3	2	2	3	2	2	2	2	3	3	3	3	3	2.9	6.6
3-Dec	2	4	6	4	2	2	3	2	2	3	66	15	3	3	3	2	2	51	8	7	6	4	5	4	8.7	66.2
4-Dec	4	2	4	1	3	2	3	3	6	11	10	10	5	3	6	5	20	3	2	1	1	2	2	3	4.7	19.8
5-Dec	2	4	3	3	3	3	3	5	3	3	4	4	5	6	5	3	4	3	3	4	8	7	7	5	4.1	7.5
6-Dec	6	8	11	14	16	15	14	14	15	18	18	15	8	11	6	10	5	16	16	11	10	18	27	36	14.1	35.9
7-Dec	8	9	5	5	6	6	6	5	5	14	7	6	20	23	14	8	9	9	7	5	5	3	4	4	8.0	22.5
8-Dec	3	3	4	3	2	2	2	15	21	13	13	11	6	3	3	3	4	43	44	47	15	1	1	9	11.2	46.7
9-Dec	3	13	4	3	3	14	17	20	52	4	3	40	101	74	15	3	3	7	6	16	16	21	42	32	21.3	101.0
10-Dec	8	7	8	8	5	8	8	24	8	6	4	5	2	9	10	9	2	1	2	1	5	5	5	7	6.5	24.4
11-Dec	5	4	5	3	2	2	2	2	1	6	4	4	1	2	2	9	4	1	0	2	2	1	5	4	3.0	9.0
12-Dec	2	6	0	0	2	9	56	57	3	3	8	18	7	1	1	2	38	32	2	22	5	4	3	4	11.9	57.4
13-Dec	2	2	5	5	5	48	50	9	5	18	97	187	50	32	15	30	8	6	8	6	9	9	7	9	26.0	186.7
14-Dec	5	7	6	8	5	8	9	5	8	9	11	12	12	13	15	10	7	10	12	8	13	11	10	11	9.3	14.5
15-Dec	6	12	9	8	9	6	7	5	7	8	7	7	7	6	8	6	7	5	5	10	6	5	6	7	7.0	12.1
16-Dec	8	3	3	3	5	2	3	5	4	5	8	8	5	6	6	7	7	6	11	5	5	4	5	5	5.3	11.2
17-Dec	5	5	5	6	6	4	4	10	47	45	4	5	6	10	5	8	6	6	6	6	7	5	5	5	9.2	46.7
18-Dec	5	4	4	4	3	5	7	5	12	9	138	19	13	5	3	7	9	9	11	12	16	29	6	10	14.3	138.3
19-Dec	11	12	13	9	10	14	10	10	12	14	14	23	13	13	C	C	26	22	20	20	19	16	15	14	15.0	26.5
20-Dec	15	15	14	13	11	12	13	14	15	13	14	14	16	16	16	17	15	17	18	14	13	14	19	20	14.9	20.0
21-Dec	37	37	81	16	11	11	10	12	13	18	15	8	8	7	22	19	15	12	13	13	12	12	12	12	17.9	81.5
22-Dec	13	12	13	13	13	13	11	10	9	11	11	13	11	10	12	11	12	13	11	9	9	13	11	12	11.6	13.3
23-Dec	9	10	8	10	8	10	12	13	13	14	13	11	10	11	12	17	17	13	11	6	6	5	8	9	10.7	16.9
24-Dec	12	14	16	16	15	14	18	24	22	20	16	18	24	43	48	27	36	34	36	31	32	28	23	12	24.2	48.0
25-Dec	25	32	93	92	27	27	17	7	8	14	12	9	6	31	8	1	4	6	5	5	6	5	5	3	18.7	92.8
26-Dec	7	12	11	3	0	3	3	3	4	6	3	5	2	0	0	0	0	2	2	0	95	67	103	87	17.4	103.1
27-Dec	0	0	0	5	5	5	3	4	2	1	4	5	2	2	1	28	40	102	27	22	23	14	28	69	16.4	102.5
28-Dec	125	98	90	0	0	0	0	1	1	2	2	2	2	9	2	6	6	3	3	4	2	3	3	3	15.4	125.2
29-Dec	49	54	27	27	3	4	5	5	13	12	21	9	3	3	6	4	6	6	5	6	5	3	5	5	11.9	53.6
30-Dec	4	5	5	4	3	4	5	5	4	6	5	5	4	3	5	5	4	4	17	61	45	1	1	1	8.5	61.4
31-Dec	1	3	1	2	4	3	5	3	14	4	5	4	9	5	4	5	96	21	5	6	5	4	6	6	9.2	95.8
	12.6	13.0	14.9	9.7	6.5	8.4	10.0	9.8	10.9	10.1	17.6	16.3	11.8	11.8	8.7	8.9	13.3	15.0	10.3	11.8	13.1	10.2	12.4	13.3	Diurnal Average	
	125.2	98.3	92.8	91.9	27.0	48.1	56.1	57.4	52.1	45.4	138.3	186.7	101.0	73.7	48.0	30.5	95.8	102.5	44.1	61.4	95.1	66.9	103.1	86.7	Diurnal Maximum	

C - Calibration

Hourly Maximums for $PM_{2.5}$ at Smoky Heights
December 2008



Pollutant Rose for $PM_{2.5}$ at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Smoky Heights - External Temperature (ET) - ^{o}C
December 1, 2008 to January 1, 2009

Maximum Value: 6.7 ^{o}C on Dec 1 05:00

Maximum Daily Average: 0.6 ^{o}C on Dec 1

Minimum Value: -39 ^{o}C on Dec 22 04:00

Maximum Diurnal Average: -15.4 ^{o}C at hour 15

Monthly Average: -17.44 ^{o}C

Minimum Daily Average: -34.1 ^{o}C on Dec 21

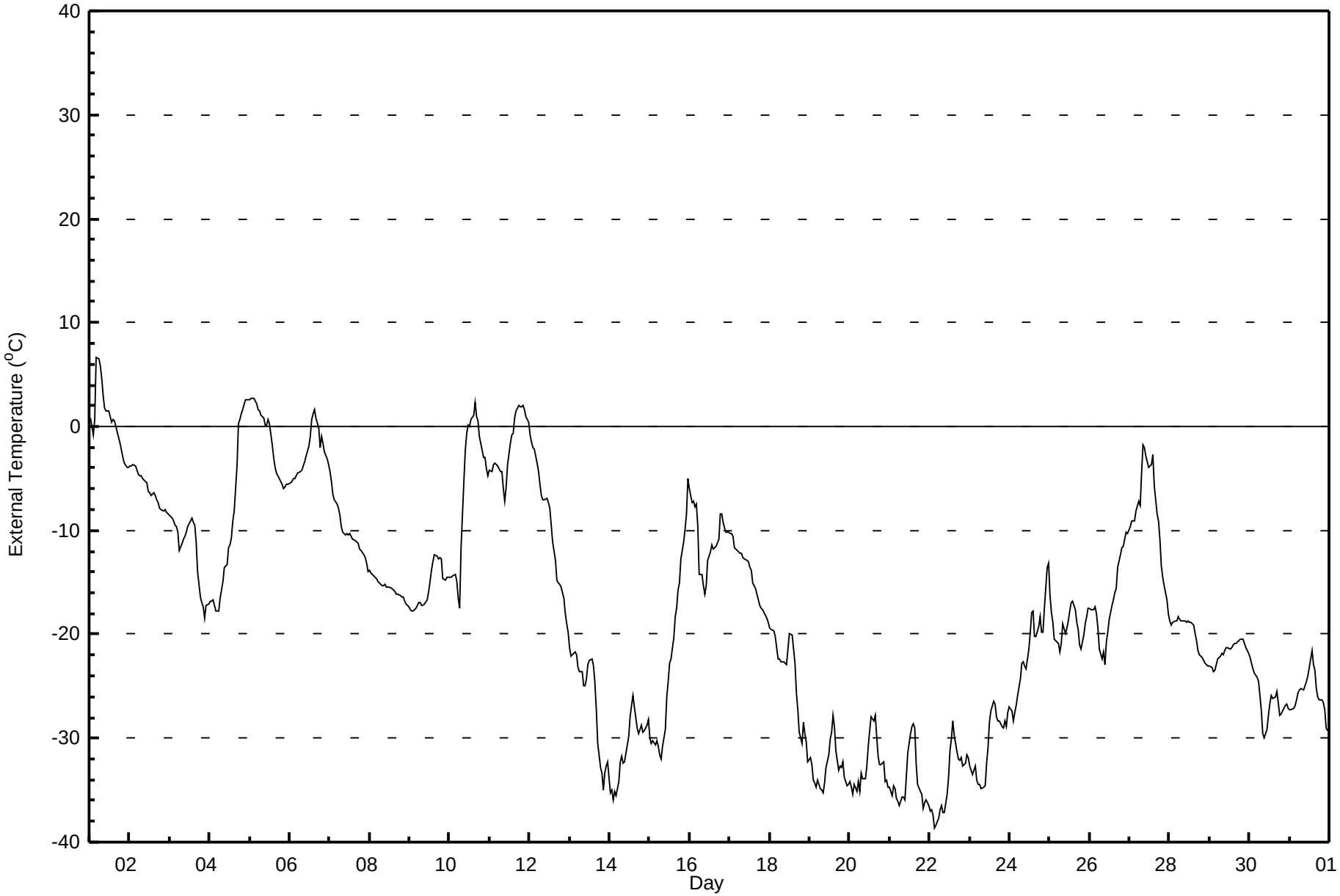
Minimum Diurnal Average: -18.7 ^{o}C at hour 7

Percentiles: P_1 = -36.9 P_{10} = -32.8 Q_1 = -26.9 Median = -17.5 Q_3 = -8.5 P_{90} = -2.0 P_{99} = 2.7

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Dec	1	0	-1	1	7	7	6	5	3	2	2	1	1	0	1	0	0	-1	-2	-2	-3	-4	-4	-4	0.6	6.7
2-Dec	-4	-4	-4	-4	-4	-5	-5	-5	-5	-5	-5	-6	-6	-7	-6	-7	-7	-7	-8	-8	-8	-8	-8	-8	-6.0	-3.7
3-Dec	-9	-9	-9	-9	-10	-10	-12	-11	-11	-11	-10	-10	-9	-9	-9	-9	-11	-14	-16	-17	-17	-18	-17	-17	-11.9	-8.6
4-Dec	-17	-17	-17	-17	-18	-18	-17	-16	-15	-13	-13	-12	-11	-11	-9	-8	-4	0	1	1	2	3	3	3	-9.2	2.6
5-Dec	3	3	3	2	2	2	1	1	1	0	0	1	0	-2	-3	-4	-4	-5	-5	-6	-6	-6	-6	-6	-1.4	2.7
6-Dec	-5	-5	-5	-5	-5	-4	-4	-4	-4	-3	-3	-2	-1	1	1	2	1	0	-2	-1	-2	-2	-3	-4	-2.5	1.6
7-Dec	-4	-5	-7	-7	-7	-8	-9	-10	-10	-10	-10	-10	-10	-11	-11	-11	-11	-11	-12	-12	-12	-13	-13	-14	-10.0	-4.3
8-Dec	-14	-14	-14	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-16	-16	-16	-16	-16	-16	-16	-16	-17	-17	-17	-15.6	-13.9
9-Dec	-18	-18	-18	-18	-17	-17	-17	-17	-17	-17	-17	-16	-15	-14	-13	-12	-13	-13	-13	-13	-15	-15	-15	-14	-15.4	-12.3
10-Dec	-15	-15	-14	-14	-15	-17	-17	-12	-5	-2	-1	0	0	1	1	2	1	1	-1	-2	-3	-3	-4	-5	-5.8	2.3
11-Dec	-4	-4	-4	-3	-4	-4	-4	-4	-6	-7	-6	-4	-2	-1	-1	1	2	2	2	2	2	2	1	0	-1.9	2.1
12-Dec	-1	-2	-2	-2	-4	-4	-6	-7	-7	-7	-7	-7	-8	-10	-11	-13	-15	-15	-15	-15	-17	-18	-19	-20	-9.6	-0.9
13-Dec	-21	-22	-22	-22	-22	-23	-24	-24	-25	-25	-24	-23	-23	-22	-23	-25	-27	-30	-33	-33	-35	-33	-33	-32	-26.1	-21.2
14-Dec	-35	-35	-36	-35	-36	-34	-32	-32	-32	-32	-31	-30	-28	-27	-26	-27	-29	-30	-29	-29	-29	-29	-29	-28	-30.9	-25.9
15-Dec	-30	-31	-30	-31	-30	-31	-32	-32	-31	-29	-26	-25	-23	-22	-20	-18	-17	-16	-15	-13	-11	-10	-8	-5	-22.3	-5.0
16-Dec	-6	-7	-7	-8	-8	-9	-14	-14	-15	-16	-15	-13	-12	-11	-12	-12	-11	-11	-8	-8	-9	-10	-10	-10	-10.8	-5.9
17-Dec	-10	-10	-11	-12	-12	-12	-12	-12	-13	-13	-13	-13	-14	-14	-15	-16	-16	-17	-17	-17	-18	-18	-18	-19	-14.2	-10.3
18-Dec	-19	-20	-20	-20	-21	-22	-22	-23	-23	-23	-23	-21	-20	-20	-21	-23	-26	-27	-29	-30	-28	-30	-30	-32	-24.0	-19.4
19-Dec	-32	-33	-34	-34	-35	-34	-35	-35	-35	-34	-33	-32	-30	-29	-28	-29	-31	-33	-33	-33	-32	-34	-35	-34	-32.8	-27.8
20-Dec	-34	-35	-35	-34	-35	-34	-35	-33	-34	-34	-33	-31	-29	-28	-28	-28	-30	-32	-33	-33	-32	-34	-34	-35	-32.6	-27.8
21-Dec	-35	-36	-35	-35	-36	-36	-36	-36	-36	-36	-34	-32	-30	-29	-29	-29	-32	-34	-35	-35	-37	-36	-36	-36	-34.1	-28.6
22-Dec	-37	-37	-37	-39	-38	-38	-37	-36	-37	-37	-35	-34	-31	-30	-28	-30	-31	-32	-32	-32	-33	-32	-32	-32	-34.1	-28.3
23-Dec	-33	-33	-34	-33	-34	-34	-34	-35	-35	-35	-32	-31	-28	-27	-26	-27	-28	-28	-28	-29	-29	-28	-29	-27	-30.8	-26.5
24-Dec	-27	-27	-28	-27	-27	-26	-24	-23	-23	-23	-23	-21	-20	-18	-18	-20	-20	-19	-18	-20	-20	-17	-14	-13	-21.6	-13.1
25-Dec	-16	-18	-19	-21	-21	-21	-22	-21	-19	-20	-19	-19	-18	-17	-17	-18	-19	-19	-21	-21	-20	-19	-18	-18	-19.2	-16.3
26-Dec	-17	-18	-18	-17	-18	-19	-21	-22	-22	-23	-21	-20	-19	-17	-17	-16	-16	-14	-12	-12	-12	-11	-10	-10	-16.7	-10.2
27-Dec	-10	-9	-9	-9	-8	-7	-8	-4	-2	-2	-3	-4	-4	-4	-3	-6	-8	-9	-11	-13	-15	-15	-17	-18	-8.2	-1.8
28-Dec	-19	-19	-19	-19	-19	-18	-19	-19	-19	-19	-19	-19	-19	-19	-19	-20	-21	-22	-22	-22	-22	-23	-23	-23	-20.0	-18.3
29-Dec	-23	-23	-24	-23	-23	-22	-22	-22	-22	-22	-21	-21	-21	-21	-21	-21	-21	-21	-21	-20	-20	-21	-21	-22	-21.7	-20.4
30-Dec	-22	-23	-23	-24	-24	-25	-26	-27	-30	-30	-29	-28	-27	-26	-26	-26	-26	-27	-28	-28	-27	-27	-27	-27	-26.3	-22.2
31-Dec	-27	-27	-27	-27	-26	-26	-25	-25	-25	-25	-25	-24	-23	-22	-23	-23	-25	-26	-26	-26	-27	-27	-29	-29	-25.7	-21.6
	-17.4	-17.8	-18.0	-18.1	-18.1	-18.3	-18.7	-18.4	-18.3	-18.3	-17.6	-16.7	-15.9	-15.5	-15.4	-15.7	-16.6	-17.0	-17.4	-17.6	-17.8	-17.9	-17.9	-18.0	Diurnal Average	
	2.6	2.7	2.7	2.4	6.7	6.5	5.9	4.6	3.0	1.7	1.5	1.5	0.9	0.6	1.2	2.3	1.5	2.1	1.9	1.9	2.0	2.5	2.6	2.6	Diurnal Maximum	

Hourly Averages for External Temperature at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Smoky Heights
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	7	6	7	10	27	36	42	39	38	35	30	21	31	34	31	30	31	24	21	22	19	22	18	16	23.7	42.3
Dir	254	220	271	262	268	266	271	274	276	270	264	304	308	286	289	294	300	304	301	307	312	310	309	310	286.0	271.2
2 Spd	17	14	11	12	10	14	12	9	13	12	17	23	21	19	18	18	17	16	16	12	9	12	11	12	14.3	23.4
Dir	310	308	312	319	330	330	321	321	314	310	311	321	319	309	312	312	316	313	315	308	285	307	314	320	314.3	321.2
3 Spd	13	10	10	9	8	5	9	9	9	5	7	5	4	2	4	1	2	2	2	2	4	6	5	8	3.8	12.9
Dir	321	320	327	319	310	293	246	228	249	307	15	360	356	192	243	234	53	37	304	259	237	225	218	226	289.5	321.0
4 Spd	8	9	8	9	11	11	10	12	10	11	11	10	11	11	8	5	24	43	44	40	36	41	41	41	17.2	43.6
Dir	240	217	198	186	198	209	205	210	213	220	192	195	174	191	184	174	254	259	253	250	253	261	260	263	239.3	252.6
5 Spd	36	34	33	30	20	15	14	13	11	10	7	4	10	13	12	14	13	13	13	12	11	11	9	9	7.4	36.5
Dir	262	262	269	268	264	245	240	263	272	260	259	269	36	32	38	33	34	28	31	27	21	22	22	26	300.5	262.4
6 Spd	9	8	8	7	7	5	6	6	1	6	7	11	16	15	15	14	13	7	12	1	9	13	N	7	2.6	15.8
Dir	23	19	24	26	25	29	23	20	9	194	207	222	229	240	239	244	256	285	16	325	42	357	N	32	306.7	228.6
7 Spd	12	13	13	12	9	12	13	14	16	16	16	17	16	16	18	16	13	8	7	8	10	9	10	8	12.3	18.3
Dir	38	47	49	47	43	33	29	24	26	27	33	31	23	9	18	20	18	35	49	42	49	44	49	47	32.3	18.0
8 Spd	7	8	10	11	11	12	14	13	14	16	17	14	12	13	10	10	8	7	8	7	9	9	9	10	10.4	16.5
Dir	43	43	35	39	40	29	29	24	22	18	18	16	1	357	355	357	347	7	17	17	24	28	37	25	19.9	18.0
9 Spd	10	10	11	9	10	10	12	13	13	12	10	8	7	6	1	8	12	15	13	6	17	14	14	12	6.3	16.5
Dir	33	28	30	28	40	43	37	33	28	33	29	24	15	19	290	220	230	228	231	295	4	15	15	21	16.2	4.1
10 Spd	8	5	2	2	8	9	6	15	25	27	30	31	29	26	29	31	26	23	20	21	27	27	26	27	18.5	31.4
Dir	40	54	62	254	230	220	212	239	244	248	253	250	247	249	257	267	262	268	252	243	241	256	260	258	252.4	250.2
11 Spd	25	28	30	29	29	28	27	25	23	20	19	20	27	24	17	31	29	28	22	21	24	21	16	13	23.1	31.2
Dir	259	258	260	261	258	252	257	259	261	261	265	244	240	252	242	260	263	266	266	272	275	279	293	343	261.9	260.2
12 Spd	10	8	9	12	13	11	9	9	9	8	12	17	16	17	19	21	15	8	10	10	16	15	12	9	11.7	21.5
Dir	347	349	327	340	351	350	351	3	353	350	358	13	9	31	35	31	30	17	346	13	12	28	28	359	8.6	31.0
13 Spd	9	6	8	8	8	6	7	7	7	8	7	5	7	6	6	6	6	3	3	7	7	12	12	7	5.0	12.2
Dir	346	327	339	334	351	26	343	352	338	353	11	23	20	10	12	8	335	334	254	254	266	258	267	259	330.7	267.4
14 Spd	7	8	6	10	7	9	10	11	7	8	8	7	6	6	5	4	6	6	12	6	11	7	6	9	6.4	11.8
Dir	221	236	225	253	234	235	228	231	199	187	187	181	186	189	201	212	202	249	271	266	269	271	273	285	232.4	270.8
15 Spd	9	12	14	16	12	8	7	10	10	7	12	18	24	22	20	21	19	27	29	27	23	12	10	24	15.5	29.4
Dir	248	266	262	260	252	228	221	219	233	240	246	239	237	237	230	237	235	238	240	247	247	248	265	306	245.7	239.9
16 Spd	14	11	11	10	15	5	10	14	17	16	7	11	14	11	13	4	6	10	14	20	22	25	24	23	10.5	25.4
Dir	283	238	247	251	287	294	216	250	263	258	236	219	236	228	248	278	210	243	325	327	318	321	325	327	279.0	320.6
17 Spd	17	17	21	24	22	23	13	14	16	14	16	20	20	17	18	13	12	11	10	11	12	11	11	10	15.2	24.2
Dir	341	337	356	16	14	16	12	3	14	2	348	344	351	358	349	352	352	347	340	341	345	347	340	347	355.7	16.0
18 Spd	10	10	9	8	8	8	8	11	7	4	3	2	7	9	9	6	3	2	6	4	4	1	2	3	4.9	10.5
Dir	342	344	349	345	329	324	337	341	343	36	8	0	30	33	29	24	358	290	271	281	309	33	309	238	346.9	341.1
19 Spd	4	5	5	4	6	7	6	6	7	7	6	7	6	6	3	3	5	7	7	7	8	7	8	7	5.8	8.2
Dir	236	216	225	215	194	196	197	214	196	209	200	186	183	188	200	206	204	213	227	220	220	209	194	194	205.0	194.1
20 Spd	7	8	9	8	8	8	9	10	10	9	9	10	10	5	7	4	5	4	3	1	7	5	1	1	6.2	10.4
Dir	194	205	198	202	203	213	206	224	231	222	231	216	224	223	259	219	223	208	228	283	270	261	194	59	220.2	223.8
21 Spd	2	5	5	2	3	5	4	5	6	5	8	9	9	9	10	6	2	4	5	4	5	5	7	6	2.3	9.7
Dir	17	41	25	69	33	38	41	36	37	40	37	39	38	34	20	31	275	255	214	211	201	223	217	188	32.7	20.0
22 Spd	4	5	5	6	5	4	5	6	5	5	6	5	4	6	3	4	6	8	8	11	8	9	6	8	5.5	10.7
Dir	191	209	217	190	185	209	240	222	246	200	199	201	199	181	218	225	241	249	250	255	232	257	241	213	223.5	255.4

Peace Airshed Zone Association
Summary of Hourly Averages

Smoky Heights
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
23 Spd	8	7	4	5	5	7	7	8	6	7	8	8	5	7	7	8	9	11	11	10	9	9	10	9	7.5	11.0
Dir	207	207	203	222	190	201	183	195	213	194	195	196	228	215	219	228	224	214	204	228	217	231	203	202	209.5	204.1
24 Spd	9	9	8	10	10	6	6	6	7	7	7	9	8	9	9	6	3	5	6	2	7	10	14	5	5.5	13.6
Dir	227	201	209	212	219	232	229	243	207	230	218	218	233	219	191	186	238	23	31	57	260	267	289	265	229.7	289.2
25 Spd	3	3	2	1	4	1	3	4	5	3	4	4	3	3	8	2	2	1	4	3	3	4	7	5	1.8	7.9
Dir	171	139	112	211	204	209	237	211	193	175	217	239	195	56	33	18	250	344	210	223	241	247	247	267	218.4	33.4
26 Spd	3	2	2	8	9	10	9	10	9	9	9	8	9	8	9	7	6	7	7	2	1	1	4	2	5.2	10.2
Dir	71	77	216	235	216	214	220	225	254	227	232	242	237	269	282	281	238	196	243	184	24	32	286	291	237.9	224.5
27 Spd	7	9	9	15	15	16	12	16	23	20	15	13	19	18	14	12	10	12	15	19	15	11	8	7	7.4	22.7
Dir	213	247	236	237	237	246	256	247	253	249	241	254	245	264	257	18	20	3	6	19	27	15	353	360	276.9	253.4
28 Spd	9	6	4	4	6	5	7	6	6	7	10	10	10	8	10	7	6	7	8	10	12	12	12	12	8.0	11.8
Dir	12	25	32	55	43	40	33	39	51	45	34	37	30	30	33	18	14	23	22	26	30	27	23	27	30.0	30.2
29 Spd	10	12	13	16	20	17	15	14	17	14	11	11	15	14	10	8	6	4	3	5	10	9	14	12	9.4	20.2
Dir	28	32	28	28	30	31	29	31	28	26	24	349	340	348	338	338	311	293	288	248	305	307	301	294	1.6	30.3
30 Spd	11	11	11	9	14	14	8	6	7	8	10	9	8	8	7	3	3	2	3	6	7	14	15	15	5.2	14.6
Dir	287	284	279	296	281	287	278	267	244	257	268	250	243	255	256	266	307	315	12	29	24	32	33	32	298.0	32.8
31 Spd	18	21	26	30	25	22	17	15	13	11	9	8	3	3	5	8	5	6	9	9	10	10	11	11	7.2	29.9
Dir	33	33	34	33	35	35	20	10	1	326	315	312	292	220	246	245	243	273	267	263	270	271	262	270	355.0	32.9
Spd	4.7	4.0	4.3	4.4	4.4	4.0	4.2	5.1	5.6	5.2	4.7	4.8	5.3	5.2	5.1	5.2	5.9	6.6	6.6	6.1	6.5	7.1	6.9	6.2	Diurnal Average	
Dir	304.9	298.5	306.7	302.7	296.4	294.6	284.7	282.3	285.2	277.9	282.0	283.3	284.8	286.5	293.0	297.7	283.7	279.1	282.8	288.1	296.3	302.0	299.1	306.1		
Spd	36.5	33.6	33.3	29.9	29.2	35.5	42.3	39.0	38.4	35.3	30.5	31.4	30.6	33.9	31.2	31.2	31.2	42.6	43.6	40.1	36.3	41.4	41.3	40.5	Diurnal Maximum	
Dir	262.4	262.4	268.8	32.9	258.3	266.3	271.2	273.7	275.7	270.1	264.2	250.2	308.0	285.5	289.1	260.2	300.4	259.3	252.6	249.9	253.2	261.0	260.1	262.9		

Maximum Speed Value: 44 km/h on Dec 4 19:00
Maximum Daily Speed Average: 23.7 km/h on Dec 1
Maximum Diurnal Speed Average: 7.1 km/h at hour 22

Minimum Speed Value: 1 km/h on Dec 26 22:00
Minimum Daily Speed Average: 1.8 km/h on Dec 25
Minimum Diurnal Speed Average: 4.0 km/h at hour 2

Monthly Average Velocity: 5.26 km/h 291.43 deg

Speed Percentiles: P_1 = 1.2 P_{10} = 3.9 Q_1 = 6.4 Median = 9.1 Q_3 = 13.8 P_{90} = 21.8 P_{99} = 39.7

All monthly, daily, and diurnal averages have been calculated using vector methods

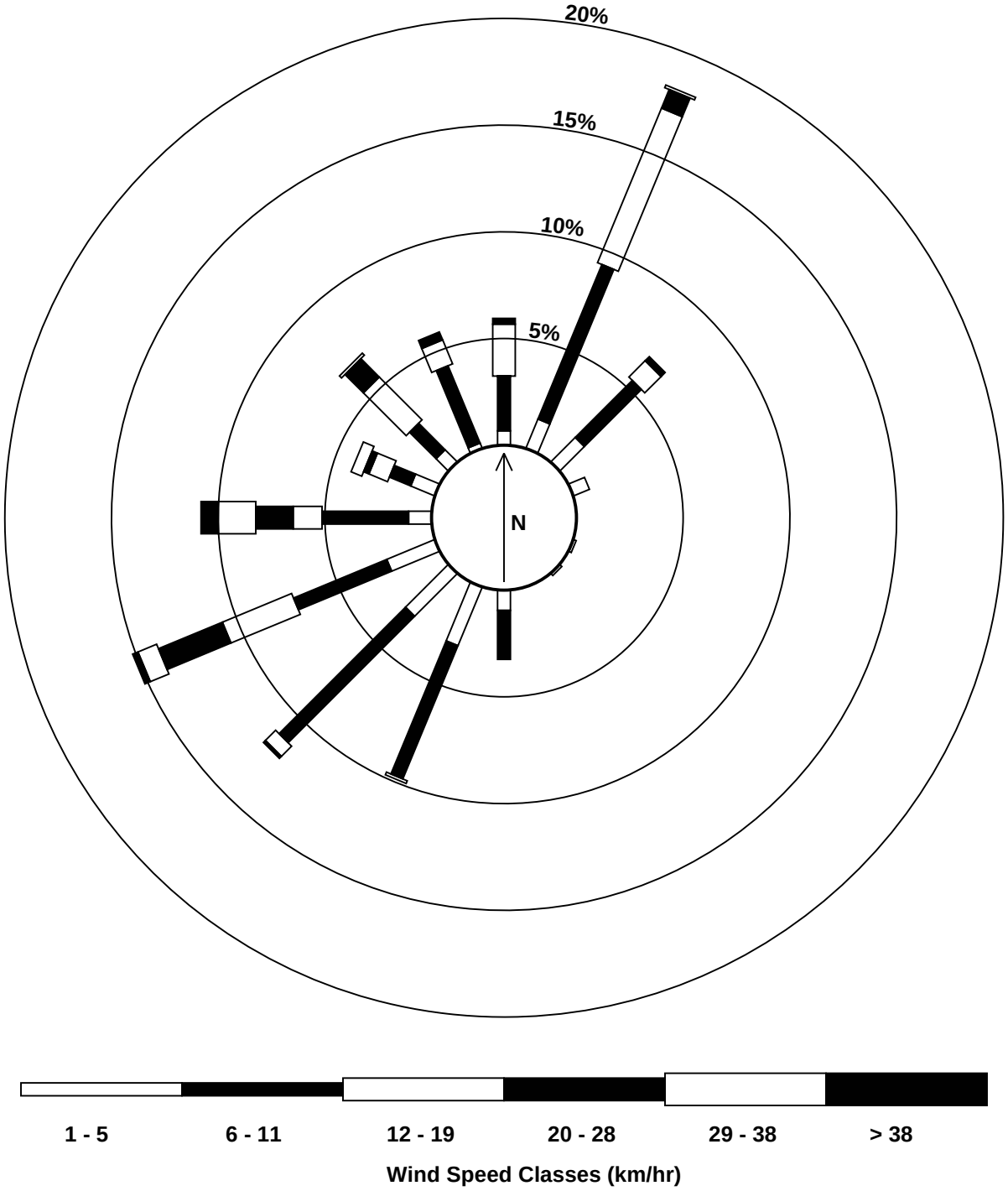
Hours in Service:	744
Hours of Data:	743
Hours of Missing Data:	1
Percent Operational Time:	99.9

N - Not Valid

Percentage Frequency Distribution

Direction	Speed Range (km/h) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	1.21	7.81	6.19	0.94	0.00	0.00	16.15
NorthEast	2.83	9.02	6.46	0.94	0.13	0.00	19.38
East	0.54	0.00	0.00	0.00	0.00	0.00	0.54
SouthEast	0.13	0.00	0.00	0.00	0.00	0.00	0.13
South	1.75	6.19	0.27	0.00	0.00	0.00	8.21
SouthWest	5.38	14.40	3.23	1.75	0.27	0.00	25.03
West	2.56	7.13	3.36	3.23	2.83	1.21	20.32
NorthWest	1.08	3.10	3.77	1.88	0.40	0.00	10.23
Total	15.48	47.64	23.28	8.75	3.63	1.21	100.00

Wind Rose for WS at Smoky Heights
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages - Wind Speed (Scalar)

Smoky Heights - Wind Speed (WS) - km/h
December 1, 2008 to January 1, 2009

Maximum Speed: 44 km/h on Dec 4 19:00

Maximum Daily Speed Average: 25.2 km/h on Dec 1

Minimum Speed: 2 km/h on Dec 18 22:00

Minimum Daily Speed Average: 4.4 km/h on Dec 25

Maximum Diurnal Speed Average: 12.7 km/h at hour 13

Minimum Diurnal Speed Average: 10.5 km/h at hour 2

Monthly Average Speed: 11.50 km/h

Percentiles: P_1 = 2.3 P_{10} = 4.4 Q_1 = 6.7 Median = 9.4 Q_3 = 14.0 P_{90} = 22.0 P_{99} = 39.9

Hours in Service: 744

Hours of Data: 743

Hours of Missing Data: 1

Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	8	7	8	11	27	36	42	39	39	35	31	21	31	34	31	31	31	24	21	22	19	22	19	16	25.2	42.4
2-Dec	17	14	12	12	10	14	12	9	13	12	18	24	21	19	18	18	17	16	16	12	9	12	12	12	14.5	23.5
3-Dec	13	10	10	10	8	6	9	9	9	6	7	6	5	3	4	3	2	2	2	3	4	6	5	8	6.2	12.9
4-Dec	8	9	8	9	11	11	10	12	10	11	11	11	11	11	8	5	27	43	44	40	37	41	41	41	19.6	43.6
5-Dec	37	34	33	30	20	15	14	13	11	10	7	4	10	13	12	14	13	13	13	12	11	11	9	9	15.3	36.5
6-Dec	9	8	8	7	7	6	6	6	4	6	7	11	16	15	15	14	13	10	13	6	10	13	N	7	9.4	15.8
7-Dec	12	13	13	12	9	12	13	14	16	16	16	17	16	16	18	16	13	8	7	8	10	9	10	8	12.7	18.4
8-Dec	7	8	10	11	11	12	14	13	14	16	17	14	13	14	10	11	8	8	8	7	9	9	9	10	10.9	16.5
9-Dec	10	10	11	9	10	10	12	13	13	12	10	8	7	6	4	8	12	15	13	14	17	14	14	12	11.1	16.7
10-Dec	8	5	2	3	8	9	6	16	25	27	30	31	29	26	29	31	26	23	20	21	27	27	26	27	20.1	31.4
11-Dec	25	28	30	29	29	28	27	25	23	20	19	20	27	24	17	31	29	28	22	22	25	22	17	13	24.1	31.5
12-Dec	10	9	9	12	13	11	9	10	9	9	12	17	16	18	20	22	15	9	11	11	16	15	12	9	12.5	21.6
13-Dec	9	6	8	8	8	6	7	7	7	8	7	5	7	6	6	6	6	4	4	7	7	12	12	8	7.2	12.3
14-Dec	7	8	6	10	7	9	10	11	7	8	8	8	6	6	5	4	6	6	12	7	11	8	7	9	7.8	11.9
15-Dec	9	12	15	16	12	9	8	10	10	7	12	18	24	22	20	21	19	27	29	27	23	12	12	25	16.5	29.4
16-Dec	16	11	11	10	16	10	11	14	17	16	7	11	14	12	14	5	7	10	14	20	22	26	25	23	14.2	25.6
17-Dec	17	17	22	24	22	23	13	14	16	14	16	20	20	17	18	13	12	11	10	11	12	11	11	11	15.7	24.3
18-Dec	10	10	9	8	8	8	8	11	7	4	3	3	7	9	9	6	3	2	6	4	4	2	2	3	6.1	10.5
19-Dec	5	5	5	5	6	7	7	6	7	7	6	7	6	6	3	3	5	7	7	7	8	7	8	7	6.1	8.3
20-Dec	7	8	9	8	9	8	9	10	10	9	9	10	10	5	7	5	5	4	3	2	7	5	3	2	6.9	10.4
21-Dec	3	5	5	3	3	5	5	5	7	5	8	9	9	9	10	6	5	4	5	4	5	5	7	6	5.6	9.7
22-Dec	4	5	6	6	5	4	5	6	5	6	6	5	4	6	3	5	6	8	8	11	8	9	6	8	6.1	10.8
23-Dec	8	8	5	5	5	7	7	8	6	7	8	8	5	7	7	8	9	11	11	10	9	9	11	9	7.8	11.1
24-Dec	10	9	9	10	10	6	6	6	7	7	7	9	9	9	9	7	6	6	6	4	7	10	14	6	7.9	13.7
25-Dec	4	4	3	3	4	4	4	5	6	4	4	4	4	4	8	7	3	3	5	4	3	5	7	6	4.4	8.0
26-Dec	3	3	3	8	9	10	9	10	9	9	9	8	10	8	9	7	6	9	7	4	4	2	4	4	6.8	10.4
27-Dec	7	9	9	15	15	17	12	16	23	21	15	13	19	18	14	12	11	12	15	19	15	11	8	7	14.0	22.8
28-Dec	9	6	4	4	6	5	7	6	6	7	10	10	10	9	10	7	6	7	8	10	12	12	12	12	8.2	11.8
29-Dec	10	12	14	16	20	17	15	14	17	14	11	11	15	14	11	8	6	4	3	5	10	9	14	12	11.9	20.2
30-Dec	11	11	11	9	14	14	8	7	7	8	10	9	8	8	7	3	4	3	3	6	8	14	15	15	8.8	14.6
31-Dec	18	21	26	30	25	22	17	15	13	11	9	8	5	3	6	8	5	6	9	9	10	10	11	11	12.9	29.9
	10.6	10.5	10.7	11.4	11.9	11.6	11.0	11.7	12.1	11.4	11.3	11.6	12.7	12.2	11.6	11.1	10.9	11.1	11.5	11.2	12.3	12.3	12.1	11.4	Diurnal Average	
	36.5	33.7	33.4	29.9	29.2	35.6	42.4	39.1	38.5	35.4	30.5	31.4	30.9	34.0	31.3	31.5	31.3	42.6	43.6	40.2	36.5	41.4	41.3	40.6	Diurnal Maximum	

N - Not Valid

All monthly, daily, and diurnal averages have been calculated using scalar methods

Maximum Value: 90.7 deg on Dec 20 20:00

Minimum Value: 1.3 deg on Dec 11 08:00

Percentiles: P_1 = 2.0 P_{10} = 4.1 Q_1 = 5.5 Median = 8.3 Q_3 = 14.3 P_{90} = 29.6 P_{99} = 82.3

Hours in Service:	744
Hours of Data:	743
Hours of Missing Data:	1
Hours of Calibration:	0
Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	19	36	34	13	5	5	4	4	4	3	3	11	7	5	5	5	6	8	8	7	8	5	5	6	35.8
2-Dec	5	8	10	12	28	5	7	18	9	8	6	6	7	6	6	5	6	6	7	7	8	9	8	6	27.8
3-Dec	6	9	8	17	16	35	5	9	6	20	17	22	22	67	22	67	33	32	24	69	17	7	13	4	69.0
4-Dec	7	5	10	5	7	8	7	5	6	4	11	17	9	12	15	18	39	3	3	4	6	3	3	2	38.8
5-Dec	3	4	2	2	3	6	7	3	14	5	6	20	15	6	6	5	5	4	5	5	6	6	6	4	19.5
6-Dec	6	5	7	7	12	10	7	22	88	14	15	5	3	4	4	8	6	50	10	85	39	14	N	9	88.0
7-Dec	7	11	6	6	10	6	7	4	4	5	5	4	8	8	5	5	8	13	17	5	5	6	8	10	17.3
8-Dec	9	9	5	6	6	6	4	4	4	5	3	6	10	10	12	12	11	10	12	6	6	5	6	7	12.1
9-Dec	5	6	6	7	4	5	4	4	4	4	4	5	15	16	69	11	7	7	10	61	9	6	7	7	69.5
10-Dec	11	10	34	34	6	7	14	15	2	3	3	4	5	4	5	4	3	5	8	4	3	4	2	2	33.8
11-Dec	3	2	3	2	2	2	2	1	2	2	2	7	4	9	5	8	4	4	5	5	5	5	16	11	16.3
12-Dec	9	18	14	9	8	9	12	10	9	16	9	6	7	11	7	5	6	11	8	12	10	10	6	13	17.7
13-Dec	9	10	4	4	10	21	19	9	8	8	5	11	7	16	12	9	11	41	83	15	12	11	7	59	83.1
14-Dec	16	18	25	11	21	11	6	7	14	6	5	7	18	16	19	23	14	17	8	27	19	57	31	7	56.8
15-Dec	13	9	6	4	21	24	23	5	16	14	9	3	3	4	5	4	6	5	3	4	4	13	29	7	29.4
16-Dec	32	11	15	11	23	69	11	13	3	5	17	7	13	17	15	68	36	9	21	7	6	6	5	6	69.4
17-Dec	7	7	11	5	5	7	10	9	5	10	6	5	7	10	7	7	7	5	4	5	5	6	4	8	11.1
18-Dec	4	5	7	6	8	7	3	3	31	26	17	39	5	3	4	9	29	23	10	13	33	50	42	57	56.9
19-Dec	39	10	14	25	14	13	12	18	6	7	6	8	8	4	16	10	5	8	19	9	7	8	8	4	39.3
20-Dec	8	7	6	10	9	10	7	6	6	10	11	9	8	16	10	29	13	10	13	91	10	12	68	57	90.7
21-Dec	74	11	14	58	39	15	18	18	12	8	5	5	5	8	6	15	63	29	11	16	5	10	5	7	73.8
22-Dec	9	11	30	5	9	20	5	8	22	24	15	6	7	5	18	14	8	7	9	5	9	6	13	5	29.9
23-Dec	4	6	19	20	9	5	4	8	18	9	5	4	16	11	6	4	10	9	8	9	15	11	10	10	20.4
24-Dec	15	9	19	14	9	15	20	26	19	12	10	7	19	7	16	14	84	50	12	79	25	15	6	43	84.4
25-Dec	41	41	26	58	20	76	30	25	36	33	25	21	46	43	8	81	58	85	48	28	35	24	22	34	84.6
26-Dec	27	50	31	15	9	6	9	14	16	11	6	8	14	9	6	10	14	40	12	62	79	83	27	58	82.7
27-Dec	14	8	14	11	6	17	11	7	4	4	8	10	7	2	12	12	11	13	14	5	7	6	10	12	17.0
28-Dec	11	12	32	12	11	6	6	7	8	8	7	8	6	9	5	9	7	5	4	7	5	5	5	5	32.2
29-Dec	7	7	5	5	3	3	5	5	6	7	12	9	7	11	10	15	27	27	13	20	10	8	6	7	26.7
30-Dec	7	6	6	15	8	5	3	14	9	11	5	13	14	7	14	35	29	40	20	5	7	4	3	4	39.8
31-Dec	5	3	3	3	4	4	7	10	10	13	13	18	64	38	53	10	44	9	8	7	12	6	7	5	63.9
	73.8	49.5	33.8	58.5	39.3	76.1	30.4	26.0	88.0	32.6	25.2	39.0	63.9	66.6	69.5	80.8	84.4	84.6	83.1	90.7	78.9	82.7	68.3	59.3	

N - Not Valid

PASZA
Beaverlodge Station
Monthly Summary Tables, Graphs and Roses

Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 4.1 ppb on Dec 29 10:00
Maximum Daily Average: 1.7 ppb on Dec 22

Minimum Value: 0 ppb on Dec 1 10:00
Maximum Diurnal Average: 0.7 ppb at hour 22
Monthly Average: 0.58 ppb

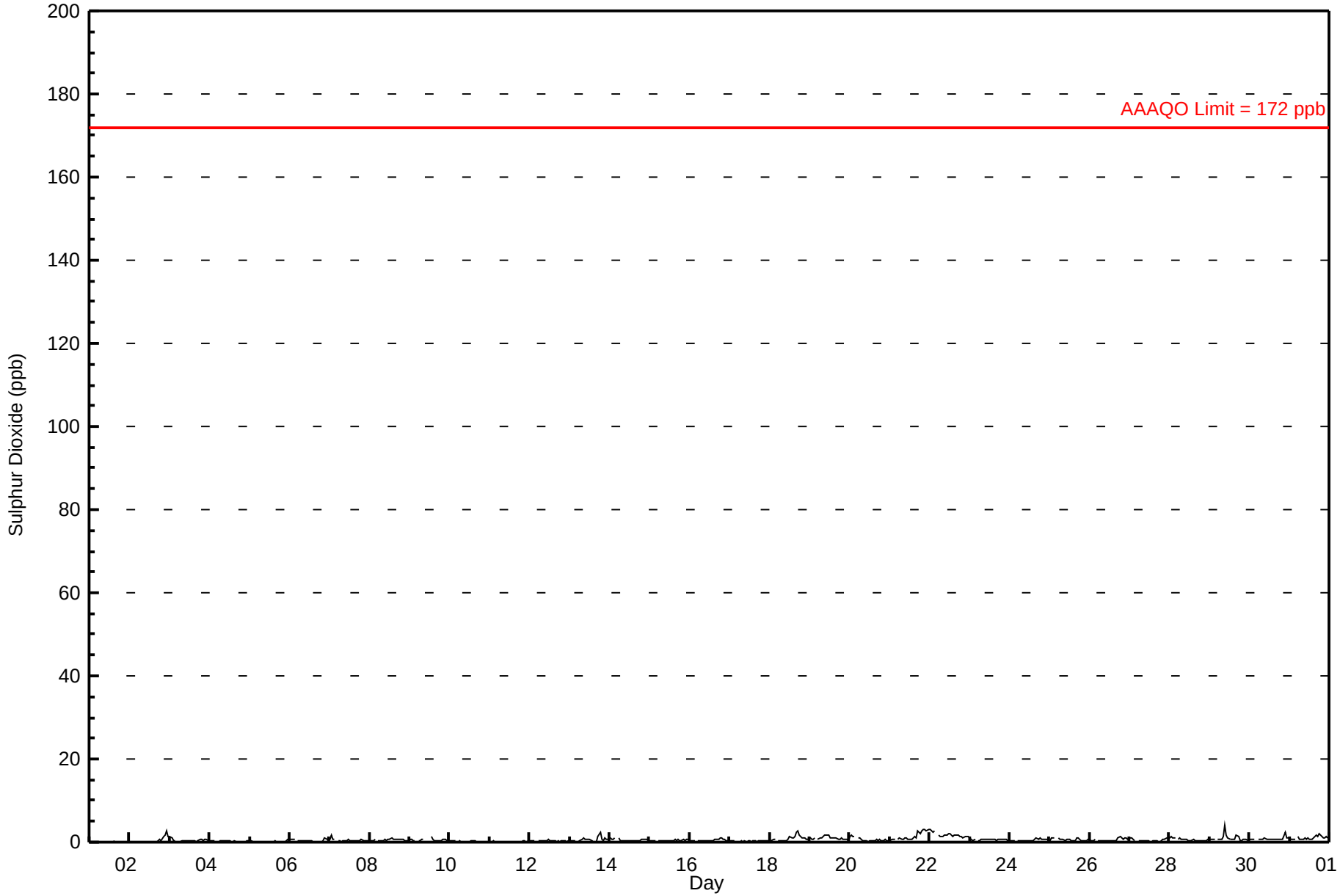
Minimum Daily Average: 0.1 ppb on Dec 11
Minimum Diurnal Average: 0.0 ppb at hour 5
Percentiles: $P_1 = 0.0$ $P_{10} = 0.1$ $Q_1 = 0.2$ Median = 0.5 $Q_3 = 0.7$ $P_{90} = 1.2$ $P_{99} = 2.8$

Hours in Service:	744
Hours of Data:	688
Hours of Missing Data:	56
Hours of Calibration:	35
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	0	P	P	P	P	P	P	P	P	--	0.2
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	0	0	0	0	0	1	0	1	2	3	1	--	2.6
3-Dec	1	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0.4	1.3
4-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5
5-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	0.7
6-Dec	1	1	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.4	0.9
7-Dec	1	2	1	1	A	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0.4	1.6
8-Dec	0	0	0	1	A	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0.5	1.0
9-Dec	1	1	0	0	A	0	0	1	1	C	C	C	A	1	1	0	0	0	0	0	1	1	0	0	0.5	1.2
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
11-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
12-Dec	0	0	0	0	A	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
13-Dec	0	0	0	0	A	0	0	1	1	1	1	1	1	0	0	0	0	1	3	1	0	1	1	1	0.6	2.5
14-Dec	1	1	1	1	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0.5	1.0
15-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	0.4	0.6
16-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0.4	1.1
17-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
18-Dec	0	0	1	1	A	0	0	0	0	0	0	1	1	1	1	1	2	3	2	1	1	1	1	1	0.9	2.7
19-Dec	1	1	1	1	A	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	0	0.9	1.7
20-Dec	1	2	2	1	A	1	1	1	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0.6	1.7
21-Dec	0	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	3	2	3	3	3	3	3	1.4	3.1
22-Dec	3	3	2	3	A	2	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1.7	2.9
23-Dec	1	1	0	1	A	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0.6	1.2
24-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0.4	0.9
25-Dec	0	1	1	1	A	1	1	1	1	0	1	1	1	0	0	0	1	1	1	0	1	0	0	1	0.7	1.1
26-Dec	1	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0.5	1.4
27-Dec	1	1	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0.4	0.9
28-Dec	1	1	1	1	A	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0.6	1.2
29-Dec	1	1	1	1	A	1	1	1	1	4	2	1	1	1	1	1	2	1	0	0	1	1	1	0	0.9	4.1
30-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	0.8	2.3
31-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1.0	2.2
	0.7	0.7	0.6	0.6	0.0	0.5	0.5	0.4	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.7	0.7	0.6	0.6	0.7	0.7	0.6	Diurnal Average	
	2.9	2.7	2.4	2.7	0.0	1.6	1.4	1.5	1.4	4.1	1.7	1.9	2.1	1.8	1.5	1.6	2.5	2.8	2.5	2.7	3.1	2.9	2.8	3.0	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 57 ppb

Hourly Averages for SO_2 at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Beaverlodge - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 9.8 ppb on Dec 21 18:00

Maximum Daily Average: 2.0 ppb on Dec 21

Minimum Value: 0 ppb on Dec 2 15:00

Minimum Daily Average: 0.2 ppb on Dec 11

Maximum Diurnal Average: 1.2 ppb at hour 18

Minimum Diurnal Average: 0.1 ppb at hour 5

Monthly Average: 0.83 ppb

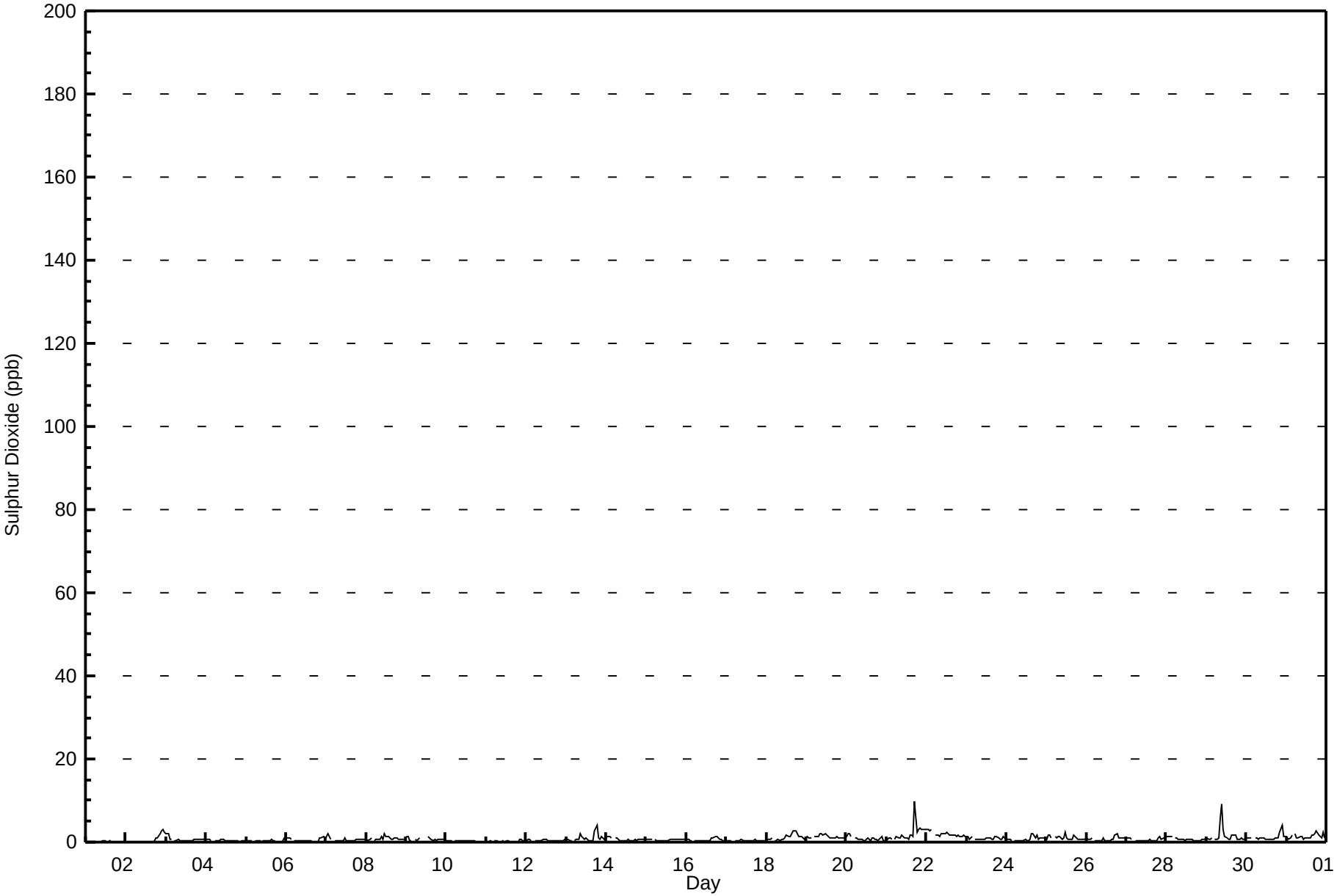
Percentiles: $P_1 = 0.1$ $P_{10} = 0.2$ $Q_1 = 0.3$ Median = 0.6 $Q_3 = 1.0$ $P_{90} = 1.6$ $P_{99} = 3.1$

Hours in Service:	744
Hours of Data:	688
Hours of Missing Data:	56
Hours of Calibration:	35
Percent Operational Time:	97.2

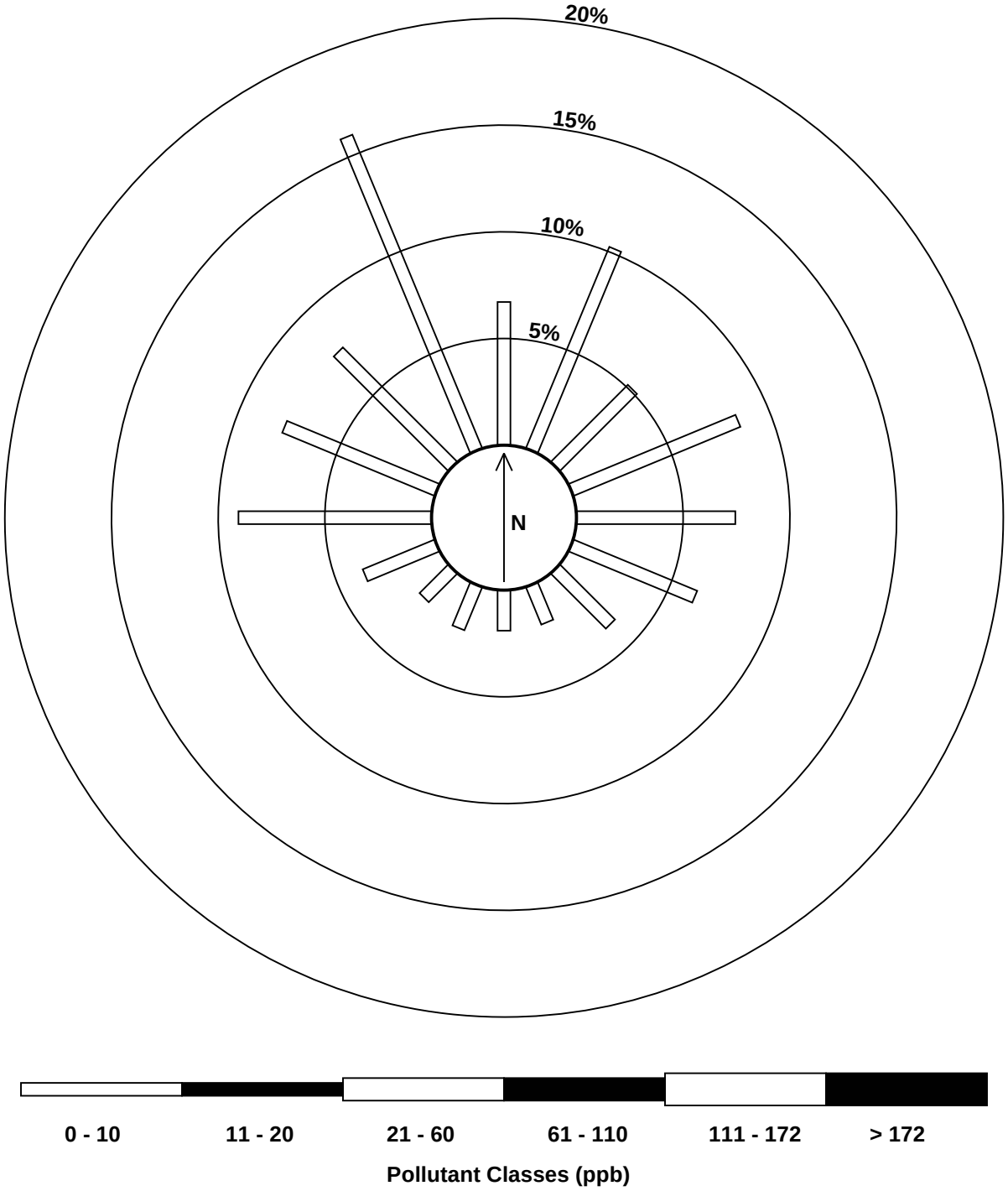
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	0	P	P	P	P	P	P	P	P	--	0.3
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	0	0	0	0	0	1	1	2	3	3	2	--	3.0
3-Dec	2	2	1	1	A	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0.6	2.1
4-Dec	1	1	1	0	A	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.8
5-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.3	1.0
6-Dec	1	1	1	1	A	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0.5	1.3
7-Dec	1	2	1	1	A	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	1	1	0.6	2.0
8-Dec	1	0	1	1	A	0	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0.8	2.0
9-Dec	1	1	0	0	A	1	0	1	1	C	C	C	A	1	1	1	1	1	0	1	1	1	1	1	0.8	1.5
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
11-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.2	0.8
12-Dec	0	1	1	0	A	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.4	0.7
13-Dec	1	1	0	0	A	0	1	1	2	1	1	1	1	0	0	0	0	3	4	1	1	1	1	1	1.0	4.1
14-Dec	1	1	1	1	A	1	1	1	0	0	0	0	0	1	0	0	0	1	0	1	1	1	1	1	0.7	1.3
15-Dec	1	1	1	1	A	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0.5	0.8
16-Dec	1	1	0	0	A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0.6	1.3
17-Dec	0	0	0	0	A	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.3	0.6
18-Dec	0	1	1	1	A	0	0	1	0	1	1	1	2	1	1	2	3	3	3	1	1	1	1	1	1.2	2.9
19-Dec	1	1	1	1	A	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1.3	2.0
20-Dec	2	2	2	1	A	1	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	0	0	0.9	1.9
21-Dec	0	1	1	1	A	1	1	1	1	2	1	1	1	1	2	2	1	10	2	3	3	3	3	3	2.0	9.8
22-Dec	3	3	3	3	A	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	2	2	1	2.0	3.2
23-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.5
24-Dec	1	1	1	0	A	0	0	0	0	0	0	1	1	0	1	2	2	1	2	1	1	1	1	1	0.8	2.0
25-Dec	1	2	2	1	A	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1.0	2.4
26-Dec	1	1	1	1	A	0	0	0	0	0	1	0	0	0	0	1	1	2	2	1	1	1	1	1	0.8	1.9
27-Dec	1	1	1	1	A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	0.6	1.4
28-Dec	1	1	1	1	A	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	1	1	1	0.7	1.3
29-Dec	1	1	1	1	A	1	1	1	6	9	3	1	1	1	1	2	2	2	1	1	1	1	1	1	1.6	9.2
30-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	1	1	1.2	4.1
31-Dec	1	1	1	2	A	2	1	1	1	1	1	1	1	1	1	2	2	2	3	2	1	1	2	1	1.4	2.7
	0.9	1.0	0.8	0.8	0.1	0.6	0.6	0.6	0.8	1.0	0.7	0.8	0.7	0.6	0.6	0.8	0.8	1.2	1.0	0.8	0.9	1.0	0.9	0.9	Diurnal Average	
	3.2	3.2	2.7	3.1	0.1	1.9	1.6	1.6	5.6	9.2	3.0	2.4	2.2	2.1	1.7	2.0	2.8	9.8	4.1	3.2	3.4	4.1	3.0	3.2	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

Hourly Maximums for SO_2 at Beaverlodge
December 2008



Pollutant Rose for SO_2 at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - Nitrogen Dioxide (NO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 32.0 ppb on Dec 20 19:00 Maximum Daily Average: 17.7 ppb on Dec 21

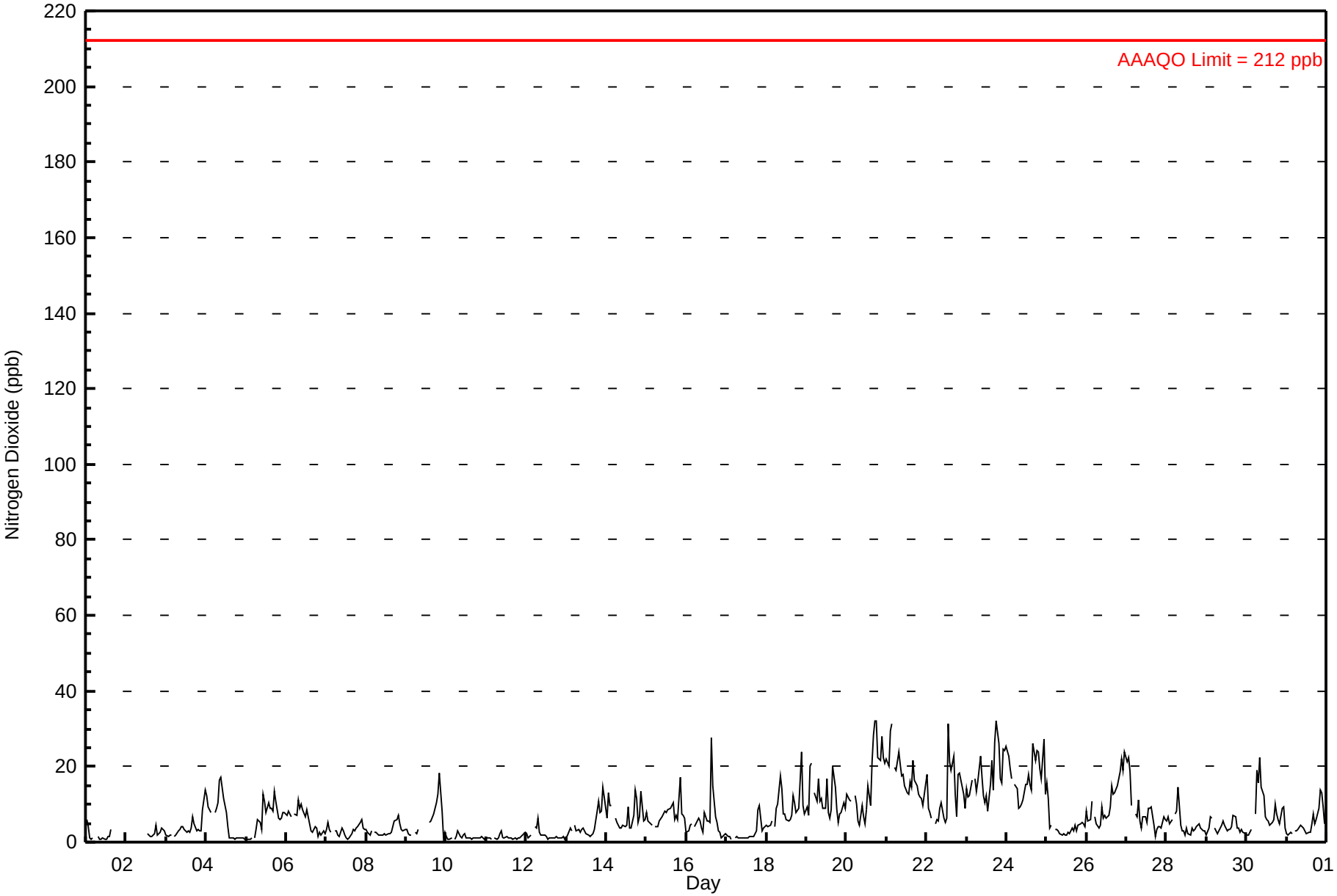
Minimum Value: 1 ppb on Dec 10 02:00 Minimum Daily Average: 1.3 ppb on Dec 10
Maximum Diurnal Average: 8.8 ppb at hour 17 Minimum Diurnal Average: 0.9 ppb at hour 5
Monthly Average: 7.12 ppb Percentiles: P_1 = 0.9 P_{10} = 1.1 Q_1 = 2.4 Median = 5.0 Q_3 = 9.6 P_{90} = 16.6 P_{99} = 27.9

Hours in Service:	744
Hours of Data:	686
Hours of Missing Data:	58
Hours of Calibration:	37
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	6	4	1	1	1	A	A	1	1	1	1	1	1	2	2	3	P	P	P	P	P	P	P	P	--	6.0
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	2	2	2	2	2	4	2	3	4	3	3	--	4.4
3-Dec	2	2	2	2	A	1	2	3	3	4	4	3	3	3	3	4	7	5	3	3	3	3	9	14	3.8	13.9
4-Dec	12	9	9	8	A	8	9	11	16	17	12	10	8	4	1	1	1	1	1	1	1	1	1	1	6.1	17.0
5-Dec	1	1	1	1	A	1	3	6	5	4	13	11	8	10	9	9	8	14	11	6	6	6	8	8	6.5	13.5
6-Dec	7	8	7	7	A	7	7	11	9	10	8	7	8	7	5	3	3	4	4	1	2	2	3	2	5.8	11.2
7-Dec	3	5	3	3	A	3	3	2	2	4	3	2	1	1	1	2	3	3	4	4	5	6	4	3	3.1	6.1
8-Dec	3	3	2	3	A	3	2	2	2	2	2	2	2	2	2	3	4	6	6	7	5	3	3	3	3.1	6.9
9-Dec	3	2	2	2	A	3	2	3	C	C	C	C	C	C	5	6	7	9	10	13	18	8	1	3	--	18.2
10-Dec	1	1	1	1	A	1	2	3	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1.3	2.9
11-Dec	1	1	1	1	A	1	1	1	2	3	1	1	2	1	1	1	1	1	1	1	1	2	2	2	1.3	2.8
12-Dec	2	1	1	2	A	4	4	6	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1.8	6.4
13-Dec	1	2	4	3	A	5	3	3	2	3	4	3	2	2	1	2	2	3	8	11	8	8	14	12	4.7	14.4
14-Dec	6	13	10	10	A	6	5	5	4	4	4	4	5	9	4	4	7	14	11	5	7	13	5	6	7.0	14.0
15-Dec	8	5	5	5	A	4	4	4	6	7	8	8	8	9	9	10	10	6	7	6	17	8	7	6	7.2	17.3
16-Dec	3	3	5	5	A	4	5	6	6	4	3	8	6	6	5	28	15	7	5	3	3	1	2	2	5.7	27.5
17-Dec	2	2	1	1	A	1	2	1	1	1	1	1	1	1	1	1	1	2	3	9	10	3	4	4	2.4	9.8
18-Dec	5	4	4	5	A	4	9	10	17	14	7	7	6	5	6	7	12	10	8	9	16	24	10	7	9.1	23.8
19-Dec	9	7	20	21	A	13	11	17	11	11	9	9	17	8	6	9	20	14	9	5	7	8	10	9	11.4	20.9
20-Dec	13	12	11	11	A	12	10	6	4	10	7	5	9	15	10	21	28	32	32	22	22	28	23	21	15.7	32.0
21-Dec	22	20	30	31	A	20	19	24	21	17	18	15	13	13	16	14	22	16	15	13	12	12	10	15	17.7	31.3
22-Dec	18	9	8	6	A	5	6	6	9	10	6	5	6	31	21	19	23	13	7	18	18	14	13	9	12.2	31.4
23-Dec	14	12	12	16	A	17	13	16	23	17	12	10	12	8	15	22	14	26	32	26	17	16	25	24	17.4	31.9
24-Dec	25	23	19	17	A	15	14	9	9	10	11	15	15	18	15	14	26	22	24	24	19	17	27	13	17.5	27.3
25-Dec	16	11	4	4	A	3	4	3	2	2	2	2	2	2	2	4	3	5	3	4	5	5	5	4	4.3	15.6
26-Dec	8	6	6	11	A	7	5	4	5	9	6	7	6	7	9	15	13	13	15	17	19	22	19	24	10.9	23.8
27-Dec	21	22	19	10	A	7	7	11	6	4	7	7	5	9	9	9	4	1	3	4	4	4	7	6	8.1	22.2
28-Dec	5	7	5	6	A	7	8	14	4	3	3	2	4	2	2	4	3	4	4	5	4	3	3	3	4.6	14.5
29-Dec	2	4	7	6	A	4	2	3	4	4	6	4	3	3	3	4	7	7	4	4	2	3	2	2	4.0	7.2
30-Dec	2	2	3	3	A	8	19	16	22	15	12	7	6	6	5	5	6	10	7	6	5	9	10	4	8.1	22.3
31-Dec	2	2	2	2	A	3	3	3	5	4	4	3	2	3	3	5	8	5	6	9	14	13	9	5	5.0	13.9
	7.5	6.8	6.8	6.8	0.9	6.1	6.3	7.0	7.1	6.8	6.1	5.6	5.6	6.4	5.7	7.5	8.8	8.6	8.3	8.0	8.5	8.3	8.0	7.3	Diurnal Average	
	25.3	22.9	29.6	31.3	0.9	19.8	19.1	23.9	22.8	17.4	17.9	15.4	16.7	31.4	21.2	27.5	28.3	32.0	32.0	26.0	21.6	27.9	27.3	24.1	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 212 ppb 24-hr 106 ppb

Hourly Averages for NO_2 at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Beaverlodge - Nitrogen Dioxide (NO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 61.3 ppb on Dec 12 08:00

Maximum Daily Average: 26.9 ppb on Dec 23

Minimum Value: 1 ppb on Dec 10 02:00

Minimum Daily Average: 2.8 ppb on Dec 11

Maximum Diurnal Average: 14.5 ppb at hour 8

Minimum Diurnal Average: 1.0 ppb at hour 5

Monthly Average: 11.12 ppb

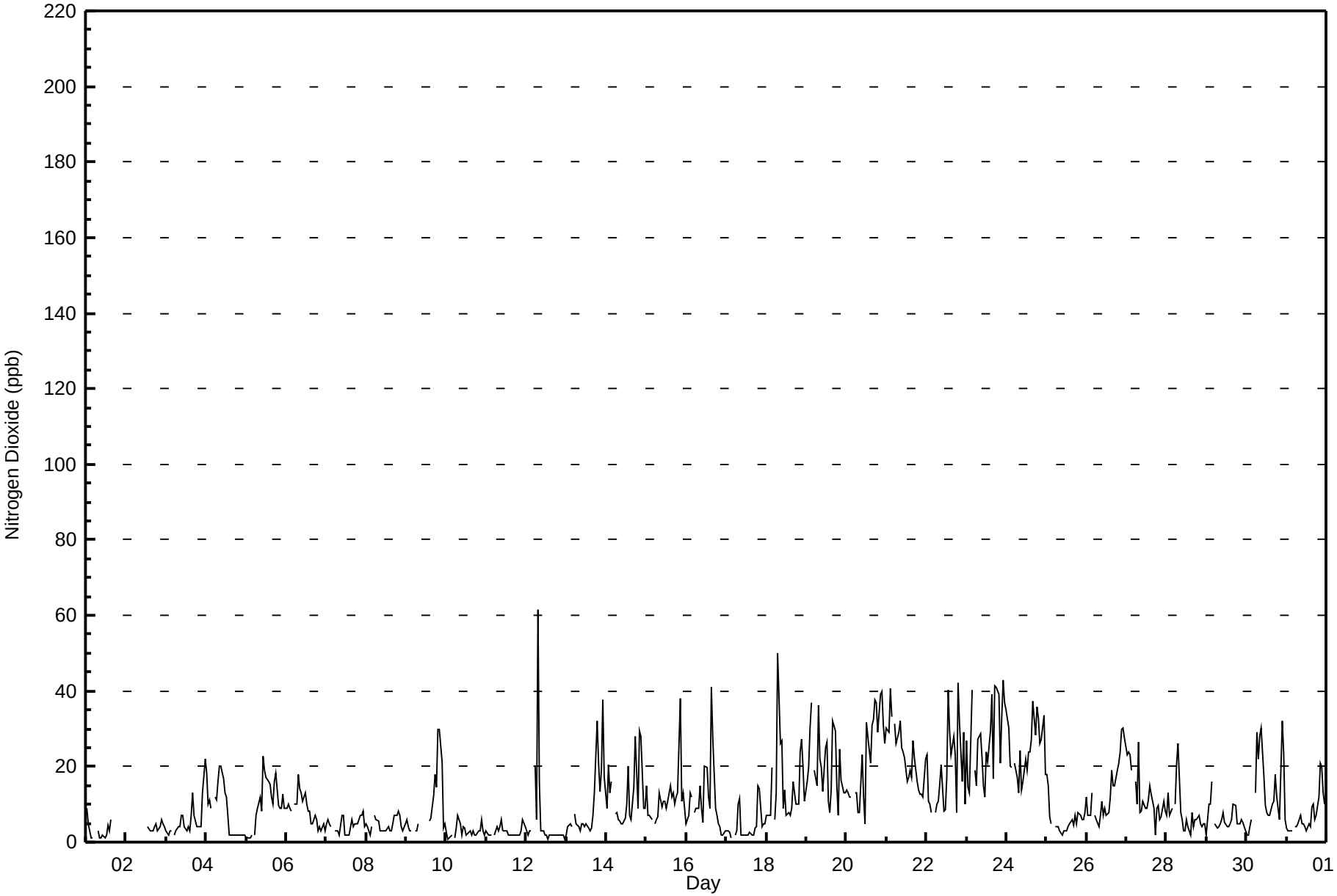
Percentiles: $P_1 = 0.9$ $P_{10} = 1.9$ $Q_1 = 3.9$ Median = 7.4 $Q_3 = 15.0$ $P_{90} = 27.0$ $P_{99} = 41.1$

Hours in Service:	744
Hours of Data:	686
Hours of Missing Data:	58
Hours of Calibration:	37
Percent Operational Time:	97.2

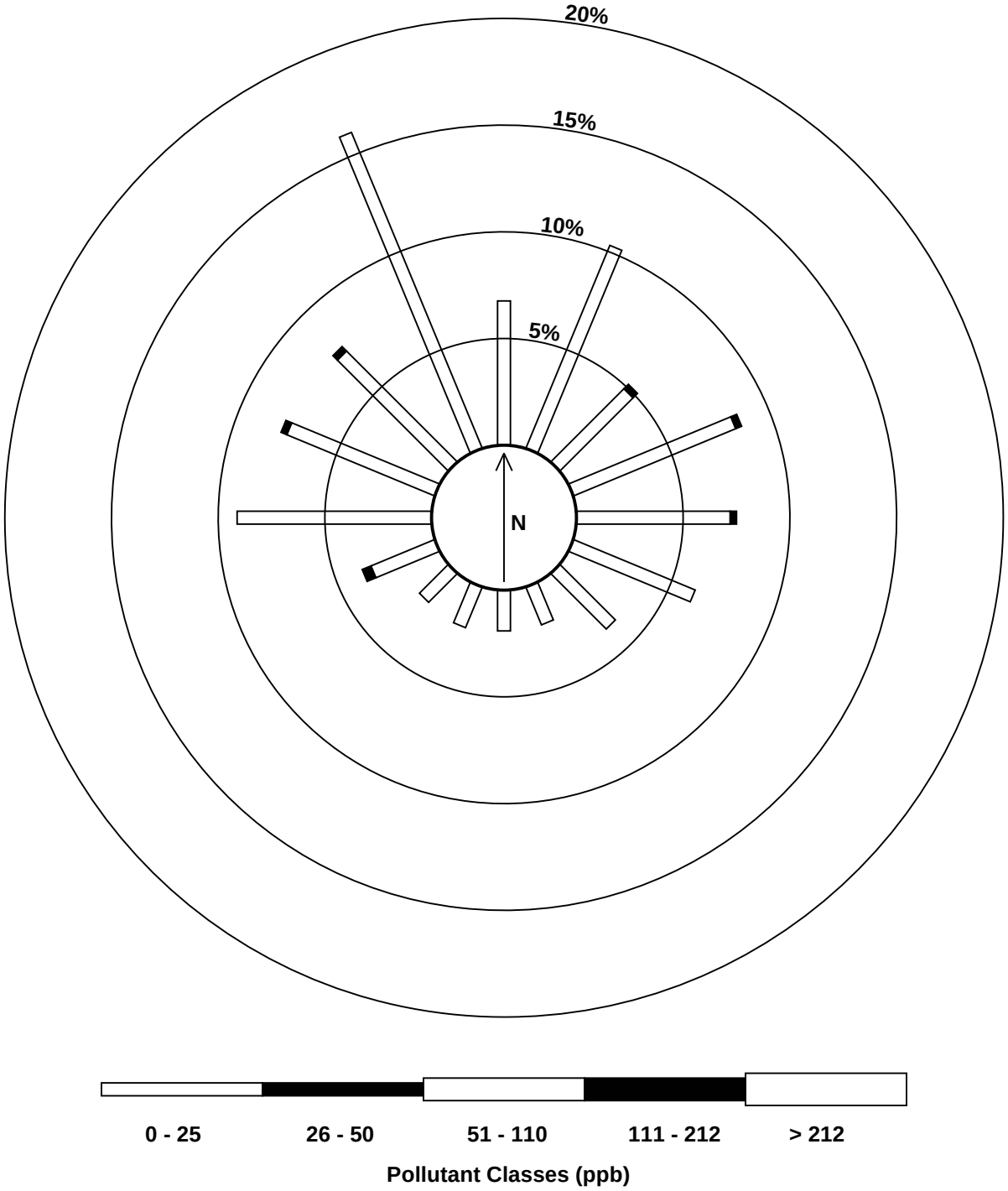
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	9	5	3	1	1	A	A	3	1	1	2	1	2	5	3	6	P	P	P	P	P	P	P	P	--	9.0
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	4	3	3	3	4	5	3	4	6	5	4	--	6.0
3-Dec	3	2	3	3	A	2	3	4	4	7	7	4	3	4	3	7	13	7	4	4	4	4	13	22	5.6	22.2
4-Dec	18	10	11	9	A	12	11	16	20	20	17	13	12	7	2	2	2	2	2	2	2	2	2	2	8.5	20.2
5-Dec	1	1	1	2	A	2	7	9	12	8	23	19	17	16	15	12	10	16	18	10	9	9	13	9	10.4	22.8
6-Dec	9	10	9	8	A	10	10	18	14	13	11	13	10	8	8	5	5	7	6	3	4	3	5	3	8.4	18.1
7-Dec	5	6	5	4	A	3	3	3	2	7	7	2	2	2	2	6	4	5	5	5	7	7	8	4	4.5	8.0
8-Dec	5	4	2	4	A	7	6	6	3	3	3	3	3	4	3	3	5	7	7	8	7	4	3	5	4.5	8.0
9-Dec	6	4	3	3	A	3	3	5	C	C	C	C	C	C	5	6	12	18	15	30	30	21	4	5	--	29.7
10-Dec	3	1	1	2	A	1	4	7	5	2	4	4	2	2	3	2	3	2	2	3	3	6	3	2	2.8	6.9
11-Dec	3	2	2	2	A	2	4	3	4	6	3	3	3	2	2	2	2	2	2	2	2	3	6	4	2.8	6.0
12-Dec	3	2	3	3	A	20	6	61	15	3	3	2	2	1	2	2	2	2	2	2	2	2	2	1	6.2	61.3
13-Dec	2	4	5	4	A	7	5	4	3	5	5	4	5	4	3	4	7	13	32	21	13	19	38	17	9.7	37.8
14-Dec	9	20	13	16	A	7	8	6	6	5	5	6	10	20	7	6	15	28	19	9	29	28	9	9	12.6	29.3
15-Dec	15	7	7	6	A	5	6	7	13	9	11	11	9	11	15	12	13	10	12	13	38	11	13	9	11.4	38.1
16-Dec	5	7	13	12	A	8	9	9	15	9	5	20	20	12	9	41	28	9	7	5	4	2	2	3	11.0	41.1
17-Dec	3	3	3	1	A	2	3	10	12	2	2	2	2	2	3	2	2	4	4	15	14	4	5	5	4.5	14.9
18-Dec	7	7	7	20	A	6	13	50	26	27	9	14	7	8	7	9	16	13	10	10	24	27	20	11	15.1	50.1
19-Dec	16	20	30	37	A	19	15	36	22	20	13	25	26	11	8	14	32	30	15	7	24	16	13	13	20.1	36.8
20-Dec	14	13	12	12	A	13	13	8	8	23	12	5	32	28	21	31	32	38	37	29	39	40	31	26	22.5	40.1
21-Dec	30	29	41	33	A	31	26	29	32	25	24	22	16	17	19	17	27	22	16	14	13	13	12	22	23.0	40.7
22-Dec	23	11	10	8	A	8	10	11	15	21	8	8	17	40	30	23	28	23	8	42	32	16	29	10	18.7	42.3
23-Dec	27	15	13	40	A	19	15	27	29	22	15	12	24	21	29	39	17	41	41	39	21	33	43	37	26.9	42.8
24-Dec	35	30	20	20	A	21	17	13	24	14	16	22	19	24	24	27	37	28	36	33	26	27	33	18	24.6	37.4
25-Dec	18	15	7	5	A	4	4	4	3	2	3	3	3	4	5	6	4	7	5	8	7	6	6	8	5.9	18.0
26-Dec	12	7	7	13	A	7	6	4	7	11	7	9	7	8	12	19	15	15	19	21	24	30	30	28	13.8	30.0
27-Dec	23	24	23	19	A	16	10	26	8	8	11	9	9	11	15	13	9	2	9	10	6	7	11	8	12.4	26.4
28-Dec	7	13	7	9	A	10	21	26	8	6	3	3	6	4	2	8	4	6	6	7	5	4	5	5	7.5	26.0
29-Dec	2	10	10	16	A	5	4	4	5	6	8	5	4	4	5	6	10	10	5	5	5	6	5	3	6.2	15.9
30-Dec	2	2	4	6	A	13	29	22	28	30	17	10	8	7	7	10	11	18	12	9	6	32	24	6	13.6	32.1
31-Dec	4	3	3	3	A	4	4	5	7	5	5	4	3	5	4	9	10	6	7	12	21	20	13	10	7.2	21.0
	10.6	9.5	9.2	10.6	1.0	9.2	9.4	14.5	12.1	11.0	8.9	8.9	9.7	9.9	8.9	11.4	12.6	13.1	12.2	12.6	14.1	13.6	13.5	10.2	Diurnal Average	
	35.1	30.1	40.7	40.1	1.0	31.3	29.1	61.3	32.0	30.1	23.9	24.9	31.6	40.5	29.6	41.1	37.4	41.4	41.2	42.3	39.0	40.1	42.8	36.9	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

Hourly Maximums for NO_2 at Beaverlodge
December 2008



Pollutant Rose for NO_2 at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - Nitrogen Oxide (NO) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 60.7 ppb on Dec 22 14:00

Maximum Daily Average: 6.7 ppb on Dec 21

Minimum Value: 0 ppb on Dec 1 01:00

Minimum Daily Average: 0.0 ppb on Dec 11

Maximum Diurnal Average: 6.1 ppb at hour 14

Minimum Diurnal Average: 0.0 ppb at hour 5

Monthly Average: 1.42 ppb

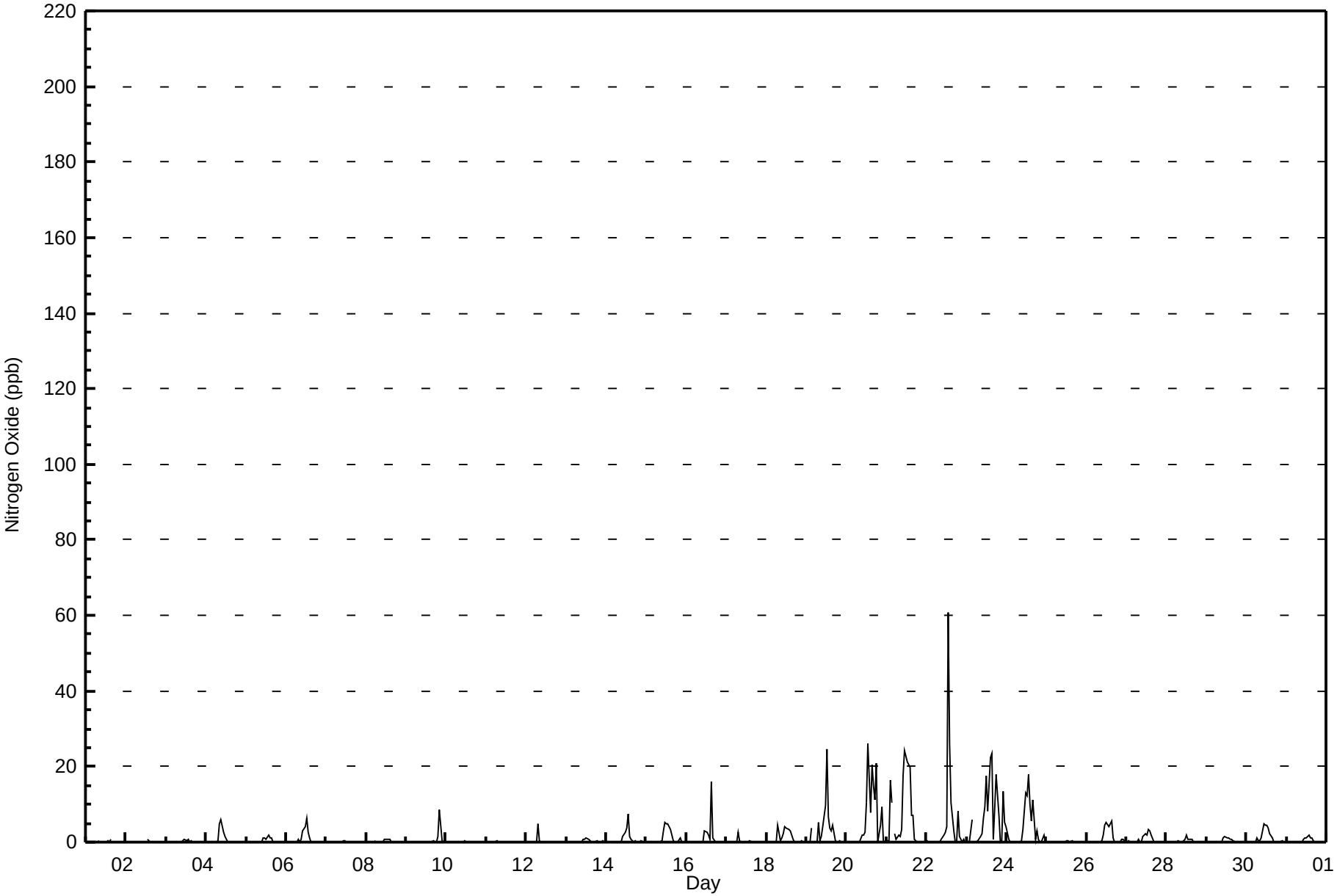
Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.0$ Median = 0.0 $Q_3 = 0.7$ $P_{90} = 3.9$ $P_{99} = 22.2$

Hours in Service:	744
Hours of Data:	686
Hours of Missing Data:	58
Hours of Calibration:	37
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	1	P	P	P	P	P	P	P	P	--	0.7
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	0	0	0	0	0	0	0	0	0	--	0.8
3-Dec	0	0	0	0	A	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0.1	0.9
4-Dec	0	0	0	0	A	0	0	1	5	6	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0.7	6.0
5-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0.3	1.7
6-Dec	0	0	0	0	A	0	0	1	0	1	3	4	6	3	1	0	0	0	0	0	0	0	0	0	0.9	6.4
7-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3
8-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0.2	0.9
9-Dec	0	0	0	0	A	0	0	0	C	C	C	C	C	C	0	0	0	0	0	2	8	0	0	0	--	8.4
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.4
11-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3
12-Dec	0	0	0	0	A	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	5.0
13-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0.2	1.1
14-Dec	0	0	0	0	A	0	0	0	0	0	1	3	4	7	1	1	0	0	0	0	0	0	0	0	0.8	7.5
15-Dec	0	0	0	0	A	0	0	0	0	0	3	5	5	5	3	2	0	0	0	0	1	0	0	0	1.1	5.1
16-Dec	0	0	0	0	A	0	0	0	0	0	0	3	3	2	1	16	1	0	0	0	0	0	0	0	1.1	16.2
17-Dec	0	0	0	0	A	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	2.7
18-Dec	0	0	0	0	A	0	0	5	0	1	2	4	4	3	3	2	1	0	0	0	0	0	0	0	1.1	4.6
19-Dec	0	0	0	4	A	0	0	5	0	2	4	10	24	7	4	3	5	1	0	0	0	0	0	0	3.0	24.4
20-Dec	0	0	0	0	A	0	0	0	0	2	2	3	10	26	8	21	15	11	21	0	5	9	0	0	5.8	26.0
21-Dec	0	0	16	10	A	2	1	2	1	3	18	24	21	20	20	7	7	1	0	0	0	0	0	0	6.7	24.3
22-Dec	0	0	0	0	A	0	0	0	0	1	2	3	4	61	26	10	3	0	0	8	1	0	1	0	5.2	60.7
23-Dec	0	0	0	6	A	0	0	0	1	2	6	9	17	8	23	23	1	9	18	7	0	0	14	5	6.6	23.5
24-Dec	4	1	0	0	A	0	0	0	0	0	3	13	12	18	10	5	11	1	3	1	0	0	2	0	3.7	17.9
25-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.4
26-Dec	0	0	0	0	A	0	0	0	0	0	2	4	5	4	5	6	1	0	0	0	0	1	1	0	1.3	5.6
27-Dec	0	0	0	0	A	0	0	1	0	0	1	2	2	3	3	2	0	0	0	0	0	0	0	0	0.7	3.5
28-Dec	0	0	0	0	A	0	0	0	0	0	0	1	2	1	1	1	0	0	0	0	0	0	0	0	0.3	1.8
29-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0.3	1.3
30-Dec	0	0	0	0	A	0	1	0	1	1	5	4	5	4	2	1	0	0	0	0	0	0	0	0	1.1	4.7
31-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0.3	1.8
	0.2	0.0	0.6	0.7	0.0	0.1	0.1	0.8	0.3	0.7	2.1	3.5	4.5	6.1	3.7	3.4	1.6	0.7	1.4	0.6	0.5	0.4	0.6	0.2	Diurnal Average	
	4.2	0.7	16.4	10.3	0.0	2.1	1.3	5.4	5.0	6.0	17.7	24.3	24.4	60.7	26.2	23.5	14.9	11.1	21.0	8.4	8.4	9.5	13.6	5.3	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

Hourly Averages for NO at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Beaverlodge - Nitrogen Oxide (NO) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 96.3 ppb on Dec 22 14:00

Maximum Daily Average: 25.8 ppb on Dec 23

Minimum Value: 0 ppb on Dec 1 01:00

Minimum Daily Average: 0.3 ppb on Dec 25

Maximum Diurnal Average: 12.2 ppb at hour 14

Minimum Diurnal Average: 0.0 ppb at hour 5

Monthly Average: 4.58 ppb

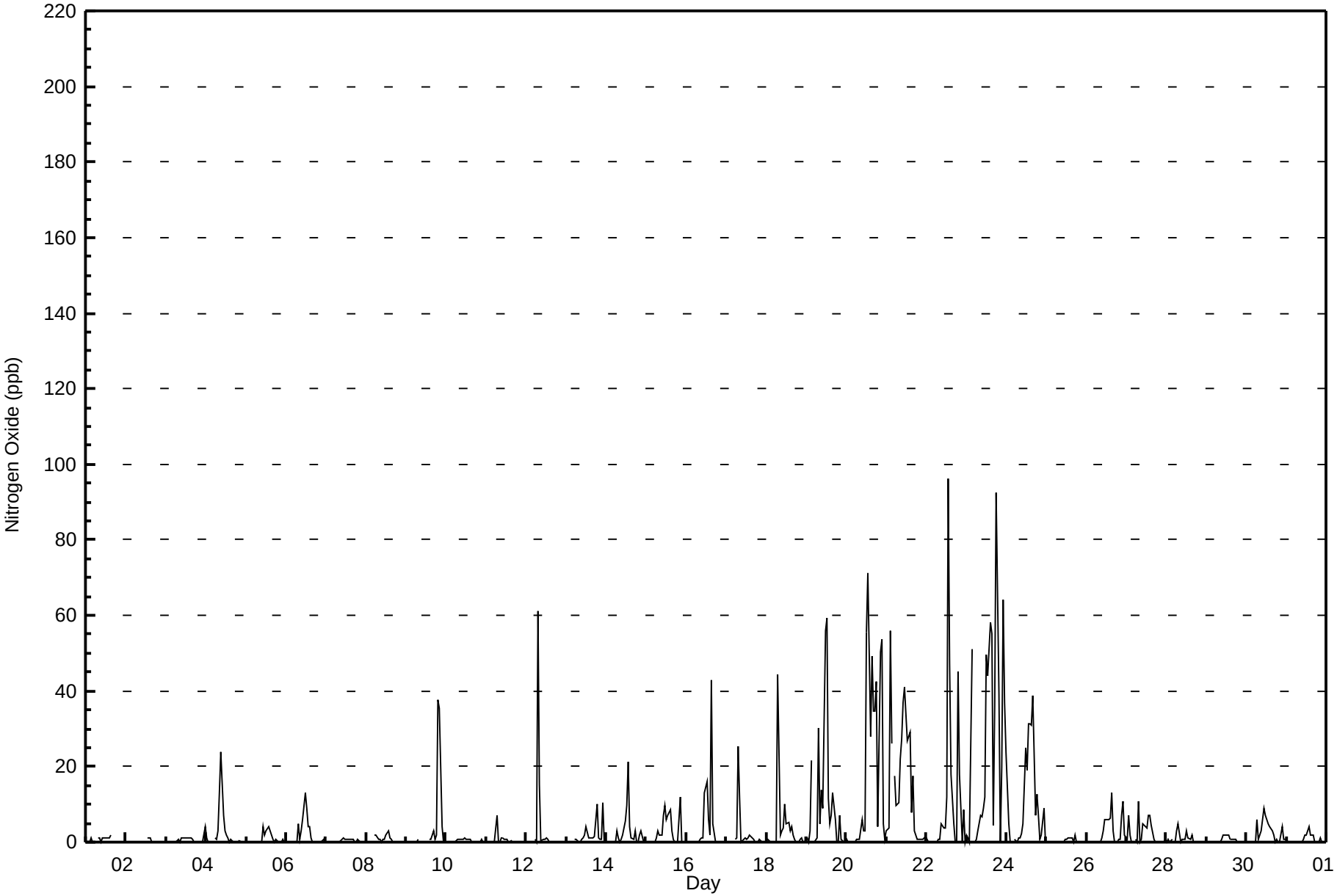
Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.0$ Median = 0.9 $Q_3 = 2.9$ $P_{90} = 11.6$ $P_{99} = 57.7$

Hours in Service:	744
Hours of Data:	686
Hours of Missing Data:	58
Hours of Calibration:	37
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	1	0	A	A	1	1	0	1	1	1	1	1	2	P	P	P	P	P	P	P	P	--	2.0
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	0	0	0	0	0	0	0	0	0	--	0.9
3-Dec	0	0	0	0	A	0	0	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	4	0.5	3.9
4-Dec	1	0	0	0	A	1	1	3	13	24	7	3	2	1	0	1	0	0	0	0	0	0	0	0	2.5	23.8
5-Dec	0	0	0	0	A	0	0	0	0	0	4	2	3	4	3	2	1	0	1	0	0	0	1	0	0.9	4.0
6-Dec	0	0	0	0	A	0	0	5	1	3	6	13	9	4	4	1	0	0	0	0	0	0	1	0	2.0	13.0
7-Dec	0	0	0	0	A	0	0	0	0	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0.3	0.9
8-Dec	0	0	0	0	A	2	2	1	1	0	1	1	2	3	1	1	0	0	0	0	0	0	0	0	0.6	2.9
9-Dec	0	0	0	0	A	0	0	1	C	C	C	C	C	C	1	1	3	1	2	38	35	4	0	0	--	37.8
10-Dec	0	0	0	0	A	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	0.4	0.9
11-Dec	0	0	0	0	A	0	7	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0.5	6.9
12-Dec	0	0	0	0	A	1	0	61	15	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	3.5	61.2
13-Dec	0	0	0	0	A	1	1	0	0	1	1	2	4	1	1	1	1	2	10	1	1	1	10	0	1.7	10.4
14-Dec	0	0	0	0	A	0	3	1	0	1	2	6	10	21	4	1	1	3	0	0	2	3	0	0	2.5	21.3
15-Dec	0	0	0	0	A	0	1	3	2	2	7	10	6	7	9	3	1	0	0	0	12	0	0	0	2.7	12.0
16-Dec	0	0	0	0	A	0	0	0	1	1	1	13	16	6	2	43	5	0	0	0	0	0	0	0	3.8	42.8
17-Dec	0	0	0	0	A	1	1	25	12	0	1	1	1	1	2	1	1	0	0	0	1	0	0	0	2.1	25.4
18-Dec	0	1	0	0	A	0	0	44	2	3	4	10	5	5	3	4	2	1	0	0	1	1	0	0	3.7	44.4
19-Dec	1	0	3	22	A	0	1	30	5	14	9	56	59	12	5	7	13	6	0	0	7	1	0	0	10.9	59.4
20-Dec	1	0	0	0	A	0	1	1	1	6	3	3	55	71	28	49	35	35	42	4	50	54	5	1	19.3	71.1
21-Dec	3	4	56	26	A	17	10	11	22	27	37	41	27	28	29	8	17	3	1	1	1	1	1	2	16.1	55.8
22-Dec	1	0	0	0	A	0	0	1	1	5	4	4	12	96	47	18	5	0	0	45	18	0	9	0	11.5	96.3
23-Dec	2	1	0	51	A	0	1	3	7	7	9	12	50	44	58	55	5	36	93	40	0	20	64	37	25.8	92.5
24-Dec	24	5	0	0	A	1	0	1	1	2	5	25	19	31	31	31	39	7	13	7	1	2	9	0	11.0	38.7
25-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	1	1	0	2	0	0	0	0	0	0	0.3	1.9
26-Dec	0	0	0	0	A	0	0	0	0	1	3	6	6	6	6	13	3	0	0	1	1	7	11	2	2.8	12.9
27-Dec	1	7	2	0	A	1	0	11	0	1	5	4	4	7	7	4	1	0	0	0	0	0	0	1	2.4	10.6
28-Dec	0	1	0	1	A	0	3	5	0	1	1	1	3	1	1	2	0	0	0	0	0	0	0	0	0.8	4.9
29-Dec	0	0	0	0	A	0	0	0	0	1	2	2	2	2	1	1	1	1	0	0	0	0	0	0	0.5	1.9
30-Dec	0	0	0	0	A	0	6	1	2	3	9	7	6	5	4	3	2	0	1	0	0	4	1	1	2.3	8.9
31-Dec	1	0	0	0	A	0	0	0	0	0	1	2	2	4	2	2	2	0	0	0	1	0	0	0	0.7	3.9
	1.2	0.6	2.0	3.3	0.0	0.9	1.3	7.0	3.0	3.7	4.3	7.9	10.6	12.2	8.2	8.3	4.6	3.2	5.4	4.6	4.4	3.3	3.7	1.6	Diurnal Average	
	23.7	6.9	55.8	50.9	0.0	17.4	9.7	61.2	21.9	27.2	37.0	55.9	59.4	96.3	58.1	55.1	38.7	36.1	92.5	45.1	50.4	53.7	64.2	37.1	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

Hourly Maximums for NO at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - Oxides of Nitrogen (NO_X) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 92.0 ppb on Dec 22 14:00

Maximum Daily Average: 24.5 ppb on Dec 21

Minimum Value: 1 ppb on Dec 10 02:00

Minimum Daily Average: 1.4 ppb on Dec 11

Maximum Diurnal Average: 12.5 ppb at hour 14

Minimum Diurnal Average: 0.9 ppb at hour 5

Monthly Average: 8.61 ppb

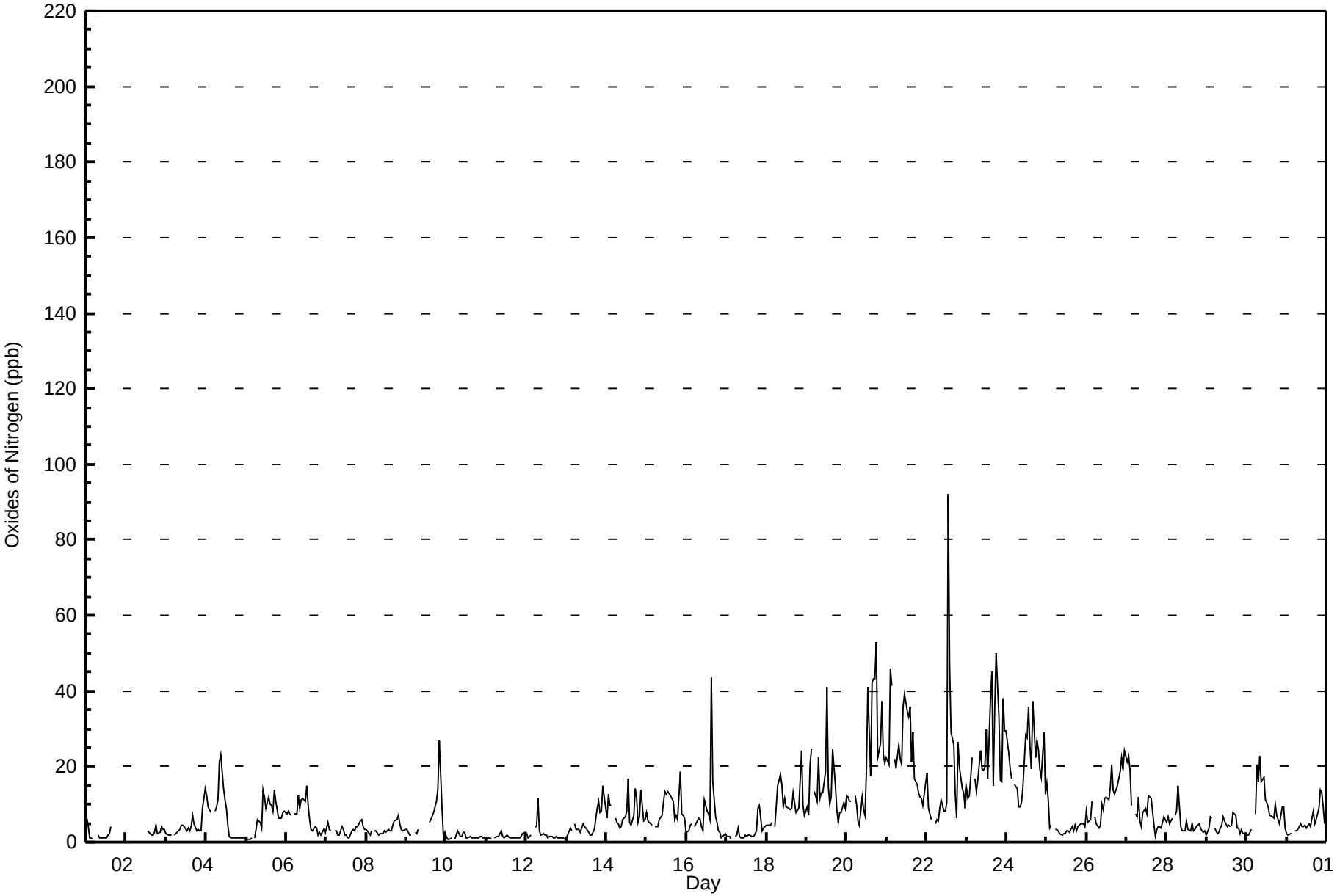
Percentiles: $P_1 = 0.9$ $P_{10} = 1.4$ $Q_1 = 2.8$ Median = 5.2 $Q_3 = 11.2$ $P_{90} = 19.8$ $P_{99} = 43.2$

Hours in Service:	744
Hours of Data:	686
Hours of Missing Data:	58
Hours of Calibration:	37
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	6	4	1	1	1	A	A	2	1	1	1	1	1	2	2	4	P	P	P	P	P	P	P	P	--	6.3
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	3	2	2	2	3	5	2	3	4	3	3	--	4.6
3-Dec	2	2	2	2	A	2	2	3	3	5	4	4	3	4	3	4	7	5	3	3	3	3	9	14	4.0	14.1
4-Dec	12	9	9	8	A	8	9	11	21	23	14	11	9	4	1	1	1	1	1	1	1	1	1	1	7.0	23.1
5-Dec	1	1	1	1	A	1	4	6	5	4	14	12	9	12	10	10	8	14	11	6	6	6	8	8	6.9	14.0
6-Dec	7	8	8	7	A	8	7	12	9	11	11	11	15	10	6	3	3	4	4	2	3	2	3	2	6.8	14.9
7-Dec	4	5	3	3	A	3	3	2	2	4	3	2	2	1	1	3	3	3	4	4	5	6	4	3	3.2	6.1
8-Dec	3	3	2	3	A	3	3	2	2	2	2	3	3	3	3	3	4	6	6	7	5	3	3	3	3.4	7.0
9-Dec	3	2	2	2	A	3	2	3	C	C	C	C	C	C	5	6	8	9	11	14	27	9	1	3	--	26.7
10-Dec	1	1	1	1	A	1	2	3	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1.4	3.1
11-Dec	1	1	1	1	A	1	1	1	2	3	1	1	2	2	1	1	1	1	1	1	1	2	2	3	1.4	3.1
12-Dec	2	1	1	2	A	4	4	12	3	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	2.2	11.6
13-Dec	1	2	4	3	A	5	3	4	3	4	5	4	4	3	2	2	2	3	9	11	8	8	15	12	5.0	14.9
14-Dec	6	13	10	10	A	6	5	5	4	4	6	7	8	17	5	5	7	14	11	5	7	14	5	6	7.8	16.9
15-Dec	8	5	5	5	A	4	4	4	6	7	10	13	13	14	12	12	11	6	7	6	19	8	7	6	8.3	18.6
16-Dec	3	3	5	5	A	4	5	6	6	4	3	11	8	8	6	44	16	7	5	3	3	1	2	2	6.9	43.7
17-Dec	2	2	1	1	A	1	2	4	1	1	1	2	2	2	2	2	1	2	3	9	10	3	4	4	2.6	9.8
18-Dec	5	4	4	5	A	4	9	15	18	15	9	11	9	9	9	9	13	11	8	9	16	24	10	7	10.2	24.4
19-Dec	9	7	21	25	A	13	11	22	12	13	13	18	41	15	10	12	25	15	9	5	8	8	10	9	14.4	41.1
20-Dec	12	12	11	11	A	12	10	6	4	12	8	7	19	41	18	42	43	43	53	22	26	37	23	21	21.5	53.0
21-Dec	22	21	46	42	A	22	20	26	22	21	36	39	35	33	36	21	29	17	15	13	12	12	10	16	24.5	46.0
22-Dec	18	9	7	6	A	5	6	6	9	11	8	8	10	92	47	29	26	13	7	26	20	14	13	9	17.4	92.0
23-Dec	14	12	12	22	A	17	13	16	24	19	19	20	30	17	38	45	15	35	50	33	16	16	38	29	24.0	49.8
24-Dec	30	24	19	17	A	15	14	9	9	11	15	28	28	36	25	19	37	22	27	25	19	17	29	13	21.2	37.4
25-Dec	16	11	4	4	A	3	3	3	2	2	2	2	3	3	3	4	3	5	3	4	5	5	5	4	4.3	15.5
26-Dec	8	5	6	11	A	7	5	4	5	10	8	12	12	11	14	20	14	13	15	17	19	23	19	24	12.2	24.3
27-Dec	21	23	19	10	A	7	7	12	6	4	8	9	7	12	12	12	5	1	3	4	4	4	7	6	8.8	22.7
28-Dec	5	7	5	6	A	7	8	15	4	3	3	3	6	3	3	5	3	3	4	5	4	3	3	3	4.8	14.9
29-Dec	2	4	7	6	A	4	2	3	4	4	7	6	4	5	4	5	8	7	4	4	2	3	2	2	4.2	7.8
30-Dec	2	2	2	3	A	8	21	16	23	16	17	11	11	9	7	7	6	10	7	6	5	9	9	4	9.2	22.9
31-Dec	2	2	2	2	A	3	3	3	5	4	4	4	4	5	4	6	8	5	6	9	14	13	9	5	5.3	13.9
	7.7	6.8	7.4	7.5	0.9	6.3	6.5	7.9	7.5	7.7	8.3	9.2	10.3	12.5	9.5	10.9	10.5	9.3	9.8	8.7	9.1	8.7	8.6	7.5	Diurnal Average	
	29.6	23.7	46.0	41.6	0.9	22.0	20.5	25.7	24.1	23.1	35.7	39.3	41.1	92.0	47.4	45.0	43.2	43.1	53.0	33.2	26.7	37.4	38.1	29.4	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

Hourly Averages for NO_X at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Beaverlodge - Oxides of Nitrogen (NO_X) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 135.2 ppb on Dec 22 14:00

Maximum Daily Average: 51.3 ppb on Dec 23

Minimum Value: 1 ppb on Dec 17 04:00

Minimum Daily Average: 3.1 ppb on Dec 11

Maximum Diurnal Average: 21.9 ppb at hour 14

Minimum Diurnal Average: 1.0 ppb at hour 5

Monthly Average: 15.40 ppb

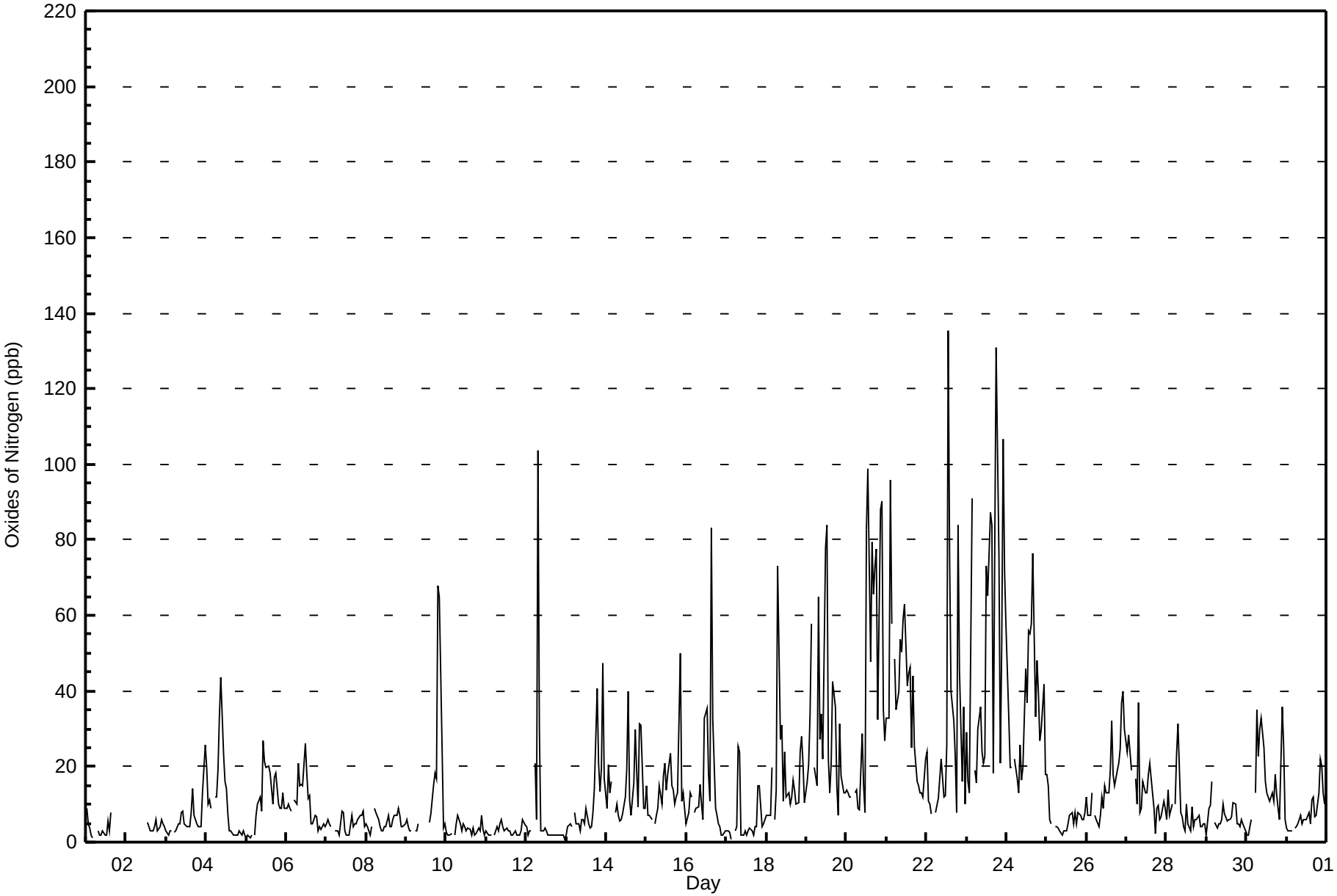
Percentiles: P_1 = 1.9 P_{10} = 2.9 Q_1 = 4.0 Median = 8.5 Q_3 = 17.9 P_{90} = 35.7 P_{99} = 89.4

Hours in Service:	744
Hours of Data:	686
Hours of Missing Data:	58
Hours of Calibration:	37
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	9	5	4	2	1	A	A	3	2	2	3	2	2	6	3	8	P	P	P	P	P	P	P	P	--	9.0
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	5	3	3	3	4	6	3	4	6	5	4	--	6.0
3-Dec	3	2	3	3	A	2	3	5	5	8	8	5	4	4	4	8	14	7	5	4	4	4	13	26	6.2	25.6
4-Dec	20	10	11	9	A	12	12	19	33	44	23	16	14	7	3	3	2	2	2	2	3	2	3	2	11.0	43.8
5-Dec	1	2	1	2	A	2	7	10	12	8	27	21	20	20	18	14	10	17	18	10	9	9	13	9	11.3	27.0
6-Dec	9	10	9	8	A	11	10	21	15	15	15	26	18	11	12	5	5	7	7	3	4	4	5	4	10.2	26.1
7-Dec	5	6	5	4	A	3	3	3	2	8	8	3	2	2	2	7	4	5	5	6	7	7	8	4	4.7	8.0
8-Dec	5	4	2	4	A	9	8	6	4	3	3	4	4	7	4	4	6	7	7	9	7	4	4	5	5.2	9.0
9-Dec	6	4	3	3	A	3	3	5	C	C	C	C	C	C	5	7	15	18	17	68	65	25	4	5	--	67.7
10-Dec	3	2	2	2	A	2	5	7	5	3	5	4	3	4	3	2	4	2	2	4	3	7	3	2	3.4	6.9
11-Dec	3	2	2	2	A	2	4	3	5	6	4	3	4	3	3	2	2	3	2	2	2	3	6	4	3.1	5.9
12-Dec	4	2	3	3	A	21	6	104	30	3	3	4	3	2	2	2	2	2	2	2	2	2	2	1	8.9	103.5
13-Dec	2	4	5	4	A	8	5	5	3	6	6	5	9	5	4	4	8	14	41	21	13	19	47	17	11.0	47.2
14-Dec	9	21	13	16	A	8	10	7	6	6	7	12	19	40	11	7	16	30	19	9	31	31	9	9	15.0	40.0
15-Dec	15	7	7	6	A	5	7	9	15	10	18	21	14	18	24	15	14	10	12	13	50	11	13	9	13.9	49.8
16-Dec	5	8	13	12	A	8	9	9	15	10	6	33	35	18	11	83	32	9	7	5	4	2	2	3	14.7	83.1
17-Dec	3	3	3	1	A	3	4	26	24	2	2	3	2	3	4	3	2	4	4	15	15	4	5	6	6.0	25.5
18-Dec	7	7	7	20	A	6	14	73	27	31	11	24	12	13	10	12	17	14	10	11	24	28	21	11	17.7	73.0
19-Dec	16	20	34	58	A	20	15	65	27	34	22	78	84	22	13	21	43	36	15	7	31	17	13	13	30.5	83.9
20-Dec	14	13	12	12	A	13	14	9	9	29	15	8	83	99	48	79	66	73	78	33	88	90	35	27	41.1	99.0
21-Dec	33	33	96	58	A	48	35	40	54	51	59	63	41	45	46	25	44	25	16	15	13	13	12	22	38.5	96.0
22-Dec	24	11	10	8	A	8	10	12	17	22	12	12	26	135	76	40	32	23	8	84	45	16	36	10	29.4	135.2
23-Dec	29	16	13	91	A	19	16	30	36	24	21	23	73	65	87	84	18	76	131	76	21	53	107	72	51.3	130.9
24-Dec	57	33	20	20	A	22	17	13	26	16	20	46	37	56	55	58	77	33	48	40	27	30	42	18	35.2	76.6
25-Dec	18	15	6	5	A	4	4	4	3	2	3	3	3	5	7	8	5	8	5	8	7	6	6	8	6.1	17.9
26-Dec	12	7	7	13	A	7	6	4	7	12	9	15	13	13	19	32	18	15	19	21	25	37	40	30	16.5	39.9
27-Dec	24	28	24	19	A	17	10	37	8	9	16	13	13	18	21	17	9	2	9	10	6	7	11	9	14.6	37.0
28-Dec	6	14	7	10	A	10	23	31	8	7	4	3	10	5	3	9	4	6	6	7	4	4	5	5	8.3	31.2
29-Dec	2	9	10	16	A	5	4	5	5	6	10	8	5	6	6	7	11	10	5	5	4	6	5	3	6.6	15.9
30-Dec	2	2	4	6	A	13	35	23	30	33	25	16	13	12	11	13	11	18	13	9	6	36	25	6	15.7	36.0
31-Dec	4	3	3	3	A	4	4	5	7	5	6	6	6	8	5	11	12	7	7	13	22	20	13	10	7.9	21.9
	11.6	10.1	11.2	13.9	1.0	10.1	10.4	19.7	15.1	14.2	12.8	16.5	19.7	21.9	16.9	19.1	16.8	16.2	17.4	17.1	18.2	16.7	17.0	11.7	Diurnal Average	
	56.9	33.0	96.0	91.1	1.0	48.4	35.1	103.5	53.7	50.5	59.0	77.9	83.9	135.2	87.1	84.0	76.6	76.0	130.9	83.8	88.0	90.1	106.6	71.8	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

Hourly Maximums for NO_X at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 40.1 ppb on Dec 4 18:00
Maximum Daily Average: 37.2 ppb on Dec 10

Minimum Value: 2 ppb on Dec 21 04:00
Maximum Diurnal Average: 30.1 ppb at hour 5
Monthly Average: 23.98 ppb

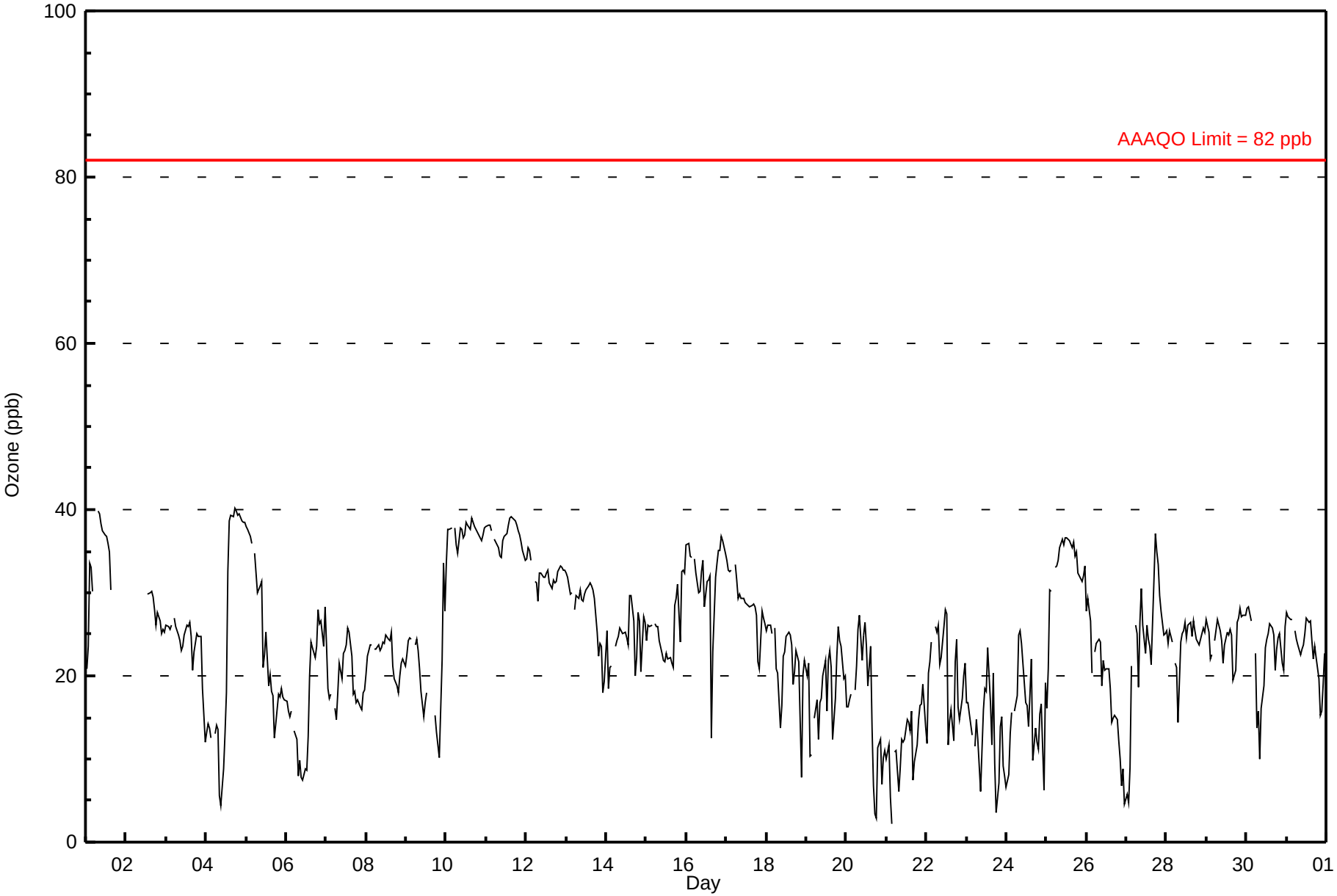
Minimum Daily Average: 11.8 ppb on Dec 21
Minimum Diurnal Average: 23.1 ppb at hour 17
Percentiles: P_1 = 5.4 P_{10} = 12.5 Q_1 = 18.2 Median = 24.3 Q_3 = 29.8 P_{90} = 35.8 P_{99} = 39.3

Hours in Service:	744
Hours of Data:	688
Hours of Missing Data:	56
Hours of Calibration:	35
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	21	24	33	33	30	A	A	40	39	38	38	37	37	36	35	30	P	P	P	P	P	P	P	P	--	39.8
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	30	29	28	26	28	27	25	26	25	--	30.1
3-Dec	26	26	26	26	A	27	26	25	24	23	24	25	26	26	27	25	21	23	25	25	25	25	18	12	24.1	27.0
4-Dec	13	14	14	13	A	13	14	14	6	4	9	13	18	33	39	39	39	40	40	39	40	39	38	38	24.7	40.1
5-Dec	38	38	37	36	A	35	32	30	31	31	21	23	25	19	20	18	18	13	14	18	17	18	18	17	24.6	38.0
6-Dec	17	16	15	16	A	13	12	8	10	8	7	9	9	13	20	24	23	22	24	28	26	27	24	28	17.3	28.4
7-Dec	24	18	17	18	A	16	15	18	21	20	23	23	24	26	25	22	18	18	17	17	16	16	18	18	19.5	25.7
8-Dec	20	22	24	24	A	23	23	24	23	23	24	24	25	24	24	25	21	20	19	18	20	21	22	21	22.4	25.3
9-Dec	23	24	25	24	A	24	24	23	21	18	15	17	18	C	C	C	A	15	13	12	10	22	34	28	20.5	33.6
10-Dec	34	38	38	38	A	38	36	35	38	38	37	37	38	38	38	39	38	38	38	37	37	36	37	38	37.2	38.9
11-Dec	38	38	38	37	A	36	36	35	34	34	36	37	37	38	39	39	39	39	38	38	37	36	35	34	36.9	39.1
12-Dec	34	35	35	34	A	31	31	29	32	32	32	32	32	33	31	31	31	31	31	32	33	33	33	33	32.3	35.5
13-Dec	32	32	30	30	A	28	30	29	30	29	29	30	30	31	31	31	30	29	25	22	24	24	18	19	28.0	32.4
14-Dec	25	18	21	21	A	24	24	25	26	25	25	25	25	24	30	30	27	20	22	28	27	21	27	26	24.6	29.6
15-Dec	24	26	26	26	A	26	26	26	24	23	22	22	23	22	22	22	21	28	29	31	24	32	33	32	25.7	32.7
16-Dec	36	36	34	34	A	34	32	30	30	33	34	28	31	32	32	13	23	32	34	35	35	37	36	35	32.0	36.8
17-Dec	34	33	32	33	A	33	32	29	30	29	29	29	29	28	28	28	29	28	27	22	21	28	27	26	28.9	33.9
18-Dec	25	26	26	25	A	26	21	20	14	16	22	23	25	25	25	24	19	21	23	22	15	8	20	22	21.4	26.2
19-Dec	20	22	10	10	A	15	17	12	17	17	20	22	16	22	23	21	12	17	22	26	24	23	20	20	18.7	25.9
20-Dec	16	16	17	18	A	18	21	26	27	22	25	26	24	19	24	14	7	3	3	11	12	7	10	11	16.4	27.3
21-Dec	10	12	6	2	A	11	11	6	9	12	12	12	15	14	13	16	7	10	12	15	16	17	19	14	11.8	18.9
22-Dec	12	20	22	24	A	26	25	26	21	22	26	28	27	12	15	16	12	22	24	16	15	17	20	22	20.5	27.9
23-Dec	17	17	15	13	A	11	15	12	6	11	16	18	18	23	17	12	20	10	4	7	14	15	9	8	13.4	23.4
24-Dec	7	8	13	16	A	16	18	25	25	24	22	17	16	14	18	22	10	14	12	11	15	17	6	19	15.8	25.4
25-Dec	16	21	30	30	A	33	33	34	35	36	36	37	37	36	36	35	36	34	35	32	32	31	32	33	32.7	36.6
26-Dec	28	29	27	20	A	23	24	24	24	19	22	21	21	21	18	14	15	15	15	12	10	7	9	5	18.4	29.4
27-Dec	6	5	9	21	A	26	25	19	27	31	26	23	26	24	24	21	32	37	35	33	30	28	25	25	24.2	37.0
28-Dec	25	24	25	24	A	21	21	14	24	25	25	26	25	26	26	25	27	25	24	24	24	25	26	25	24.3	26.6
29-Dec	27	25	22	23	A	24	27	26	25	24	21	24	25	25	26	25	19	21	26	27	28	27	27	27	24.9	28.1
30-Dec	28	28	28	27	A	23	14	16	10	16	19	23	24	25	26	26	25	21	23	25	25	21	21	26	22.6	28.2
31-Dec	28	27	27	27	A	25	24	24	22	23	24	25	27	26	27	24	22	24	22	20	15	16	19	23	23.5	27.6
	23.4	24.0	24.0	24.1	30.1	24.2	23.8	23.5	23.6	23.6	24.0	24.5	25.1	25.5	26.3	24.7	23.1	23.3	23.4	23.7	23.1	23.3	23.5	23.7	Diurnal Average	
	38.0	38.2	38.1	37.8	30.1	37.8	35.8	39.8	39.4	38.4	37.5	37.0	38.5	38.1	38.9	39.3	39.2	40.1	39.7	39.3	39.5	38.6	38.4	38.5	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb 24-hr na

Hourly Averages for O_3 at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Beaverlodge - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 41.2 ppb on Dec 1 08:00

Maximum Daily Average: 38.2 ppb on Dec 10

Minimum Value: 4 ppb on Dec 21 04:00

Minimum Daily Average: 15.7 ppb on Dec 21

Maximum Diurnal Average: 32.1 ppb at hour 5

Minimum Diurnal Average: 25.9 ppb at hour 7

Monthly Average: 26.60 ppb

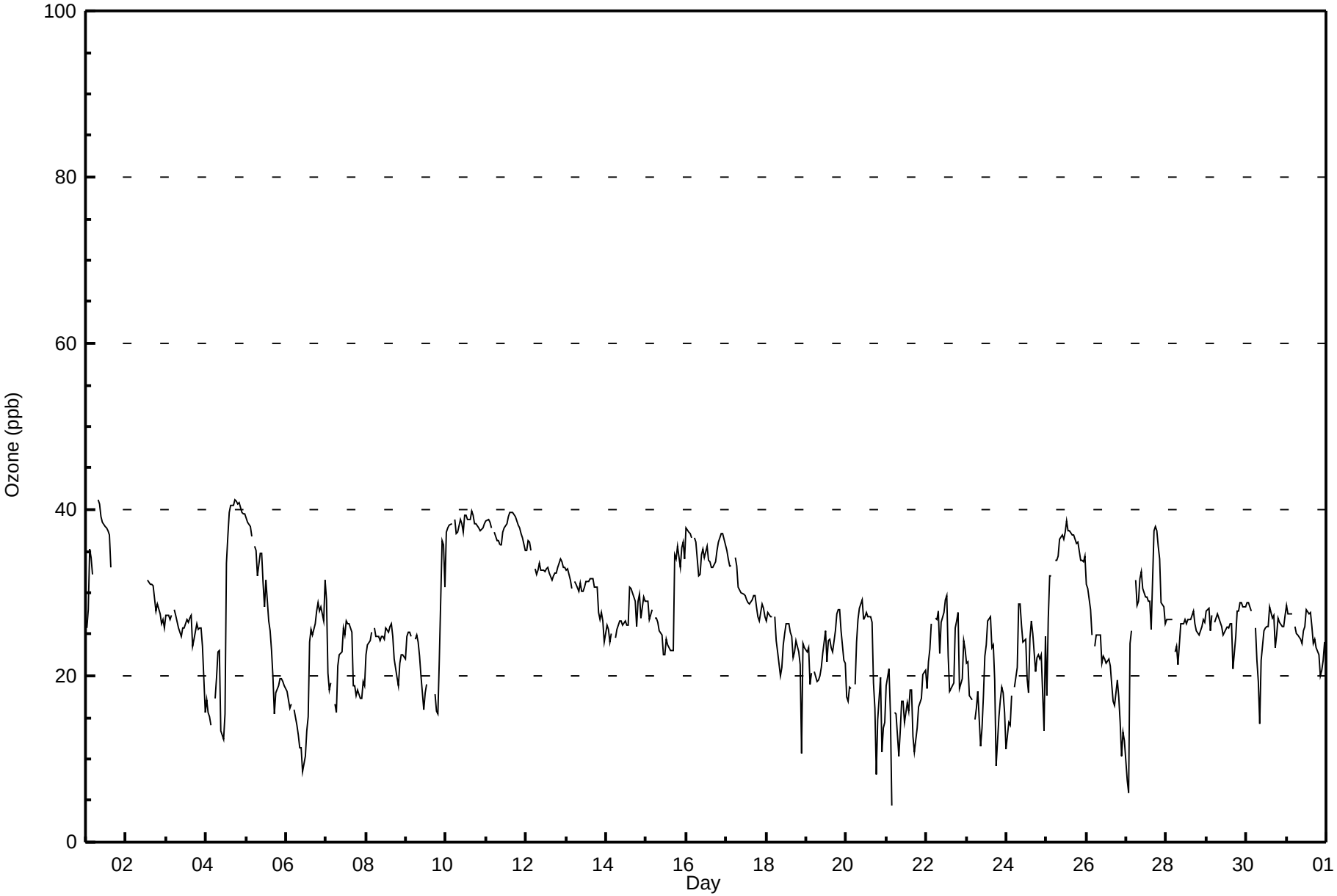
Percentiles: P_1 = 10.4 P_{10} = 17.1 Q_1 = 22.3 Median = 26.4 Q_3 = 31.6 P_{90} = 37.2 P_{99} = 40.5

Hours in Service:	744
Hours of Data:	688
Hours of Missing Data:	56
Hours of Calibration:	35
Percent Operational Time:	97.2

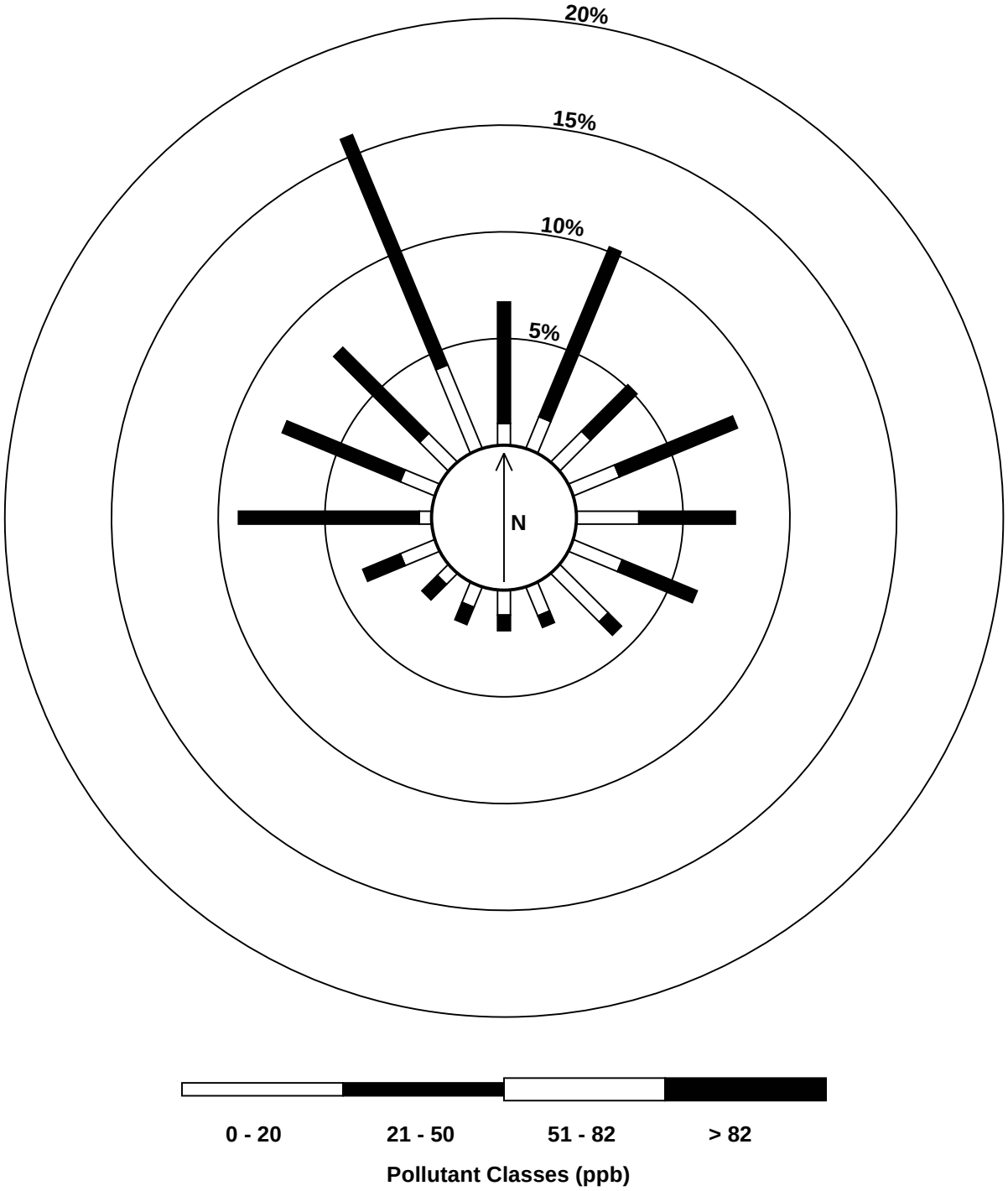
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	26	28	35	34	32	A	A	41	41	39	39	38	38	37	37	33	P	P	P	P	P	P	P	P	--	41.2
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	31	31	31	31	29	28	29	28	26	27	26	--	31.5
3-Dec	27	27	27	27	A	28	27	26	25	25	26	26	27	26	27	27	24	24	26	26	26	26	24	16	25.6	27.9
4-Dec	17	16	15	14	A	17	20	23	23	13	12	15	34	37	40	41	41	41	41	41	41	40	40	39	28.7	41.1
5-Dec	39	38	38	37	A	36	35	32	35	35	31	28	32	27	25	23	20	15	18	19	20	20	19	19	27.8	39.0
6-Dec	18	17	16	17	A	16	14	13	11	11	9	10	13	15	24	26	25	26	28	29	28	28	27	32	19.7	31.5
7-Dec	29	20	18	19	A	17	16	21	23	23	26	25	27	26	26	25	19	19	18	18	17	17	19	19	21.2	29.1
8-Dec	23	24	24	25	A	26	25	25	24	25	25	24	26	25	26	26	25	22	20	19	21	23	23	22	23.7	26.2
9-Dec	25	25	25	25	A	24	25	24	22	20	16	18	19	C	C	C	A	18	16	15	22	36	36	31	23.3	36.3
10-Dec	37	38	38	38	A	39	37	37	39	38	37	39	39	39	39	40	39	38	38	38	37	38	38	38	38.2	39.8
11-Dec	39	39	39	38	A	37	36	36	36	36	37	38	38	39	40	40	40	39	39	38	38	37	37	35	37.8	39.7
12-Dec	35	36	36	35	A	33	32	33	33	33	33	33	33	33	32	32	32	32	32	33	34	34	33	33	33.3	36.2
13-Dec	33	33	32	31	A	31	31	30	31	30	30	31	31	31	32	32	32	31	31	28	27	28	27	24	30.2	32.9
14-Dec	26	26	24	25	A	25	26	26	27	27	26	27	26	26	31	31	30	29	26	29	30	27	30	29	27.2	30.7
15-Dec	29	29	27	28	A	27	27	27	26	25	23	23	24	24	23	23	23	35	34	36	33	35	36	34	28.2	36.1
16-Dec	38	37	37	37	A	37	36	32	32	35	35	34	36	34	34	33	33	34	35	36	37	37	37	36	35.3	37.8
17-Dec	35	34	33	33	A	34	33	31	30	30	30	30	29	29	29	29	30	30	28	27	27	29	28	27	30.2	35.1
18-Dec	27	28	27	27	A	27	24	23	20	21	24	25	26	26	25	25	22	23	24	23	21	11	24	23	23.8	27.6
19-Dec	23	23	19	20	A	20	19	19	20	21	23	25	22	24	24	23	23	25	27	28	28	25	22	21	23.0	28.0
20-Dec	17	17	19	18	A	19	24	27	28	29	27	27	28	27	27	27	19	16	8	15	20	11	14	14	20.8	29.1
21-Dec	19	21	16	4	A	16	15	10	13	17	17	14	17	16	18	18	13	11	14	16	17	17	20	21	15.7	20.9
22-Dec	18	22	23	26	A	27	27	28	23	26	28	29	30	22	18	19	19	26	27	28	19	20	24	23	23.9	29.7
23-Dec	22	22	18	17	A	15	16	18	11	14	18	22	24	27	27	23	24	20	9	15	17	19	18	16	18.7	27.2
24-Dec	11	14	14	18	A	19	21	29	29	26	24	24	20	18	25	27	25	21	22	23	22	23	13	25	21.3	28.6
25-Dec	18	27	32	32	A	34	34	34	36	37	36	37	39	37	37	37	37	36	36	36	34	34	34	34	34.4	38.7
26-Dec	31	30	28	25	A	24	25	25	25	21	22	22	21	22	21	19	17	16	19	17	14	10	13	12	21.0	31.0
27-Dec	7	6	24	25	A	31	28	29	32	32	30	29	29	29	29	26	38	38	37	36	34	29	28	26	28.5	37.9
28-Dec	27	27	27	27	A	23	24	21	26	26	26	27	26	27	27	27	28	26	25	25	25	26	27	27	26.0	27.8
29-Dec	28	28	25	27	A	26	27	27	26	26	25	25	26	26	26	26	21	25	28	28	29	29	28	28	26.6	28.8
30-Dec	29	29	28	28	A	26	22	19	14	22	25	26	26	26	28	27	27	23	25	27	26	26	26	27	25.4	28.8
31-Dec	28	27	27	27	A	26	25	25	24	24	25	26	28	27	28	26	24	24	23	22	20	21	22	24	25.1	28.4
	26.0	26.3	26.4	26.2	32.1	26.2	25.9	26.4	26.2	26.2	26.2	26.6	27.7	27.8	28.6	28.0	26.8	26.4	26.1	26.6	26.4	26.0	26.4	26.1	Diurnal Average	
	39.0	38.8	38.5	38.3	32.1	38.8	37.2	41.2	40.6	39.2	38.5	39.3	39.3	39.2	39.7	40.6	40.6	41.1	41.0	40.6	40.9	39.7	39.5	39.4	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

Hourly Maximums for O_3 at Beaverlodge
December 2008



Pollutant Rose for O_3 at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Eight Hour Running Averages

Beaverlodge - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedences (AAAQO): 8-hr: 0
Maximum Value: 39.3 ppb on Dec 4 22:00

Minimum Value: 7.7 ppb on Dec 27 03:00

Percentiles: P_1 = 8.4 P_{10} = 13.8 Q_1 = 19.1 Median = 24.2 Q_3 = 29.0 P_{90} = 35.4 P_{99} = 38.2

Hours in Service:	744
Hours of Data:	713
Hours of Missing Data:	31
Hours of Calibration:	7
Percent Operational Time:	96.8

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	25	24	25	26	27	27	27	30	33	36	36	37	38	38	37	36	36	35	N	N	N	N	N	N	38.2
2-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	29	29	28	28	27	27	28.9
3-Dec	26	26	26	26	26	26	26	26	26	25	25	25	25	25	25	25	24	24	25	25	24	24	23	22	26.3
4-Dec	21	20	18	17	16	14	13	14	12	11	10	10	11	14	17	20	24	29	33	36	39	39	39	39	39.3
5-Dec	39	39	38	38	38	37	36	35	34	33	31	29	28	27	25	23	22	19	19	18	17	17	17	17	39.0
6-Dec	16	17	17	17	17	16	15	14	13	12	11	10	10	9	10	12	14	16	18	20	23	24	25	25	25.3
7-Dec	25	25	24	23	22	21	19	18	18	18	19	19	20	21	22	23	23	22	22	21	20	19	18	17	25.3
8-Dec	18	18	19	20	20	21	22	23	23	23	23	24	24	24	24	24	24	23	23	22	21	21	21	20	24.2
9-Dec	20	21	22	23	23	23	24	24	24	23	21	20	20	19	19	N	N	N	N	N	N	N	18	19	23.9
10-Dec	21	24	27	30	33	35	35	36	37	37	37	37	37	37	37	38	38	38	38	38	38	38	37	37	38.0
11-Dec	37	37	37	37	38	38	37	37	37	36	36	36	36	36	36	37	37	38	38	38	38	38	38	37	38.3
12-Dec	36	36	36	35	35	34	34	33	33	32	32	31	32	32	32	32	32	32	32	32	32	32	32	32	36.3
13-Dec	32	32	32	32	32	31	31	30	30	29	29	29	29	30	30	30	30	30	30	29	28	27	25	24	32.5
14-Dec	23	22	22	21	21	21	22	23	23	24	24	25	25	25	26	26	26	26	25	26	26	25	25	25	26.2
15-Dec	24	25	26	25	25	26	26	26	26	25	25	24	24	23	23	22	22	23	24	25	25	26	28	29	28.9
16-Dec	31	32	32	33	34	34	34	34	33	33	32	32	32	31	31	29	28	28	28	29	29	30	31	33	34.2
17-Dec	35	35	35	34	34	34	33	32	32	31	31	30	30	29	29	29	29	29	28	27	26	26	26	26	34.8
18-Dec	26	25	25	26	26	26	25	24	23	21	21	20	21	21	21	22	22	23	23	23	22	19	19	19	26.2
19-Dec	19	19	17	16	16	17	17	15	15	14	16	17	17	18	19	20	19	19	19	20	21	21	21	21	21.2
20-Dec	21	21	20	19	19	18	18	19	21	21	22	24	24	24	24	23	20	18	15	13	12	10	8	8	24.0
21-Dec	9	10	10	9	8	9	9	8	8	8	9	11	11	11	12	13	13	12	12	13	13	13	14	14	13.9
22-Dec	14	16	17	18	18	20	20	22	24	24	24	25	25	24	22	21	20	20	20	18	16	17	18	19	25.3
23-Dec	19	18	17	17	17	16	16	14	13	12	12	13	14	15	15	15	17	17	15	14	13	12	11	11	19.1
24-Dec	9	9	10	11	11	11	12	14	17	19	21	21	20	20	20	20	18	17	15	15	15	15	13	13	20.8
25-Dec	14	15	17	19	20	22	26	28	31	33	34	35	35	36	36	36	36	36	36	35	35	34	34	33	36.2
26-Dec	32	32	31	29	29	27	26	25	25	23	22	22	22	22	21	20	19	18	18	16	15	13	12	11	32.2
27-Dec	10	8	8	9	9	11	14	16	19	22	25	25	25	25	25	25	26	27	28	29	30	30	30	31	30.6
28-Dec	30	28	27	26	25	24	24	22	22	22	22	23	23	23	24	25	26	26	26	25	25	25	25	25	29.8
29-Dec	25	25	25	25	25	25	25	25	25	24	24	25	25	25	25	24	24	23	24	24	25	25	25	25	25.4
30-Dec	26	27	28	28	27	27	25	23	21	19	18	17	18	18	20	21	23	24	24	24	24	24	23	23	27.6
31-Dec	24	24	25	25	25	26	26	26	25	25	24	24	24	25	25	25	25	25	25	24	22	21	20	20	26.3
Diurnal Maximums	39.0	38.7	38.3	37.9	37.7	37.5	37.4	37.0	37.0	37.0	36.8	37.0	38.2	37.8	37.5	37.7	37.8	38.0	38.2	38.3	38.6	39.3	39.3	39.2	

N - Not Valid
Alberta Ambient Air Quality Objectives (AAAQO): 8-hr 65 ppb

Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - Particulate Matter 2.5 ($PM_{2.5}$) - $\mu g/m^3$
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 19.4 $\mu g/m^3$ on Dec 2 23:00
Maximum Daily Average: 6.1 $\mu g/m^3$ on Dec 7

Minimum Value: 0 $\mu g/m^3$ on Dec 1 01:00
Maximum Diurnal Average: 3.8 $\mu g/m^3$ at hour 23
Monthly Average: 2.85 $\mu g/m^3$

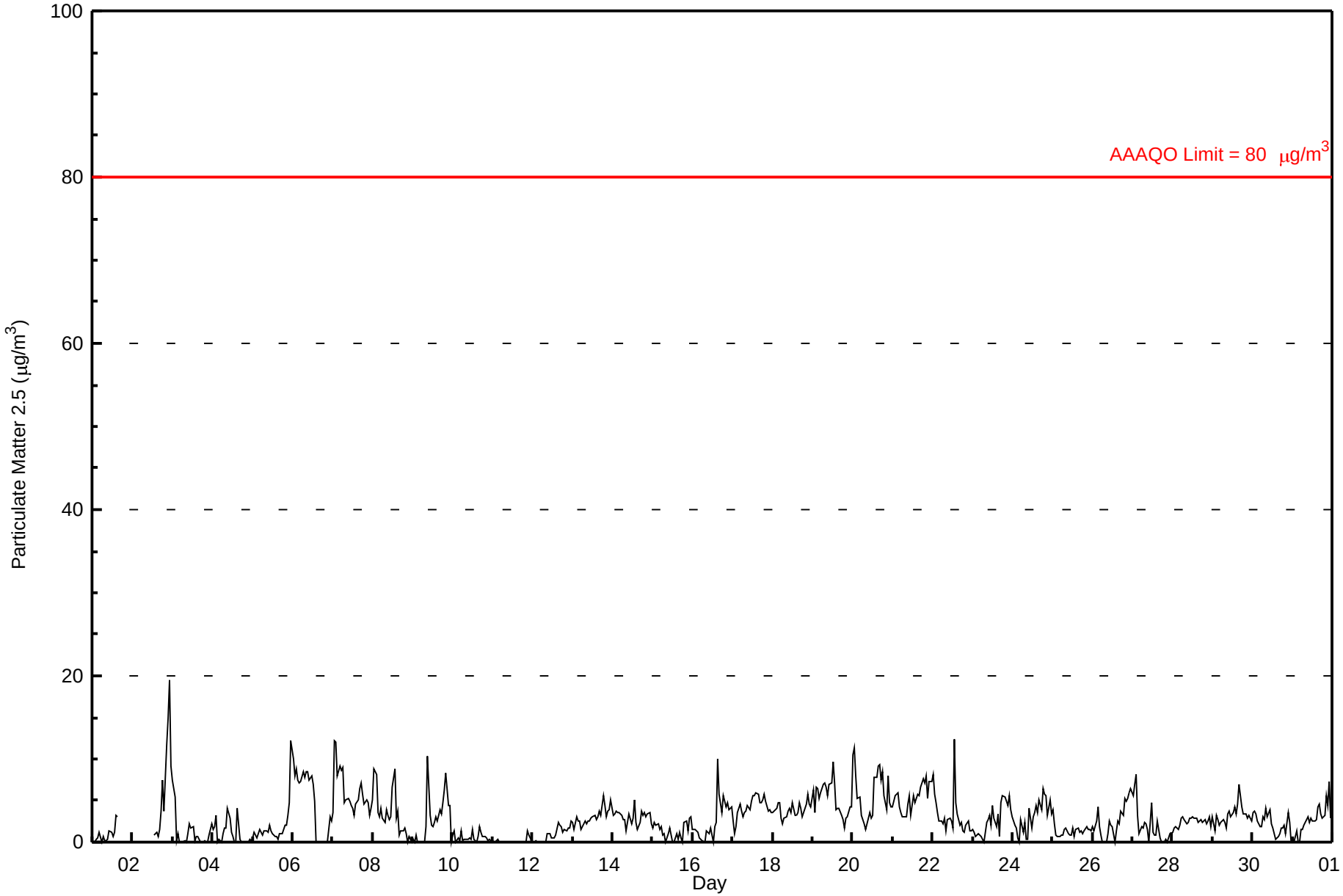
Minimum Daily Average: 0.1 $\mu g/m^3$ on Dec 11
Minimum Diurnal Average: 2.1 $\mu g/m^3$ at hour 8
Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 1.0$ Median = 2.5 $Q_3 = 4.0$ $P_{90} = 6.0$ $P_{99} = 11.5$

Hours in Service:	744
Hours of Data:	723
Hours of Missing Data:	21
Hours of Calibration:	0
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	1	0	1	0	0	0	1	1	1	1	3	3	P	P	P	P	P	P	P	P	--	3.2
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	1	2	4	7	4	12	15	19	9	--	19.4
3-Dec	7	5	0	1	0	0	0	0	0	1	2	2	2	0	1	1	0	0	0	0	0	0	1	2	1.1	7.4
4-Dec	1	2	3	0	0	0	1	2	2	4	3	1	1	0	0	4	0	0	0	0	0	0	0	0	1.0	4.0
5-Dec	0	1	0	1	2	1	1	1	1	1	2	1	1	1	1	0	1	1	1	2	2	3	5	12	1.8	12.3
6-Dec	10	8	9	7	7	7	8	8	8	8	7	8	7	5	0	0	0	0	0	0	0	0	3	3	4.8	9.9
7-Dec	4	12	12	8	9	9	9	5	5	5	5	4	4	3	5	5	7	7	6	5	5	5	3	4	6.1	12.2
8-Dec	5	9	8	4	3	4	3	2	4	3	3	3	7	9	3	4	1	1	1	2	1	0	1	0	3.3	8.8
9-Dec	0	0	1	0	0	0	0	0	2	10	3	2	2	2	3	3	4	3	5	6	8	4	4	0	2.7	10.3
10-Dec	1	1	0	0	0	1	0	0	0	0	0	0	2	0	0	1	2	1	1	1	1	0	0	0	0.6	1.8
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.1	1.3
12-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2	2	1	2	1	2	2	3	0.9	2.6
13-Dec	2	1	3	3	3	1	2	3	2	3	3	3	3	3	3	3	4	3	6	4	3	4	4	5	3.0	5.6
14-Dec	3	3	4	4	3	3	3	3	1	2	3	2	3	5	2	2	2	4	3	4	3	3	4	2	3.0	5.0
15-Dec	2	2	2	2	1	2	1	1	0	1	2	1	0	0	1	0	1	1	0	2	3	1	3	3	1.4	3.1
16-Dec	2	2	1	1	1	0	0	0	1	1	1	2	0	2	2	10	6	4	6	5	4	5	4	4	2.6	10.1
17-Dec	3	1	2	4	5	4	3	4	4	4	4	5	6	6	6	6	5	5	5	6	5	4	4	4	4.2	5.9
18-Dec	4	4	4	5	5	3	2	3	3	4	4	3	5	3	3	4	5	4	3	4	4	6	5	4	3.9	5.8
19-Dec	6	4	7	7	5	6	7	7	7	6	7	7	10	7	4	4	4	3	3	2	3	3	4	4	5.2	9.7
20-Dec	11	11	8	5	6	3	3	2	1	3	4	3	3	8	8	9	9	7	8	6	4	8	5	4	5.8	11.4
21-Dec	4	6	6	6	4	4	3	3	3	5	6	3	6	5	5	6	6	7	8	7	8	5	7	7	5.3	7.9
22-Dec	8	6	5	4	3	3	2	3	1	3	3	2	2	12	5	3	2	2	1	1	2	3	1	1	3.3	12.4
23-Dec	2	1	1	1	1	1	0	0	2	3	3	2	4	3	2	3	1	5	6	5	5	4	6	4	2.7	5.6
24-Dec	3	2	2	0	0	3	1	2	0	0	4	2	3	4	4	4	5	4	6	6	6	3	5	3	3.0	6.5
25-Dec	4	2	1	1	1	1	1	1	2	1	1	1	2	1	2	2	1	1	1	1	2	2	1	1	1.3	4.0
26-Dec	2	1	3	4	2	1	0	0	0	1	3	2	2	0	1	3	2	4	3	5	5	5	6	6	2.5	6.4
27-Dec	6	7	8	3	1	2	2	2	2	2	0	5	1	1	1	3	0	0	0	0	0	0	1	1	2.0	8.2
28-Dec	1	2	2	2	2	3	3	3	2	2	3	3	3	3	3	2	3	3	2	3	2	3	3	2	2.4	3.1
29-Dec	3	1	3	3	2	2	3	2	2	3	4	3	4	4	3	5	7	4	3	3	3	3	3	3	3.2	6.9
30-Dec	4	4	3	3	2	2	3	3	4	3	4	2	2	1	0	1	1	2	2	2	1	4	2	0	2.2	4.0
31-Dec	0	0	1	0	0	2	1	2	3	3	2	3	2	3	3	4	5	3	3	3	6	4	7	3	2.6	7.2
	3.2	3.3	3.3	2.6	2.3	2.2	2.1	2.1	2.1	2.8	2.9	2.6	2.8	3.0	2.4	3.1	2.9	2.8	3.1	3.0	3.3	3.3	3.8	3.2	Diurnal Average	
	10.6	12.2	12.1	7.9	9.2	8.7	9.0	7.7	8.4	10.3	7.4	7.9	9.7	12.4	7.8	10.1	9.3	7.5	8.5	7.2	11.7	15.0	19.4	12.3	Diurnal Maximum	

P - Power Failure
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 $\mu g/m^3$ 24-hr 30 $\mu g/m^3$

Hourly Averages for $PM_{2.5}$ at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Beaverlodge - Particulate Matter 2.5 ($PM_{2.5}$) - $\mu g/m^3$
December 1, 2008 to January 1, 2009

Maximum Value: 34.3 $\mu g/m^3$ on Dec 9 10:00

Maximum Daily Average: 8.9 $\mu g/m^3$ on Dec 20

Minimum Value: 0 $\mu g/m^3$ on Dec 1 02:00

Minimum Daily Average: 1.2 $\mu g/m^3$ on Dec 11

Maximum Diurnal Average: 6.6 $\mu g/m^3$ at hour 23

Minimum Diurnal Average: 4.1 $\mu g/m^3$ at hour 7

Monthly Average: 5.36 $\mu g/m^3$

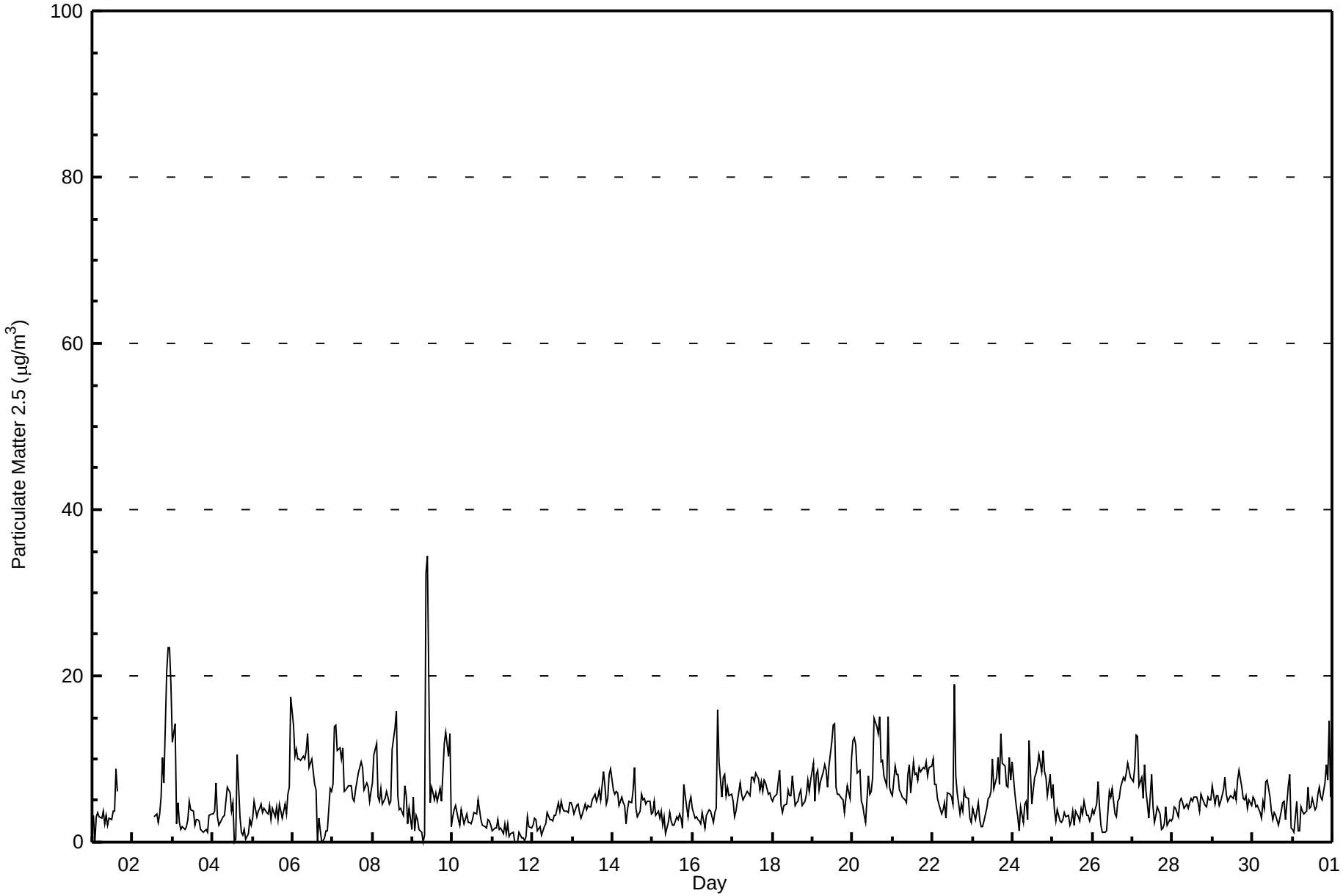
Percentiles: P_1 = 0.0 P_{10} = 1.9 Q_1 = 3.1 Median = 4.8 Q_3 = 6.7 P_{90} = 9.4 P_{99} = 19.0

Hours in Service:	744
Hours of Data:	723
Hours of Missing Data:	21
Hours of Calibration:	0
Percent Operational Time:	97.2

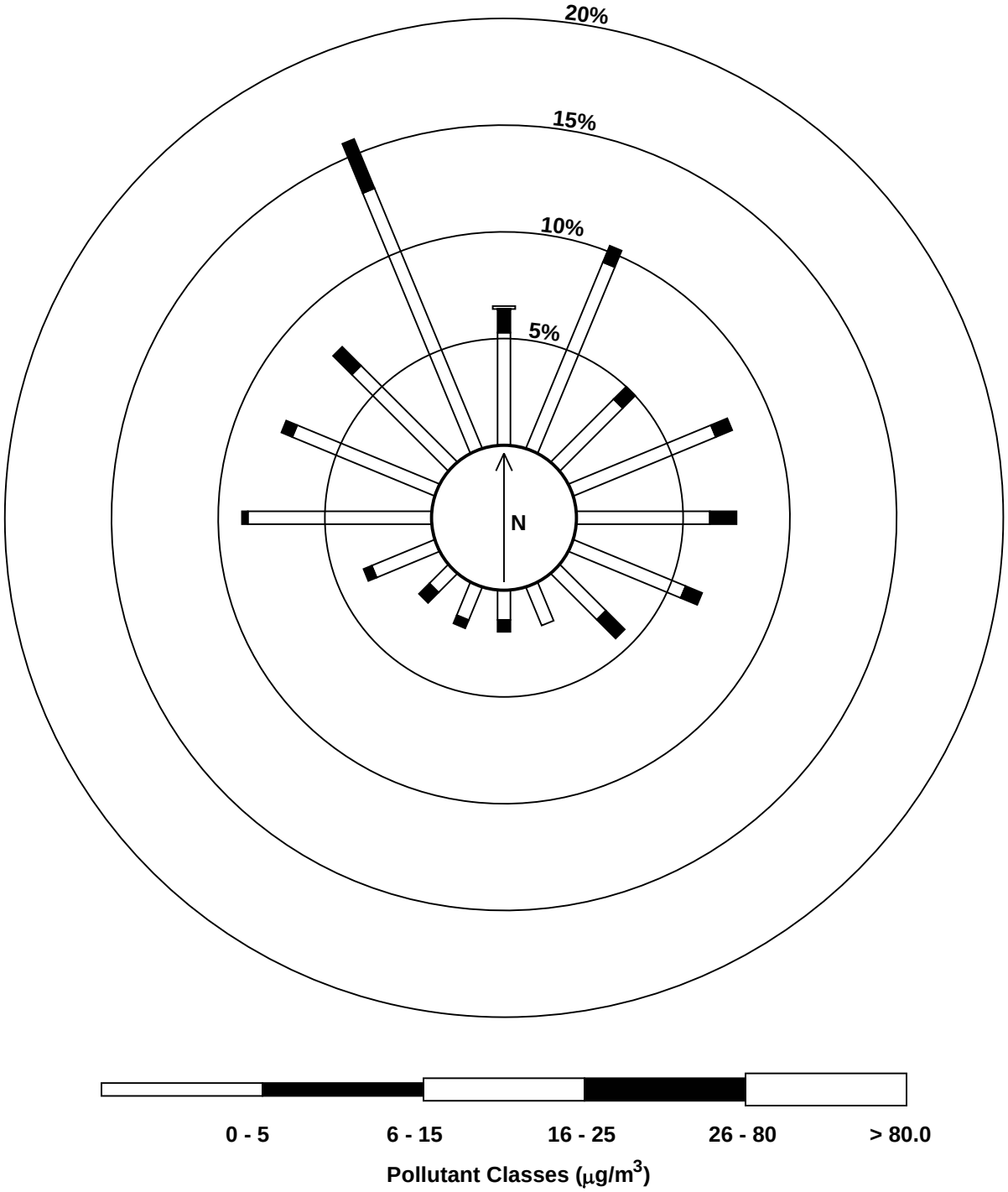
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	3	0	3	3	3	3	4	2	3	2	3	3	4	4	9	6	P	P	P	P	P	P	P	P	--	8.9
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	3	3	2	3	5	10	7	21	23	23	19	--	23.4
3-Dec	12	14	2	5	2	2	2	1	2	3	5	4	4	2	3	3	3	1	1	1	2	1	3	3	3.4	14.2
4-Dec	3	4	7	3	2	3	3	3	5	7	6	4	5	0	0	10	3	1	1	2	0	1	3	2	3.2	10.5
5-Dec	3	5	3	4	4	5	4	4	4	3	4	3	4	3	4	3	5	4	3	5	3	6	7	17	4.5	17.4
6-Dec	14	10	11	10	10	10	10	10	11	13	9	10	8	7	6	0	3	0	0	1	1	1	6	6	7.0	14.0
7-Dec	7	14	14	11	11	10	11	6	6	7	7	7	5	5	6	8	9	10	9	6	7	7	5	6	8.1	14.0
8-Dec	7	11	12	5	5	6	5	5	6	5	5	5	11	14	16	6	4	4	3	7	6	2	4	1	6.4	15.8
9-Dec	5	1	3	3	2	1	0	1	32	34	5	7	6	5	6	5	6	5	8	12	13	10	13	2	7.7	34.3
10-Dec	3	4	4	3	2	4	3	2	3	2	2	2	3	4	3	5	4	3	2	2	2	3	3	2	2.9	5.0
11-Dec	1	2	2	3	1	2	1	2	1	2	1	1	1	0	0	0	1	0	1	0	1	3	2	2	1.2	3.1
12-Dec	2	3	3	1	2	1	1	2	2	3	3	3	3	3	3	5	4	5	4	4	4	3	5	5	3.0	5.0
13-Dec	4	3	4	5	4	3	3	5	4	4	4	4	5	6	5	5	6	5	8	7	5	5	8	9	5.1	8.9
14-Dec	6	6	6	6	4	5	5	4	2	4	5	5	6	9	4	3	4	6	5	5	5	5	5	3	4.9	8.9
15-Dec	4	5	3	4	3	4	2	3	1	2	4	3	2	2	3	3	3	3	2	7	4	3	5	5	3.3	6.9
16-Dec	4	3	3	3	2	2	4	2	3	3	4	4	2	4	4	16	10	5	8	8	6	7	6	6	4.9	16.0
17-Dec	5	3	4	5	7	6	5	5	6	6	6	8	8	7	8	8	6	7	6	7	7	6	6	5	6.1	8.3
18-Dec	5	5	6	7	9	4	4	4	5	6	6	6	8	4	5	5	6	6	4	5	6	7	6	7	5.7	8.6
19-Dec	9	5	8	9	6	7	9	9	9	7	9	12	14	14	7	6	6	5	5	4	5	7	5	10	7.8	14.2
20-Dec	12	12	12	8	9	5	4	3	2	8	6	6	8	15	14	13	15	10	10	8	7	15	7	6	8.9	15.1
21-Dec	6	9	8	8	6	6	5	5	5	8	9	6	10	8	8	7	9	8	9	9	10	8	9	9	7.8	9.7
22-Dec	10	7	7	5	4	3	4	5	3	6	6	5	5	19	8	6	3	5	4	6	5	5	3	2	5.7	19.0
23-Dec	4	3	3	5	3	2	2	3	4	5	5	6	10	6	8	10	7	13	9	9	7	7	10	7	6.2	13.1
24-Dec	10	6	4	3	1	4	2	5	5	3	12	5	6	8	8	9	11	8	11	8	8	6	8	5	6.5	12.1
25-Dec	7	4	2	4	3	2	3	4	3	3	2	2	4	2	4	3	3	4	3	5	3	3	3	3	3.3	7.0
26-Dec	4	3	5	7	4	2	1	1	1	4	6	5	7	3	3	5	5	7	8	8	8	9	9	8	5.2	9.4
27-Dec	7	9	13	13	7	8	5	9	6	5	3	8	4	2	3	4	3	1	2	2	4	2	3	3	5.3	12.8
28-Dec	3	4	4	3	5	5	5	4	5	4	5	5	5	5	5	5	4	6	5	4	4	5	5	5	4.6	5.7
29-Dec	7	5	6	6	4	5	6	8	6	5	5	6	5	6	5	7	9	7	5	5	6	4	5	4	5.7	8.7
30-Dec	5	5	4	4	3	3	5	4	7	7	5	4	3	4	3	2	3	4	5	5	3	7	8	2	4.4	8.1
31-Dec	2	1	5	1	1	4	4	3	4	7	4	4	5	4	4	6	7	5	5	7	9	8	15	6	5.0	14.6
	5.8	5.6	5.7	5.2	4.4	4.2	4.1	4.2	5.2	6.0	5.2	5.0	5.7	5.8	5.5	5.7	5.5	5.1	5.2	5.5	5.7	6.0	6.6	5.7	Diurnal Average	
	14.0	14.2	14.0	12.6	11.3	10.1	11.4	10.0	32.4	34.3	12.1	12.0	14.0	19.0	15.8	16.0	15.1	13.1	11.1	11.9	20.5	23.4	23.4	19.0	Diurnal Maximum	

P - Power Failure

Hourly Maximums for $PM_{2.5}$ at Beaverlodge
December 2008



Pollutant Rose for $PM_{2.5}$ at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - External Temperature (ET) - ^{o}C
December 1, 2008 to January 1, 2009

Maximum Value: 9.1 ^{o}C on Dec 1 03:00

Maximum Daily Average: 1.6 ^{o}C on Dec 5

Minimum Value: -33 ^{o}C on Dec 21 08:00

Minimum Daily Average: -30.6 ^{o}C on Dec 21

Maximum Diurnal Average: -12.8 ^{o}C at hour 15

Minimum Diurnal Average: -16.3 ^{o}C at hour 8

Monthly Average: -15.07 ^{o}C

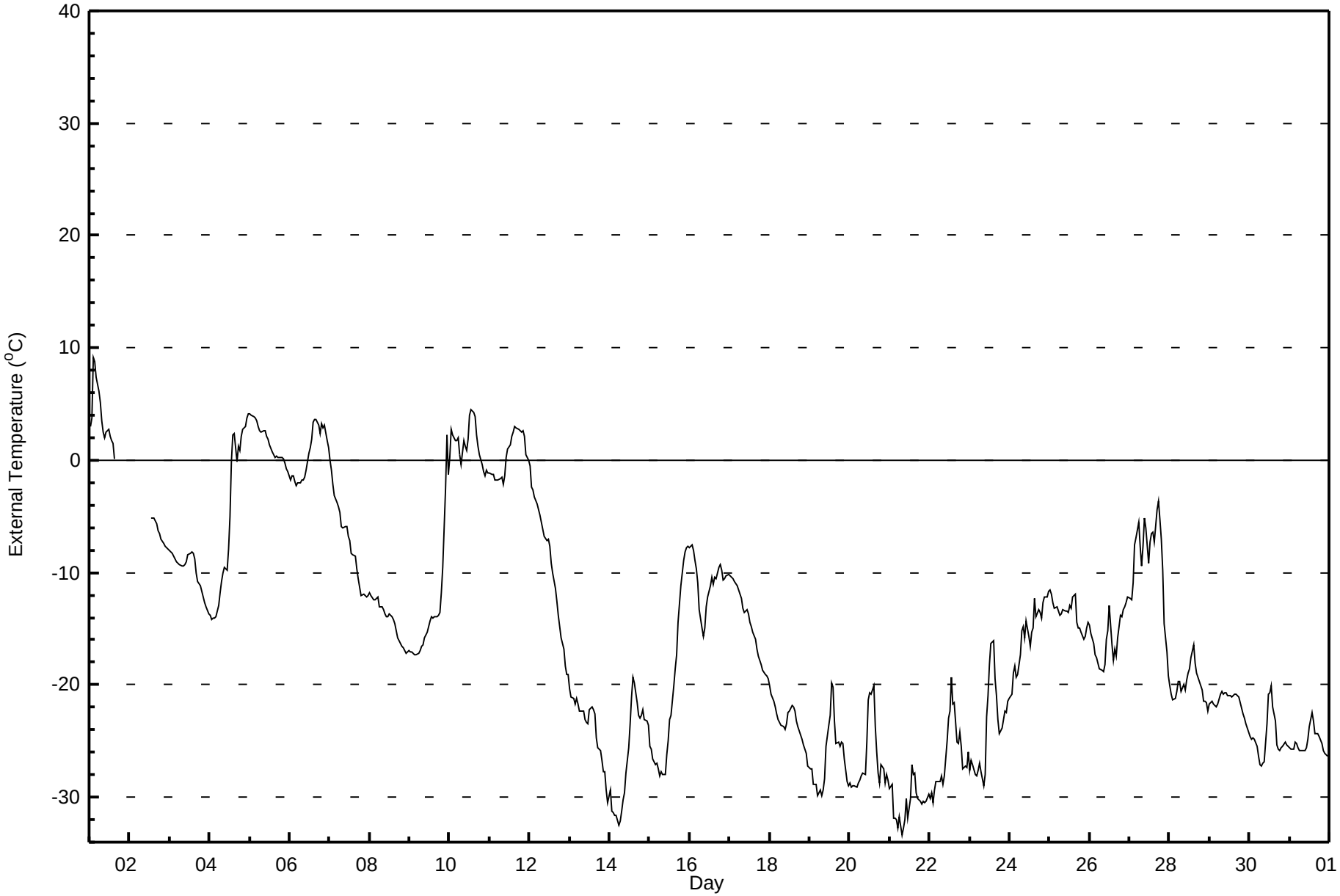
Percentiles: P_1 = -31.9 P_{10} = -28.0 Q_1 = -23.5 Median = -15.8 Q_3 = -7.7 P_{90} = 1.1 P_{99} = 4.1

Hours in Service:	744
Hours of Data:	723
Hours of Missing Data:	21
Hours of Calibration:	0
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	3	4	9	9	7	6	5	3	3	2	3	3	2	2	1	0	P	P	P	P	P	P	P	P	--	9.1
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	-5	-5	-5	-6	-6	-7	-7	-7	-8	-8	-8	--	-5.2
3-Dec	-8	-8	-8	-9	-9	-9	-9	-9	-9	-9	-9	-8	-8	-8	-8	-9	-10	-11	-11	-12	-12	-13	-13	-14	-9.8	-8.0
4-Dec	-14	-14	-14	-14	-14	-13	-12	-11	-10	-10	-10	-8	-5	0	2	2	0	1	1	2	3	3	4	4	-5.3	4.1
5-Dec	4	4	4	4	3	3	3	2	3	3	2	2	1	1	0	0	0	0	0	0	0	0	-1	-1	1.6	4.1
6-Dec	-2	-1	-1	-2	-2	-2	-2	-2	-2	-2	-1	1	1	2	3	4	4	3	2	3	3	3	2	1	0.6	3.7
7-Dec	0	-1	-2	-3	-4	-4	-5	-6	-6	-6	-6	-7	-7	-8	-8	-8	-10	-10	-11	-12	-12	-12	-12	-12	-7.2	0.0
8-Dec	-12	-12	-12	-12	-12	-12	-13	-13	-13	-14	-14	-14	-14	-14	-14	-15	-15	-16	-16	-17	-17	-17	-17	-17	-14.3	-11.8
9-Dec	-17	-17	-17	-17	-17	-17	-17	-17	-16	-16	-15	-15	-14	-14	-14	-14	-14	-14	-14	-12	-10	-2	2	-1	-13.3	2.2
10-Dec	0	3	2	2	2	2	0	0	2	1	1	2	4	4	4	4	2	1	1	0	-1	-1	-1	-1	1.3	4.5
11-Dec	-1	-1	-1	-2	-2	-2	-2	-2	-2	-1	0	1	1	2	2	3	3	3	3	3	3	2	0	0	0.4	3.0
12-Dec	0	-2	-3	-3	-4	-4	-5	-6	-6	-7	-7	-7	-8	-9	-10	-11	-13	-14	-15	-16	-17	-18	-19	-19	-9.3	-0.5
13-Dec	-20	-21	-21	-22	-21	-22	-22	-22	-22	-23	-23	-23	-22	-22	-22	-23	-25	-26	-26	-27	-28	-28	-29	-31	-23.8	-20.3
14-Dec	-29	-31	-31	-32	-32	-32	-32	-31	-30	-30	-28	-26	-23	-21	-19	-20	-22	-23	-23	-23	-22	-23	-23	-24	-26.2	-19.3
15-Dec	-25	-26	-27	-27	-27	-28	-28	-28	-28	-28	-26	-25	-23	-23	-20	-19	-17	-14	-13	-11	-9	-8	-8	-8	-20.6	-7.7
16-Dec	-8	-8	-8	-9	-10	-11	-13	-15	-16	-15	-13	-12	-11	-10	-11	-10	-10	-10	-9	-10	-11	-11	-10	-10	-10.9	-7.5
17-Dec	-10	-10	-11	-11	-11	-12	-12	-12	-13	-13	-13	-14	-14	-15	-15	-16	-17	-17	-18	-18	-19	-19	-19	-19	-14.6	-10.2
18-Dec	-20	-21	-21	-22	-23	-23	-23	-24	-24	-24	-23	-22	-22	-22	-22	-22	-23	-24	-24	-25	-25	-26	-26	-27	-23.3	-20.0
19-Dec	-27	-27	-29	-29	-29	-30	-29	-30	-29	-28	-25	-24	-23	-20	-20	-23	-25	-25	-26	-25	-25	-27	-29	-29	-26.4	-19.8
20-Dec	-29	-29	-29	-29	-29	-29	-29	-28	-28	-28	-25	-21	-21	-21	-20	-24	-26	-28	-29	-27	-28	-29	-28	-28	-26.7	-20.1
21-Dec	-29	-29	-32	-32	-32	-33	-32	-33	-33	-32	-30	-32	-30	-27	-28	-28	-30	-30	-30	-31	-30	-30	-30	-30	-30.6	-27.1
22-Dec	-30	-30	-30	-29	-29	-29	-29	-28	-29	-28	-25	-23	-22	-19	-22	-22	-25	-25	-24	-25	-27	-27	-27	-26	-26.3	-19.3
23-Dec	-28	-27	-27	-28	-28	-28	-27	-28	-29	-28	-23	-21	-18	-16	-16	-19	-21	-23	-24	-24	-23	-22	-22	-21	-23.8	-16.1
24-Dec	-21	-21	-19	-18	-19	-19	-17	-15	-15	-16	-14	-16	-17	-15	-15	-12	-14	-13	-14	-14	-13	-12	-12	-12	-15.6	-11.6
25-Dec	-12	-12	-13	-13	-13	-13	-14	-14	-13	-13	-13	-14	-13	-13	-12	-12	-14	-15	-15	-15	-16	-16	-15	-14	-13.7	-11.6
26-Dec	-15	-15	-16	-17	-18	-18	-19	-19	-19	-18	-16	-15	-13	-16	-18	-17	-17	-16	-14	-14	-13	-13	-13	-12	-15.9	-12.1
27-Dec	-12	-12	-11	-7	-7	-6	-8	-9	-8	-5	-6	-9	-7	-7	-6	-7	-4	-4	-5	-7	-10	-15	-17	-19	-8.7	-3.6
28-Dec	-20	-21	-21	-21	-21	-20	-20	-21	-20	-20	-20	-19	-19	-18	-16	-18	-19	-19	-20	-20	-21	-21	-22	-22	-20.0	-16.5
29-Dec	-22	-21	-22	-22	-22	-22	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-22	-22	-23	-23	-24	-24	-21.6	-20.5
30-Dec	-25	-25	-25	-25	-25	-26	-27	-27	-27	-27	-23	-21	-21	-20	-22	-23	-25	-26	-26	-26	-25	-25	-25	-25	-24.7	-20.1
31-Dec	-26	-26	-26	-25	-25	-26	-26	-26	-26	-26	-26	-25	-24	-22	-23	-24	-24	-24	-25	-25	-26	-26	-26	-26	-25.1	-22.5
	-15.2	-15.3	-15.4	-15.6	-15.7	-15.9	-16.1	-16.3	-16.3	-16.1	-15.0	-14.4	-13.7	-12.8	-12.8	-13.2	-14.6	-14.8	-15.1	-15.2	-15.4	-15.5	-15.6	-15.9	Diurnal Average	
	4.1	4.0	9.1	8.8	7.4	6.1	5.1	3.5	2.6	2.6	2.5	2.7	3.9	4.5	4.2	3.9	3.6	3.2	2.6	3.3	2.8	3.2	3.8	4.1	Diurnal Maximum	

P - Power Failure

Hourly Averages for External Temperature at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge - Relative Humidity (RH) - %
December 1, 2008 to January 1, 2009

Maximum Value: 96.7 % on Dec 5 20:00

Maximum Daily Average: 86.5 % on Dec 6

Minimum Value: 37 % on Dec 4 15:00

Minimum Daily Average: 61.7 % on Dec 11

Maximum Diurnal Average: 78.0 % at hour 1

Minimum Diurnal Average: 66.0 % at hour 14

Monthly Average: 74.63 %

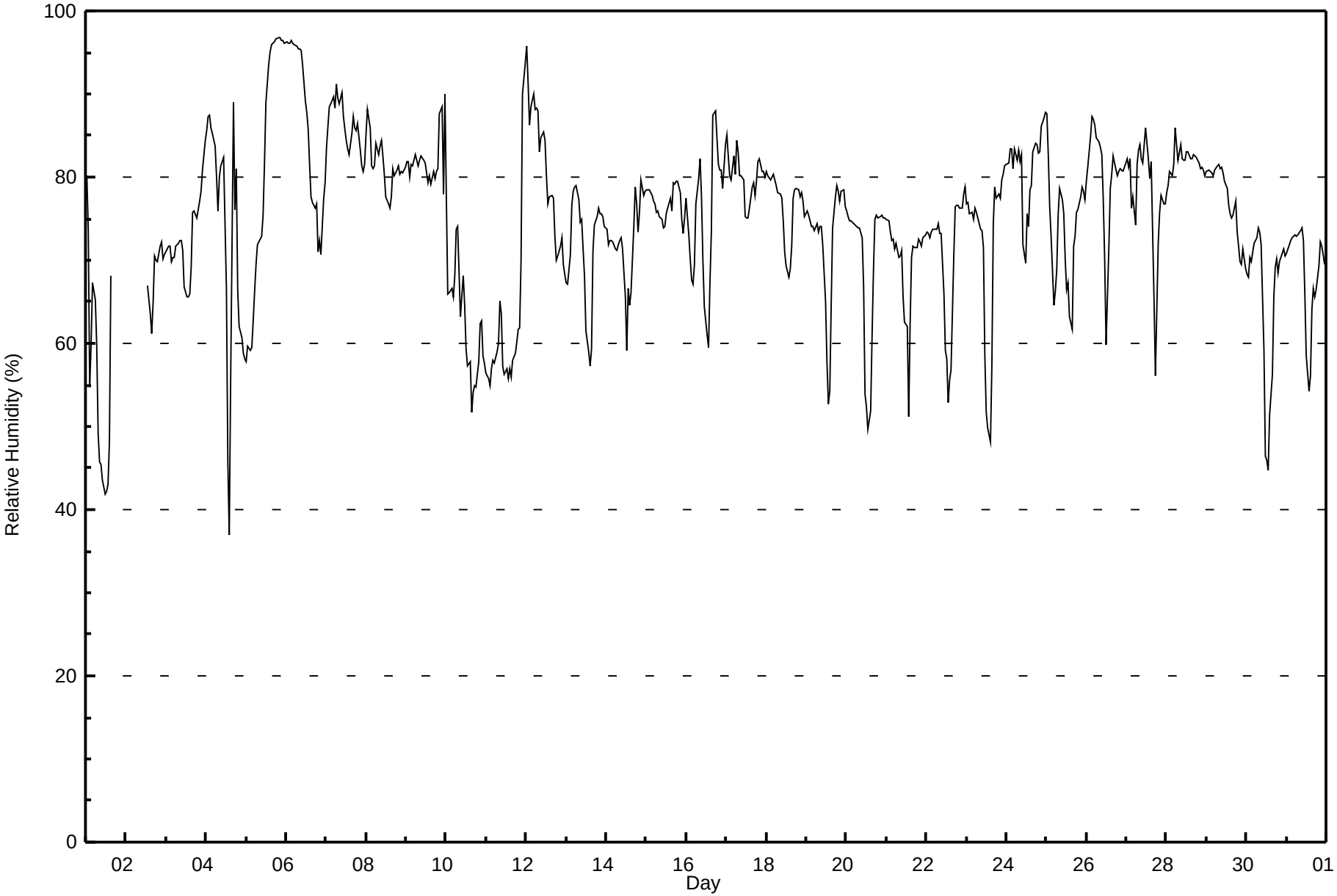
Percentiles: P_1 = 45.7 P_{10} = 59.3 Q_1 = 70.2 Median = 75.8 Q_3 = 81.0 P_{90} = 85.6 P_{99} = 96.3

Hours in Service:	744
Hours of Data:	723
Hours of Missing Data:	21
Hours of Calibration:	0
Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	80	74	55	60	67	65	60	49	46	45	44	42	42	43	48	68	P	P	P	P	P	P	P	P	--	80.2
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	67	64	61	65	71	70	70	72	72	70	71	--	72.1
3-Dec	71	72	72	70	70	70	72	72	72	72	71	67	66	66	66	69	76	76	75	76	77	78	81	84	72.5	84.3
4-Dec	86	87	88	86	85	84	80	76	80	81	82	74	67	46	37	56	89	76	81	66	62	61	59	58	72.8	88.9
5-Dec	58	60	59	59	63	66	69	72	72	73	75	82	89	94	95	96	96	96	97	97	97	96	96	96	81.4	96.7
6-Dec	96	96	96	96	96	96	96	96	95	95	94	89	88	86	82	78	77	76	77	71	72	71	77	79	86.5	96.4
7-Dec	83	86	89	89	90	88	91	89	89	90	87	86	84	83	83	85	87	86	86	86	83	81	81	81	86.0	91.2
8-Dec	85	88	86	81	81	81	84	83	84	84	83	80	78	77	76	78	81	80	81	81	80	81	80	81	81.5	88.1
9-Dec	82	82	80	82	81	83	82	81	82	82	82	82	80	79	80	79	81	80	81	81	88	88	78	90	81.9	90.0
10-Dec	78	66	66	67	66	68	74	74	63	66	68	65	59	57	58	52	54	55	55	58	62	63	59	58	62.8	77.6
11-Dec	56	56	55	57	58	58	59	60	65	64	57	56	57	56	57	56	58	59	60	62	62	70	90	94	61.7	93.8
12-Dec	96	91	86	88	90	88	88	88	83	85	85	84	80	77	78	78	77	73	70	70	72	73	69	68	80.8	95.8
13-Dec	67	67	71	77	78	79	79	77	75	75	71	68	61	59	57	59	71	74	75	76	76	76	75	74	71.6	79.0
14-Dec	74	72	72	72	72	71	71	72	72	73	71	66	59	67	65	66	74	79	77	73	76	80	78	78	72.1	79.6
15-Dec	78	79	79	78	77	77	76	76	75	75	74	74	76	76	78	76	79	79	80	79	78	75	73	75	76.7	79.5
16-Dec	77	73	70	68	67	69	77	80	82	78	70	64	61	60	67	73	87	88	85	82	81	81	79	84	75.1	88.0
17-Dec	85	83	80	80	83	80	84	83	80	80	80	75	75	75	76	79	79	78	80	82	82	81	81	80	80.0	85.0
18-Dec	81	80	80	80	80	80	79	78	78	77	75	71	69	68	69	72	77	79	79	78	78	78	77	75	76.6	80.6
19-Dec	76	75	75	74	74	74	74	73	74	74	72	65	58	53	54	65	74	78	79	78	77	78	78	76	72.1	79.0
20-Dec	76	75	75	75	74	74	74	74	74	73	67	54	52	50	52	61	69	75	75	75	75	75	75	75	69.8	76.0
21-Dec	75	75	73	72	73	71	72	70	71	71	66	63	62	51	62	70	72	71	71	73	72	72	73	73	69.8	75.0
22-Dec	73	73	73	73	74	74	74	74	73	73	66	59	58	53	56	57	71	76	77	77	76	76	78	79	70.5	78.9
23-Dec	77	77	76	76	75	76	76	75	74	74	71	58	52	50	48	57	74	79	78	78	77	80	80	81	71.6	81.4
24-Dec	81	82	83	83	81	83	82	83	82	83	72	70	76	74	78	79	83	84	84	83	83	86	87	88	81.3	87.8
25-Dec	88	83	77	73	65	66	69	75	79	77	76	70	66	67	63	62	72	73	76	76	78	79	78	77	73.5	87.6
26-Dec	80	81	85	87	87	86	85	84	84	83	77	70	60	72	79	80	82	82	80	81	81	81	81	81	80.3	87.3
27-Dec	82	81	82	76	78	74	82	83	84	82	82	86	84	82	80	82	66	56	64	72	76	78	77	77	77.7	85.9
28-Dec	78	79	81	80	82	86	84	82	84	82	82	82	83	83	82	82	83	83	82	82	81	81	81	80	81.9	86.0
29-Dec	81	81	81	81	80	81	81	82	81	81	81	79	79	77	76	75	75	77	73	72	70	69	71	69	77.2	81.5
30-Dec	68	68	70	70	72	72	73	74	73	72	59	46	46	45	51	56	66	69	70	68	70	71	71	71	65.5	73.9
31-Dec	71	71	72	73	73	73	73	73	74	74	72	66	58	54	56	64	67	66	66	69	72	72	71	70	68.7	74.0
	78.0	77.1	76.1	76.1	76.4	76.5	77.3	77.0	76.7	76.5	73.7	69.8	67.5	66.0	66.9	70.0	75.4	75.7	76.1	75.8	76.2	76.7	76.8	77.5	Diurnal Average	
	96.2	96.2	96.1	96.4	96.2	95.9	95.7	95.5	95.4	95.2	93.5	89.2	89.0	93.6	95.1	95.9	96.2	96.3	96.5	96.7	96.7	96.5	96.4	96.1	Diurnal Maximum	

P - Power Failure

Hourly Averages for Relative Humidity at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	2	7	33	30	28	31	28	33	28	26	26	28	27	21	15	11	P	P	P	P	P	P	P	P	--	33.3
Dir	217	236	268	273	284	283	291	300	284	285	288	289	289	296	319	339	P	P	P	P	P	P	P	P	--	268.2
2 Spd	P	P	P	P	P	P	P	P	P	P	P	P	P	13	11	8	6	7	7	8	7	5	5	5	--	13.3
Dir	P	P	P	P	P	P	P	P	P	P	P	P	P	325	339	345	0	354	350	9	14	344	358	346	--	324.8
3 Spd	6	6	6	9	7	6	4	3	1	1	3	2	2	2	2	4	4	4	4	4	5	4	3	3	2.3	8.9
Dir	5	17	22	21	19	16	23	3	80	344	112	111	98	158	186	164	109	92	83	94	103	109	145	187	60.6	21.5
4 Spd	5	3	4	4	2	3	3	1	1	1	1	2	1	7	19	25	23	28	25	22	23	18	18	18	9.0	28.2
Dir	149	185	124	164	141	131	138	207	113	256	128	154	271	253	260	272	270	269	266	263	261	266	271	271	260.4	269.0
5 Spd	17	18	14	15	15	14	10	8	9	6	N	N	N	N	N	2	1	2	1	3	4	5	4	4	5.4	18.1
Dir	272	276	288	292	296	293	295	294	287	284	N	N	N	N	N	167	153	160	137	95	123	126	157	145	279.5	275.6
6 Spd	2	3	2	1	2	2	1	1	0	1	1	1	1	1	6	10	9	5	7	11	5	6	8	7	2.1	11.0
Dir	199	136	186	209	229	144	231	189	221	175	87	100	100	197	246	249	258	250	258	270	282	334	5	11	264.6	269.9
7 Spd	5	6	8	10	8	6	5	8	4	1	5	9	12	15	11	6	11	10	10	8	7	5	3	3	4.1	14.9
Dir	24	22	137	115	128	122	130	121	119	250	1	40	28	45	41	11	330	338	335	331	346	349	11	47	35.2	45.4
8 Spd	4	9	10	9	7	3	8	4	9	9	9	9	11	10	9	7	9	9	9	7	7	6	7	5	5.6	10.6
Dir	125	127	106	100	112	22	32	68	35	40	39	27	33	27	26	25	333	332	334	349	10	26	29	59	36.0	32.5
9 Spd	5	9	10	10	12	12	13	11	9	11	10	10	7	4	6	5	2	0	2	2	7	8	18	10	3.8	17.8
Dir	95	109	107	103	111	107	109	118	118	127	138	143	148	196	221	212	62	253	71	311	285	282	275	255	136.1	275.0
10 Spd	14	27	25	20	22	30	21	16	24	26	20	20	28	30	22	30	25	22	22	17	15	16	17	17	21.7	30.2
Dir	267	274	270	277	278	265	262	264	272	259	261	269	277	277	281	286	286	284	282	278	276	272	277	273	274.0	286.2
11 Spd	18	19	19	17	18	20	19	18	12	12	18	17	14	12	20	28	32	30	29	26	19	16	14	6	18.6	32.3
Dir	273	278	278	276	278	278	275	269	256	253	270	274	273	276	273	278	276	275	274	276	282	299	298	353	276.6	276.1
12 Spd	7	13	6	6	5	5	5	5	9	13	11	12	14	18	16	15	16	17	13	14	14	10	13	15	10.9	17.7
Dir	344	28	351	353	309	321	342	359	14	15	14	17	14	13	10	11	18	24	15	18	17	15	21	26	12.3	12.8
13 Spd	12	8	5	4	6	5	7	9	10	10	11	10	7	7	5	3	3	3	3	6	8	8	5	3	6.0	11.9
Dir	27	0	331	346	337	356	29	27	24	33	33	31	28	33	34	20	28	47	348	343	330	331	314	327	10.5	27.0
14 Spd	7	1	2	2	1	2	2	4	4	3	2	2	1	7	8	8	5	3	4	6	8	5	6	7	3.1	8.2
Dir	325	288	281	298	105	63	63	63	62	78	73	84	86	332	332	319	322	306	309	327	328	314	337	323	337.4	319.1
15 Spd	2	1	2	2	2	3	2	4	2	3	3	3	1	3	1	2	1	5	5	6	8	8	5	2	0.9	7.6
Dir	326	109	61	68	96	72	44	63	94	75	71	71	152	64	52	71	76	251	264	316	296	296	297	227	349.2	296.3
16 Spd	7	9	10	7	8	4	4	2	1	2	3	1	1	1	4	5	9	10	14	13	15	13	14	13	5.7	15.2
Dir	264	278	289	309	324	299	235	227	73	28	55	172	353	82	51	308	305	315	328	345	344	352	348	349	326.1	344.0
17 Spd	12	12	15	15	16	18	10	14	17	17	11	11	12	11	12	11	9	9	6	4	6	7	6	6	10.6	18.1
Dir	337	341	345	357	24	31	16	17	24	29	14	5	1	2	355	358	1	7	351	327	341	342	346	352	4.3	30.7
18 Spd	7	7	5	3	8	11	11	8	4	9	10	5	9	7	7	7	6	5	9	10	6	8	5	0	6.8	11.1
Dir	343	347	16	349	339	340	342	346	335	337	336	321	331	329	328	330	327	324	329	335	340	333	337	113	336.6	341.9
19 Spd	1	2	0	0	1	1	2	1	1	1	1	3	2	1	1	0	0	1	0	1	2	1	2	3	0.3	2.8
Dir	357	51	221	75	39	177	58	270	54	42	328	324	229	205	201	313	335	294	121	312	305	95	104	74	19.6	73.6
20 Spd	3	2	1	2	2	3	2	2	3	1	1	0	1	0	0	2	1	1	2	1	0	1	2	0	1.1	3.1
Dir	71	89	115	112	89	89	87	76	78	113	99	325	272	140	299	41	51	256	74	83	26	315	51	17	78.4	71.3
21 Spd	0	1	2	2	2	2	2	2	1	3	1	1	2	1	4	9	8	16	12	12	10	6	7	7	4.1	15.9
Dir	74	252	45	242	22	359	18	42	39	36	113	330	277	13	338	333	324	328	330	327	329	354	17	342	339.0	328.4
22 Spd	8	6	3	4	8	8	7	9	3	2	0	0	2	1	1	1	3	5	4	2	1	1	0	3	2.3	8.9
Dir	321	332	350	0	344	333	339	337	59	337	332	58	45	285	231	108	72	64	67	85	194	248	97	96	355.7	337.2

Peace Airshed Zone Association
Summary of Hourly Averages

Beaverlodge
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
23 Spd	2	1	0	1	0	3	0	1	0	0	0	0	0	0	0	1	1	2	1	1	0	0	1	1	0.5	2.9
Dir	117	141	251	87	104	86	103	79	254	70	145	89	81	64	213	78	131	245	92	96	160	78	72	91	99.8	85.7
24 Spd	1	1	2	2	2	3	2	6	2	1	1	1	1	0	1	2	1	1	3	1	3	4	4	5	0.9	5.6
Dir	99	108	95	76	181	103	52	58	97	146	112	120	131	102	43	86	70	22	339	55	359	335	301	283	48.7	57.8
25 Spd	5	9	10	12	9	8	9	7	10	12	14	11	6	7	8	4	5	4	8	2	2	5	4	2	5.8	13.6
Dir	296	309	331	329	329	326	327	332	329	323	323	333	342	347	346	335	18	29	41	181	204	84	116	94	336.8	323.3
26 Spd	2	3	3	4	3	2	2	3	3	2	3	2	1	1	1	0	3	2	2	4	2	0	1	1	0.9	3.6
Dir	253	211	175	141	145	126	118	115	139	164	170	200	251	293	44	239	213	172	294	314	27	19	63	98	167.3	314.0
27 Spd	0	1	3	3	2	3	2	0	2	3	3	4	2	0	1	2	9	18	10	5	10	10	12	12	3.0	17.6
Dir	113	84	14	349	239	291	234	272	41	257	285	214	97	61	127	70	292	283	288	253	25	11	345	334	317.6	282.6
28 Spd	7	6	4	5	2	3	2	1	4	4	3	3	2	2	2	2	6	5	5	6	5	6	3	5	2.8	6.7
Dir	346	5	11	36	31	51	68	176	105	67	120	99	327	33	73	133	122	101	83	44	70	96	95	91	65.9	345.8
29 Spd	3	1	3	2	2	1	3	3	4	3	8	10	11	11	10	10	10	10	12	12	14	11	13	12	7.0	14.5
Dir	68	298	302	345	80	295	42	352	19	1	334	335	334	322	329	328	314	326	330	335	332	339	329	333	334.0	332.2
30 Spd	17	14	10	8	7	6	5	3	2	1	1	3	1	1	2	2	3	4	4	4	5	2	3	4	2.5	16.7
Dir	323	324	316	309	316	314	303	313	300	328	285	269	198	130	109	81	73	90	72	90	98	58	83	71	340.2	323.2
31 Spd	9	11	10	8	7	8	7	6	9	10	9	10	10	9	9	6	7	8	6	3	2	4	5	4	5.5	11.3
Dir	61	68	67	55	358	6	13	352	336	328	316	310	311	303	311	323	314	329	326	320	299	315	326	343	344.3	68.0
Spd	3.2	3.1	3.2	3.0	3.2	3.4	2.9	2.8	2.5	2.8	3.0	3.1	3.7	4.3	4.4	4.7	4.8	5.2	5.2	4.8	4.6	4.2	4.3	3.2	Diurnal Average	
Dir	322.9	319.6	307.1	320.7	319.0	318.5	325.7	332.7	336.8	328.3	325.2	323.0	324.5	325.6	321.2	313.2	310.5	310.6	315.9	317.7	325.4	329.3	328.3	335.6		
Spd	17.7	26.7	33.3	29.5	28.3	31.1	27.8	32.7	27.5	26.3	25.7	28.1	28.2	29.6	21.8	30.2	32.3	30.3	28.9	25.5	22.8	17.7	18.4	18.2	Diurnal Maximum	
Dir	272.7	274.4	268.2	272.8	283.9	282.7	290.9	300.3	283.8	285.1	287.7	288.9	276.9	277.1	280.5	286.2	276.1	274.6	274.2	276.0	261.3	266.4	271.0	270.6		

Maximum Speed Value: 33 km/h on Dec 1 03:00
Maximum Daily Speed Average: 21.7 km/h on Dec 10
Maximum Diurnal Speed Average: 5.2 km/h at hour 18

Minimum Speed Value: 0 km/h on Dec 20 14:00
Minimum Daily Speed Average: 0.3 km/h on Dec 23
Minimum Diurnal Speed Average: 2.5 km/h at hour 9

Monthly Average Velocity: 3.71 km/h 321.53 deg

Speed Percentiles: $P_1 = 0.1$ $P_{10} = 0.9$ $Q_1 = 2.1$ Median = 5.0 $Q_3 = 9.7$ $P_{90} = 16.1$ $P_{99} = 29.6$

All monthly, daily, and diurnal averages have been calculated using vector methods

Hours in Service: 744
Hours of Data: 718
Hours of Missing Data: 26

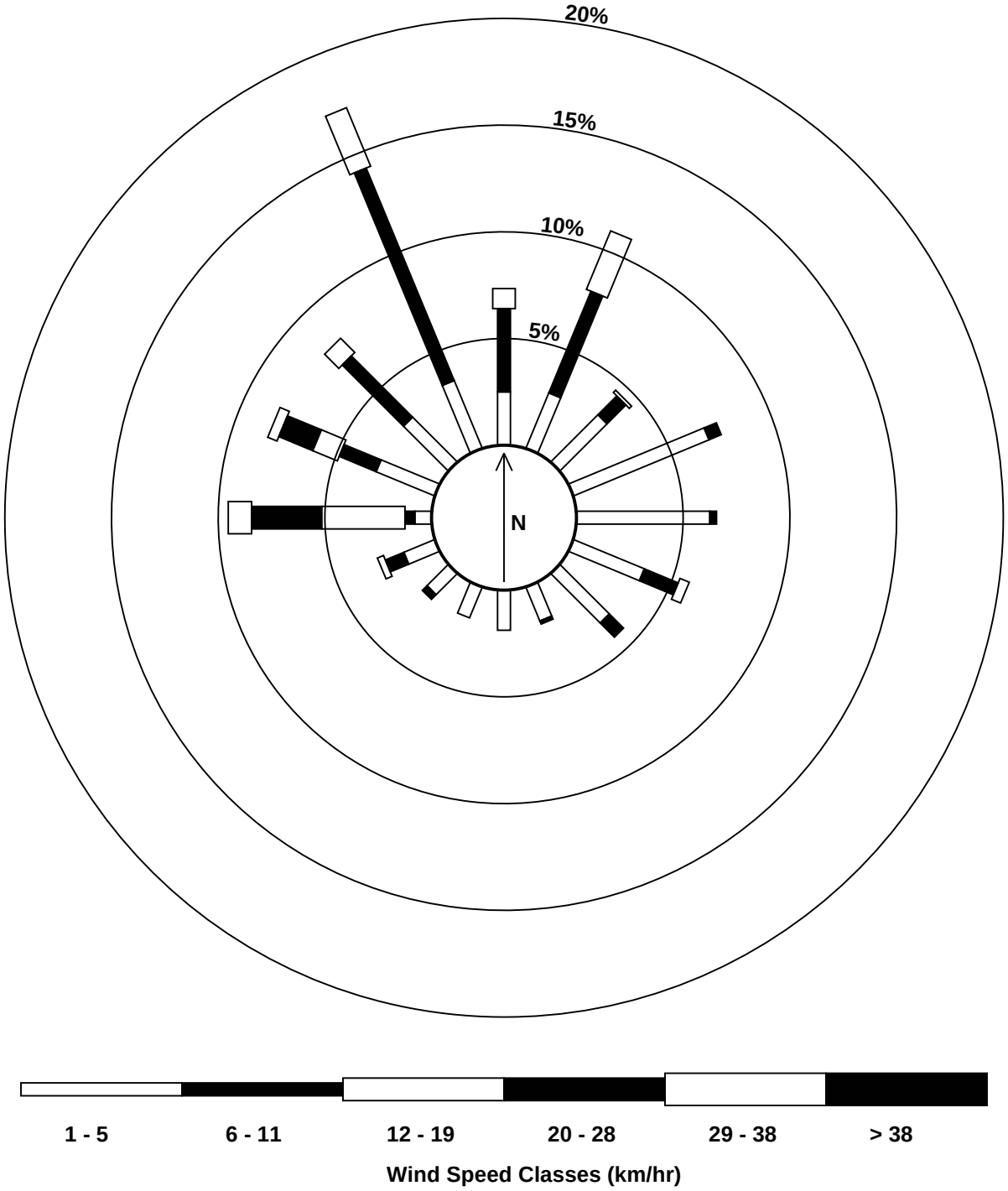
Percent Operational Time: 96.5

P - Power Failure N - Not Valid

Percentage Frequency Distribution

Direction	Speed Range (km/h) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	5.29	8.77	3.90	0.00	0.00	0.00	17.97
NorthEast	7.38	4.18	1.39	0.00	0.00	0.00	12.95
East	14.07	1.53	0.56	0.00	0.00	0.00	16.16
SouthEast	6.41	1.67	0.14	0.00	0.00	0.00	8.22
South	3.90	0.00	0.00	0.00	0.00	0.00	3.90
SouthWest	3.34	0.42	0.00	0.00	0.00	0.00	3.76
West	3.76	2.23	4.04	4.18	1.81	0.00	16.02
NorthWest	5.85	11.70	3.20	0.14	0.14	0.00	21.03
Total	50.00	30.50	13.23	4.32	1.95	0.00	100.00

Wind Rose for WS at Beaverlodge
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages - Wind Speed (Scalar)

Beaverlodge - Wind Speed (WS) - km/h
December 1, 2008 to January 1, 2009

Maximum Speed: 33 km/h on Dec 1 03:00

Maximum Daily Speed Average: 21.9 km/h on Dec 10

Minimum Speed: 0 km/h on Dec 20 14:00

Minimum Daily Speed Average: 1.0 km/h on Dec 23

Maximum Diurnal Speed Average: 8.5 km/h at hour 18

Minimum Diurnal Speed Average: 6.3 km/h at hour 24

Monthly Average Speed: 7.28 km/h

Percentiles: P_1 = 0.2 P_{10} = 1.6 Q_1 = 2.6 Median = 5.3 Q_3 = 9.8 P_{90} = 16.3 P_{99} = 29.9

Hours in Service: 744

Hours of Data: 718

Hours of Missing Data: 26

Percent Operational Time: 96.5

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	2	7	33	30	29	31	29	33	28	26	26	28	27	22	16	11	P	P	P	P	P	P	P	P	--	33.4
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	13	11	9	6	8	7	8	8	5	5	5	--	13.4
3-Dec	6	6	6	9	8	6	4	3	1	1	3	2	3	2	2	4	4	4	4	4	5	4	3	3	4.1	9.0
4-Dec	5	3	4	4	3	3	3	1	1	2	4	3	3	7	19	26	23	28	25	22	23	18	19	18	11.1	28.3
5-Dec	17	18	14	15	15	14	10	8	9	6	N	N	N	N	N	2	1	2	2	3	4	5	4	4	8.1	18.2
6-Dec	3	4	3	1	2	2	2	2	1	1	1	1	2	2	6	10	9	6	7	11	6	7	9	7	4.3	11.1
7-Dec	6	7	8	10	8	6	5	8	4	2	6	9	12	15	11	7	11	10	10	8	7	5	4	3	7.6	14.9
8-Dec	5	9	10	9	7	4	8	4	9	9	9	9	11	10	9	7	9	10	9	7	8	6	7	6	7.8	10.6
9-Dec	5	9	10	10	12	12	13	11	9	11	11	10	7	5	6	5	3	1	2	2	7	10	18	10	8.3	18.0
10-Dec	14	27	25	20	22	30	21	16	24	26	20	20	28	30	22	30	25	22	22	17	15	16	17	17	21.9	30.3
11-Dec	18	19	19	17	18	20	19	19	12	12	18	17	14	12	20	28	32	30	29	26	20	17	14	6	19.0	32.3
12-Dec	7	13	6	7	5	5	5	5	9	13	11	12	14	18	16	15	16	17	13	14	14	10	13	15	11.4	17.8
13-Dec	12	8	5	4	6	6	7	9	10	10	11	10	7	7	5	3	3	3	4	6	8	8	6	3	6.8	11.9
14-Dec	7	2	2	3	2	2	3	4	4	3	3	2	2	7	8	8	5	3	4	7	8	6	6	7	4.4	8.3
15-Dec	3	2	2	2	2	3	3	4	2	3	3	3	2	3	2	2	1	5	5	6	8	8	5	2	3.4	7.6
16-Dec	7	10	10	7	8	5	4	3	2	3	3	1	3	2	4	5	9	11	14	13	15	13	14	13	7.5	15.3
17-Dec	12	13	15	15	16	18	10	14	17	17	11	12	12	11	12	11	9	9	6	4	6	7	6	6	11.2	18.1
18-Dec	7	7	5	3	8	11	11	8	4	9	10	6	9	7	7	7	6	5	9	10	6	8	6	0	6.9	11.1
19-Dec	2	2	1	0	1	2	2	2	2	1	2	3	2	1	1	0	0	1	1	1	2	1	2	3	1.5	3.0
20-Dec	3	2	1	2	2	3	2	2	3	2	1	0	1	0	0	2	1	2	3	1	3	4	2	1	1.9	3.6
21-Dec	1	2	4	2	3	3	3	2	2	4	1	3	4	2	5	9	8	16	12	12	10	7	7	8	5.4	16.0
22-Dec	8	6	4	4	8	8	7	9	3	3	0	0	2	2	1	1	3	5	4	2	1	1	0	3	3.5	9.4
23-Dec	2	2	1	2	1	3	0	1	0	0	0	0	0	0	0	1	1	2	2	1	1	1	3	2	1.0	3.1
24-Dec	2	2	3	3	2	3	2	6	3	2	1	2	2	2	2	2	1	2	5	2	5	5	4	5	2.8	5.6
25-Dec	5	9	10	12	9	8	9	7	10	12	14	12	6	8	8	4	5	5	8	5	2	5	4	2	7.4	13.7
26-Dec	2	3	3	4	3	2	2	3	3	2	3	2	1	1	2	3	3	4	5	5	2	1	1	1	2.6	5.1
27-Dec	1	2	4	5	4	6	2	3	3	4	5	4	2	2	3	3	9	18	10	6	10	11	13	12	5.8	17.6
28-Dec	7	7	5	5	4	4	2	2	4	4	3	3	2	2	2	3	6	5	5	6	5	6	3	5	4.2	7.2
29-Dec	3	2	3	4	2	2	3	3	4	4	8	10	11	11	10	10	10	10	12	12	15	11	13	12	7.8	14.6
30-Dec	17	14	10	8	7	6	5	3	2	3	2	3	2	1	2	2	3	4	5	4	5	3	5	4	4.9	16.7
31-Dec	9	11	10	9	7	8	7	7	9	10	10	10	10	9	9	6	7	8	6	3	2	4	5	4	7.5	11.4
	6.5	7.5	7.9	7.6	7.5	7.9	6.8	6.7	6.5	6.8	6.8	6.8	6.9	7.1	7.4	7.6	7.7	8.5	8.3	7.7	7.7	7.0	7.3	6.3	Diurnal Average	
	17.7	26.7	33.4	29.6	28.5	31.2	28.7	32.9	27.6	26.4	25.8	28.2	28.3	29.7	21.9	30.3	32.3	30.3	28.9	25.6	22.9	17.9	18.6	18.3	Diurnal Maximum	

P - Power Failure N - Not Valid

All monthly, daily, and diurnal averages have been calculated using scalar methods

Peace Airshed Zone Association
Summary of Hourly Standard Deviations

Beaverlodge - Wind Direction (WD) - deg
December 1, 2008 to January 1, 2009

Maximum Value: 96.0 deg on Dec 4 13:00

Minimum Value: 1.5 deg on Dec 18 19:00

Percentiles: P_1 = 2.5 P_{10} = 4.3 Q_1 = 6.6 Median = 13.2 Q_3 = 41.3 P_{90} = 66.6 P_{99} = 90.1

Hours in Service:	744
Hours of Data:	718
Hours of Missing Data:	26
Hours of Calibration:	0
Percent Operational Time:	96.5

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Maximum
1-Dec	34	47	6	5	8	4	14	6	4	3	4	4	4	7	26	10	P	P	P	P	P	P	P	P	47.5
2-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	6	11	10	13	13	11	10	9	15	14	14	15.0
3-Dec	11	6	10	7	11	9	16	14	49	45	48	34	20	45	24	20	18	12	8	9	9	7	25	24	48.8
4-Dec	19	28	21	8	39	27	16	57	42	83	76	52	96	5	7	8	5	4	4	4	5	9	9	5	96.0
5-Dec	5	7	4	5	4	3	5	5	6	62	N	N	N	N	N	24	20	14	30	10	10	11	9	20	62.1
6-Dec	28	29	42	32	29	19	60	49	75	67	49	55	67	72	49	4	6	58	21	6	69	36	30	15	75.1
7-Dec	36	44	7	8	14	16	7	5	13	65	37	6	4	3	6	21	6	6	6	5	10	13	21	30	64.6
8-Dec	33	7	7	6	12	63	9	27	5	6	8	8	4	6	8	15	9	7	8	8	15	11	9	15	62.6
9-Dec	13	5	4	6	3	3	4	4	5	5	6	5	9	28	9	9	58	90	54	61	13	59	10	13	90.3
10-Dec	39	3	3	4	3	7	4	4	4	3	5	5	3	3	4	3	3	2	2	3	2	8	4	3	38.8
11-Dec	3	3	3	3	2	2	3	7	6	6	4	4	12	5	5	3	3	4	3	3	4	6	11	15	15.2
12-Dec	18	8	21	15	8	8	7	12	6	4	5	7	5	6	8	8	8	6	8	8	6	7	6	5	21.1
13-Dec	5	14	6	34	5	25	19	4	4	7	3	4	4	5	6	10	26	6	37	18	5	6	35	28	37.5
14-Dec	7	58	50	53	51	25	48	11	12	18	27	15	57	11	7	9	14	31	16	11	14	7	10	6	57.9
15-Dec	58	70	20	52	29	16	41	6	28	8	9	6	61	37	62	51	39	42	12	50	5	5	17	45	70.0
16-Dec	17	8	6	12	4	55	28	60	79	42	43	76	77	69	11	15	13	5	11	12	8	8	8	9	79.4
17-Dec	7	9	8	11	11	4	9	9	4	3	9	11	10	10	9	11	11	9	15	6	6	4	5	8	14.7
18-Dec	6	7	11	26	5	4	4	7	22	4	5	41	3	3	6	2	3	26	2	3	3	3	10	47	46.5
19-Dec	74	40	80	86	58	62	54	67	84	19	58	28	51	13	45	75	74	59	77	58	39	92	14	14	92.1
20-Dec	9	19	33	25	20	12	28	12	11	65	20	74	52	62	84	49	88	81	73	66	79	79	54	59	88.2
21-Dec	94	85	79	14	56	46	74	49	74	59	69	66	68	69	53	8	45	8	8	4	4	26	14	19	93.9
22-Dec	4	9	42	24	15	8	22	33	26	37	81	6	31	42	58	33	15	6	4	28	14	58	18	29	81.1
23-Dec	40	56	89	81	73	19	65	67	91	70	40	24	14	62	50	60	41	24	63	58	82	49	75	53	91.4
24-Dec	50	39	25	41	39	23	52	8	31	69	74	42	45	91	82	89	51	59	71	81	47	42	36	11	90.6
25-Dec	7	6	5	3	6	9	9	8	5	7	6	6	19	11	23	16	23	26	6	66	29	20	16	51	65.6
26-Dec	18	24	10	7	11	26	26	12	16	17	9	14	58	83	82	88	27	69	81	59	48	77	82	56	88.4
27-Dec	69	72	44	52	68	68	68	95	67	34	50	47	37	81	69	61	43	4	11	63	16	19	12	10	94.9
28-Dec	24	28	40	24	64	10	23	36	15	11	18	24	21	30	18	41	7	12	15	8	14	7	22	13	63.7
29-Dec	30	76	18	53	45	69	20	32	14	12	8	6	7	6	6	9	7	9	7	7	9	8	8	7	75.7
30-Dec	5	5	6	4	5	4	7	13	13	60	44	11	64	20	28	23	28	8	7	12	6	54	73	11	72.8
31-Dec	6	6	6	23	11	15	12	14	10	6	12	7	7	9	8	8	8	7	8	8	11	24	6	9	24.2
	93.9	84.7	89.2	86.2	73.5	69.2	73.5	94.9	91.4	83.0	81.1	75.7	96.0	90.6	83.6	88.5	88.2	90.3	80.9	81.0	81.8	92.1	82.0	59.1	

P - Power Failure N - Not Valid

PASZA
Portable – Spirit River Station
Monthly Summary Tables, Graphs and Roses

Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 5.4 ppb on Dec 19 05:00 Maximum Daily Average: 2.5 ppb on Dec 22

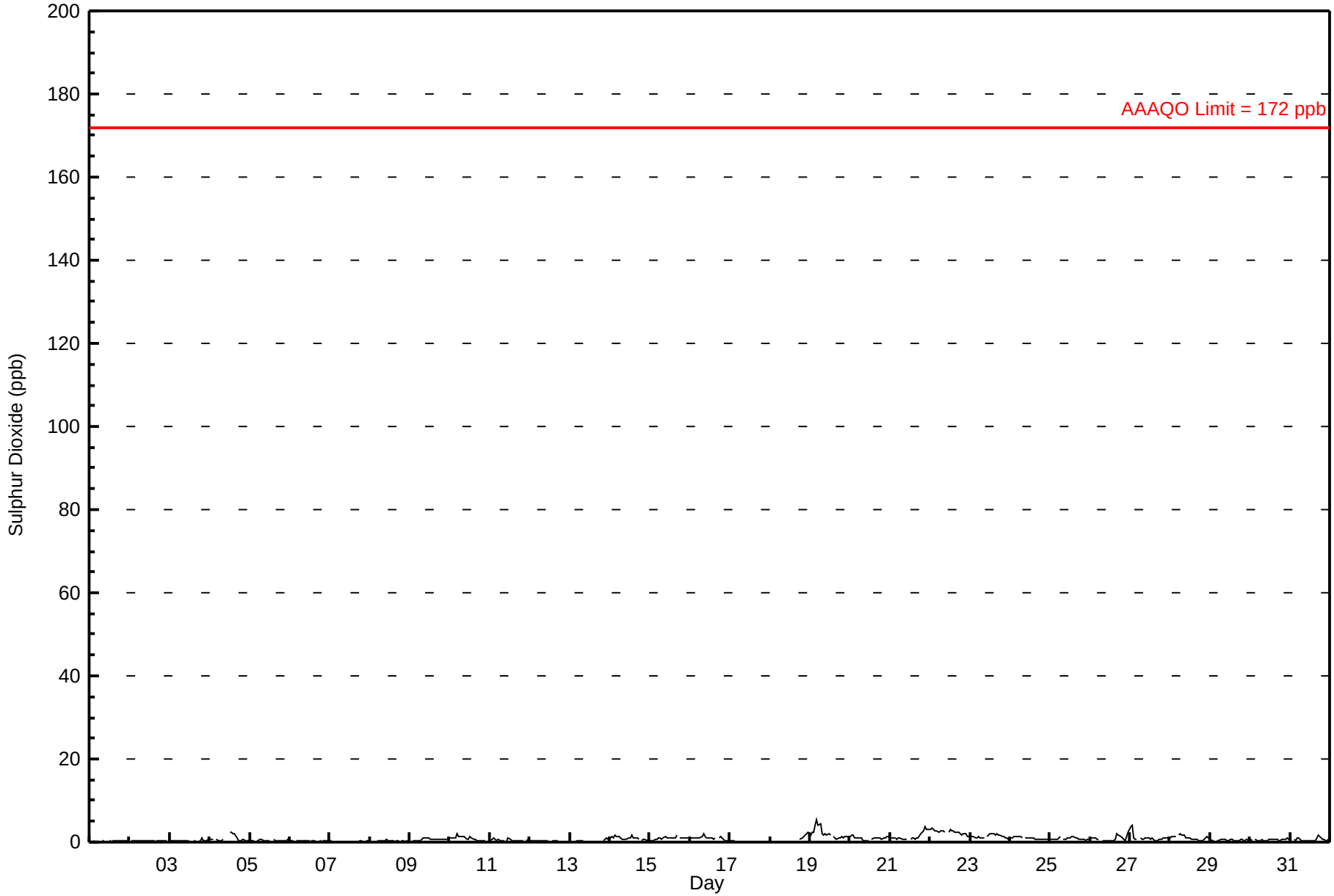
Minimum Value: 0 ppb on Dec 7 09:00 Minimum Daily Average: 0.1 ppb on Dec 7
Maximum Diurnal Average: 1.0 ppb at hour 2 Minimum Diurnal Average: 0.6 ppb at hour 11
Monthly Average: 0.78 ppb Percentiles: P_1 = 0.0 P_{10} = 0.2 Q_1 = 0.3 Median = 0.6 Q_3 = 1.0 P_{90} = 1.6 P_{99} = 3.6

Hours in Service:	744
Hours of Data:	672
Hours of Missing Data:	72
Hours of Calibration:	33
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5
2-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.3	0.4
3-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.3	1.1
4-Dec	1	1	1	A	1	0	0	0	1	C	C	A	2	2	2	2	1	0	0	0	1	0	0	0	0.8	2.3
5-Dec	0	0	0	A	0	0	1	1	0	0	0	0	0	P	1	0	0	0	0	0	0	0	0	1	0.4	0.8
6-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
7-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
8-Dec	0	A	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6
9-Dec	A	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.6	1.0
10-Dec	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	A	0	0.9	2.0
11-Dec	0	1	1	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	A	0	1	0.4	1.1
12-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.2	0.4
13-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	1	0.2	1.0
14-Dec	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	A	0	1	1	0	1	0.9	1.6
15-Dec	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	A	1	1	1	1	1	1	0.9	1.6
16-Dec	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	A	1	1	1	1	0	0	0	1.0	2.1
17-Dec	0	0	0	0	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0.4	0.4
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	1	2	2	2	1.5	2.2
19-Dec	2	2	2	4	5	4	4	2	2	2	2	2	2	A	1	1	1	1	1	1	1	1	1	1	2.0	5.4
20-Dec	1	2	2	1	1	1	1	1	0	0	0	0	A	1	1	1	1	1	1	1	1	1	1	1	1.0	1.7
21-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	2	2	3	4	3	3	1.4	3.6
22-Dec	3	3	3	3	3	3	3	3	3	3	A	2	3	3	3	2	2	2	2	2	2	2	1	1	2.5	3.3
23-Dec	2	1	1	1	1	1	1	1	1	A	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1.4	2.0
24-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.5
25-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.4
26-Dec	1	1	1	1	1	1	A	0	0	0	0	0	0	0	0	1	2	2	1	1	1	0	1	3	0.8	2.5
27-Dec	4	4	1	1	1	A	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1.1	4.1
28-Dec	1	1	1	1	A	2	2	2	2	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1.1	2.0
29-Dec	1	0	0	A	1	0	1	1	1	1	0	0	1	1	0	0	0	0	1	1	0	0	1	1	0.5	0.8
30-Dec	1	0	A	1	0	0	0	1	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0.6	0.9
31-Dec	1	A	1	0	1	1	1	0	0	0	0	1	0	0	0	0	1	2	1	1	1	0	1	1	0.6	1.7
	0.9	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.9	Diurnal Average	
	3.7	4.1	3.1	3.9	5.4	4.2	4.4	2.8	2.8	2.5	1.7	2.4	3.2	2.8	2.6	2.5	2.2	2.3	2.1	2.3	2.7	3.6	3.2	3.1	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
75

Hourly Averages for SO_2 at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Portable-Spirit River - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 10.5 ppb on Dec 27 00:00

Maximum Daily Average: 3.0 ppb on Dec 22

Minimum Value: 0 ppb on Dec 13 19:00

Maximum Diurnal Average: 1.5 ppb at hour 24

Monthly Average: 1.19 ppb

Minimum Daily Average: 0.4 ppb on Dec 7

Minimum Diurnal Average: 1.0 ppb at hour 11

Percentiles: $P_1 = 0.3$ $P_{10} = 0.4$ $Q_1 = 0.5$ Median = 0.9 $Q_3 = 1.4$ $P_{90} = 2.1$ $P_{99} = 5.3$

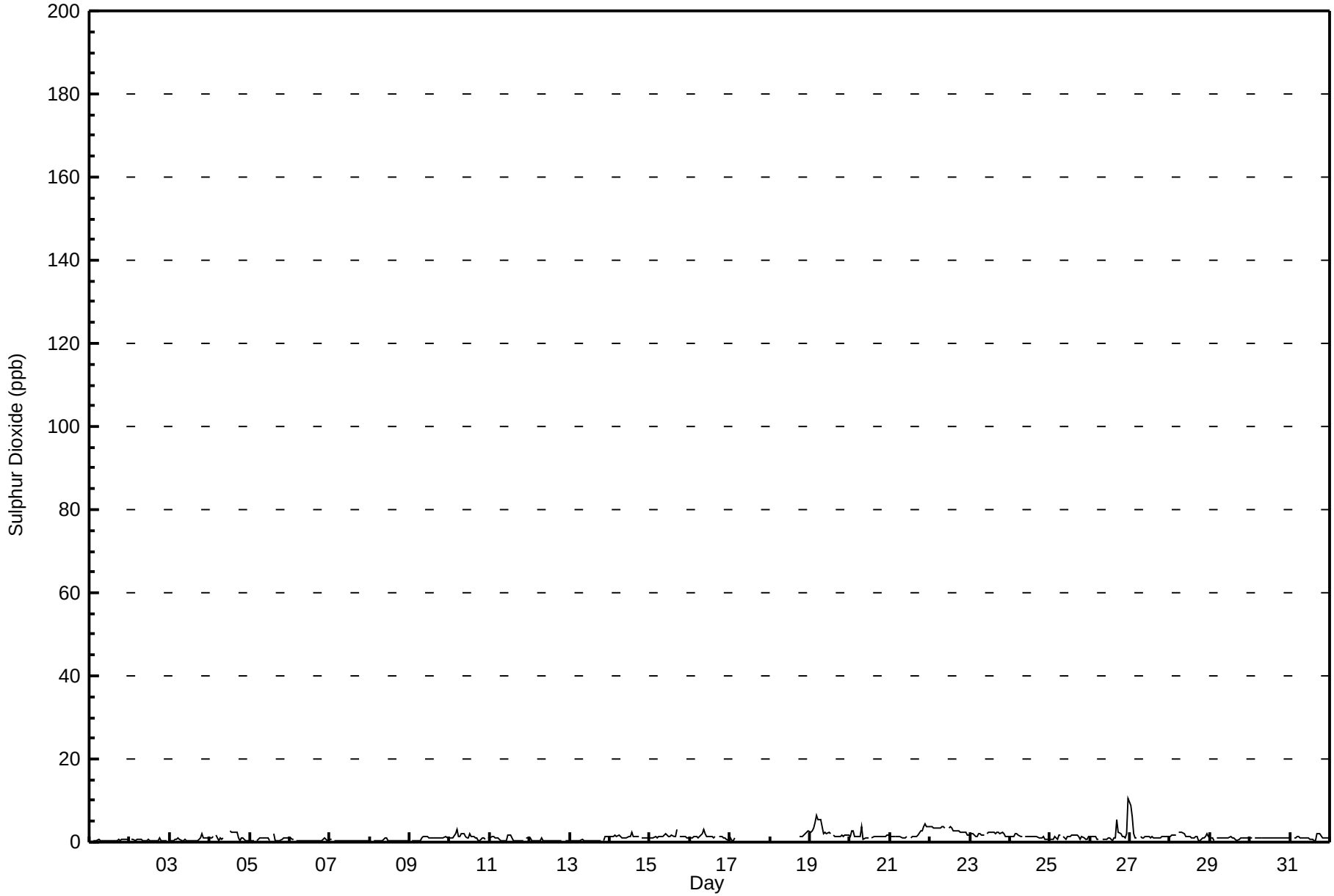
Hours in Service:	744
Hours of Data:	672
Hours of Missing Data:	72
Hours of Calibration:	33
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	A	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	0.5	0.9
2-Dec	A	1	1	1	1	1	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	A	0.5	0.9
3-Dec	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	1	2	1	1	1	1	0.7	1.9
4-Dec	1	1	1	A	2	0	1	1	1	C	C	A	3	2	2	2	2	1	0	1	1	0	0	0	1.2	2.7
5-Dec	0	0	0	A	0	1	1	1	1	1	1	1	0	P	2	0	0	0	0	1	1	1	1	1	0.7	2.1
6-Dec	1	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0.5	0.9
7-Dec	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.8
8-Dec	0	A	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1.0
9-Dec	A	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	A	0.9	1.5
10-Dec	1	1	1	2	3	1	1	2	2	1	1	1	2	1	1	1	1	0	0	1	1	1	A	1	1.3	3.0
11-Dec	1	1	1	1	1	1	0	0	0	0	0	2	2	1	0	0	0	0	0	0	0	A	1	1	0.7	1.9
12-Dec	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.5	0.9
13-Dec	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	1	0.5	1.3
14-Dec	1	1	1	2	1	2	1	1	1	1	1	1	1	2	1	1	1	1	A	1	1	1	1	1	1.3	2.4
15-Dec	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	3	A	1	1	1	1	1	1	1.4	2.9
16-Dec	1	1	1	1	1	1	1	2	3	2	1	1	1	1	1	1	A	2	1	1	1	1	1	0	1.3	2.9
17-Dec	1	0	1	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0.7	0.9
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	2	2	2	3	1.9	2.7
19-Dec	2	3	3	5	6	5	5	4	2	2	2	2	2	A	2	1	1	1	1	2	1	2	2	2	2.6	6.4
20-Dec	1	3	3	1	1	1	1	4	1	1	1	1	A	1	1	1	1	1	1	1	1	1	2	2	1.5	3.9
21-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	2	3	3	4	4	4	4	1.9	4.3
22-Dec	4	4	3	3	3	3	3	4	4	3	A	3	4	3	3	3	3	3	2	2	2	2	2	2	3.0	3.8
23-Dec	2	2	2	1	1	2	2	2	2	A	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1.9	2.4
24-Dec	1	1	1	2	2	2	2	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.3	2.0
25-Dec	1	1	1	1	1	2	2	A	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1.2	1.8
26-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	0	1	1	5	2	2	1	1	1	2	10	1.7	10.5
27-Dec	9	6	2	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.7	8.7
28-Dec	1	2	2	2	A	2	2	2	2	1	1	1	1	1	1	1	1	0	0	1	1	1	2	1	1.4	2.3
29-Dec	1	1	0	A	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0.9	1.4
30-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0
31-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0	0	2	2	2	1	1	1	1	1	1.1	2.0
	1.4	1.4	1.2	1.3	1.3	1.3	1.3	1.3	1.1	1.1	1.0	1.1	1.2	1.1	1.1	1.0	1.3	1.0	1.0	1.1	1.1	1.2	1.1	1.5	Diurnal Average	
	8.7	6.0	3.4	4.9	6.4	5.3	5.4	3.9	3.8	3.3	1.9	3.3	3.8	3.3	2.8	2.8	5.4	2.6	2.8	2.8	3.8	4.3	3.7	10.5	Diurnal Maximum	

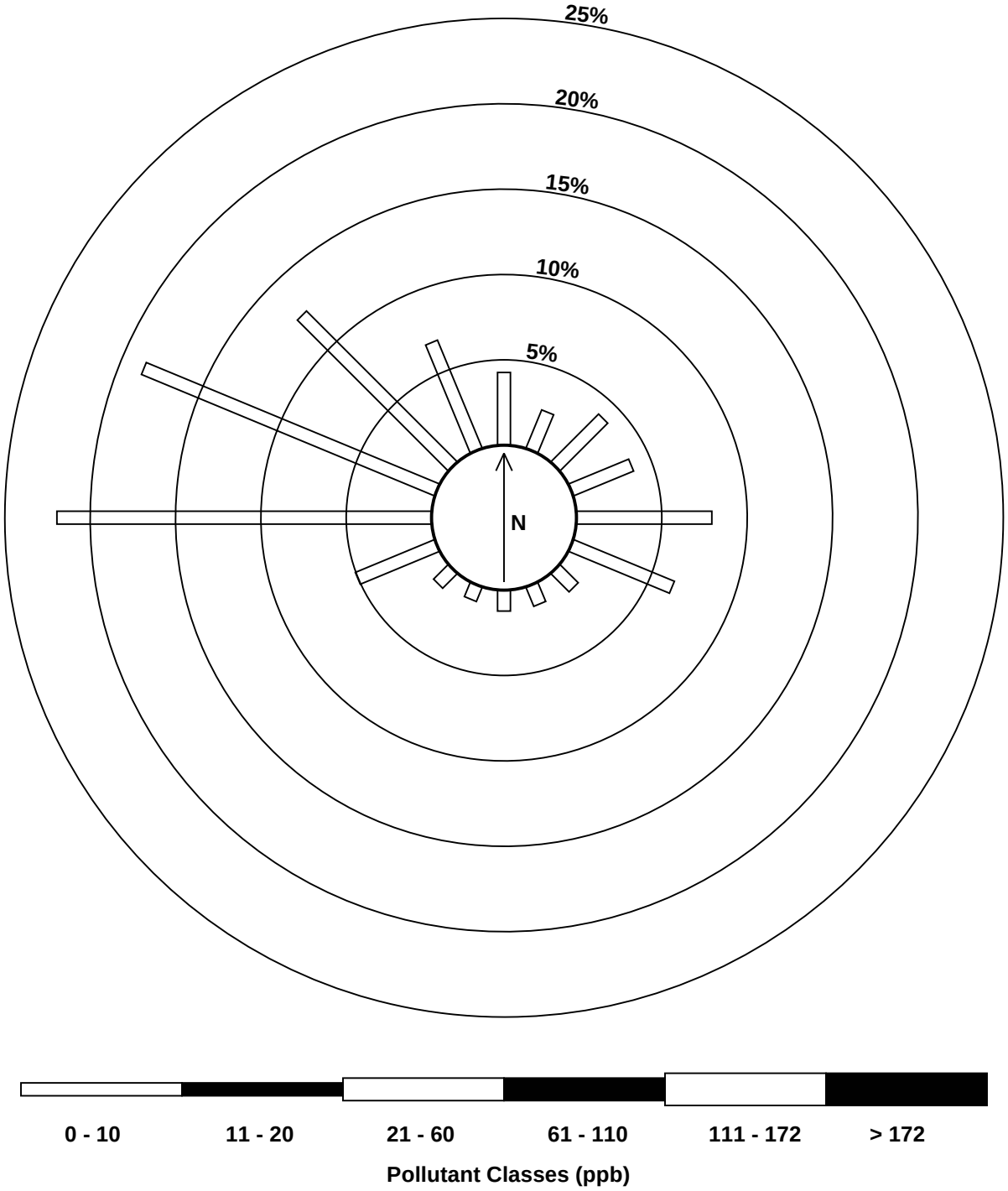
C - Calibration P - Power Failure A - Automated Daily Zero Span

75

Hourly Maximums for SO_2 at Portable-Spirit River
December 2008



Pollutant Rose for SO_2 at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 1.6 ppb on Dec 22 23:00
Maximum Daily Average: 1.4 ppb on Dec 23

Minimum Value: 0 ppb on Dec 1 05:00
Maximum Diurnal Average: 0.9 ppb at hour 2
Monthly Average: 0.85 ppb

Minimum Daily Average: 0.4 ppb on Dec 1
Minimum Diurnal Average: 0.8 ppb at hour 9
Percentiles: $P_1 = 0.4$ $P_{10} = 0.5$ $Q_1 = 0.7$ Median = 0.8 $Q_3 = 1.0$ $P_{90} = 1.3$ $P_{99} = 1.5$

Hours in Service:	744
Hours of Data:	672
Hours of Missing Data:	72
Hours of Calibration:	33
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	0.4	0.6
2-Dec	A	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	A	0.5	0.6
3-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0.5	0.6
4-Dec	1	1	1	A	1	0	1	0	1	1	1	C	C	A	1	1	1	1	1	1	1	1	1	1	0.6	1.2
5-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	P	1	1	1	1	1	1	1	1	1	1	0.8	1.1
6-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.8
7-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.7
8-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.7
9-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.7	0.8
10-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.7	0.9
11-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.7	0.8
12-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.7	0.8
13-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.6	0.8
14-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0.8	0.9
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.9	1.1
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1.0	1.5
17-Dec	1	1	1	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0.8	0.9
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	1	1	1	1	1.0	1.1
19-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.9	1.3
20-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1.0	1.1
21-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.4
22-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	2	1	1	1	1	1	1	1	1	2	2	1.4	1.6
23-Dec	1	1	1	1	1	1	1	1	1	A	2	1	1	1	1	1	2	1	1	1	1	1	2	2	1.4	1.5
24-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.4	1.5
25-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4
26-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0
27-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.1
28-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.2
29-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0
30-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0
31-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.2
	0.9	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	Diurnal Average	
	1.5	1.5	1.4	1.4	1.4	1.4	1.5	1.4	1.3	1.4	1.5	1.4	1.5	1.5	1.4	1.4	1.5	1.5	1.4	1.4	1.5	1.5	1.6	1.5	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
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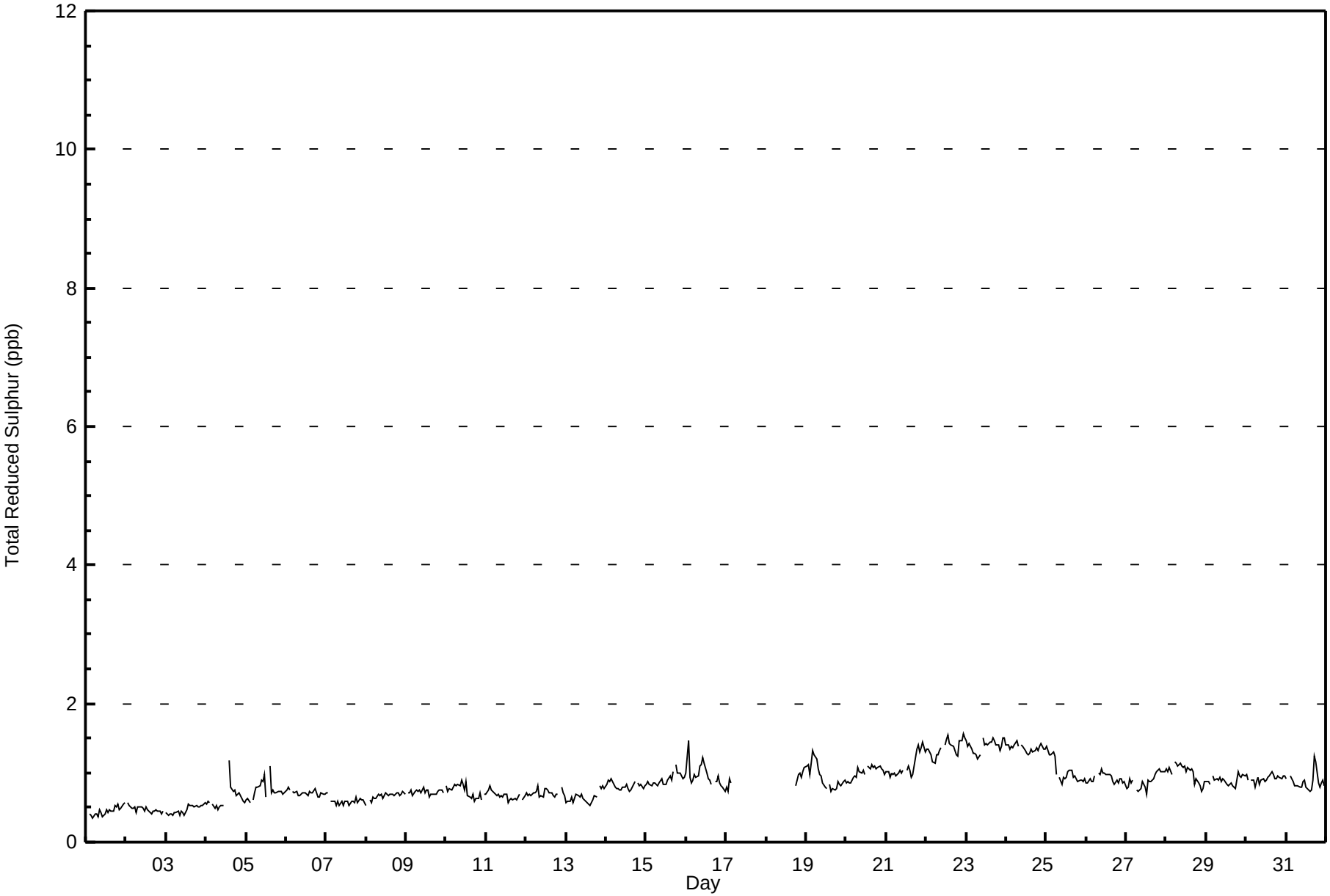
Hourly Averages for TRS at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Portable-Spirit River - Total Reduced Sulphur (TRS) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 4.7 ppb on Dec 30 16:00

Maximum Daily Average: 1.8 ppb on Dec 23

Minimum Value: 1 ppb on Dec 3 03:00

Maximum Diurnal Average: 1.3 ppb at hour 16

Monthly Average: 1.27 ppb

Minimum Daily Average: 0.7 ppb on Dec 1

Minimum Diurnal Average: 1.2 ppb at hour 7

Percentiles: $P_1 = 0.6$ $P_{10} = 0.9$ $Q_1 = 1.1$ Median = 1.3 $Q_3 = 1.4$ $P_{90} = 1.7$ $P_{99} = 2.0$

Hours in Service:	744
Hours of Data:	672
Hours of Missing Data:	72
Hours of Calibration:	33
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
2-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.8	0.9
3-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	0.9
4-Dec	1	1	1	A	1	1	1	1	1	1	1	C	C	A	2	1	1	1	1	1	1	1	1	1	1.1	2.3
5-Dec	1	1	1	A	1	1	1	1	1	1	2	2	1	P	2	1	1	1	1	1	1	1	1	1	1.3	2.1
6-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	1.4
7-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.3
8-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.3
9-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1.2	1.4
10-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1.2	1.4
11-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1.1	1.3
12-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1.2	1.4
13-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1.0	1.3
14-Dec	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1.2	1.5
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	A	2	1	2	1	1	1	1.3	1.9
16-Dec	2	2	1	1	1	1	2	1	2	2	2	2	2	1	1	1	A	1	1	1	1	1	1	1	1.5	1.9
17-Dec	1	1	1	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1.3	1.4
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	1	1	1	2	1.3	1.6
19-Dec	1	1	1	1	2	2	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1.3	1.7
20-Dec	1	1	1	1	1	1	1	2	1	1	1	1	A	2	1	2	1	1	1	1	1	1	1	1	1.4	1.6
21-Dec	2	1	1	1	1	1	1	1	1	1	1	A	2	2	1	1	1	1	2	2	2	2	2	2	1.5	1.8
22-Dec	2	2	2	2	1	2	2	2	2	2	A	2	2	2	2	2	2	2	2	2	2	2	2	2	1.7	2.0
23-Dec	2	2	2	2	2	2	2	2	2	A	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.8	2.0
24-Dec	2	2	2	2	2	2	2	2	A	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.8	1.9
25-Dec	2	2	2	2	2	2	1	A	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1.5	1.8
26-Dec	1	1	1	1	1	1	A	1	1	2	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1.4	1.6
27-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.4	1.5
28-Dec	1	1	1	1	A	1	1	1	2	1	1	2	2	1	1	2	1	1	1	1	1	1	1	1	1.4	1.6
29-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1.3	1.6
30-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1.5	4.7
31-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1.3	1.7
	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.3	Diurnal Average	
	1.9	1.9	1.8	1.7	1.7	1.9	1.9	1.9	1.8	1.8	2.0	1.9	2.0	1.8	2.3	4.7	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

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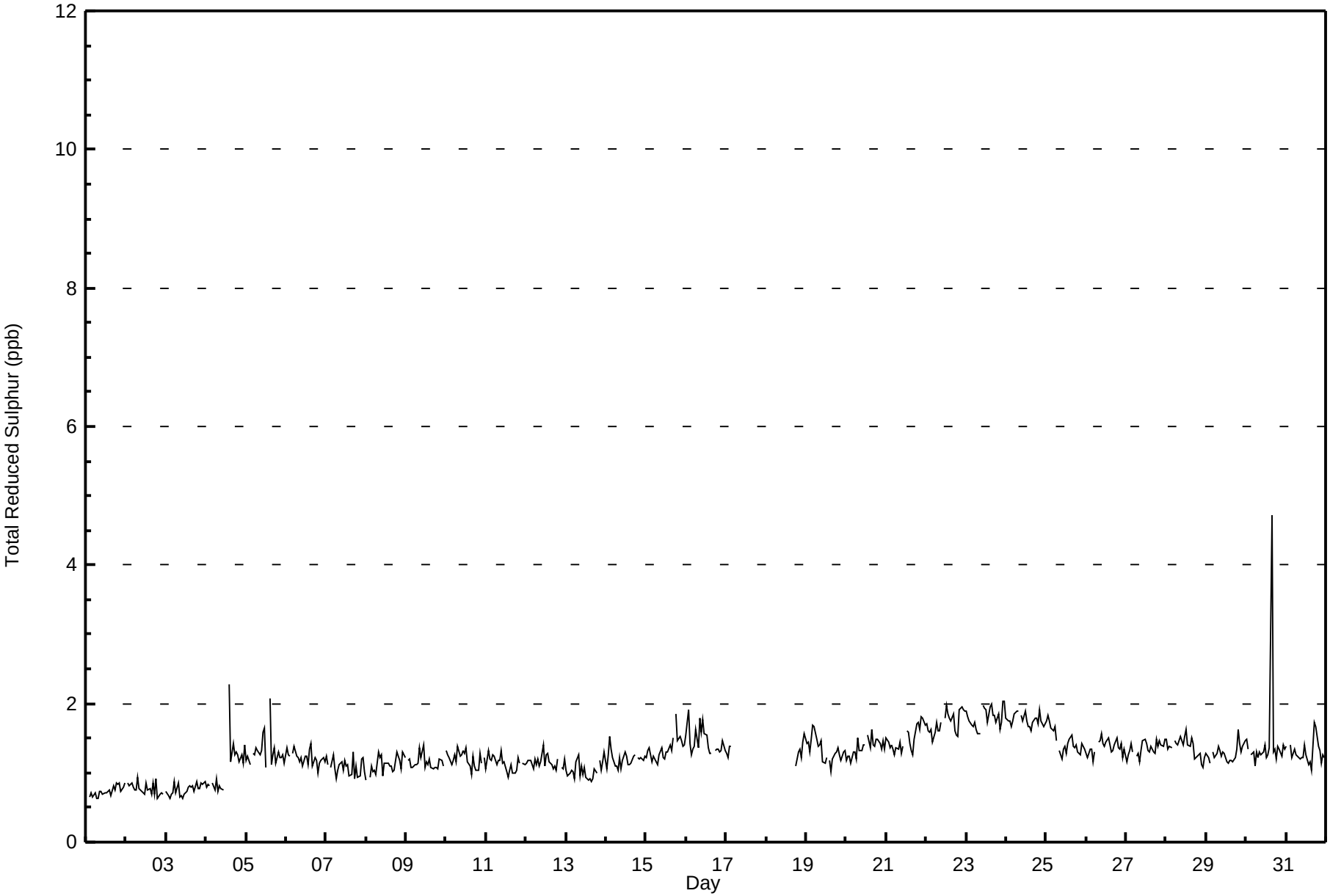
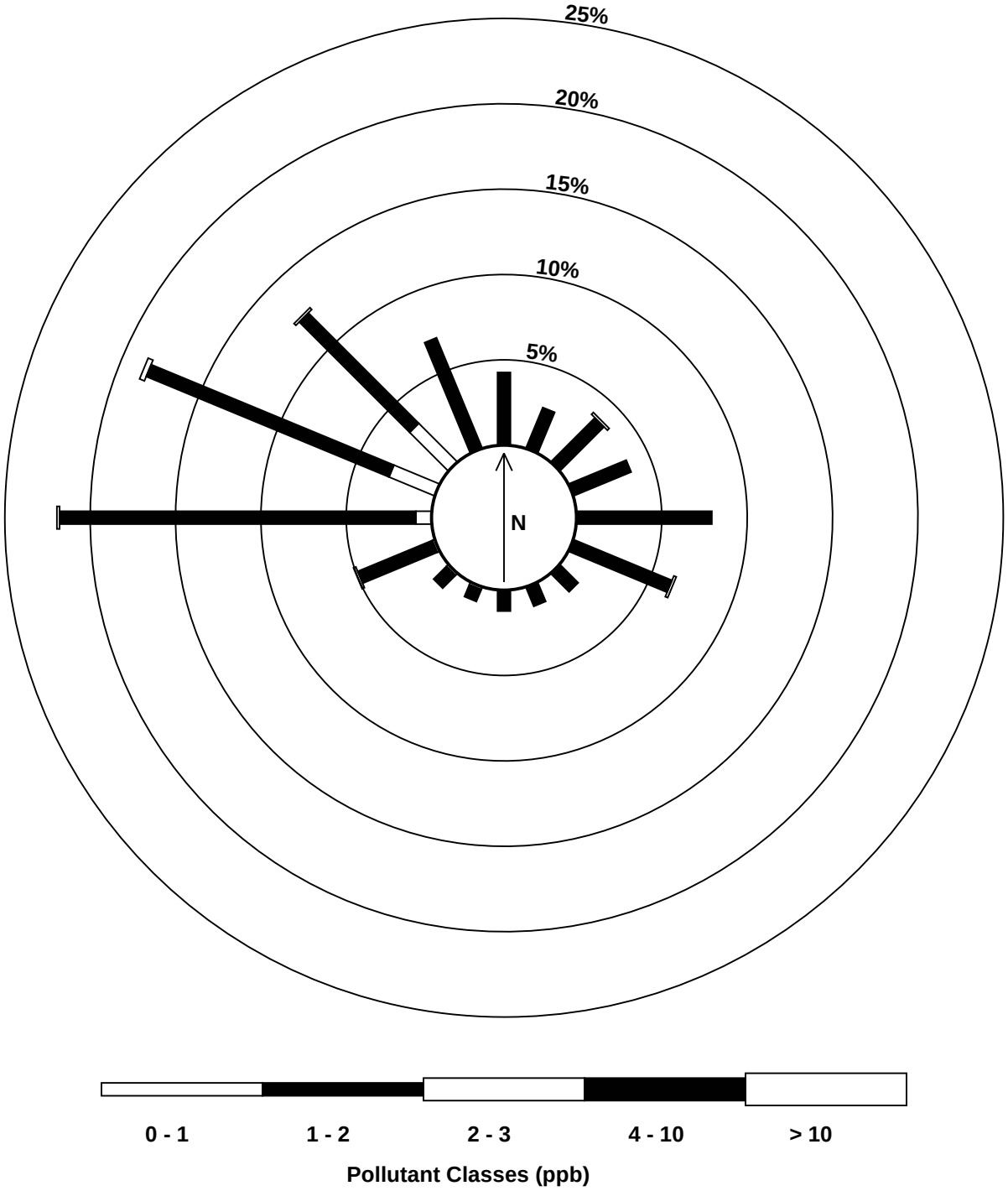
Hourly Maximums for TRS at Portable-Spirit River
December 2008



Pollutant Rose for TRS at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - Nitrogen Dioxide (NO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 95.5 ppb on Dec 20 08:00 Maximum Daily Average: 19.8 ppb on Dec 23

Minimum Value: 0 ppb on Dec 1 07:00 Minimum Daily Average: 0.4 ppb on Dec 1
Maximum Diurnal Average: 11.5 ppb at hour 8 Minimum Diurnal Average: 3.5 ppb at hour 15
Monthly Average: 5.19 ppb Percentiles: $P_1 = 0.1$ $P_{10} = 0.8$ $Q_1 = 1.4$ Median = 2.8 $Q_3 = 6.7$ $P_{90} = 13.9$ $P_{99} = 22.7$

Hours in Service:	744
Hours of Data:	667
Hours of Missing Data:	77
Hours of Calibration:	38
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	2	2	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	1	0	1	1	0	0	0	0.4	2.1
2-Dec	1	1	0	0	1	1	1	1	2	1	1	0	0	A	0	1	1	1	8	1	1	2	2	2	1.3	7.9
3-Dec	3	2	2	2	2	4	3	2	3	15	5	C	C	C	C	C	C	C	C	A	5	6	5	5	4.3	15.1
4-Dec	5	5	4	A	8	9	9	6	6	7	4	4	4	3	4	5	3	1	1	1	1	1	1	1	4.0	9.4
5-Dec	1	1	1	A	2	2	1	15	3	3	4	2	1	P	1	1	1	1	1	1	2	2	2	2	2.2	14.8
6-Dec	2	2	2	A	2	2	2	2	2	2	1	1	1	2	2	2	3	4	5	5	6	6	8	10	3.3	10.2
7-Dec	7	4	A	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.4	7.2
8-Dec	1	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.7
9-Dec	A	1	1	1	1	1	1	2	2	3	3	3	2	2	3	3	3	3	3	3	4	5	4	A	2.5	5.1
10-Dec	5	4	4	4	5	5	6	7	7	8	6	4	2	1	1	2	2	2	1	1	1	1	A	1	3.5	8.4
11-Dec	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	2	2	1	1	A	2	2	1.3	3.2
12-Dec	2	2	1	1	2	1	1	12	1	2	1	1	0	0	0	0	0	1	1	1	A	1	0	1	1.5	11.8
13-Dec	1	2	1	1	1	2	2	5	3	2	2	2	1	2	1	2	3	8	8	A	5	3	3	4	2.8	8.4
14-Dec	5	4	4	5	4	4	3	3	4	4	3	3	3	2	3	3	3	3	A	3	3	3	3	3	3.4	4.6
15-Dec	3	3	2	2	2	2	2	23	3	2	1	1	1	1	2	2	2	A	3	4	2	3	3	2	3.1	23.1
16-Dec	3	2	4	2	2	1	1	13	3	6	5	7	10	10	8	4	A	4	3	3	1	1	1	1	4.1	12.9
17-Dec	1	1	1	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0.7	1.0
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	15	11	9	9	8	7	9.7	14.7
19-Dec	8	7	7	9	9	9	9	55	10	8	7	5	4	A	6	5	5	6	11	7	5	4	5	7	8.9	54.5
20-Dec	7	7	7	7	7	7	7	96	9	11	12	10	A	7	7	8	9	12	19	25	22	20	21	18	15.4	95.5
21-Dec	15	15	14	14	11	10	11	13	15	16	13	A	12	17	14	10	11	15	14	15	20	12	13	11	13.4	19.6
22-Dec	11	10	10	9	10	10	11	11	12	14	A	9	7	7	8	10	12	14	16	14	17	16	15	14	11.6	16.9
23-Dec	14	15	16	21	22	22	19	19	22	A	16	14	9	9	9	11	13	42	41	33	22	22	23	21	19.8	42.4
24-Dec	20	18	15	14	15	17	19	14	A	11	9	7	6	7	9	11	16	17	17	16	17	16	13	14	13.8	20.1
25-Dec	16	15	14	13	11	9	4	A	4	3	3	3	9	3	3	3	3	3	3	4	5	4	5	5	6.2	15.7
26-Dec	4	4	5	4	3	3	A	4	5	4	4	4	4	4	4	5	7	6	6	5	5	4	4	5	4.5	7.1
27-Dec	7	8	4	4	4	A	2	2	2	2	2	5	3	3	2	1	2	2	5	23	6	6	5	5	4.5	22.6
28-Dec	5	3	3	3	A	5	7	8	8	6	6	5	6	6	6	7	5	3	3	2	2	3	3	2	4.7	8.2
29-Dec	2	3	3	A	2	2	2	2	2	2	2	1	2	2	1	1	1	1	2	9	2	2	2	2	2.2	9.4
30-Dec	2	2	A	2	2	2	2	3	3	3	3	3	2	2	3	2	2	2	3	4	3	3	3	3	2.4	3.6
31-Dec	2	A	3	2	2	2	1	1	1	1	2	1	1	1	2	1	3	5	4	2	2	2	2	2	2.0	4.5
	5.3	5.1	4.7	4.9	4.8	4.8	4.7	11.5	4.7	5.0	4.2	3.6	3.6	3.7	3.5	3.6	4.2	6.0	7.0	7.0	5.9	5.5	5.4	5.2	Diurnal Average	
	20.1	17.9	16.1	21.1	22.0	21.6	18.8	95.5	21.6	16.4	15.6	13.9	12.3	16.6	13.8	10.8	15.8	42.4	40.7	32.7	22.4	22.3	23.0	21.0	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
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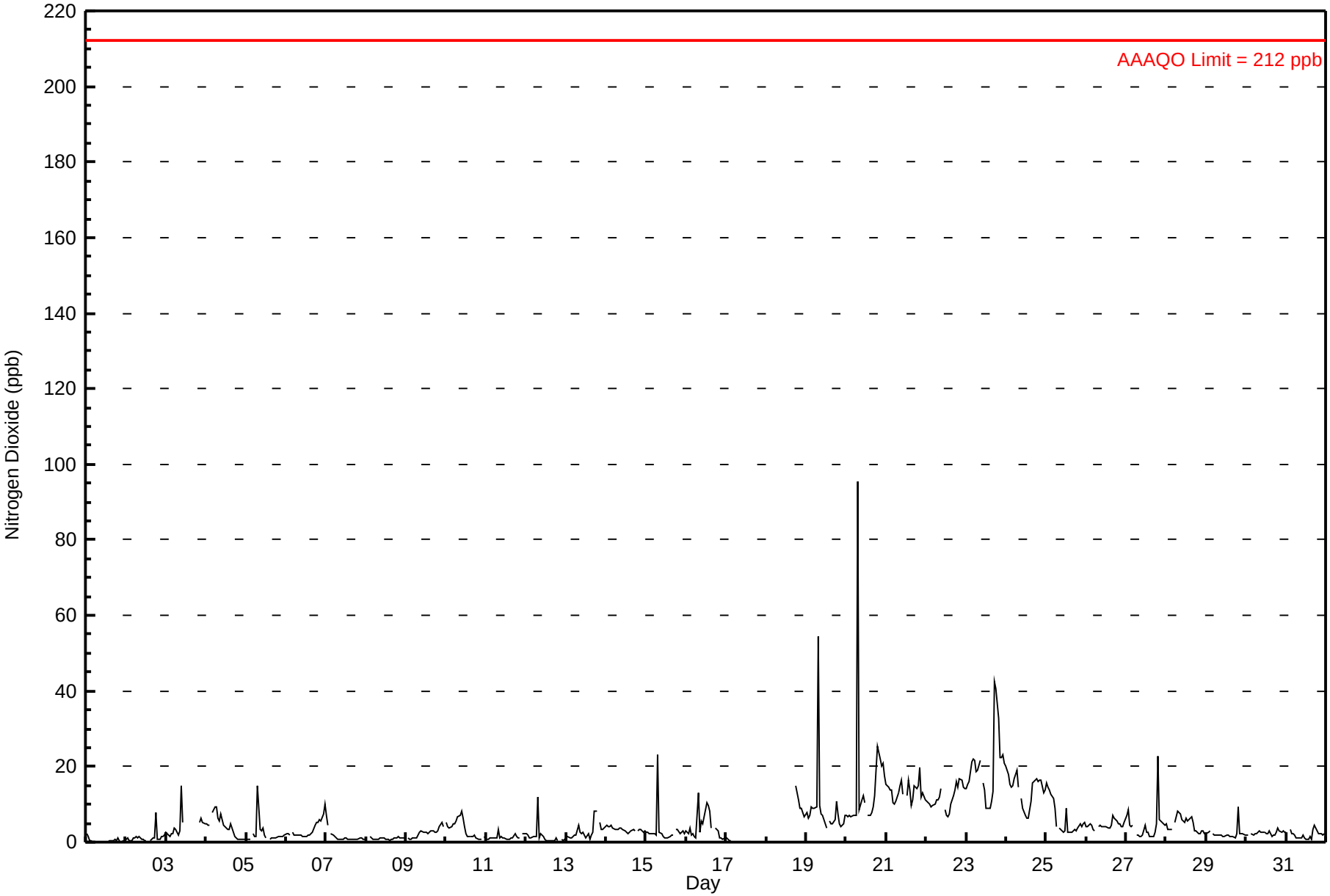
Hourly Averages for NO_2 at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Portable-Spirit River - Nitrogen Dioxide (NO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 499.7 ppb on Dec 20 08:00

Maximum Daily Average: 50.6 ppb on Dec 23

Minimum Value: 0 ppb on Dec 1 07:00

Minimum Daily Average: 1.0 ppb on Dec 17

Maximum Diurnal Average: 46.5 ppb at hour 8

Minimum Diurnal Average: 5.7 ppb at hour 3

Monthly Average: 10.37 ppb

Percentiles: $P_1 = 0.5$ $P_{10} = 1.3$ $Q_1 = 2.2$ Median = 4.3 $Q_3 = 9.5$ $P_{90} = 17.4$ $P_{99} = 111.8$

Hours in Service:	744
Hours of Data:	667
Hours of Missing Data:	77
Hours of Calibration:	38
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	3	2	1	0	0	0	0	0	1	1	1	0	A	3	4	1	1	2	1	2	2	0	1	1	1.3	3.9
2-Dec	1	2	1	1	2	3	2	3	3	2	2	1	1	A	1	2	2	3	114	2	1	3	3	4	6.9	113.9
3-Dec	4	5	3	4	3	5	6	4	10	67	7	C	C	C	C	C	C	C	C	A	6	7	6	6	9.6	67.4
4-Dec	6	5	5	A	10	11	11	8	7	29	5	4	4	4	4	8	7	2	2	1	1	1	2	1	6.0	29.3
5-Dec	1	1	1	A	3	2	2	81	8	5	6	4	2	P	4	3	2	1	2	3	2	2	2	2	6.3	81.3
6-Dec	3	3	2	A	3	2	3	2	2	2	2	2	2	2	2	3	3	7	7	6	7	7	10	14	4.2	14.3
7-Dec	14	5	A	3	2	2	1	4	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	2.2	14.5
8-Dec	1	A	2	2	2	1	1	1	3	2	1	4	1	2	1	2	1	5	2	2	2	1	1	2	1.8	5.0
9-Dec	A	2	1	1	1	3	1	5	5	6	5	6	3	3	4	8	3	4	3	5	7	6	6	A	4.1	8.0
10-Dec	9	4	5	5	6	7	7	32	10	11	8	7	3	2	3	2	2	8	5	1	7	1	A	2	6.4	31.7
11-Dec	1	1	2	1	1	1	2	22	2	3	2	2	1	1	4	3	3	19	14	2	1	A	3	4	4.2	22.5
12-Dec	3	3	2	2	5	2	6	112	3	3	2	1	1	0	0	1	1	2	2	1	A	1	1	2	6.8	112.3
13-Dec	3	3	2	2	2	2	2	60	6	2	11	6	2	20	1	22	21	15	13	A	8	4	5	6	9.5	59.9
14-Dec	6	4	4	5	4	4	4	4	4	5	4	4	3	3	4	3	4	4	A	4	4	4	4	5	4.1	5.8
15-Dec	3	3	3	3	2	3	2	77	5	3	2	2	1	2	2	3	3	A	4	5	3	4	4	3	6.2	76.9
16-Dec	8	4	5	2	2	2	2	59	6	10	8	9	15	16	11	6	A	15	4	4	2	1	1	1	8.4	59.0
17-Dec	1	1	1	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1.0	1.5
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28	15	12	20	11	8	15.6	28.0
19-Dec	26	23	12	12	13	10	11	235	13	9	9	7	4	A	7	10	7	9	135	9	6	6	6	9	25.6	235.1
20-Dec	8	7	8	7	9	9	10	500	10	17	15	12	A	15	19	10	10	17	26	27	25	23	24	21	36.0	499.7
21-Dec	17	16	16	15	12	11	13	15	17	19	14	A	55	45	62	12	13	25	25	66	115	14	14	12	27.2	115.2
22-Dec	12	11	11	10	10	12	13	14	13	17	A	9	8	7	9	11	15	15	17	16	18	17	17	17	13.1	17.9
23-Dec	16	17	18	23	23	23	21	22	26	A	19	68	10	14	11	12	15	325	206	201	24	24	24	23	50.6	325.2
24-Dec	22	20	17	15	15	18	20	17	A	13	12	8	7	8	10	15	55	18	19	17	19	17	15	16	17.2	55.2
25-Dec	17	16	15	14	12	11	5	A	5	3	3	4	65	7	3	3	8	4	3	13	7	5	6	6	10.3	65.2
26-Dec	5	5	5	6	5	3	A	5	5	5	5	5	5	5	4	6	10	8	7	5	5	5	5	7	5.6	10.0
27-Dec	12	14	6	5	5	A	3	2	2	2	4	32	3	3	2	4	3	4	8	94	9	7	6	6	10.2	94.3
28-Dec	8	4	4	7	A	6	8	10	9	7	7	7	10	8	8	9	8	10	5	3	3	4	3	3	6.5	10.3
29-Dec	2	3	3	A	3	2	2	2	3	3	2	2	2	2	2	2	2	1	3	29	3	3	3	3	3.6	29.3
30-Dec	7	2	A	3	2	3	3	4	5	4	4	7	3	3	4	2	4	3	4	4	4	3	3	3	3.8	7.1
31-Dec	3	A	4	3	2	2	2	2	1	2	3	2	1	1	8	1	6	5	4	3	3	3	2	3	2.8	8.4
	7.7	6.7	5.7	5.9	5.9	5.8	5.8	46.5	6.6	8.9	5.8	8.0	8.2	7.1	7.1	5.8	7.7	19.8	23.8	19.3	10.6	6.8	6.6	6.6	Diurnal Average	
	26.5	22.9	17.7	23.4	23.3	23.2	20.8	499.7	25.7	67.4	18.5	67.6	65.2	45.3	62.4	22.2	55.2	325.2	205.7	201.0	115.2	24.2	24.4	22.7	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

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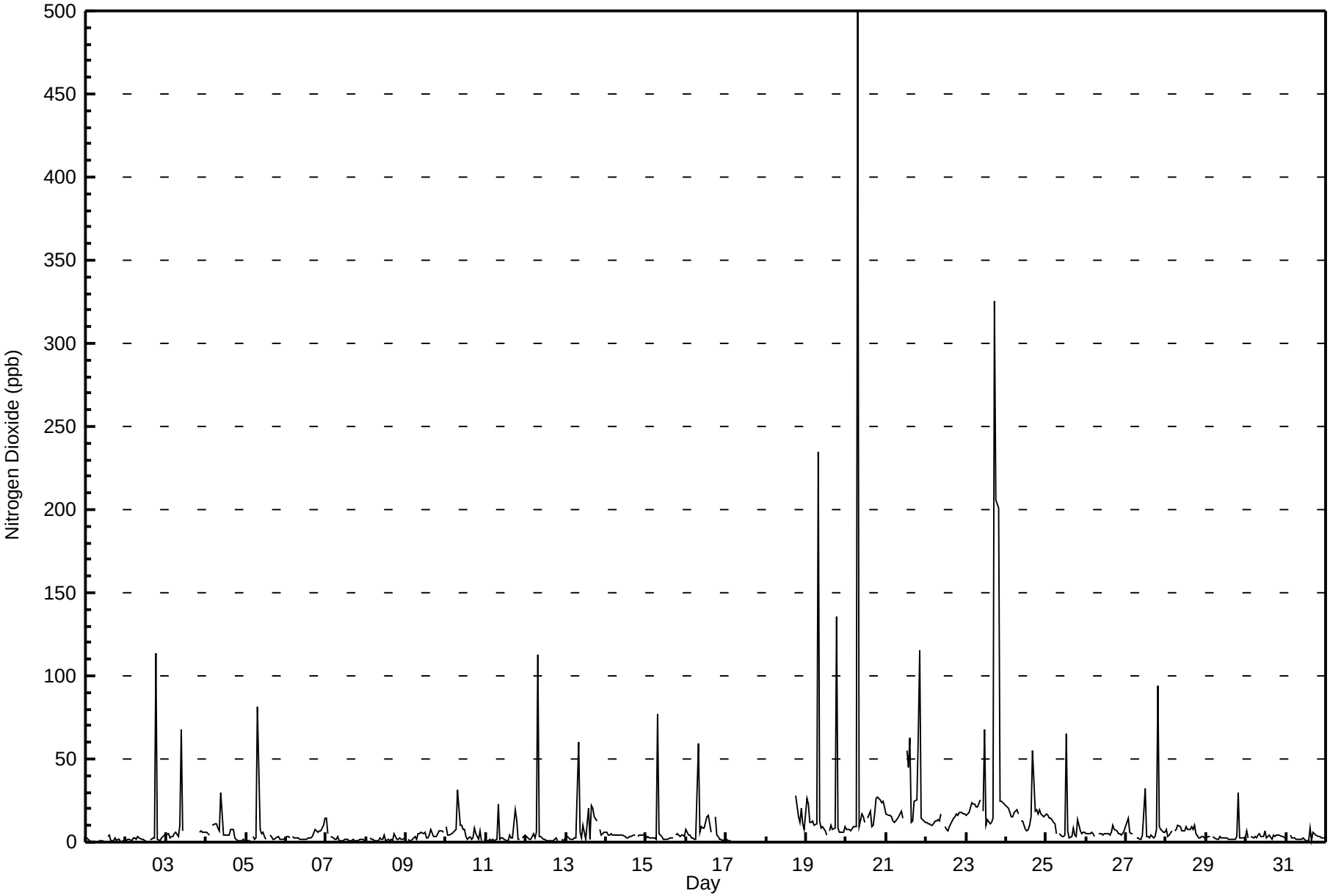
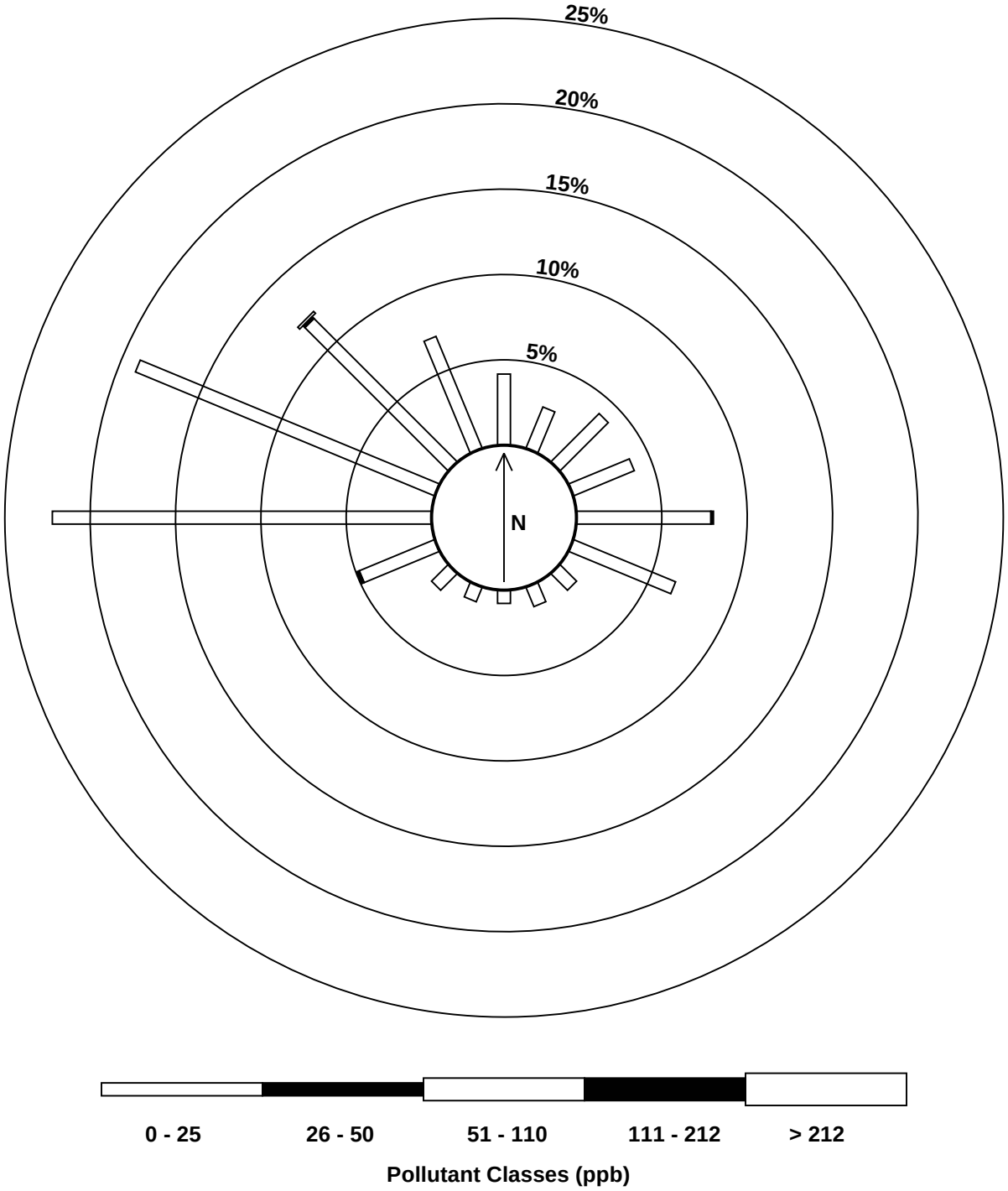
Hourly Maximums for NO_2 at Portable-Spirit River
December 2008



Pollutant Rose for NO_2 at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - Nitrogen Oxide (NO) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 74.3 ppb on Dec 20 08:00

Maximum Daily Average: 5.1 ppb on Dec 20

Minimum Value: 0 ppb on Dec 1 01:00

Minimum Daily Average: 0.0 ppb on Dec 1

Maximum Diurnal Average: 7.1 ppb at hour 8

Minimum Diurnal Average: 0.1 ppb at hour 7

Monthly Average: 1.14 ppb

Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.1$ Median = 0.2 $Q_3 = 0.4$ $P_{90} = 2.1$ $P_{99} = 15.0$

Hours in Service:	744
Hours of Data:	667
Hours of Missing Data:	77
Hours of Calibration:	38
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3
2-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	A	0	0	0	0	10	0	0	0	0	0	0.6	10.4
3-Dec	0	1	0	0	0	0	0	0	0	6	1	C	C	C	C	C	C	C	C	A	0	0	0	0	0.6	6.1
4-Dec	0	0	0	A	0	0	0	0	0	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0.4	2.1
5-Dec	0	0	0	A	0	0	0	16	0	0	0	0	0	P	4	0	0	0	0	0	0	0	0	0	1.1	16.0
6-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0.3	0.6
7-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
8-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
9-Dec	A	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	A	0.4	1.1
10-Dec	0	0	0	0	0	0	0	1	0	2	3	2	0	0	0	0	0	0	0	0	1	0	A	0	0.5	2.9
11-Dec	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	A	0	0	0.2	1.8
12-Dec	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.7	11.0
13-Dec	0	1	0	0	0	0	0	7	0	0	1	1	1	1	0	2	1	0	0	A	0	0	0	0	0.7	7.1
14-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	A	0	0	0	0	0	0.3	1.2
15-Dec	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	1.1	22.4
16-Dec	0	0	0	0	0	0	0	11	0	0	1	2	4	3	2	0	A	1	0	0	0	0	0	0	1.1	11.5
17-Dec	0	0	0	0	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0.1	0.2
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	0	0	1	0	0	0.7	2.0
19-Dec	2	4	1	0	1	0	0	50	0	1	2	2	2	A	3	1	0	0	7	0	0	0	0	0	3.3	50.3
20-Dec	0	0	0	0	0	0	0	74	0	1	6	9	A	6	8	3	1	0	1	1	1	0	0	3	5.1	74.3
21-Dec	2	1	1	0	0	0	0	0	0	3	8	A	14	17	13	5	1	1	1	4	18	0	0	0	3.9	18.0
22-Dec	0	0	0	0	0	0	0	0	0	1	A	7	7	7	6	4	1	0	0	1	0	0	0	0	1.6	7.4
23-Dec	0	0	0	0	0	0	0	0	1	A	13	15	11	11	9	6	2	15	15	12	1	1	0	0	4.9	15.1
24-Dec	0	0	0	0	0	0	0	0	A	2	6	6	8	8	7	6	8	1	0	0	1	0	0	0	2.4	7.8
25-Dec	0	0	0	1	0	0	0	A	0	0	0	1	8	2	1	0	0	0	0	0	0	0	0	0	0.7	8.0
26-Dec	0	0	0	0	0	0	A	0	0	0	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0.5	2.4
27-Dec	0	0	0	0	0	A	0	0	0	0	1	4	1	1	0	0	0	0	1	9	0	0	0	0	0.9	8.8
28-Dec	0	0	0	0	A	0	0	0	0	0	1	2	4	3	3	2	0	0	0	0	0	0	0	0	0.8	4.1
29-Dec	0	0	0	A	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	5	0	0	0	0	0.4	4.6
30-Dec	0	0	A	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.3	1.3
31-Dec	0	A	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0.8
	0.2	0.3	0.2	0.1	0.1	0.1	0.1	7.1	0.2	0.8	1.8	2.3	2.7	2.8	2.3	1.3	0.6	0.8	1.5	1.2	0.8	0.1	0.1	0.2	Diurnal Average	
	1.7	3.6	0.9	0.5	0.6	0.3	0.3	74.3	0.9	6.1	12.9	14.7	13.5	17.2	13.4	6.2	7.6	15.1	14.9	11.7	18.0	1.0	0.5	2.7	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

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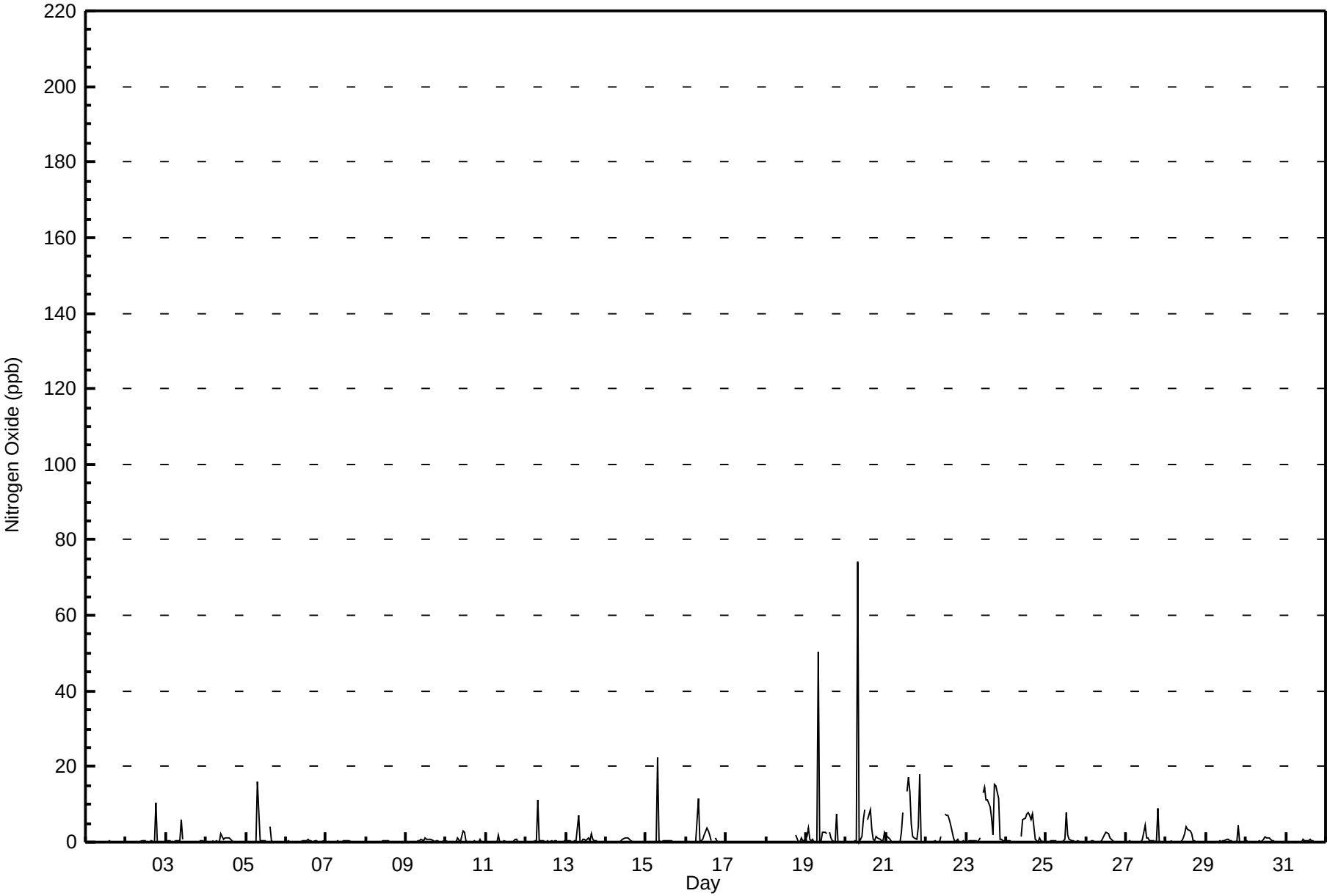
Hourly Averages for NO at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Portable-Spirit River - Nitrogen Oxide (NO) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 500.2 ppb on Dec 20 08:00

Maximum Daily Average: 32.6 ppb on Dec 23

Minimum Value: 0 ppb on Dec 1 02:00

Minimum Daily Average: 0.3 ppb on Dec 17

Maximum Diurnal Average: 50.4 ppb at hour 8

Minimum Diurnal Average: 0.7 ppb at hour 6

Monthly Average: 7.72 ppb

Percentiles: $P_1 = 0.1$ $P_{10} = 0.2$ $Q_1 = 0.2$ Median = 0.6 $Q_3 = 2.4$ $P_{90} = 9.3$ $P_{99} = 164.8$

Hours in Service:	744
Hours of Data:	667
Hours of Missing Data:	77
Hours of Calibration:	38
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	0	0	0	0	0	0	0	0	1	0	1	0	A	5	7	0	0	1	1	1	1	1	0	0	0.8	7.1
2-Dec	0	1	1	1	1	1	1	1	0	1	1	1	1	A	4	1	1	1	166	0	1	1	1	1	8.0	166.4
3-Dec	1	5	1	1	0	1	1	2	12	47	1	C	C	C	C	C	C	C	C	A	0	1	1	0	5.0	47.3
4-Dec	0	0	0	A	1	0	0	0	0	33	1	1	1	2	1	1	1	2	0	0	0	0	2	0	2.2	33.3
5-Dec	0	0	0	A	1	0	0	102	4	0	1	2	1	P	36	2	0	0	1	1	0	0	0	0	6.9	101.8
6-Dec	2	1	0	A	0	0	0	0	0	0	0	1	1	1	1	1	1	8	8	0	0	1	1	1	1.3	8.5
7-Dec	0	0	A	0	0	0	0	9	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0.7	9.3
8-Dec	0	A	0	0	0	0	0	0	1	0	0	3	0	1	0	0	0	2	0	0	1	0	0	0	0.6	2.9
9-Dec	A	0	0	0	0	2	0	5	4	7	4	9	1	1	3	6	0	1	2	1	1	1	1	A	2.3	9.1
10-Dec	7	0	0	0	0	0	0	43	1	19	5	5	2	0	4	0	0	8	4	0	19	0	A	0	5.2	43.3
11-Dec	0	0	1	0	0	0	1	10	1	1	1	0	0	0	4	1	1	13	19	2	0	A	0	3	2.6	19.5
12-Dec	0	0	0	1	1	2	7	115	3	2	0	0	0	0	0	0	0	2	2	0	A	0	2	1	6.1	115.1
13-Dec	1	3	4	0	1	1	0	176	1	1	6	3	1	13	2	56	22	9	7	A	0	0	2	0	13.5	175.5
14-Dec	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	1	0	0	A	0	0	0	0	1	0.5	1.6
15-Dec	0	0	0	0	0	0	0	101	7	0	1	0	0	1	1	0	0	A	0	0	0	0	0	0	5.0	101.1
16-Dec	4	0	0	0	0	1	1	92	2	2	3	3	6	7	3	1	A	15	1	1	0	0	0	0	6.2	92.2
17-Dec	1	0	0	0	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0.3	0.6
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	76	2	1	27	15	1	20.3	75.6
19-Dec	53	99	7	8	9	0	0	251	5	1	5	3	2	A	4	2	1	4	128	0	0	1	0	1	25.5	251.3
20-Dec	0	0	0	0	0	2	5	500	0	7	14	11	A	10	126	4	2	1	6	3	4	1	1	14	31.0	500.2
21-Dec	11	8	9	3	2	0	1	0	0	5	9	A	78	50	62	7	3	21	13	81	356	1	1	1	31.4	356.4
22-Dec	0	0	0	0	0	4	0	0	1	4	A	9	8	8	6	6	3	1	4	27	0	0	6	1	3.9	27.2
23-Dec	3	1	5	1	0	1	1	0	3	A	16	44	13	49	14	9	4	207	153	216	2	2	2	2	32.6	215.9
24-Dec	1	1	7	0	0	0	0	1	A	4	11	8	9	10	9	17	119	3	3	0	16	1	0	0	9.7	119.0
25-Dec	0	2	2	4	2	2	1	A	0	0	1	2	88	37	1	1	5	0	0	11	1	0	1	0	7.1	87.8
26-Dec	0	0	0	2	2	0	A	0	1	2	2	3	3	4	2	1	1	0	0	0	0	0	0	0	1.1	4.1
27-Dec	0	0	2	2	1	A	0	0	0	0	26	29	1	2	1	1	2	1	2	56	1	0	0	1	5.7	55.9
28-Dec	0	0	0	12	A	0	0	0	0	1	2	5	7	5	5	5	2	8	0	0	0	0	0	0	2.4	12.4
29-Dec	0	0	0	A	0	0	0	0	2	1	1	2	2	1	1	0	0	0	1	20	0	0	1	0	1.5	19.6
30-Dec	7	0	A	0	0	0	0	0	3	0	2	6	1	2	2	1	3	0	0	0	0	0	0	0	1.4	7.2
31-Dec	0	A	0	0	0	0	0	0	0	1	2	2	1	1	6	1	0	0	0	0	0	0	0	0	0.7	6.2
	3.3	4.4	1.5	1.5	0.9	0.7	0.8	50.4	1.9	5.1	4.3	5.8	8.9	8.5	10.9	4.5	6.4	11.5	21.4	15.1	14.1	1.4	1.4	1.1	Diurnal Average	
	52.6	99.0	8.7	12.4	9.2	3.8	6.7	500.2	11.7	47.3	26.1	43.7	87.8	50.2	126.2	55.8	119.0	206.8	166.4	215.9	356.4	27.4	14.8	13.8	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

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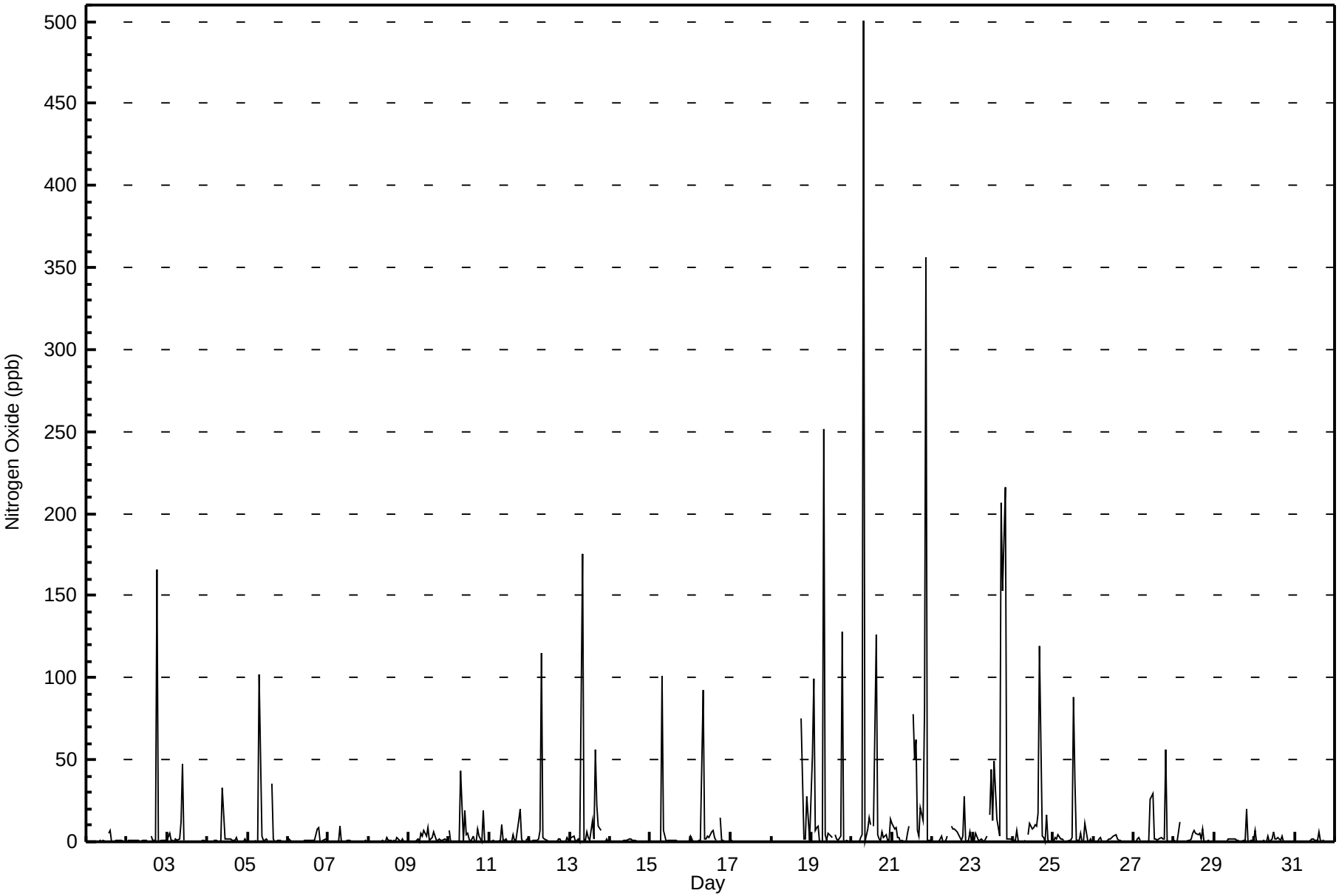
Hourly Maximums for NO at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - Oxides of Nitrogen (NO_X) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 153.9 ppb on Dec 20 08:00

Maximum Daily Average: 24.8 ppb on Dec 23

Minimum Value: 0 ppb on Dec 1 05:00

Minimum Daily Average: 0.4 ppb on Dec 1

Maximum Diurnal Average: 17.9 ppb at hour 8

Minimum Diurnal Average: 4.7 ppb at hour 7

Monthly Average: 6.25 ppb

Percentiles: $P_1 = 0.1$ $P_{10} = 0.9$ $Q_1 = 1.4$ Median = 3.1 $Q_3 = 7.4$ $P_{90} = 15.9$ $P_{99} = 36.4$

Hours in Service:	744
Hours of Data:	667
Hours of Missing Data:	77
Hours of Calibration:	38
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	2	1	0	0	0	0	0	0	0	0	0	0	A	0	1	0	0	1	0	1	1	0	0	0	0.4	1.9
2-Dec	1	1	1	0	1	1	2	1	2	1	1	1	1	A	0	1	1	1	18	0	0	1	1	1	1.7	18.2
3-Dec	2	2	1	1	1	3	2	1	2	20	4	C	C	C	C	C	C	C	C	A	5	7	6	5	4.1	19.9
4-Dec	5	5	4	A	8	10	9	7	6	9	5	5	5	4	5	6	3	1	1	1	1	1	1	1	4.4	9.6
5-Dec	1	1	1	A	2	2	1	31	4	3	4	2	1	P	5	1	1	1	1	1	2	2	2	2	3.2	30.6
6-Dec	2	2	2	A	3	2	2	2	2	2	2	2	2	2	2	2	3	5	6	5	6	6	8	10	3.4	10.4
7-Dec	7	4	A	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.5	7.4
8-Dec	1	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.7
9-Dec	A	1	1	1	1	1	1	2	3	4	3	4	3	3	3	4	3	3	3	3	4	5	4	A	2.8	5.2
10-Dec	6	4	4	4	5	5	6	8	7	10	9	7	3	1	1	1	1	2	1	1	1	1	A	1	3.9	10.0
11-Dec	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	3	2	1	1	A	2	2	1.4	5.0
12-Dec	2	2	1	1	2	2	2	23	1	3	2	1	0	0	0	1	0	1	1	1	A	1	1	1	2.0	22.7
13-Dec	2	2	1	1	1	2	2	12	3	2	3	3	2	3	1	4	4	9	8	A	5	3	4	4	3.5	11.6
14-Dec	5	4	4	5	4	4	3	3	4	4	4	4	4	3	3	3	3	3	A	3	3	3	3	3	3.6	4.6
15-Dec	3	3	2	2	2	2	2	45	3	2	2	1	1	1	2	2	2	A	3	4	2	3	3	2	4.1	45.3
16-Dec	3	2	4	2	2	1	1	24	3	6	6	8	14	13	10	4	A	4	3	3	1	1	1	1	5.2	24.4
17-Dec	1	1	1	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0.8	1.1
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	17	11	9	10	8	7	10.4	16.8
19-Dec	9	10	8	9	10	9	9	105	10	8	9	7	6	A	8	6	5	6	18	7	5	4	5	7	12.3	104.6
20-Dec	7	7	7	7	7	7	7	154	9	13	18	19	A	13	16	11	10	13	20	27	23	21	21	21	19.8	153.9
21-Dec	17	16	15	14	11	10	11	13	15	19	20	A	26	34	27	14	12	16	15	19	38	12	13	11	17.4	37.6
22-Dec	11	10	10	9	10	10	11	11	12	16	A	16	14	14	14	14	14	14	17	15	17	17	15	14	13.3	17.1
23-Dec	15	15	17	22	22	22	19	19	23	A	29	29	20	20	18	17	15	57	56	44	23	23	23	21	24.8	57.1
24-Dec	21	18	16	15	15	17	19	15	A	13	15	13	14	14	16	17	24	17	17	16	18	17	13	14	16.3	23.5
25-Dec	16	15	14	13	12	9	4	A	4	3	3	4	17	4	3	3	3	3	3	4	5	4	5	5	6.8	16.8
26-Dec	4	4	5	5	3	3	A	4	5	5	5	6	6	6	5	5	7	6	6	5	5	4	4	5	5.0	7.3
27-Dec	7	9	4	4	4	A	2	2	2	2	2	9	4	4	2	2	2	3	5	31	6	6	5	5	5.3	31.4
28-Dec	5	3	3	4	A	5	7	8	8	6	7	7	10	9	10	9	6	3	3	2	2	3	3	2	5.5	10.4
29-Dec	2	3	3	A	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	14	2	2	2	2	2.6	14.0
30-Dec	2	2	A	2	2	2	2	3	3	3	3	4	3	3	4	2	2	2	3	4	3	3	3	3	2.7	3.9
31-Dec	2	A	3	2	2	2	1	1	1	1	2	1	1	1	2	1	3	5	4	2	2	2	2	2	2.1	4.6
	5.5	5.3	4.8	5.0	4.9	4.8	4.7	17.9	4.8	5.7	5.9	5.9	6.2	6.4	5.8	4.8	4.8	6.8	8.5	8.2	6.7	5.6	5.5	5.4	Diurnal Average	
	20.5	18.2	16.5	21.6	22.3	22.1	19.2	153.9	22.7	19.9	28.6	28.6	25.9	33.7	27.2	17.1	23.5	57.1	55.6	44.4	37.6	23.1	23.4	21.4	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

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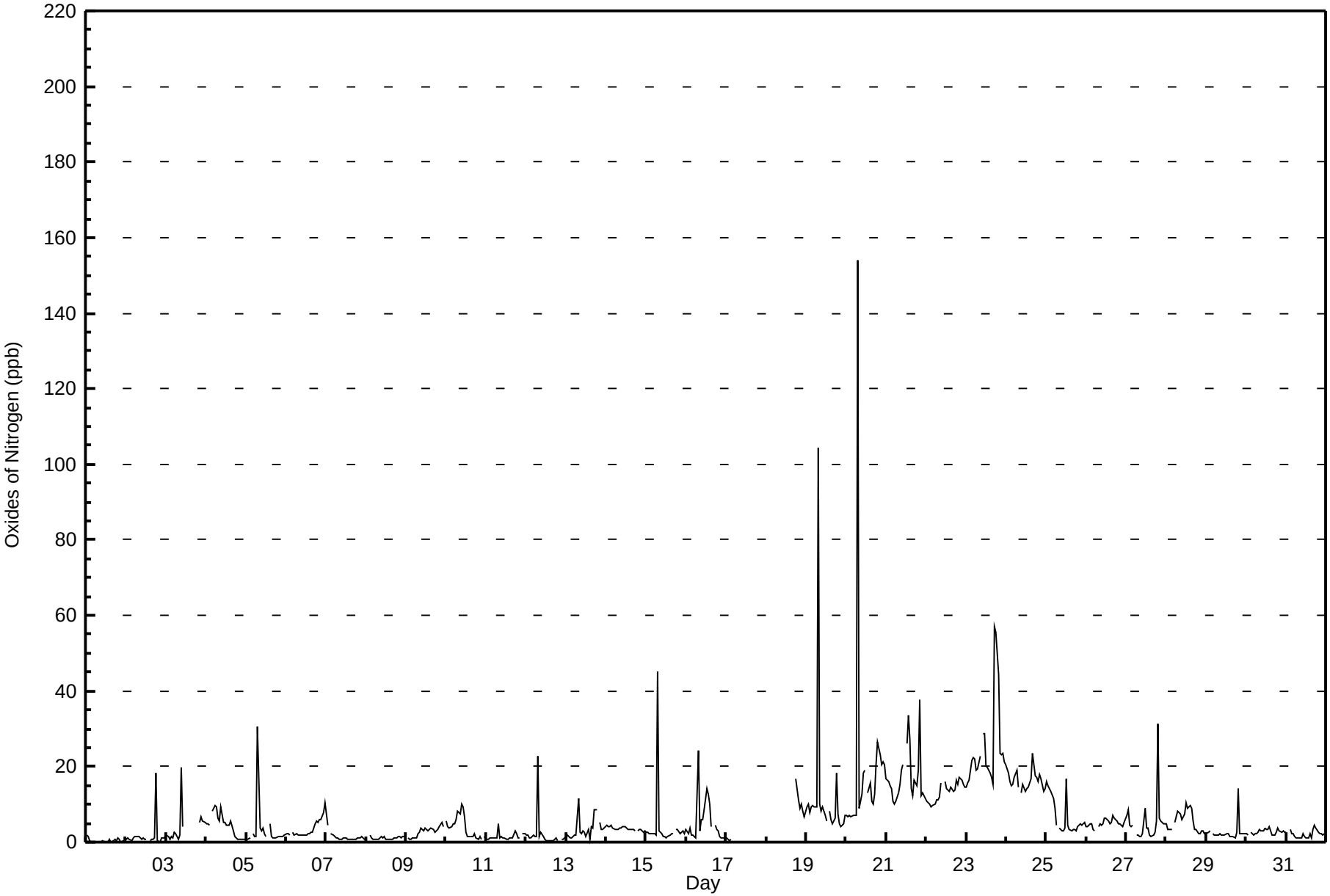
Hourly Averages for NO_X at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Portable-Spirit River - Oxides of Nitrogen (NO_X) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 498.7 ppb on Dec 20 08:00

Maximum Daily Average: 80.3 ppb on Dec 23

Minimum Value: 0 ppb on Dec 1 07:00

Maximum Diurnal Average: 76.9 ppb at hour 8

Monthly Average: 16.66 ppb

Minimum Daily Average: 1.2 ppb on Dec 17

Minimum Diurnal Average: 6.2 ppb at hour 6

Percentiles: $P_1 = 0.6$ $P_{10} = 1.4$ $Q_1 = 2.5$ Median = 4.9 $Q_3 = 13.1$ $P_{90} = 24.2$ $P_{99} = 273.5$

Hours in Service:	744
Hours of Data:	667
Hours of Missing Data:	77
Hours of Calibration:	38
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	2	2	1	0	0	0	0	0	2	1	1	0	A	8	11	1	1	3	1	2	2	1	1	1	1.9	11.2
2-Dec	1	2	2	1	3	3	3	4	3	2	2	1	2	A	5	2	2	2	284	1	1	2	3	4	14.6	283.6
3-Dec	4	9	3	3	2	5	6	4	21	114	6	C	C	C	C	C	C	C	C	A	6	8	7	6	13.6	113.6
4-Dec	6	5	5	A	10	11	12	8	7	63	6	6	5	6	5	9	8	4	2	1	1	1	3	1	8.0	62.6
5-Dec	1	1	1	A	4	2	2	182	11	5	6	5	2	P	35	4	2	2	3	4	2	2	2	2	12.7	182.0
6-Dec	4	4	3	A	4	2	3	3	2	2	2	2	2	3	3	4	4	13	15	6	7	7	11	15	5.2	15.1
7-Dec	15	5	A	3	2	1	1	13	1	1	1	2	2	2	1	1	1	1	1	1	2	2	2	1	2.8	14.8
8-Dec	1	A	2	2	2	1	1	1	3	2	1	7	1	3	1	2	1	7	2	2	4	1	1	2	2.3	7.4
9-Dec	A	2	1	1	1	5	2	10	9	13	9	14	4	4	7	14	4	4	5	6	7	7	7	A	6.1	14.2
10-Dec	14	4	5	5	6	7	8	74	10	26	11	13	5	2	6	2	2	16	8	1	20	1	A	2	10.8	74.3
11-Dec	1	1	3	2	1	1	2	26	3	4	3	2	2	1	8	3	3	32	30	3	1	A	3	7	6.2	32.5
12-Dec	3	3	2	2	5	4	13	228	6	5	2	2	1	1	1	1	1	3	4	1	A	1	3	2	12.7	227.6
13-Dec	4	5	5	2	3	3	2	236	6	3	17	9	2	31	3	78	43	25	20	A	7	4	6	6	22.6	236.1
14-Dec	6	4	4	5	4	4	4	4	5	5	5	5	4	3	5	4	4	4	A	3	4	4	4	5	4.3	5.8
15-Dec	3	3	3	3	2	3	2	168	12	3	2	2	2	2	3	3	3	A	4	5	3	4	4	3	10.5	167.8
16-Dec	12	4	5	3	2	2	2	133	8	11	11	12	21	23	14	6	A	30	4	4	2	1	2	1	13.6	132.8
17-Dec	2	1	1	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1.2	1.9
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	103	17	13	47	21	8	35.0	103.4
19-Dec	79	120	19	20	22	10	11	466	17	9	15	10	6	A	11	12	8	11	241	9	6	7	6	9	48.9	466.0
20-Dec	8	7	8	7	9	10	14	499	10	24	27	21	A	24	144	14	11	17	30	29	29	24	25	33	44.6	498.7
21-Dec	28	24	23	16	14	11	13	15	18	22	22	A	133	91	122	17	15	44	39	138	465	14	14	12	57.1	465.2
22-Dec	12	11	11	10	10	15	13	14	13	17	A	18	16	15	15	16	15	16	21	35	18	18	21	18	16.1	35.4
23-Dec	19	17	23	24	24	24	21	22	29	A	31	111	24	60	25	19	17	498	343	415	26	26	25	23	80.3	498.4
24-Dec	22	21	24	15	16	18	20	18	A	14	24	16	16	18	19	32	141	21	21	17	35	18	16	16	25.1	141.2
25-Dec	17	18	16	17	14	11	6	A	5	4	4	6	131	36	4	4	13	4	3	25	8	5	7	6	15.8	131.3
26-Dec	5	5	5	8	8	3	A	5	6	7	6	8	8	9	6	7	10	8	7	5	5	4	5	7	6.4	10.1
27-Dec	12	14	7	6	5	A	3	2	2	2	30	61	4	4	3	5	5	5	8	150	10	7	6	6	15.5	149.6
28-Dec	8	4	4	17	A	6	8	10	9	7	8	12	17	12	13	14	9	18	5	3	3	4	3	3	8.5	18.1
29-Dec	2	3	3	A	3	2	2	2	4	4	3	4	4	3	2	2	2	2	3	47	3	3	3	3	4.7	47.0
30-Dec	14	3	A	3	2	3	3	4	8	4	6	13	4	5	7	2	5	3	4	4	4	3	3	3	4.9	14.0
31-Dec	3	A	4	3	2	2	1	2	1	2	4	4	1	1	15	1	6	5	4	3	3	3	2	3	3.3	14.6
	10.6	10.8	6.9	6.9	6.5	6.2	6.3	76.9	8.2	13.4	9.5	13.5	16.0	14.7	17.6	10.0	12.4	29.6	43.4	33.5	24.1	7.9	7.5	7.3	Diurnal Average	
	78.7	120.3	24.2	24.2	23.7	24.4	21.2	498.7	28.7	113.6	31.0	111.0	132.7	90.8	143.9	77.8	141.2	498.4	342.8	415.3	465.2	47.1	25.3	33.4	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span

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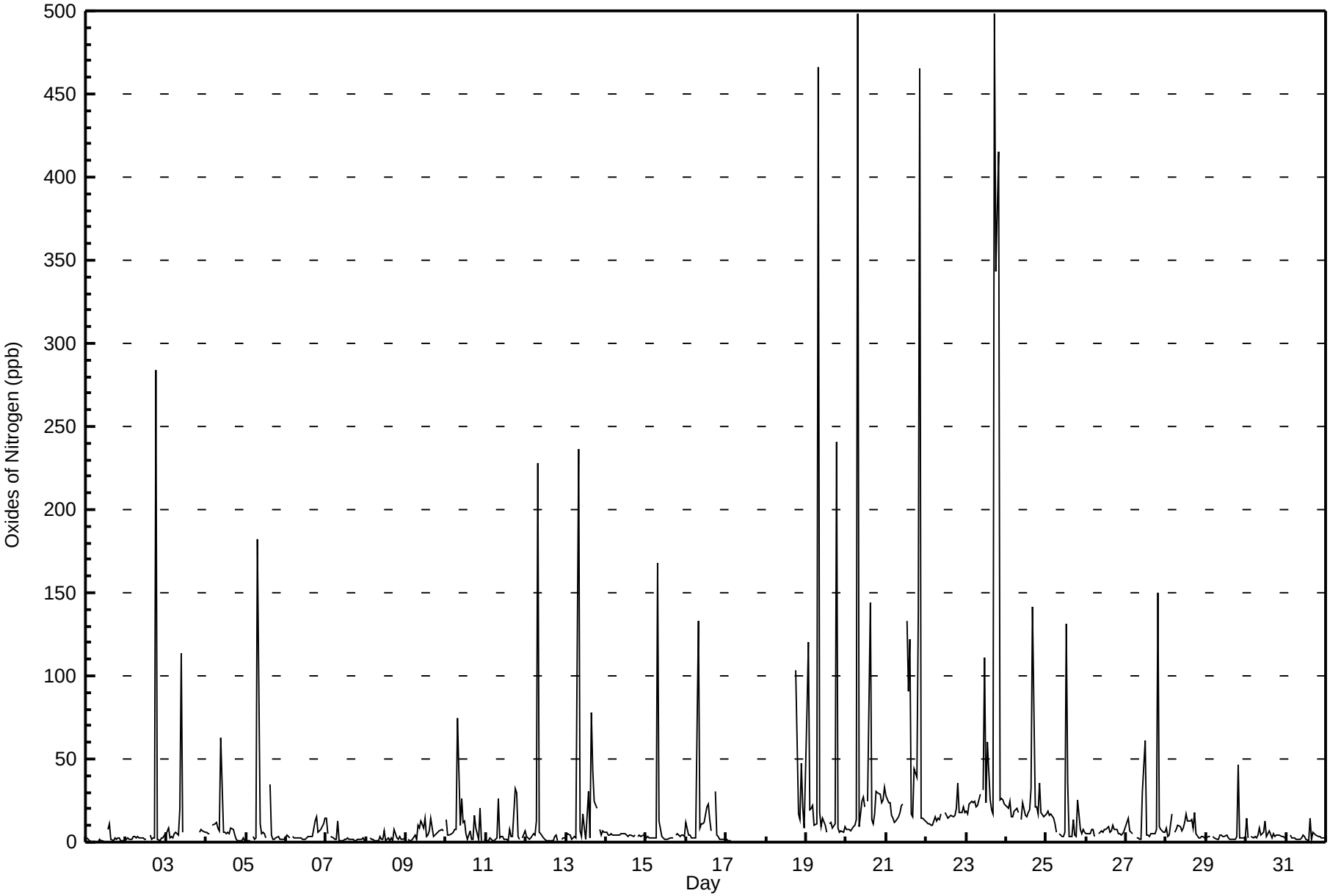
Hourly Maximums for NO_X at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 40.5 ppb on Dec 10 16:00 Maximum Daily Average: 37.0 ppb on Dec 11

Minimum Value: 2 ppb on Dec 20 20:00 Minimum Daily Average: 7.8 ppb on Dec 24
Maximum Diurnal Average: 26.7 ppb at hour 14 Minimum Diurnal Average: 23.9 ppb at hour 5
Monthly Average: 25.07 ppb Percentiles: P_1 = 3.8 P_{10} = 12.4 Q_1 = 20.8 Median = 26.5 Q_3 = 30.2 P_{90} = 35.5 P_{99} = 39.4

Hours in Service:	744
Hours of Data:	670
Hours of Missing Data:	74
Hours of Calibration:	35
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	25	A	30	29	28	36	39	38	36	32	31	32	30	32	32	32	33	32	33	32	32	31	30	29	32.0	38.9
2-Dec	A	28	30	30	29	29	29	29	27	26	24	24	26	26	26	26	26	26	24	26	26	25	26	A	26.9	30.1
3-Dec	26	26	27	26	24	22	25	27	25	19	24	26	27	27	27	26	22	13	17	20	18	15	15	17	22.5	27.1
4-Dec	16	15	16	A	11	12	15	19	20	21	24	25	27	C	C	C	C	A	40	39	39	40	39	39	25.2	39.9
5-Dec	39	38	37	A	34	33	32	26	27	25	24	26	27	P	32	33	33	33	33	32	30	29	28	26	30.7	38.6
6-Dec	24	23	23	A	23	24	24	23	23	23	22	22	22	22	22	22	20	18	16	15	14	14	12	8	20.0	24.0
7-Dec	11	15	A	16	16	18	20	20	21	23	24	24	23	24	25	24	26	26	26	26	26	26	27	27	22.4	26.8
8-Dec	27	A	27	28	28	28	28	28	29	29	30	29	29	29	29	29	29	28	28	27	29	29	29	29	28.5	30.1
9-Dec	A	30	30	30	29	29	28	27	26	25	25	25	26	26	26	25	25	25	25	25	23	21	22	A	26.0	29.7
10-Dec	21	22	22	22	21	21	19	17	16	14	17	20	37	40	40	40	40	39	39	39	38	37	A	37	28.6	40.5
11-Dec	38	39	39	38	38	38	38	36	36	35	36	36	37	37	38	38	38	37	37	37	36	A	36	34	37.0	38.5
12-Dec	32	32	35	35	34	34	33	31	32	32	33	33	34	33	33	32	32	33	32	34	A	34	34	34	33.1	35.4
13-Dec	33	33	34	33	33	31	31	30	29	30	30	30	30	31	31	31	29	23	23	A	26	28	28	27	29.8	33.7
14-Dec	27	28	28	28	29	29	29	29	28	28	28	29	29	30	30	29	29	29	A	29	28	28	29	29	28.6	30.1
15-Dec	29	29	30	30	30	30	31	26	30	31	32	34	35	36	36	35	36	A	34	35	36	37	37	38	32.9	37.6
16-Dec	37	37	35	37	37	37	37	33	35	32	32	31	27	26	28	34	A	37	35	34	37	37	37	37	34.3	37.5
17-Dec	36	35	36	36	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	35.7	36.4
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	15	18	21	21	22	23	19.9	22.8
19-Dec	21	23	21	19	19	18	19	24	18	20	21	24	26	A	24	26	26	24	24	23	26	27	26	24	22.7	27.0
20-Dec	24	24	23	22	21	20	20	35	17	15	15	17	A	19	18	16	15	11	7	2	5	7	6	11	16.0	35.5
21-Dec	13	13	13	11	14	14	13	13	10	8	12	A	16	18	14	14	12	9	12	14	17	15	13	15	13.2	18.3
22-Dec	16	16	17	17	17	17	15	14	13	12	A	17	19	18	18	16	13	12	11	11	10	10	11	10	14.3	18.5
23-Dec	9	8	6	4	4	4	7	7	4	A	10	14	15	15	15	13	10	21	9	6	4	3	4	5	8.5	20.8
24-Dec	6	7	8	8	8	6	4	7	A	8	10	13	13	14	13	10	6	5	4	4	4	4	11	9	7.8	13.9
25-Dec	6	9	11	12	12	20	33	A	32	33	34	34	32	33	33	33	32	33	34	33	31	31	30	29	27.0	34.3
26-Dec	30	29	27	27	28	28	A	26	25	24	24	23	24	24	24	24	25	26	25	24	24	25	28	28	25.7	29.8
27-Dec	28	26	23	23	22	A	35	34	34	33	33	32	27	27	30	31	31	28	26	22	25	26	25	25	28.1	34.8
28-Dec	25	27	26	26	A	24	21	20	21	22	23	23	22	22	20	20	23	27	27	27	28	27	27	27	24.2	28.4
29-Dec	27	26	26	A	27	27	27	27	27	27	27	28	28	28	29	29	29	29	27	25	26	25	25	26	27.0	28.9
30-Dec	26	25	A	27	28	28	28	28	27	27	28	28	28	29	28	29	29	28	27	26	27	27	27	27	27.5	28.9
31-Dec	27	A	25	26	26	27	28	28	28	27	27	28	28	28	28	28	25	24	25	26	25	24	25	25	26.5	28.3
	24.2	24.5	25.2	24.6	23.9	24.4	25.2	25.1	24.9	24.4	24.9	25.9	26.5	26.7	26.7	26.6	25.7	25.1	24.6	24.6	24.5	24.3	24.4	24.8	Diurnal Average	
	38.6	38.5	38.5	38.4	38.2	37.9	38.9	37.5	36.0	35.3	35.5	36.1	36.7	40.3	40.1	40.5	40.4	39.4	39.9	39.3	38.9	39.6	38.9	38.9	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
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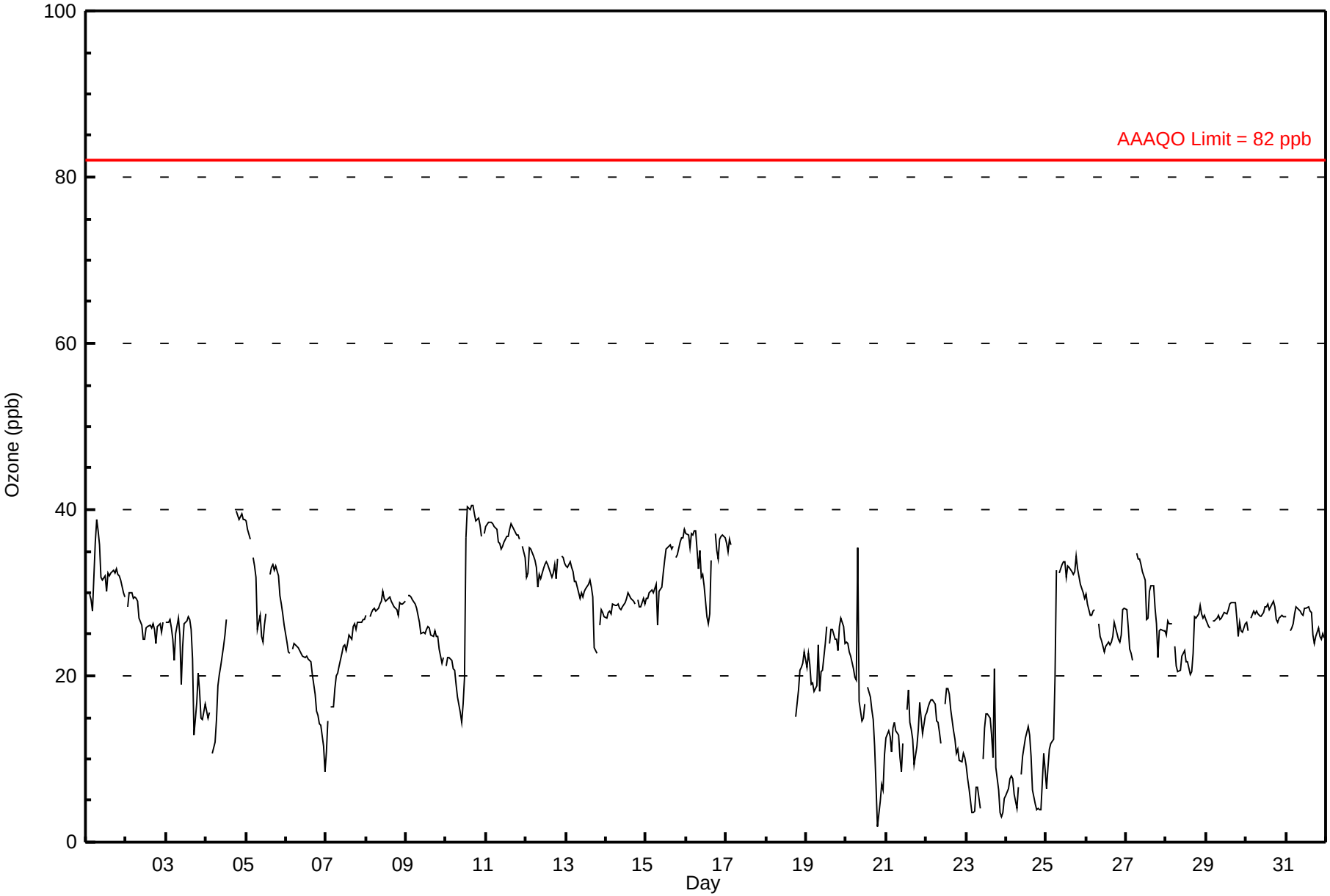
Hourly Averages for O_3 at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Portable-Spirit River - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 141.3 ppb on Dec 23 18:00

Maximum Daily Average: 38.3 ppb on Dec 11

Minimum Value: 3 ppb on Dec 20 20:00

Minimum Daily Average: 9.4 ppb on Dec 24

Maximum Diurnal Average: 33.5 ppb at hour 8

Minimum Diurnal Average: 25.3 ppb at hour 5

Monthly Average: 27.24 ppb

Percentiles: P_1 = 5.5 P_{10} = 14.6 Q_1 = 23.2 Median = 27.9 Q_3 = 32.5 P_{90} = 36.9 P_{99} = 41.6

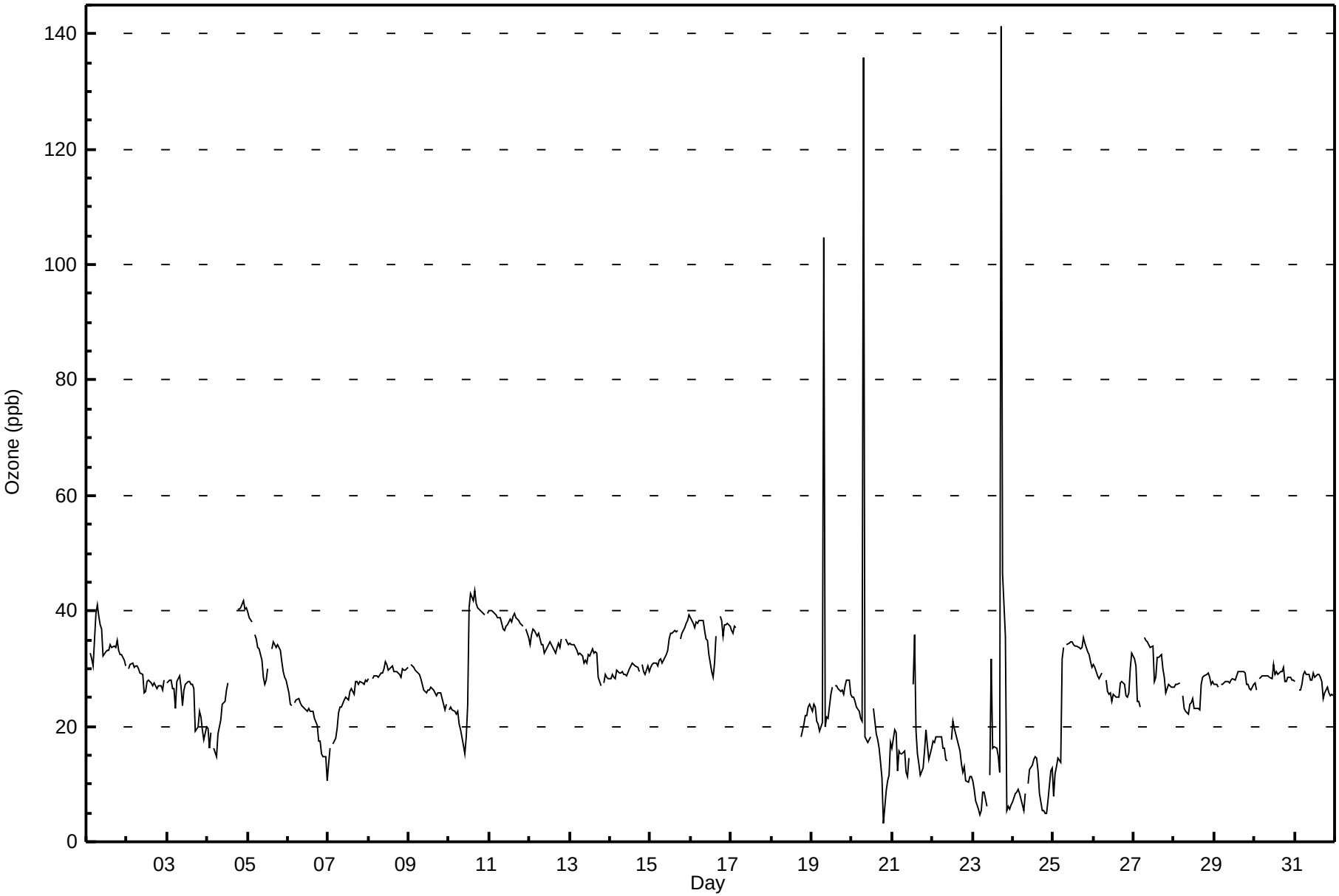
Hours in Service:	744
Hours of Data:	670
Hours of Missing Data:	74
Hours of Calibration:	35
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	27	A	33	32	30	40	41	39	38	37	32	33	33	33	34	34	34	34	35	33	33	33	31	30	33.8	41.1
2-Dec	A	30	31	31	30	31	30	30	29	29	26	26	28	28	28	27	28	27	27	27	27	26	28	A	28.3	31.0
3-Dec	27	28	28	26	27	23	28	29	27	24	26	27	28	28	27	27	27	19	20	23	22	19	18	20	24.9	28.8
4-Dec	20	16	19	A	16	15	19	20	21	24	24	26	28	C	C	C	C	A	40	40	40	42	40	41	27.3	41.8
5-Dec	40	39	38	A	36	35	34	34	31	29	27	28	30	P	33	35	34	34	34	33	31	29	28	28	32.7	39.9
6-Dec	26	24	24	A	24	25	25	24	24	23	23	23	23	23	23	23	21	20	17	17	15	15	15	11	21.2	25.8
7-Dec	13	16	A	17	18	20	22	23	23	25	25	25	25	26	26	26	28	28	27	28	27	27	28	28	24.0	28.0
8-Dec	28	A	28	29	29	29	28	29	29	30	31	31	30	30	31	30	30	29	29	29	30	30	30	30	29.5	31.1
9-Dec	A	31	30	30	30	29	29	28	27	26	26	26	26	27	27	26	25	26	26	26	25	23	24	A	27.0	30.6
10-Dec	23	23	23	23	22	23	20	19	17	15	18	24	41	43	42	44	41	40	40	40	40	39	A	40	30.4	43.6
11-Dec	40	40	40	39	39	39	39	38	37	37	37	38	39	38	39	39	39	38	38	38	37	A	37	35	38.3	40.0
12-Dec	34	36	37	37	36	36	35	34	34	33	34	34	35	34	34	33	34	34	34	35	A	35	35	34	34.6	36.9
13-Dec	34	34	34	34	33	32	33	32	31	31	31	33	32	33	33	33	33	28	27	A	28	29	28	28	31.5	34.3
14-Dec	28	29	28	28	30	29	29	29	29	29	29	30	30	31	31	30	30	29	A	31	29	29	30	30	29.6	31.0
15-Dec	30	31	31	31	30	32	32	31	31	32	33	35	36	36	37	36	37	A	35	36	37	38	38	39	34.1	39.2
16-Dec	39	38	37	38	38	38	38	38	37	35	35	32	29	29	31	36	A	39	38	36	38	38	38	37	36.1	39.0
17-Dec	37	36	37	37	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	36.8	37.3
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	18	20	22	22	23	24	21.6	23.9
19-Dec	23	24	23	21	21	19	21	105	20	22	21	26	27	A	27	27	27	26	26	26	27	28	28	26	27.7	104.8
20-Dec	25	25	24	23	23	21	21	136	18	17	18	18	A	23	19	18	16	14	11	3	9	10	12	17	22.7	135.9
21-Dec	16	19	19	12	16	15	15	16	12	11	15	A	27	36	19	15	14	11	13	16	19	17	14	16	16.7	35.9
22-Dec	17	17	18	18	18	18	16	16	14	14	A	18	21	20	19	18	16	14	12	13	11	10	11	11	15.7	20.8
23-Dec	10	9	7	6	5	5	9	9	6	A	12	32	16	16	16	15	12	141	46	36	5	6	6	6	18.8	141.3
24-Dec	7	8	9	9	8	7	5	8	A	10	12	13	14	15	15	12	8	5	5	5	5	7	12	13	9.4	14.8
25-Dec	8	12	13	14	14	32	34	A	34	34	35	35	34	34	34	34	33	34	36	34	33	32	31	30	28.8	35.5
26-Dec	31	30	29	28	29	29	A	28	26	26	26	24	25	25	25	25	28	28	27	25	25	26	30	33	27.3	32.7
27-Dec	32	31	24	24	23	A	35	35	35	34	34	34	28	28	32	32	32	30	28	26	27	27	27	27	29.8	35.4
28-Dec	27	27	27	28	A	25	23	23	22	24	24	25	23	23	23	23	27	28	29	29	29	28	27	28	25.8	29.3
29-Dec	27	27	27	A	27	27	28	28	28	28	28	28	28	29	29	29	29	29	29	27	27	27	26	27	27.9	29.4
30-Dec	27	26	A	28	29	29	29	29	29	29	28	31	29	30	29	30	29	30	28	28	28	28	28	28	28.6	30.8
31-Dec	28	A	26	26	27	29	29	29	29	28	28	29	29	29	29	28	28	25	26	27	26	25	26	25	27.5	29.4
	25.9	26.2	26.6	25.8	25.3	26.2	26.7	33.5	26.4	26.2	26.4	28.0	28.3	28.7	28.2	28.0	27.4	31.2	27.7	27.1	26.0	25.8	25.9	26.5	Diurnal Average	
	40.0	39.9	39.9	39.5	39.4	39.6	41.1	135.9	37.5	36.8	37.4	37.7	40.6	43.1	41.9	43.6	41.3	141.3	46.4	40.4	40.5	41.8	40.4	40.6	Diurnal Maximum	

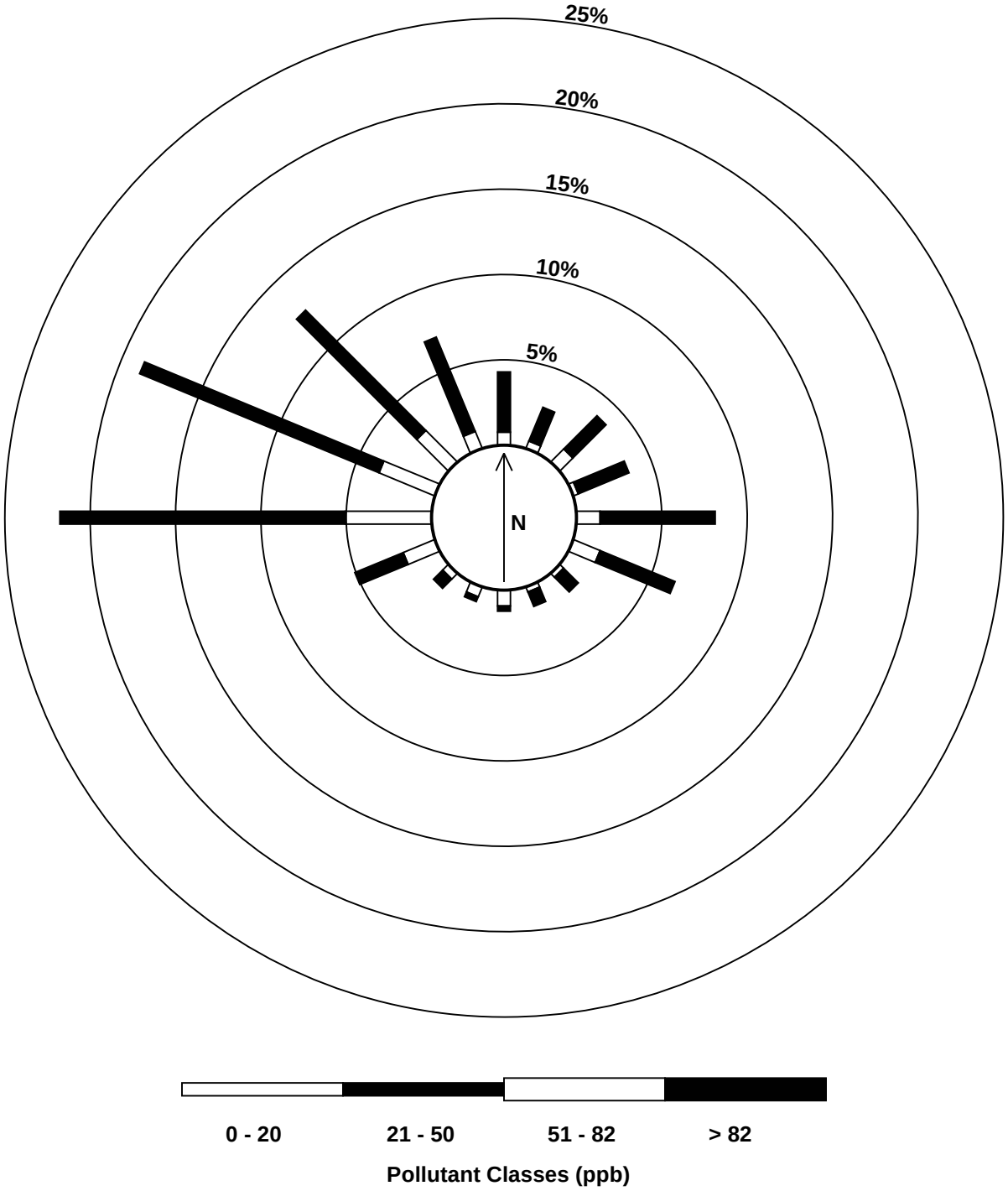
C - Calibration P - Power Failure A - Automated Daily Zero Span

75

Hourly Maximums for O_3 at Portable-Spirit River
December 2008



Pollutant Rose for O_3 at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Eight Hour Running Averages

Portable-Spirit River - Ozone (O_3) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedences (AAAQO): 8-hr: 0
Maximum Value: 39.6 ppb on Dec 10 21:00

Minimum Value: 4.9 ppb on Dec 23 10:00

Percentiles: P_1 = 5.7 P_{10} = 12.7 Q_1 = 21.2 Median = 26.7 Q_3 = 30.2 P_{90} = 34.4 P_{99} = 38.9

Hours in Service:	744
Hours of Data:	695
Hours of Missing Data:	49
Hours of Calibration:	8
Percent Operational Time:	94.5

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	27	27	27	27	27	28	30	32	34	33	34	34	34	34	33	32	32	32	32	32	32	32	32	32	34.2
2-Dec	31	31	31	30	30	30	29	29	29	29	28	27	27	27	26	26	26	26	25	26	26	26	26	26	31.5
3-Dec	26	26	26	26	26	25	25	25	25	24	24	24	24	25	25	25	25	24	23	22	21	20	18	17	26.2
4-Dec	16	17	16	16	15	14	14	15	15	16	17	18	20	21	23	N	N	N	N	N	N	N	N	39	39.2
5-Dec	39	39	39	38	38	37	36	34	32	31	29	28	28	27	27	28	29	30	31	32	32	32	31	30	39.1
6-Dec	29	28	27	26	25	24	24	23	23	23	23	23	23	23	23	22	22	21	20	20	19	18	16	15	29.3
7-Dec	14	13	13	13	13	14	15	17	18	19	20	21	22	22	23	23	24	24	25	25	26	26	26	26	26.3
8-Dec	27	27	27	27	27	27	28	28	28	28	28	29	29	29	29	29	29	29	29	29	29	29	28	28	29.2
9-Dec	28	29	29	29	29	29	29	29	29	28	27	27	26	26	26	26	25	25	25	25	25	24	24	24	29.2
10-Dec	23	23	22	22	22	22	21	21	20	19	18	18	20	22	25	28	31	34	37	39	40	39	39	39	39.6
11-Dec	38	38	38	38	38	38	38	38	38	37	37	37	36	36	36	37	37	37	37	37	37	37	37	36	38.2
12-Dec	36	35	35	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	35.6
13-Dec	34	33	34	34	33	33	33	32	32	31	31	31	30	30	30	30	30	30	29	28	28	27	27	26	33.8
14-Dec	26	27	27	27	28	28	28	28	28	28	28	28	29	29	29	29	29	29	29	29	29	29	29	29	29.3
15-Dec	29	29	29	29	29	30	30	30	30	30	30	31	31	32	32	34	34	35	35	35	35	35	36	36	35.9
16-Dec	36	36	36	37	37	37	37	36	36	36	35	34	33	32	30	31	30	31	31	32	33	34	36	36	37.0
17-Dec	36	36	36	36	36	36	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	36.2
18-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	20	19.9
19-Dec	20	20	21	21	21	21	20	20	20	20	20	20	21	22	22	23	24	24	25	25	25	25	25	25	25.3
20-Dec	25	25	25	24	24	23	22	24	23	22	21	20	20	20	19	16	16	16	15	12	11	10	9	8	24.9
21-Dec	8	8	9	10	11	12	13	13	13	12	12	12	12	13	13	13	14	14	14	14	14	13	13	13	13.7
22-Dec	14	15	15	16	16	16	16	16	16	15	15	15	15	15	16	16	16	16	16	15	14	13	12	11	16.2
23-Dec	10	10	9	8	8	7	6	6	5	5	5	7	9	10	11	12	13	14	14	13	12	10	9	8	14.2
24-Dec	7	5	5	5	6	6	6	6	7	7	7	8	9	10	11	12	11	11	10	9	7	6	6	6	11.7
25-Dec	6	6	7	8	9	11	14	15	18	22	25	28	31	33	33	33	33	33	33	33	33	32	32	32	33.0
26-Dec	31	31	30	29	29	29	28	28	27	27	26	25	25	24	24	24	24	24	24	24	25	25	25	26	31.3
27-Dec	26	26	26	26	25	25	26	27	28	29	30	32	32	32	31	31	30	30	29	28	28	27	27	26	32.5
28-Dec	25	25	25	26	26	26	25	24	24	23	22	22	22	22	22	22	22	22	23	24	24	25	26	27	26.8
29-Dec	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	28	28	28	28	28	28	27	27	27	28.2
30-Dec	26	26	26	26	26	27	27	27	27	27	27	28	28	28	28	28	28	28	28	28	28	28	28	27	28.3
31-Dec	27	27	27	27	27	27	27	27	27	27	27	28	28	28	28	28	27	27	27	26	26	26	25	25	27.9
	39.1	38.9	38.5	38.4	37.9	38.1	38.1	37.9	37.7	37.3	36.9	36.6	36.4	36.3	36.3	36.5	36.8	37.0	37.2	39.4	39.6	39.1	39.0	39.2	
	Diurnal Maximums																								

N - Not Valid
75

Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - External Temperature (ET) - ^{o}C
December 1, 2008 to January 1, 2009

Maximum Value: 8.3 ^{o}C on Dec 1 03:00

Maximum Daily Average: 1.3 ^{o}C on Dec 1

Minimum Value: -35 ^{o}C on Dec 21 09:00

Maximum Diurnal Average: -15.4 ^{o}C at hour 15

Monthly Average: -16.59 ^{o}C

Minimum Daily Average: -31.7 ^{o}C on Dec 21

Minimum Diurnal Average: -17.4 ^{o}C at hour 10

Percentiles: P_1 = -33.0 P_{10} = -29.6 Q_1 = -25.0 Median = -17.2 Q_3 = -8.4 P_{90} = -1.4 P_{99} = 3.8

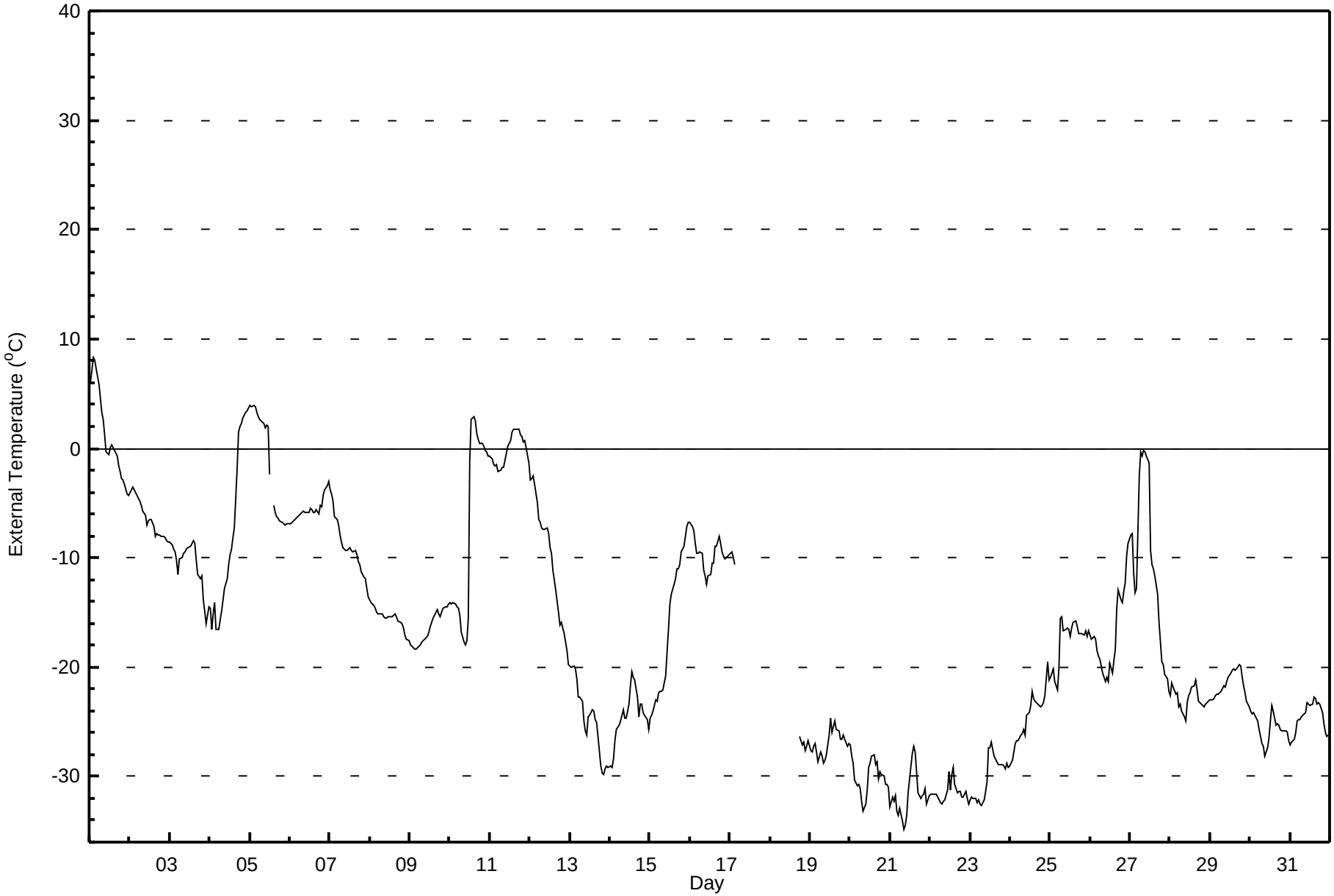
Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	0
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	6	7	8	8	7	6	5	3	3	1	0	-1	0	0	0	0	-1	-2	-2	-3	-3	-3	-4	-4	1.3	8.3
2-Dec	-4	-4	-4	-4	-4	-5	-5	-5	-6	-6	-7	-7	-7	-6	-7	-8	-8	-8	-8	-8	-8	-8	-8	-9	-6.4	-3.6
3-Dec	-9	-9	-9	-9	-10	-12	-10	-10	-10	-9	-9	-9	-9	-9	-8	-9	-10	-12	-12	-12	-14	-15	-16	-15	-10.6	-8.4
4-Dec	-15	-17	-15	-14	-17	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-2	1	2	2	3	3	3	4	-8.0	3.7
5-Dec	4	4	4	4	3	3	3	2	2	2	2	2	-2	P	-5	-6	-6	-6	-7	-7	-7	-7	-7	-7	-1.4	3.9
6-Dec	-7	-7	-7	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-5	-5	-4	-4	-3	-3	-5.6	-3.1
7-Dec	-4	-4	-5	-6	-7	-7	-8	-9	-9	-9	-9	-9	-9	-9	-9	-9	-10	-10	-11	-11	-12	-12	-13	-14	-9.0	-3.7
8-Dec	-14	-14	-14	-15	-15	-15	-15	-15	-15	-16	-16	-15	-15	-15	-15	-15	-15	-16	-16	-16	-16	-17	-17	-18	-15.5	-13.8
9-Dec	-18	-18	-18	-18	-18	-18	-18	-18	-18	-17	-17	-17	-16	-16	-16	-15	-15	-15	-15	-15	-15	-14	-14	-14	-16.4	-14.2
10-Dec	-14	-14	-14	-14	-15	-15	-15	-17	-18	-18	-18	-16	-1	3	3	2	1	1	0	0	0	0	0	-1	-7.4	2.9
11-Dec	-1	-1	-1	-2	-1	-2	-2	-2	-2	-1	0	0	1	1	2	2	2	2	1	1	1	1	0	-1	-0.2	1.8
12-Dec	-3	-3	-3	-3	-5	-6	-7	-7	-7	-7	-7	-8	-9	-10	-11	-13	-14	-15	-16	-16	-17	-18	-19	-20	-10.1	-2.5
13-Dec	-20	-20	-20	-20	-21	-23	-23	-23	-25	-26	-26	-25	-24	-24	-24	-25	-25	-26	-29	-30	-30	-29	-29	-29	-24.8	-19.9
14-Dec	-29	-29	-28	-27	-26	-25	-25	-24	-24	-25	-25	-23	-22	-20	-21	-21	-23	-25	-23	-23	-24	-24	-25	-26	-24.5	-20.5
15-Dec	-25	-24	-24	-23	-23	-22	-22	-22	-22	-21	-19	-17	-14	-13	-12	-12	-11	-11	-11	-9	-9	-8	-7	-7	-16.2	-6.7
16-Dec	-7	-7	-8	-9	-10	-10	-9	-10	-11	-12	-12	-12	-12	-11	-11	-9	-9	-8	-9	-9	-10	-10	-10	-10	-9.7	-6.7
17-Dec	-10	-10	-10	-11	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-9.9	-9.5
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-26	-27	-27	-28	-27	-27	-27.0	-26.4
19-Dec	-28	-28	-27	-27	-28	-29	-28	-28	-29	-29	-28	-26	-25	-26	-25	-25	-26	-26	-27	-27	-26	-27	-27	-27	-26.9	-24.7
20-Dec	-27	-28	-29	-30	-31	-31	-31	-32	-33	-33	-31	-29	-29	-28	-28	-29	-29	-30	-30	-30	-30	-31	-31	-31	-30.0	-27.1
21-Dec	-33	-32	-32	-32	-33	-34	-33	-34	-35	-34	-34	-32	-29	-28	-27	-28	-30	-32	-32	-32	-32	-31	-33	-32	-31.7	-27.2
22-Dec	-32	-32	-32	-32	-32	-32	-32	-33	-32	-32	-31	-30	-31	-30	-29	-31	-31	-31	-31	-32	-32	-31	-32	-32	-31.5	-29.1
23-Dec	-32	-32	-32	-32	-32	-32	-32	-33	-32	-31	-31	-27	-27	-27	-28	-28	-29	-29	-29	-29	-29	-29	-29	-29	-30.1	-26.8
24-Dec	-29	-28	-28	-27	-27	-27	-26	-26	-26	-26	-24	-24	-24	-22	-23	-23	-23	-24	-24	-23	-23	-23	-19	-21	-24.6	-19.5
25-Dec	-21	-21	-20	-21	-22	-20	-16	-15	-17	-17	-16	-16	-17	-16	-16	-16	-16	-17	-17	-17	-17	-17	-17	-17	-17.6	-15.4
26-Dec	-17	-17	-17	-17	-18	-19	-19	-20	-21	-21	-21	-21	-20	-21	-19	-18	-15	-13	-14	-14	-13	-12	-10	-9	-17.0	-8.7
27-Dec	-8	-8	-11	-13	-13	-2	0	-1	0	0	-1	-1	-9	-11	-11	-12	-13	-16	-18	-19	-20	-21	-21	-22	-10.5	-0.2
28-Dec	-23	-21	-22	-22	-22	-24	-23	-24	-25	-25	-23	-23	-22	-22	-22	-21	-22	-23	-23	-23	-24	-23	-23	-23	-22.9	-21.2
29-Dec	-23	-23	-23	-23	-22	-22	-22	-22	-22	-22	-21	-21	-21	-20	-20	-20	-20	-20	-20	-21	-22	-22	-23	-24	-21.6	-19.8
30-Dec	-24	-24	-24	-24	-25	-26	-26	-27	-27	-28	-27	-26	-25	-24	-24	-25	-25	-25	-26	-26	-26	-26	-26	-27	-25.6	-23.6
31-Dec	-27	-27	-27	-26	-25	-25	-25	-25	-24	-24	-23	-23	-23	-23	-23	-23	-23	-23	-23	-24	-25	-26	-26	-26	-24.6	-22.8
	-16.3	-16.4	-16.4	-16.6	-17.2	-17.1	-16.9	-17.1	-17.4	-17.4	-17.0	-16.3	-15.8	-15.8	-15.4	-15.5	-15.6	-16.0	-16.7	-16.9	-17.0	-17.1	-17.2	-17.3	Diurnal Average	
	6.1	7.2	8.3	8.1	7.3	5.8	4.5	3.3	2.7	1.9	2.1	2.1	0.7	2.7	2.9	2.5	1.7	1.8	2.0	2.2	2.7	3.4	3.4	3.7	Diurnal Maximum	

P - Power Failure

75

Hourly Averages for External Temperature at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River - Relative Humidity (RH) - %
December 1, 2008 to January 1, 2009

Maximum Value: 94.1 % on Dec 7 01:00

Maximum Daily Average: 92.2 % on Dec 6

Minimum Value: 50 % on Dec 1 08:00

Minimum Daily Average: 64.4 % on Dec 11

Maximum Diurnal Average: 75.4 % at hour 10

Minimum Diurnal Average: 71.2 % at hour 14

Monthly Average: 74.21 %

Percentiles: P_1 = 55.9 P_{10} = 65.3 Q_1 = 69.4 Median = 73.3 Q_3 = 79.8 P_{90} = 84.2 P_{99} = 93.2

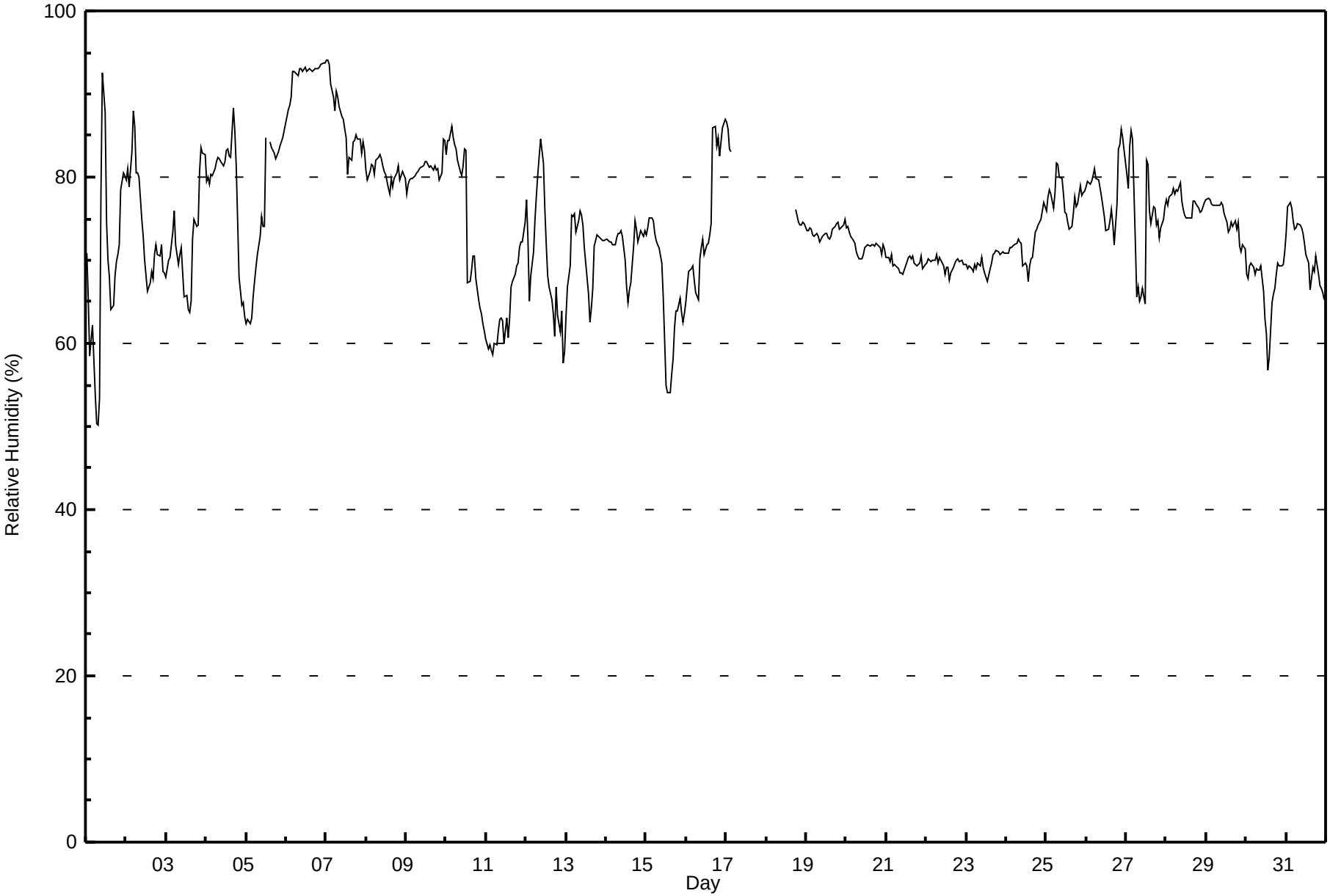
Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	39
Hours of Calibration:	0
Percent Operational Time:	94.8

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	71	65	58	60	62	54	50	50	53	78	93	88	75	70	68	64	65	68	70	71	72	78	81	80	68.5	92.6
2-Dec	80	81	79	83	88	86	80	81	80	75	73	70	68	66	67	69	68	71	72	71	71	72	69	68	74.4	87.9
3-Dec	68	70	70	72	73	76	72	69	71	71	68	66	66	64	64	65	73	75	74	74	81	84	83	83	72.1	83.6
4-Dec	80	80	79	80	80	81	82	82	82	82	81	82	83	83	83	82	88	86	81	75	68	64	65	63	78.9	88.3
5-Dec	62	63	62	63	66	67	69	71	73	75	74	74	85	P	84	84	83	83	82	83	84	84	85	86	75.7	85.6
6-Dec	87	88	89	90	93	93	92	92	93	93	93	93	93	93	93	93	93	93	93	93	93	94	94	94	92.2	93.8
7-Dec	94	94	94	91	90	88	90	90	89	87	87	86	85	80	82	82	84	84	85	85	85	83	84	83	86.7	94.1
8-Dec	81	80	81	81	81	80	82	82	83	82	81	81	80	79	78	80	79	80	80	81	80	80	81	80	80.5	82.7
9-Dec	78	79	80	80	80	80	80	81	81	81	81	82	82	82	81	81	81	81	81	81	80	80	85	84	80.9	84.6
10-Dec	83	84	84	86	85	84	83	82	81	80	81	83	83	67	68	69	71	71	68	65	64	63	62	61	75.4	86.1
11-Dec	61	59	60	59	59	60	60	62	63	63	63	60	63	61	63	67	67	68	69	70	72	72	72	75	64.4	74.5
12-Dec	77	73	65	68	71	75	78	80	83	85	82	76	72	68	67	65	64	61	67	63	61	64	58	59	70.0	84.6
13-Dec	63	67	69	75	75	76	73	75	76	75	74	71	70	66	63	64	67	72	73	73	73	73	72	72	71.1	75.9
14-Dec	72	72	72	72	72	72	73	73	73	74	73	70	67	65	66	67	72	75	74	72	73	74	73	74	71.6	74.8
15-Dec	73	74	75	75	75	73	72	72	72	70	66	60	55	54	54	56	58	62	64	64	65	64	63	64	65.8	75.2
16-Dec	65	69	69	69	69	68	66	65	70	72	73	71	72	72	73	74	86	86	84	85	83	84	86	87	74.8	87.0
17-Dec	87	86	83	83	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	84.7	86.6
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	76	75	74	74	75	74	74.7	76.2
19-Dec	73	74	74	74	73	73	73	73	72	73	73	73	73	73	73	73	74	74	74	75	74	74	74	75	73.4	74.9
20-Dec	74	74	73	73	72	72	71	71	70	70	71	71	72	72	72	72	72	72	72	72	72	71	72	71	71.8	74.0
21-Dec	70	70	70	71	69	69	69	69	68	68	68	69	70	70	71	70	70	70	69	69	70	70	69	70	69.6	70.7
22-Dec	70	70	70	70	70	70	71	70	70	70	69	68	69	69	68	68	69	70	70	70	70	70	70	70	69.6	70.7
23-Dec	70	69	69	69	69	69	69	70	69	70	69	69	68	67	69	70	71	71	71	71	71	71	71	71	69.7	71.2
24-Dec	71	71	71	71	72	72	72	73	72	72	69	70	69	67	69	70	70	73	74	74	75	75	77	76	71.9	76.9
25-Dec	76	78	78	78	76	78	82	82	80	80	78	76	76	75	74	74	76	78	76	77	79	78	78	78	77.5	81.8
26-Dec	79	80	79	79	80	81	80	80	79	78	76	75	74	74	75	76	74	72	77	83	84	86	85	83	78.7	85.7
27-Dec	80	79	84	86	85	72	66	67	65	66	67	65	82	82	76	74	76	76	74	75	73	74	75	76	74.7	85.6
28-Dec	77	77	78	78	79	78	78	78	79	77	76	75	75	75	75	75	77	77	77	76	76	76	76	77	76.8	79.3
29-Dec	77	77	77	77	77	77	77	77	77	77	77	76	75	73	74	75	74	75	74	75	72	71	72	71	75.0	77.4
30-Dec	68	68	69	70	69	68	69	69	69	69	66	63	61	57	58	65	66	67	68	70	69	69	70	71	67.0	71.1
31-Dec	73	76	77	76	75	74	74	74	74	74	73	72	71	70	67	68	69	69	71	68	67	67	66	65	71.2	76.9
	74.7	74.9	74.7	75.4	75.3	74.7	74.3	74.4	74.7	75.4	75.0	73.6	73.5	71.2	71.5	72.2	73.7	74.4	74.7	74.5	74.2	74.6	74.7	74.7	Diurnal Average	
	94.1	94.0	93.6	91.1	92.8	92.7	92.5	92.3	93.1	93.0	92.7	93.2	92.6	92.8	93.1	92.9	92.7	93.0	93.1	93.1	93.3	93.5	93.7	93.8	Diurnal Maximum	

P - Power Failure

75

Hourly Averages for Relative Humidity at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	15	15	23	15	11	14	14	13	11	18	10	10	10	9	8	9	9	8	9	7	6	4	3	4	8.9	22.8
Dir	195	222	236	254	272	278	270	269	275	322	303	286	289	293	286	304	304	308	308	304	301	295	291	288	276.5	235.7
2 Spd	3	3	7	9	5	6	7	5	4	7	9	9	8	7	9	5	6	5	3	3	4	4	4	4	5.7	9.5
Dir	293	297	311	317	305	305	305	302	290	305	308	308	311	308	316	306	305	301	299	296	296	300	301	304	305.6	316.7
3 Spd	3	4	6	3	2	2	3	4	1	1	1	2	2	2	0	1	5	6	8	4	1	1	1	3	1.1	7.9
Dir	306	318	320	306	296	283	311	324	268	300	315	316	305	246	10	100	126	171	183	171	198	9	237	248	265.7	182.7
4 Spd	2	4	3	2	3	2	2	2	2	2	1	3	4	4	3	3	6	18	22	19	16	12	10	10	4.2	22.3
Dir	90	14	155	111	310	289	305	307	321	337	16	90	58	49	67	67	275	262	259	260	263	270	269	268	272.0	258.8
5 Spd	10	9	8	7	5	5	4	3	2	2	2	3	21	P	20	16	11	10	11	13	14	14	11	10	4.2	20.8
Dir	267	269	276	279	291	288	283	285	292	285	256	98	107	P	104	104	98	85	83	102	106	105	116	107	104.8	106.9
6 Spd	11	8	10	10	11	9	9	9	8	5	3	5	3	3	4	3	2	7	3	6	1	1	1	0	2.8	11.3
Dir	108	101	103	104	104	101	101	104	99	62	20	342	327	319	339	327	278	242	310	347	298	298	306	268	83.2	107.7
7 Spd	4	5	8	13	11	12	14	13	12	8	7	7	7	10	7	4	9	11	6	7	6	5	10	14	6.9	14.4
Dir	48	47	92	117	127	118	111	107	110	86	78	66	43	64	45	15	5	10	31	42	59	86	97	120	82.6	111.3
8 Spd	14	13	15	14	12	11	8	7	8	9	9	8	8	8	5	5	6	6	5	4	9	10	10	10	7.9	14.7
Dir	118	97	95	91	78	74	89	43	41	36	44	32	23	27	38	31	19	44	45	58	80	80	84	84	67.6	95.4
9 Spd	14	11	10	10	14	15	17	18	19	18	15	13	12	10	9	6	2	8	4	8	3	2	3	1	8.2	19.0
Dir	96	93	81	87	97	100	97	102	104	108	111	105	95	101	103	102	61	354	321	324	292	295	315	298	93.6	103.6
10 Spd	1	3	2	4	4	3	1	3	2	1	1	3	9	10	7	9	9	8	8	10	9	9	11	11	4.6	10.8
Dir	271	244	136	147	147	152	253	259	269	267	10	29	273	270	280	281	279	278	272	267	269	269	264	265	267.1	264.3
11 Spd	10	11	13	13	12	12	15	15	15	14	11	10	23	10	9	10	7	8	6	7	5	6	11	8	10.3	23.5
Dir	267	264	261	261	262	262	261	262	261	259	262	264	255	264	269	268	275	271	269	269	274	312	330	324	268.0	255.4
12 Spd	2	3	9	8	7	5	6	4	7	5	12	21	27	28	28	25	19	12	8	20	23	22	20	10	13.1	28.2
Dir	299	307	317	314	310	316	335	343	347	316	333	3	5	5	6	4	357	349	341	4	7	4	355	326	353.5	6.1
13 Spd	6	5	8	6	6	5	3	6	3	4	4	3	3	5	3	4	4	7	10	9	9	9	6	5	4.4	9.9
Dir	317	318	330	344	334	332	9	343	301	294	281	291	272	334	330	3	265	261	247	253	257	257	264	267	295.0	246.8
14 Spd	8	5	6	8	6	4	5	4	3	4	4	3	3	3	4	3	3	5	5	4	3	4	6	9	4.6	9.2
Dir	257	266	265	260	268	278	285	280	286	286	286	275	277	279	284	281	273	266	282	287	288	283	263	252	272.1	251.8
15 Spd	5	5	4	5	5	5	5	4	3	5	5	5	5	5	6	6	8	6	8	7	8	8	7	6	5.5	7.9
Dir	266	265	274	276	279	269	282	283	288	285	282	282	278	279	283	273	276	289	285	281	282	284	286	285	279.9	281.9
16 Spd	5	5	5	5	5	6	6	6	3	0	7	2	3	1	5	4	4	12	14	13	15	16	14	12	5.9	16.4
Dir	291	289	282	282	282	278	276	276	296	15	138	171	228	25	343	288	287	325	314	314	317	321	319	319	304.9	321.4
17 Spd	10	20	28	30	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	20.8	29.5
Dir	313	333	2	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	351.2	4.7
18 Spd	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	10	6	4	7	7	4	6.2	9.5
Dir	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	246	265	270	262	263	267	260.0	246.3
19 Spd	1	2	3	3	1	0	2	1	1	1	3	1	1	1	1	2	3	2	4	4	1	0	1	2	1.4	4.5
Dir	281	251	274	276	306	121	296	305	327	301	329	277	312	132	246	281	277	268	267	265	291	346	87	174	277.7	264.7
20 Spd	1	1	1	1	N	N	N	N	N	N	N	1	1	1	1	3	1	1	1	1	3	1	2	0	0.7	2.6
Dir	132	248	147	53	N	N	N	N	N	N	N	280	338	302	314	259	288	179	231	321	263	320	199	328	268.6	258.9
21 Spd	4	3	2	N	N	N	N	N	N	N	2	1	1	1	1	1	1	1	1	1	1	2	N	1	1.3	3.8
Dir	301	276	280	N	N	N	N	N	N	N	268	278	293	281	275	277	274	303	279	272	281	340	N	296	288.1	301.2
22 Spd	0	0	1	1	1	2	2	3	1	1	1	1	0	1	0	0	1	1	1	2	2	3	2	4	0.7	4.3
Dir	333	111	256	164	252	174	57	269	34	253	36	198	72	43	50	244	317	272	271	355	268	281	291	272	283.4	271.8

Peace Airshed Zone Association
Summary of Hourly Averages

Portable-Spirit River
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
23 Spd	3	1	2	2	N	2	N	4	1	1	1	0	1	1	2	1	1	1	1	0	1	2	2	1	0.8	3.5
Dir	269	288	268	285	N	288	N	256	204	177	113	54	26	304	89	216	258	305	250	84	287	287	292	318	272.2	256.4
24 Spd	2	1	0	1	1	2	1	3	0	1	0	1	0	1	0	1	1	2	2	2	3	2	0	2	0.3	2.8
Dir	289	300	326	91	86	84	35	345	330	102	285	272	95	100	292	103	92	305	307	271	278	265	8	104	330.8	278.0
25 Spd	2	1	0	2	1	2	3	4	2	4	4	3	3	4	1	2	2	4	3	1	2	1	4	2	1.4	4.2
Dir	104	233	336	11	322	275	278	280	283	280	280	287	321	327	324	263	316	250	254	250	212	294	118	60	284.6	280.3
26 Spd	4	4	0	3	2	3	1	3	2	1	0	2	0	2	2	0	5	7	7	5	2	4	6	7	1.4	7.3
Dir	67	54	227	338	309	278	291	299	329	349	334	308	97	72	302	254	119	95	67	75	7	48	127	128	66.8	94.8
27 Spd	10	6	6	4	2	15	22	12	11	9	8	5	8	4	9	6	7	5	4	2	2	2	2	2	4.1	21.8
Dir	151	148	299	288	318	262	249	260	263	264	263	291	29	77	352	314	333	332	314	298	300	298	299	302	280.9	249.2
28 Spd	4	4	4	3	5	5	4	2	4	3	3	3	3	2	2	1	8	7	2	3	5	4	6	8	0.5	7.8
Dir	264	276	270	288	253	233	215	170	287	284	281	300	317	324	260	134	124	110	116	96	91	93	115	93	188.2	123.5
29 Spd	6	6	6	4	7	6	4	2	3	4	4	4	7	10	7	9	6	5	3	4	5	6	7	7	2.9	9.6
Dir	85	56	66	76	103	111	135	100	325	345	333	346	332	340	354	355	358	343	298	290	286	286	290	288	352.3	340.4
30 Spd	6	6	6	5	4	3	4	4	3	2	3	3	3	2	2	4	4	3	3	6	6	10	13	10	0.6	13.3
Dir	287	288	289	290	291	288	287	281	287	250	281	284	283	312	63	72	94	142	80	87	106	91	94	92	39.6	94.0
31 Spd	10	11	9	7	13	13	12	9	8	6	2	4	6	5	2	2	3	4	4	5	4	4	6	5	3.4	12.9
Dir	95	85	74	51	60	49	37	40	24	17	308	342	344	345	339	251	274	279	284	288	277	271	273	282	23.6	49.1
Spd	0.6	1.1	1.8	1.7	0.7	0.9	1.3	1.5	1.3	1.9	1.7	2.2	2.5	2.9	2.6	2.2	2.1	2.7	3.0	2.8	2.4	2.3	1.6	1.3	Diurnal Average	
Dir	216.6	309.6	319.2	337.6	328.0	288.8	284.9	299.2	313.5	321.9	315.1	332.7	338.5	342.2	354.2	336.7	327.0	307.0	288.8	306.8	306.1	318.3	314.8	292.5		
Spd	14.9	20.1	27.9	29.5	13.9	15.4	21.8	18.2	19.0	18.4	15.4	20.6	27.2	27.8	28.2	25.5	19.4	18.0	22.3	20.0	22.6	21.9	19.6	13.8	Diurnal Maximum	
Dir	195.4	333.5	2.5	4.7	97.3	99.9	249.2	101.9	103.6	107.7	110.9	2.6	5.0	5.2	6.1	4.2	356.6	261.6	258.8	3.5	7.4	3.8	354.8	119.6		

Maximum Speed Value: 30 km/h on Dec 17 04:00
Maximum Daily Speed Average: 20.8 km/h on Dec 17
Maximum Diurnal Speed Average: 3.0 km/h at hour 19

Minimum Speed Value: 0 km/h on Dec 22 01:00
Minimum Daily Speed Average: 0.3 km/h on Dec 24
Minimum Diurnal Speed Average: 0.6 km/h at hour 1

Monthly Average Velocity: 1.77 km/h 317.73 deg

Speed Percentiles: $P_1 = 0.2$ $P_{10} = 0.9$ $Q_1 = 2.2$ Median = 4.4 $Q_3 = 8.2$ $P_{90} = 12.2$ $P_{99} = 22.7$

All monthly, daily, and diurnal averages have been calculated using vector methods

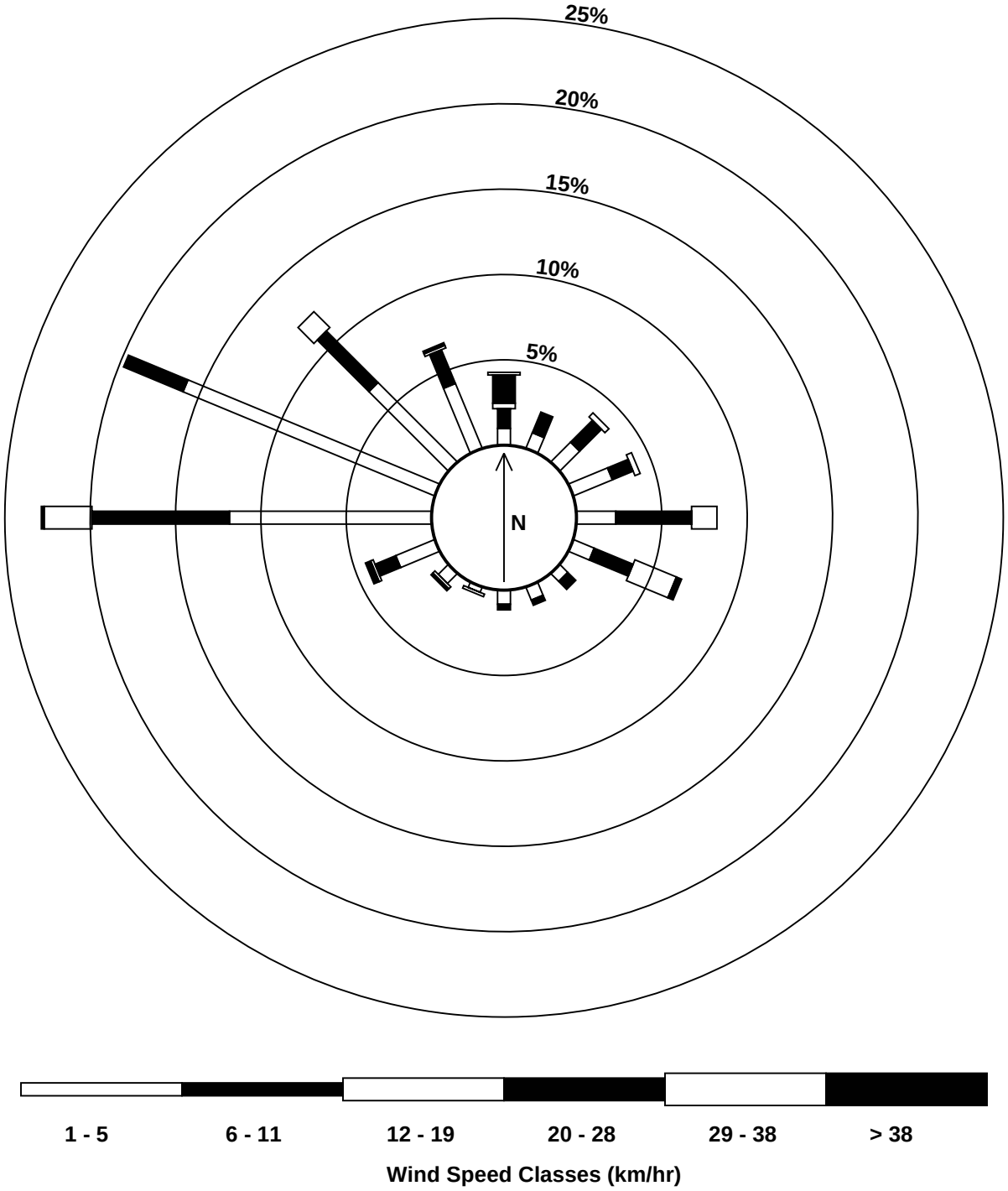
Hours in Service:	744
Hours of Data:	688
Hours of Missing Data:	56
Percent Operational Time:	92.5

P - Power Failure N - Not Valid

Percentage Frequency Distribution

Direction	Speed Range (km/h) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	4.22	2.47	0.15	1.45	0.29	0.00	8.58
NorthEast	3.78	3.49	0.44	0.00	0.00	0.00	7.70
East	4.80	5.67	3.63	0.29	0.00	0.00	14.39
SouthEast	2.33	1.31	0.73	0.00	0.00	0.00	4.36
South	1.60	0.29	0.15	0.00	0.00	0.00	2.03
SouthWest	2.03	0.44	0.15	0.15	0.00	0.00	2.76
West	22.09	12.65	2.76	0.58	0.00	0.00	38.08
NorthWest	14.68	5.96	1.31	0.15	0.00	0.00	22.09
Total	55.52	32.27	9.30	2.62	0.29	0.00	100.00

Wind Rose for WS at Portable-Spirit River
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages - Wind Speed (Scalar)

Portable-Spirit River - Wind Speed (WS) - km/h
December 1, 2008 to January 1, 2009

Maximum Speed: 30 km/h on Dec 17 04:00

Maximum Daily Speed Average: 22.0 km/h on Dec 17

Minimum Speed: 1 km/h on Dec 23 20:00

Minimum Daily Speed Average: 1.4 km/h on Dec 23

Maximum Diurnal Speed Average: 7.1 km/h at hour 3

Minimum Diurnal Speed Average: 4.9 km/h at hour 11

Monthly Average Speed: 5.99 km/h

Percentiles: $P_1 = 0.7$ $P_{10} = 1.3$ $Q_1 = 2.5$ Median = 4.5 $Q_3 = 8.3$ $P_{90} = 12.2$ $P_{99} = 22.7$

Hours in Service:	744
Hours of Data:	688
Hours of Missing Data:	56
Percent Operational Time:	92.5

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	15	15	23	15	11	14	14	13	11	19	10	10	10	9	8	9	9	8	9	7	6	5	3	4	10.6	22.8
2-Dec	3	3	7	10	5	6	7	5	4	7	9	9	8	8	9	5	6	5	4	3	4	4	4	4	5.7	9.5
3-Dec	3	4	6	3	2	2	3	4	2	1	1	2	3	2	1	1	5	6	8	4	1	1	2	3	2.9	8.0
4-Dec	3	4	3	3	3	2	2	2	2	2	2	3	5	4	3	3	6	18	22	19	16	12	10	10	6.7	22.3
5-Dec	10	9	8	7	6	5	4	3	2	2	2	5	21	P	20	16	12	10	11	13	14	14	12	10	9.4	20.8
6-Dec	11	8	11	11	11	10	9	9	8	5	4	5	3	3	4	3	2	7	4	6	1	1	1	1	5.7	11.4
7-Dec	4	5	9	13	11	12	14	13	12	8	7	7	7	10	7	4	9	11	6	7	6	5	10	14	8.8	14.4
8-Dec	14	13	15	14	12	11	8	7	8	9	10	9	8	8	5	5	6	7	5	4	9	10	10	10	9.1	14.8
9-Dec	14	11	10	10	14	15	17	18	19	18	15	14	12	10	9	6	2	8	4	8	3	2	3	2	10.3	19.0
10-Dec	1	3	2	5	4	3	1	3	2	1	2	3	9	10	7	9	9	8	8	10	9	9	11	11	5.9	10.8
11-Dec	10	11	13	13	12	12	15	15	15	14	11	10	24	10	9	10	7	8	6	7	5	6	11	8	10.9	23.5
12-Dec	2	3	9	8	7	5	6	4	8	5	12	21	27	28	28	26	19	12	9	21	23	22	20	10	13.9	28.3
13-Dec	6	5	8	6	6	5	4	6	3	4	4	3	3	5	3	5	4	7	10	9	9	9	6	5	5.7	9.9
14-Dec	8	5	6	8	6	5	5	4	3	4	4	3	3	3	4	4	3	5	5	4	3	4	6	9	4.8	9.2
15-Dec	5	5	4	5	5	5	5	4	3	5	5	5	5	6	6	6	8	6	8	7	8	8	7	6	5.6	7.9
16-Dec	5	6	5	5	5	6	6	6	4	5	7	3	4	1	5	4	4	12	14	13	15	16	14	12	7.4	16.4
17-Dec	10	20	28	30	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	22.0	29.6
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	10	6	4	7	7	5	6.3	9.5
19-Dec	2	3	3	3	1	1	2	1	1	1	3	2	1	2	1	2	3	3	4	4	1	1	2	2	2.0	4.5
20-Dec	1	2	1	3	N	N	N	N	N	N	N	1	1	1	1	3	1	2	2	2	3	1	2	2	1.7	2.8
21-Dec	4	3	2	N	N	N	N	N	N	N	3	1	1	1	1	1	1	1	1	1	1	2	N	1	1.6	4.2
22-Dec	1	1	1	1	1	2	3	3	2	2	1	1	2	1	1	1	1	1	2	3	2	3	2	4	1.7	4.3
23-Dec	3	1	2	2	N	2	N	4	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	1	1.4	3.5
24-Dec	2	1	1	1	1	2	1	3	1	2	1	1	1	1	1	1	2	2	2	2	3	2	2	4	1.7	3.8
25-Dec	2	1	1	2	1	2	3	4	2	4	4	3	3	4	2	2	2	4	3	1	2	2	4	2	2.5	4.2
26-Dec	4	4	1	3	3	3	2	3	2	1	1	2	1	2	2	1	6	8	7	5	3	4	6	7	3.4	7.9
27-Dec	10	8	6	6	2	16	22	12	11	9	8	6	11	5	10	7	7	6	4	2	2	2	2	3	7.4	21.9
28-Dec	4	4	4	3	5	5	4	2	4	3	3	3	3	2	2	1	8	7	3	3	5	4	6	8	4.0	7.8
29-Dec	6	6	6	4	7	6	4	2	3	5	4	4	7	10	7	10	7	5	4	4	6	6	7	7	5.7	9.7
30-Dec	6	6	6	5	5	4	4	4	3	3	3	3	3	2	2	4	4	4	3	6	7	10	13	10	4.8	13.4
31-Dec	10	11	10	7	13	13	12	9	8	7	2	5	7	5	2	2	3	4	4	5	4	4	6	5	6.5	13.1
	6.0	6.0	7.1	7.0	6.1	6.4	6.8	6.0	5.4	5.4	4.9	5.0	6.7	5.5	5.6	5.3	5.4	6.4	6.0	6.2	5.9	6.0	6.6	5.9	Diurnal Average	
	15.0	20.3	28.1	29.6	14.0	15.8	21.9	18.2	19.0	18.6	15.4	20.9	27.2	27.8	28.3	25.6	19.5	18.1	22.3	20.6	22.7	22.0	19.9	13.9	Diurnal Maximum	

P - Power Failure N - Not Valid

All monthly, daily, and diurnal averages have been calculated using scalar methods

Maximum Value: 95.8 deg on Dec 24 23:00

Minimum Value: 1.9 deg on Dec 9 09:00

Percentiles: P_1 = 2.7 P_{10} = 5.2 Q_1 = 7.3 Median = 11.2 Q_3 = 26.6 P_{90} = 54.8 P_{99} = 88.5

Hours in Service:	744
Hours of Data:	688
Hours of Missing Data:	56
Hours of Calibration:	0
Percent Operational Time:	92.5

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	9	4	3	9	9	7	7	6	8	10	12	7	7	7	9	7	6	6	7	10	8	7	8	16	16.1
2-Dec	21	12	7	7	10	8	5	11	8	5	4	5	5	6	4	9	6	9	9	12	9	7	11	8	20.9
3-Dec	26	9	8	8	10	10	9	19	33	56	63	27	28	21	76	77	17	18	6	19	72	70	58	20	76.6
4-Dec	58	44	30	69	35	21	20	31	36	41	65	37	16	25	21	24	49	5	3	4	5	7	7	7	69.1
5-Dec	7	7	8	11	12	10	10	16	15	15	20	66	4	P	5	4	10	8	6	7	8	10	12	12	66.2
6-Dec	6	9	8	5	6	6	6	5	9	10	29	10	25	19	16	25	27	29	49	19	20	29	44	66	66.1
7-Dec	23	6	19	5	6	7	5	7	10	9	5	13	13	8	11	18	5	5	15	11	10	8	9	7	23.3
8-Dec	5	10	6	8	8	5	6	17	8	4	9	14	10	8	8	11	13	14	7	7	7	5	4	8	17.1
9-Dec	5	8	4	5	6	3	2	2	2	2	3	5	5	7	8	9	41	19	31	10	28	34	10	39	41.0
10-Dec	33	29	42	17	15	24	65	10	24	45	70	31	35	7	7	8	7	7	7	5	6	5	5	6	69.8
11-Dec	6	6	4	3	4	3	3	3	3	3	3	6	3	9	10	9	8	7	8	8	8	21	7	8	20.8
12-Dec	31	16	6	6	3	4	13	16	20	6	6	11	4	5	4	4	5	19	19	14	4	5	9	7	31.3
13-Dec	5	5	8	10	10	10	24	16	18	17	15	13	22	20	21	44	19	9	6	10	5	6	11	14	44.2
14-Dec	5	7	9	9	8	10	11	8	10	6	6	14	10	9	5	5	8	16	4	9	8	4	10	7	15.6
15-Dec	5	6	6	6	7	7	6	7	12	7	8	10	10	11	10	15	11	8	7	9	6	7	8	9	14.8
16-Dec	8	6	8	6	7	8	10	9	15	86	7	53	51	80	25	19	13	7	4	4	4	4	4	4	86.1
17-Dec	3	9	8	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	8.8
18-Dec	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	5	5	6	3	3	34	34.0
19-Dec	49	31	8	24	41	87	8	10	44	16	12	25	52	86	63	7	15	17	7	7	28	89	39	26	89.0
20-Dec	61	65	39	64	N	N	N	N	N	N	N	45	38	37	37	34	32	79	46	44	21	50	37	92	92.3
21-Dec	27	27	25	N	N	N	N	N	N	N	32	14	32	44	52	19	31	65	63	39	68	44	N	46	67.9
22-Dec	85	93	61	62	43	64	54	26	67	33	48	81	76	64	50	86	53	58	67	33	16	17	23	8	92.7
23-Dec	3	31	10	30	N	15	N	11	58	40	37	90	57	30	24	27	36	48	62	85	21	19	20	23	90.2
24-Dec	21	71	82	64	42	17	49	32	77	53	76	59	71	55	81	77	67	24	22	10	15	42	96	53	95.8
25-Dec	49	65	73	24	26	30	16	8	10	7	7	30	17	13	83	37	12	14	21	46	56	71	18	39	83.4
26-Dec	16	12	91	24	13	11	21	12	33	40	67	21	91	47	23	78	27	24	23	16	28	23	18	23	91.4
27-Dec	8	58	17	43	55	32	6	6	5	5	7	35	50	39	35	32	18	18	6	13	10	10	11	11	58.1
28-Dec	12	6	13	12	11	16	25	26	19	12	14	10	9	21	21	81	6	7	24	17	16	20	13	9	80.6
29-Dec	12	8	10	14	9	11	18	24	27	22	20	21	8	7	8	7	9	8	28	9	10	9	6	7	28.4
30-Dec	8	9	10	9	11	17	7	8	7	28	18	7	15	33	37	11	11	16	18	6	13	7	6	8	36.7
31-Dec	7	5	11	9	8	12	6	4	7	26	15	18	11	7	17	33	25	9	10	7	11	9	9	10	32.5
	85.5	92.7	91.4	69.1	55.1	86.6	64.6	32.1	76.7	86.1	75.9	90.2	91.4	86.4	83.4	85.8	66.9	79.2	67.0	85.1	71.7	89.0	95.8	92.3	

P - Power Failure N - Not Valid
75

PASZA
Valleyview Station
Monthly Summary Tables, Graphs and Roses

Peace Airshed Zone Association
Summary of Hourly Averages

Valleyview - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 12.4 ppb on Dec 11 00:00 Maximum Daily Average: 2.1 ppb on Dec 11

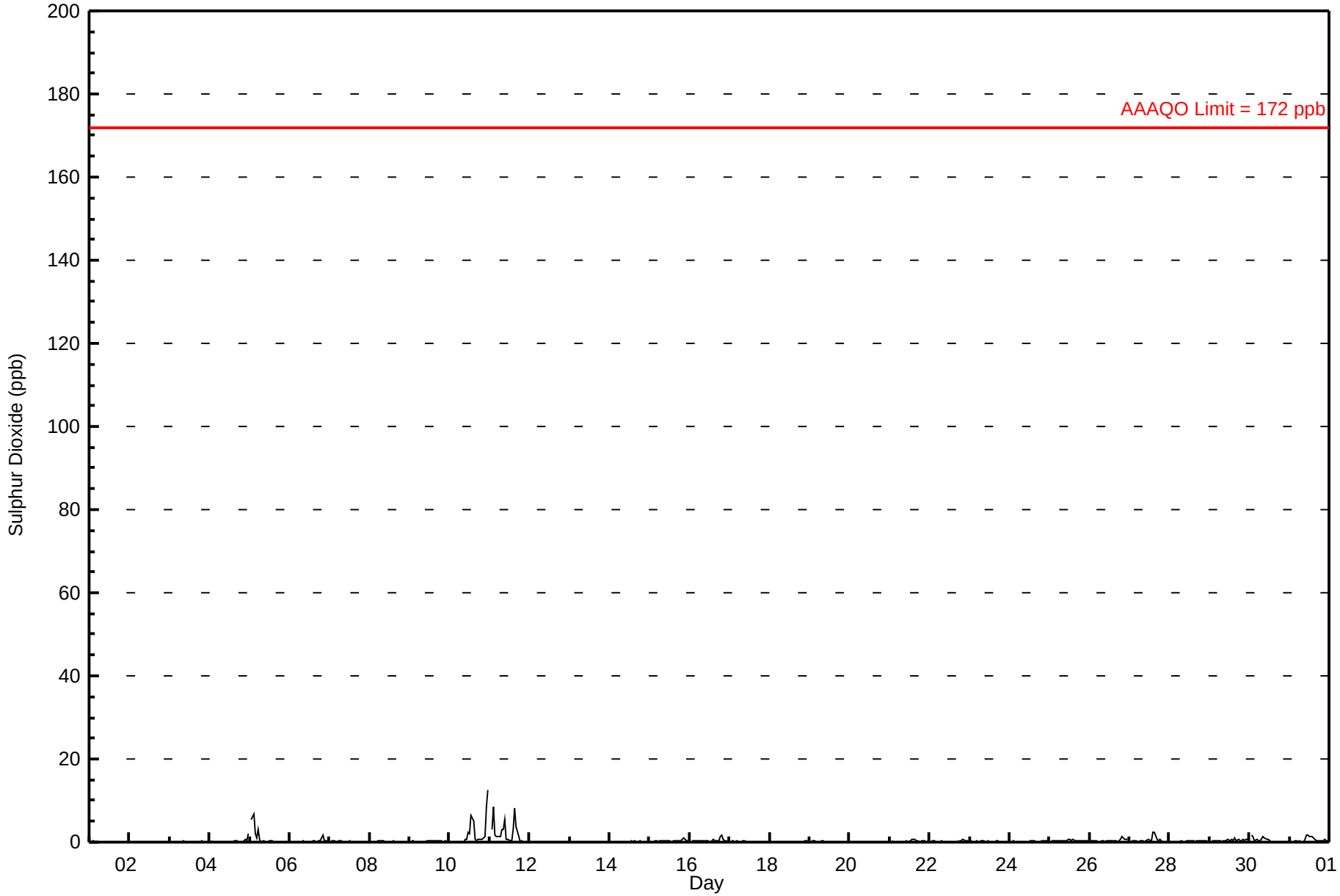
Minimum Value: 0 ppb on Dec 1 06:00 Minimum Daily Average: 0.0 ppb on Dec 2
Maximum Diurnal Average: 0.7 ppb at hour 3 Minimum Diurnal Average: 0.2 ppb at hour 7
Monthly Average: 0.34 ppb Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.0 Median = 0.1 Q_3 = 0.3 P_{90} = 0.6 P_{99} = 5.0

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.3
2-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
3-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
4-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0.2	2.1
5-Dec	A	6	7	2	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	6.8
6-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0.2	1.6
7-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
8-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
9-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5
10-Dec	A	0	0	0	0	0	0	0	0	1	1	2	2	7	5	1	0	1	1	1	1	1	8	12	1.9	12.4
11-Dec	A	3	8	2	1	1	1	3	3	6	1	1	0	0	3	8	4	1	0	0	0	0	0	0	2.1	8.4
12-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
13-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
15-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.3	0.9
16-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	1	0	0	0	0.4	1.6
17-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
18-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.4
19-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5
20-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
21-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0.2	0.8
22-Dec	A	0	0	0	0	0	0	0	0	0	0	C	C	C	A	A	0	0	0	0	1	0	0	0	0.3	0.7
23-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
24-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
25-Dec	A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0.4	0.6
26-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	0.4	1.5
27-Dec	A	0	0	0	0	0	0	0	0	0	0	1	0	0	3	2	1	0	1	0	0	0	0	0	0.5	2.5
28-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.2	0.5
29-Dec	A	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	1	0	1	1	0.4	1.1
30-Dec	A	2	1	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.6
31-Dec	A	0	0	0	0	0	0	0	0	1	2	2	1	1	1	1	0	0	0	0	0	1	0	0	0.5	1.6
	--	0.5	0.7	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.6	0.6	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.6	Diurnal Average	
	--	5.5	8.4	2.1	1.3	3.2	1.2	3.1	2.9	5.6	1.6	2.4	2.1	6.6	4.9	8.2	3.7	1.5	1.4	1.6	1.6	1.2	8.4	12.4	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 57 ppb

Hourly Averages for SO_2 at Valleyview
December 2008



Peace Airshed Zone Association
Summary of Hourly Maximums

Valleyview - Sulphur Dioxide (SO_2) - ppb
December 1, 2008 to January 1, 2009

Maximum Value: 19.0 ppb on Dec 11 16:00

Maximum Daily Average: 5.5 ppb on Dec 11

Minimum Value: 0 ppb on Dec 1 15:00

Minimum Daily Average: 0.6 ppb on Dec 17

Maximum Diurnal Average: 2.1 ppb at hour 16

Minimum Diurnal Average: 1.0 ppb at hour 7

Monthly Average: 1.39 ppb

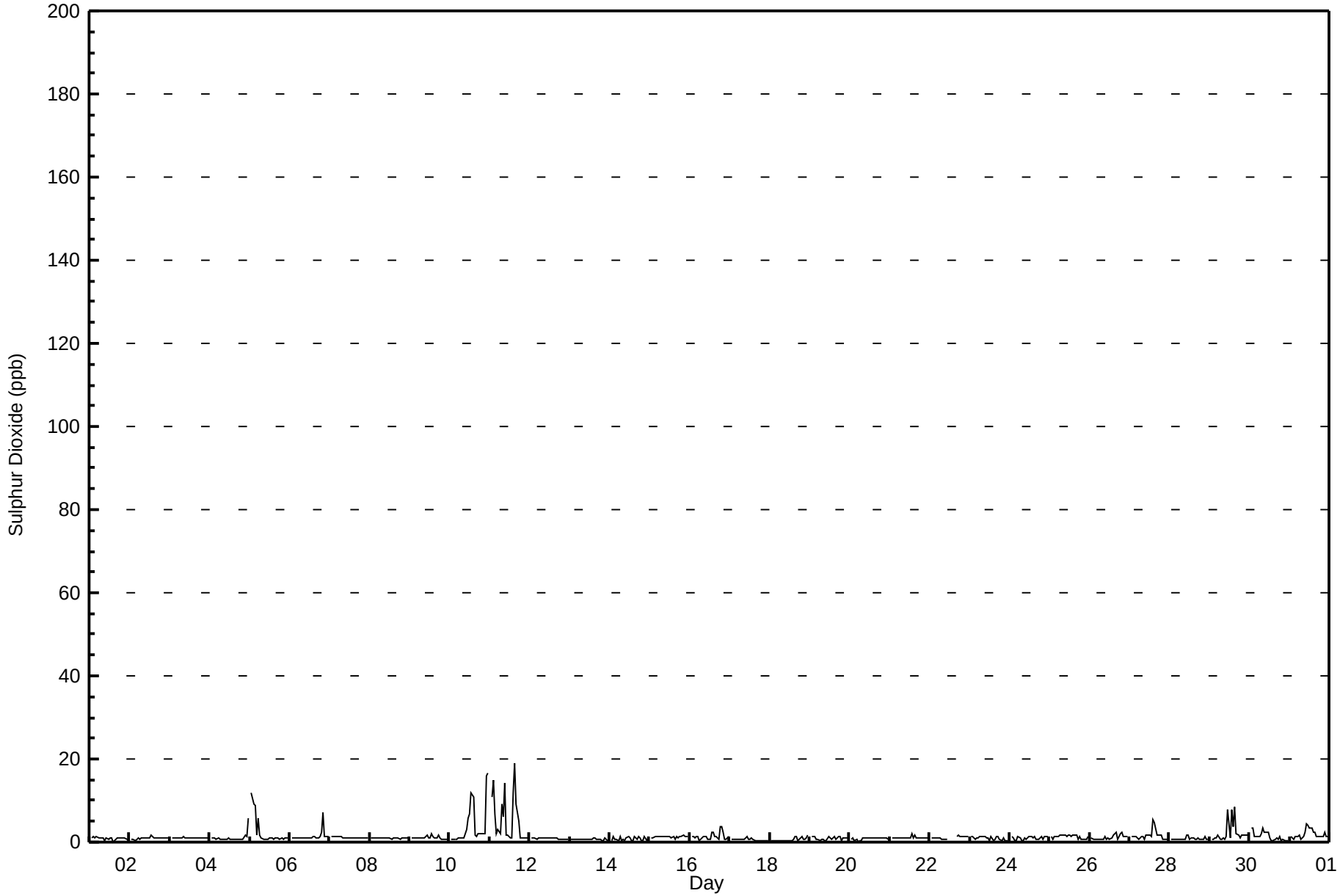
Percentiles: P_1 = 0.3 P_{10} = 0.5 Q_1 = 0.8 Median = 1.0 Q_3 = 1.3 P_{90} = 1.8 P_{99} = 11.7

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

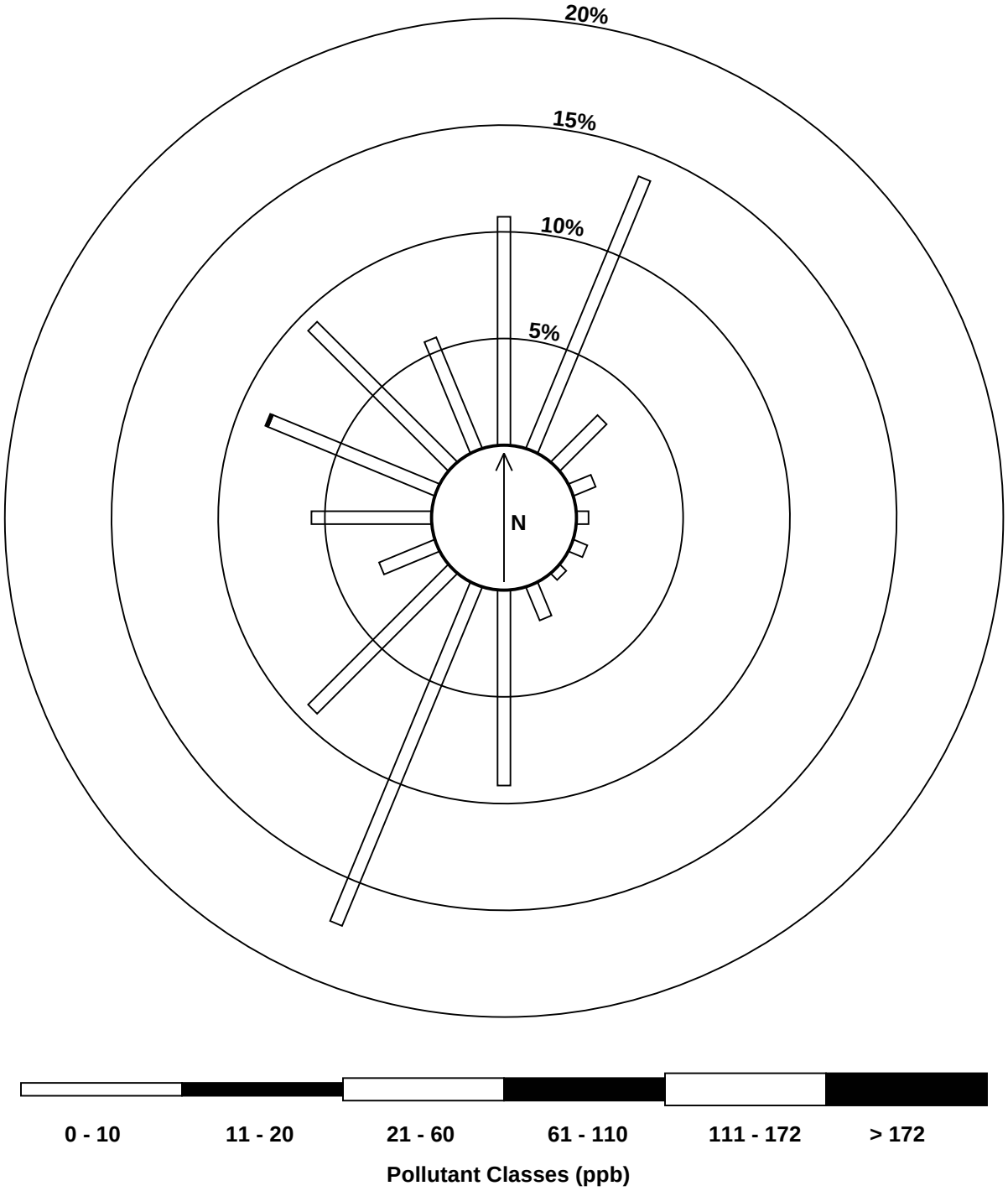
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	A	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	0	0.9	1.2
2-Dec	A	1	1	0	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	0.9	1.6
3-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.2
4-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	6	1.1	5.7
5-Dec	A	12	9	9	2	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.3	11.8
6-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	7	1	1	1	1.4	7.0
7-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.3
8-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0
9-Dec	A	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	1	2	1	1	1	1	1	1	1.0	1.9
10-Dec	A	1	1	1	1	1	1	1	1	2	3	6	7	12	11	2	1	2	2	2	2	2	16	17	4.0	16.7
11-Dec	A	11	15	7	2	3	2	9	6	14	2	2	1	1	12	19	9	5	1	1	1	1	1	1	5.5	19.0
12-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0
13-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.7	1.1
14-Dec	A	0	1	1	1	0	1	0	1	0	1	1	1	0	0	1	1	1	1	0	0	1	0	1	0.9	1.4
15-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1.3	1.7
16-Dec	A	1	1	1	1	2	0	1	1	2	2	1	1	2	2	1	1	1	4	4	2	1	1	1	1.5	3.7
17-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.6	1.2
18-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	2	0.6	1.5
19-Dec	A	1	2	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	0.9	1.5
20-Dec	A	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.1
21-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1.1	2.0
22-Dec	A	1	1	1	1	1	1	1	1	1	1	C	C	C	A	A	1	2	2	1	1	1	1	1	1.1	1.5
23-Dec	A	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	0	1	0	0	0	1.0	1.4
24-Dec	A	1	1	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.5
25-Dec	A	1	1	1	1	1	2	2	2	2	1	2	2	1	2	2	2	1	1	1	1	1	1	1	1.3	1.6
26-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	1	1	1	1	1.2	2.5
27-Dec	A	1	1	1	1	1	1	1	2	1	2	2	2	1	5	5	2	2	2	2	1	1	1	1	1.6	5.3
28-Dec	A	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.8
29-Dec	A	1	1	1	1	2	1	1	1	1	1	8	1	8	4	8	2	2	1	2	2	2	2	2	2.2	8.4
30-Dec	A	4	4	2	2	1	1	2	3	2	2	2	1	0	0	1	1	1	1	0	1	0	0	0	1.5	3.6
31-Dec	A	1	1	1	1	1	2	1	1	2	4	4	3	3	2	2	1	1	1	1	1	2	1	1	1.8	4.2
	--	1.7	1.8	1.4	1.0	1.2	1.0	1.2	1.2	1.5	1.3	1.6	1.2	1.7	1.9	2.1	1.4	1.2	1.1	1.1	1.2	1.1	1.4	1.6	Diurnal Average	
	--	11.8	15.0	8.8	2.0	5.8	2.0	9.0	6.0	14.3	4.2	7.7	6.9	11.9	11.7	19.0	9.1	5.0	3.7	3.6	7.0	2.3	16.0	16.7	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Maximums for SO_2 at Valleyview
December 2008



Pollutant Rose for SO_2 at Valleyview
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Valleyview - Hydrogen Sulphide (H_2S) - ppb
December 1, 2008 to January 1, 2009

Number of Exceedances (AAAQO): 1-hr: 0 24-hr: 0
Maximum Value: 1.6 ppb on Dec 10 15:00
Maximum Daily Average: 0.4 ppb on Dec 24

Minimum Value: 0 ppb on Dec 1 04:00
Maximum Diurnal Average: 0.3 ppb at hour 21
Monthly Average: 0.16 ppb

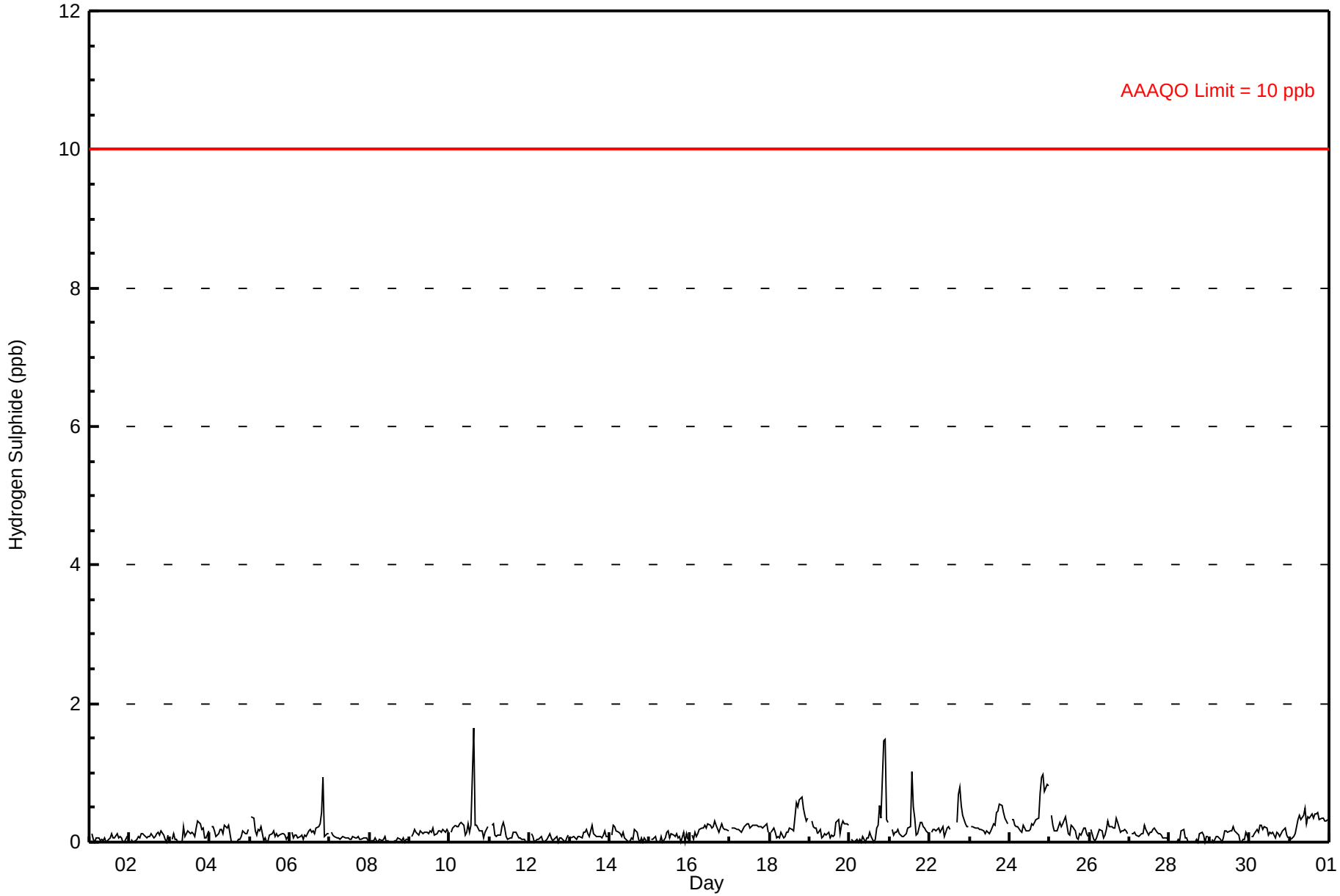
Minimum Daily Average: 0.0 ppb on Dec 8
Minimum Diurnal Average: 0.1 ppb at hour 5
Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.1$ Median = 0.1 $Q_3 = 0.2$ $P_{90} = 0.3$ $P_{99} = 0.9$

Hours in Service:	744
Hours of Data:	710
Hours of Missing Data:	34
Hours of Calibration:	34
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
2-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
3-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
4-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
5-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
6-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.2	0.9
7-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
8-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
9-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
10-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0.3	1.6
11-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
12-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
13-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
15-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
16-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
17-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
18-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0.3	0.6
19-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
20-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0.2	1.5
21-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0.2	1.0
22-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	0	1	1	1	0	0	0	0	0.3	0.8
23-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.3	0.6
24-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0.4	1.0
25-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
26-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
27-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
28-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2
29-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
30-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
31-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
	--	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	Diurnal Average	
	--	0.4	0.4	0.2	0.2	0.3	0.4	0.3	0.4	0.5	0.3	0.4	0.3	1.0	1.6	0.4	0.6	0.7	0.8	0.9	1.5	1.5	0.8	0.8	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb

Hourly Averages for H_2S at Valleyview
December 2008



Maximum Value: 34.6 ppb on Dec 10 15:00

Maximum Daily Average: 2.1 ppb on Dec 10

Minimum Value: 0 ppb on Dec 3 07:00

Minimum Daily Average: 0.4 ppb on Dec 7

Maximum Diurnal Average: 1.7 ppb at hour 15

Minimum Diurnal Average: 0.5 ppb at hour 6

Monthly Average: 0.63 ppb

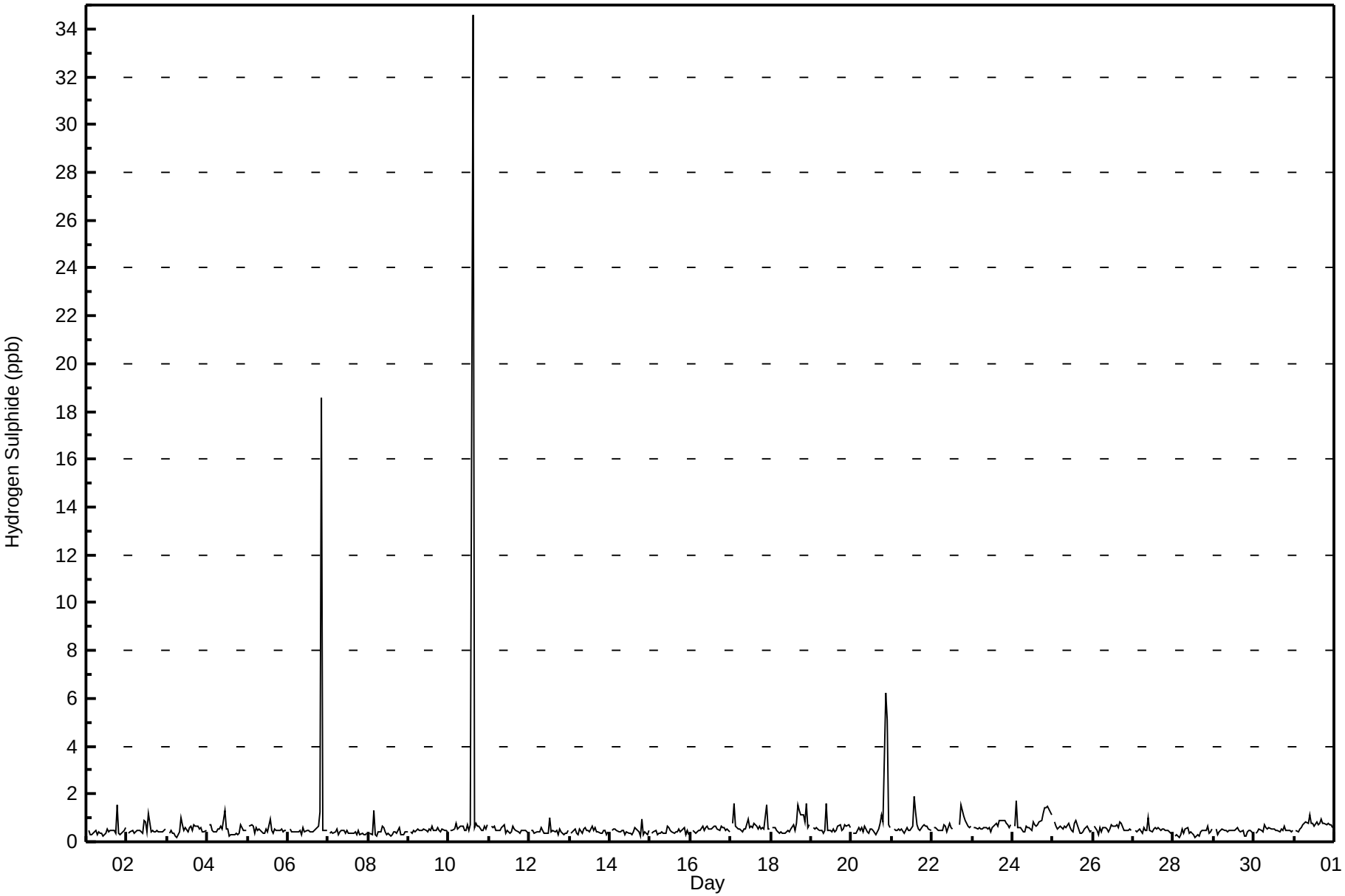
Percentiles: $P_1 = 0.2$ $P_{10} = 0.3$ $Q_1 = 0.4$ Median = 0.5 $Q_3 = 0.6$ $P_{90} = 0.7$ $P_{99} = 1.6$

Hours in Service:	744
Hours of Data:	710
Hours of Missing Data:	34
Hours of Calibration:	34
Percent Operational Time:	100.0

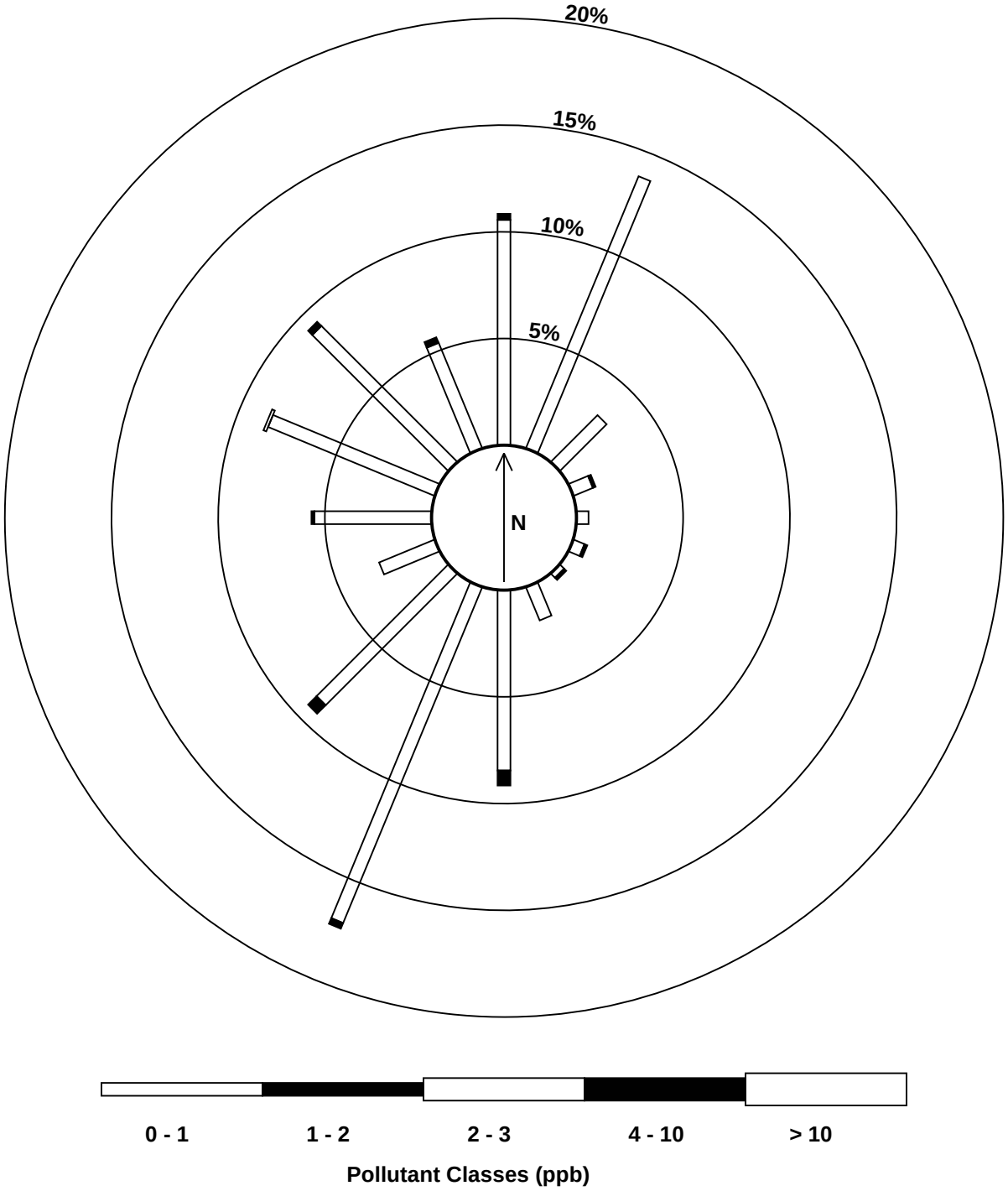
Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	A	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	1	0.4	1.5
2-Dec	A	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0.5	1.2
3-Dec	A	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1	0	0	1	0.5	1.0
4-Dec	A	1	1	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	1	0.5	1.3
5-Dec	A	1	1	1	0	1	0	1	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0.5	1.0
6-Dec	A	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	19	0	0	0	1.3	18.5
7-Dec	A	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
8-Dec	A	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.4	1.3
9-Dec	A	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	1	1	0	0	1	0	0	0	0.5	0.6
10-Dec	A	0	0	1	1	1	1	1	1	0	0	1	0	1	35	1	1	1	1	0	0	1	1	1	2.1	34.6
11-Dec	A	1	1	1	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0.5	0.7
12-Dec	A	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0.4	1.0
13-Dec	A	0	0	1	0	0	1	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0.4	0.6
14-Dec	A	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0.4	1.0
15-Dec	A	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	1	0	0	0	0.4	0.7
16-Dec	A	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0.5	0.7
17-Dec	A	1	2	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	0.7	1.6
18-Dec	A	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	2	1	1	1	1	2	1	1	0.7	1.6
19-Dec	A	1	1	1	1	0	0	0	0	2	0	0	0	1	0	0	1	1	0	1	1	1	1	1	0.6	1.6
20-Dec	A	0	0	0	1	0	1	0	1	0	0	1	1	0	0	0	1	1	1	1	6	5	1	1	1.0	6.2
21-Dec	A	1	0	0	1	0	1	0	0	1	0	1	1	2	1	1	1	0	1	1	1	1	1	0	0.6	1.9
22-Dec	A	1	1	1	0	0	0	1	1	0	1	1	1	C	C	C	1	2	1	1	1	1	1	1	0.7	1.6
23-Dec	A	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
24-Dec	A	1	2	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	2	1	1	0.9	1.7
25-Dec	A	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	0	0	0.6	0.9
26-Dec	A	1	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0.6	0.8
27-Dec	A	0	0	0	1	0	1	0	0	1	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0.5	1.0
28-Dec	A	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.4	0.7
29-Dec	A	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0.4	0.6
30-Dec	A	0	0	1	0	0	1	1	1	1	1	1	1	0	0	0	1	0	1	0	0	0	0	0	0.5	0.7
31-Dec	A	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.1
	--	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	1.7	0.5	0.6	0.6	0.6	0.6	1.3	0.7	0.5	0.5	Diurnal Average	
	--	0.8	1.7	1.3	0.8	0.7	0.8	0.8	1.0	1.6	1.3	0.8	1.0	1.9	34.6	0.8	1.6	1.6	1.5	1.4	18.5	5.1	1.3	1.2	Diurnal Maximum	

C - Calibration A - Automated Daily Zero Span

Hourly Maximums for H_2S at Valleyview
December 2008



Pollutant Rose for H_2S at Valleyview
December 2008



Maximum Value: 6.1 ^{o}C on Dec 1 07:00

Maximum Daily Average: 1.4 ^{o}C on Dec 1

Minimum Value: -40 ^{o}C on Dec 21 09:00

Maximum Diurnal Average: -14.2 ^{o}C at hour 15

Monthly Average: -17.04 ^{o}C

Minimum Daily Average: -35.0 ^{o}C on Dec 21

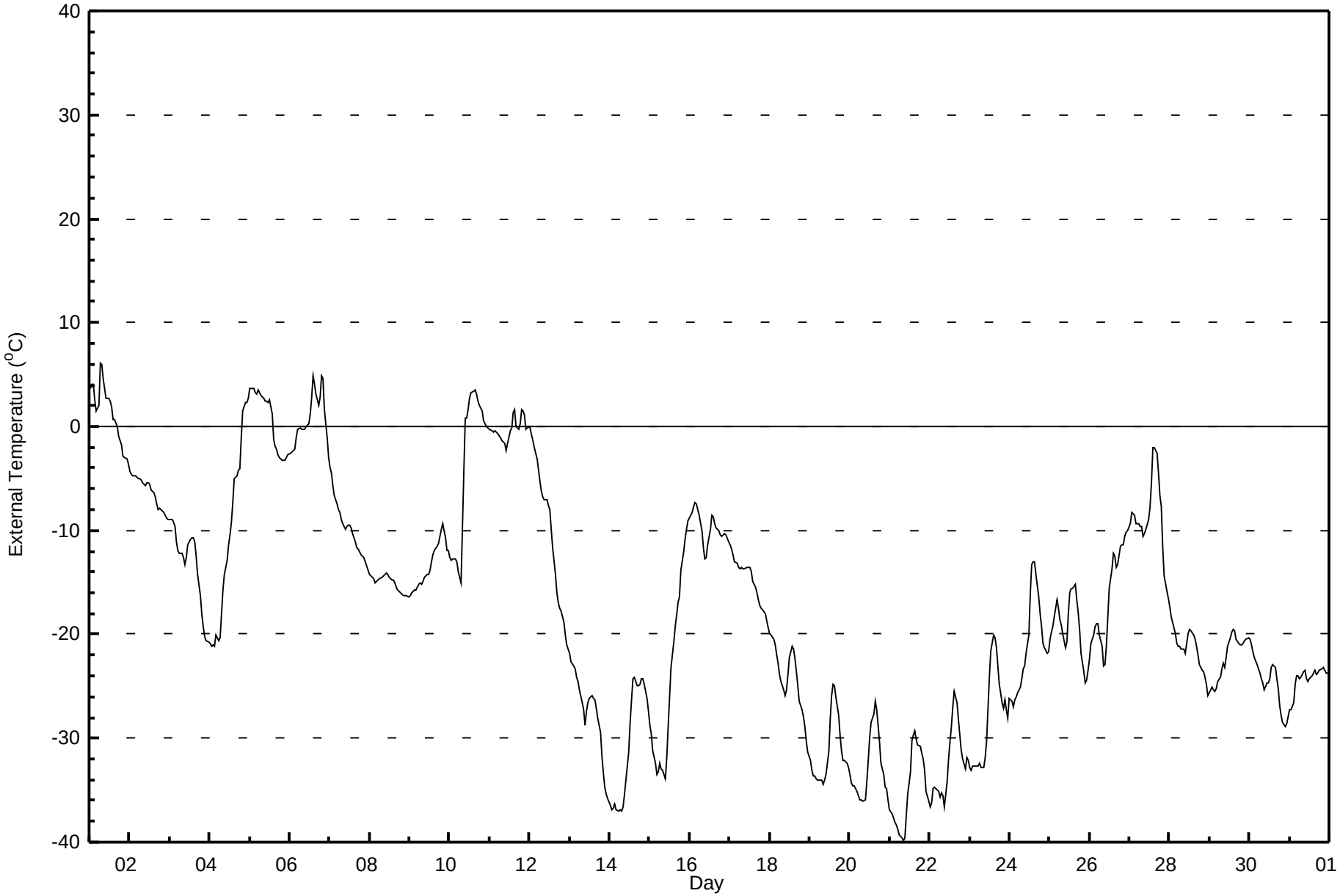
Minimum Diurnal Average: -18.6 ^{o}C at hour 8

Percentiles: P_1 = -37.7 P_{10} = -32.8 Q_1 = -25.3 Median = -17.7 Q_3 = -9.0 P_{90} = -0.3 P_{99} = 3.6

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Dec	4	4	4	3	2	2	6	6	5	4	3	3	2	2	1	1	0	-1	-1	-2	-3	-3	-3	-4	1.4	6.1
2-Dec	-4	-5	-5	-5	-5	-5	-5	-5	-5	-6	-5	-5	-6	-6	-6	-7	-7	-8	-8	-8	-8	-9	-9	-9	-6.3	-4.3
3-Dec	-9	-9	-9	-10	-11	-12	-12	-12	-13	-13	-13	-11	-11	-11	-11	-11	-13	-14	-16	-18	-19	-20	-21	-21	-13.3	-9.0
4-Dec	-21	-21	-21	-21	-20	-21	-20	-18	-16	-14	-13	-11	-11	-9	-7	-5	-5	-4	-4	-1	2	2	2	3	-10.6	2.7
5-Dec	4	4	4	3	3	3	3	3	3	2	2	2	3	1	-1	-2	-2	-3	-3	-3	-3	-3	-3	-3	0.6	3.7
6-Dec	-3	-2	-2	-2	-1	0	0	0	0	0	0	0	1	3	5	4	3	2	3	5	5	2	-1	-3	0.7	4.9
7-Dec	-4	-4	-6	-7	-8	-8	-8	-9	-9	-10	-10	-10	-9	-10	-10	-11	-12	-12	-12	-12	-13	-13	-13	-14	-9.7	-3.9
8-Dec	-14	-14	-15	-15	-15	-15	-15	-15	-14	-14	-14	-14	-15	-15	-15	-15	-15	-16	-16	-16	-16	-16	-16	-16	-15.1	-14.1
9-Dec	-16	-16	-16	-16	-16	-15	-15	-15	-15	-14	-14	-14	-14	-13	-12	-12	-12	-11	-11	-10	-9	-11	-12	-12	-13.4	-9.4
10-Dec	-13	-13	-13	-13	-13	-14	-15	-15	-4	1	1	2	3	3	3	3	3	2	2	1	1	0	0	0	-3.6	3.5
11-Dec	0	0	-1	0	-1	-1	-1	-1	-1	-2	-2	-2	0	0	1	2	0	0	0	2	2	1	0	0	-0.2	1.6
12-Dec	0	-1	-1	-2	-3	-4	-5	-6	-7	-7	-7	-8	-8	-10	-12	-14	-16	-17	-18	-18	-19	-20	-21	-21	-10.2	-0.2
13-Dec	-22	-23	-23	-23	-24	-25	-25	-27	-27	-29	-27	-27	-26	-26	-26	-26	-27	-28	-29	-32	-33	-35	-35	-36	-27.6	-21.8
14-Dec	-36	-37	-37	-36	-37	-37	-37	-37	-37	-35	-34	-31	-28	-26	-24	-24	-25	-25	-25	-24	-24	-25	-26	-27	-30.7	-24.2
15-Dec	-29	-30	-31	-32	-33	-33	-32	-33	-33	-34	-32	-29	-26	-23	-21	-19	-18	-17	-16	-14	-12	-11	-10	-9	-24.1	-9.1
16-Dec	-9	-8	-8	-7	-7	-8	-9	-10	-12	-13	-13	-11	-10	-9	-9	-9	-10	-10	-10	-11	-10	-10	-11	-11	-9.7	-7.3
17-Dec	-11	-12	-12	-13	-13	-14	-14	-14	-14	-14	-14	-14	-14	-14	-15	-15	-16	-17	-17	-17	-18	-18	-19	-19	-14.8	-11.4
18-Dec	-20	-20	-21	-21	-22	-23	-24	-25	-25	-26	-25	-24	-22	-21	-21	-22	-24	-25	-26	-27	-28	-29	-30	-31	-24.3	-19.9
19-Dec	-32	-33	-34	-34	-34	-34	-34	-34	-34	-34	-33	-31	-28	-26	-25	-25	-26	-28	-30	-31	-32	-32	-32	-33	-31.2	-24.8
20-Dec	-34	-34	-35	-35	-35	-35	-36	-36	-36	-36	-34	-32	-30	-28	-28	-26	-27	-29	-30	-32	-34	-35	-35	-36	-32.8	-26.4
21-Dec	-37	-37	-38	-38	-38	-39	-39	-40	-40	-40	-37	-35	-33	-30	-30	-29	-30	-31	-31	-32	-32	-33	-35	-36	-35.0	-29.4
22-Dec	-37	-36	-35	-35	-35	-35	-36	-35	-36	-37	-34	-32	-30	-29	-27	-26	-27	-28	-30	-31	-32	-33	-32	-32	-32.4	-25.5
23-Dec	-33	-33	-33	-33	-33	-33	-32	-33	-33	-32	-30	-27	-24	-22	-20	-20	-21	-23	-25	-27	-27	-26	-27	-28	-28.1	-20.1
24-Dec	-26	-26	-27	-26	-26	-26	-25	-24	-23	-23	-22	-20	-16	-13	-13	-13	-14	-16	-18	-19	-21	-21	-22	-22	-21.0	-13.1
25-Dec	-21	-20	-19	-18	-17	-18	-19	-19	-20	-21	-21	-18	-16	-16	-16	-15	-17	-18	-20	-22	-24	-25	-24	-23	-19.3	-15.2
26-Dec	-22	-21	-20	-19	-19	-19	-20	-21	-23	-23	-21	-18	-16	-14	-12	-13	-14	-13	-11	-11	-11	-11	-10	-10	-16.4	-10.0
27-Dec	-9	-8	-8	-9	-9	-9	-10	-10	-11	-10	-10	-9	-8	-5	-2	-2	-3	-4	-7	-8	-12	-14	-16	-17	-8.7	-2.0
28-Dec	-17	-18	-19	-20	-21	-21	-21	-21	-21	-22	-21	-20	-20	-20	-20	-20	-21	-22	-23	-24	-24	-24	-25	-26	-21.3	-17.3
29-Dec	-26	-25	-25	-25	-25	-25	-24	-23	-23	-23	-22	-21	-20	-20	-19	-20	-20	-21	-21	-21	-21	-21	-20	-20	-22.2	-19.5
30-Dec	-20	-21	-22	-22	-23	-23	-24	-24	-25	-25	-25	-25	-24	-23	-23	-23	-24	-25	-27	-28	-28	-29	-29	-28	-24.6	-20.4
31-Dec	-27	-27	-27	-25	-24	-24	-24	-24	-24	-24	-24	-25	-24	-24	-24	-23	-24	-24	-24	-23	-23	-23	-24	-24	-24.3	-23.2
	-17.6	-17.7	-17.8	-17.9	-18.2	-18.3	-18.4	-18.6	-18.5	-18.5	-17.8	-16.7	-15.5	-14.6	-14.2	-14.2	-14.9	-15.7	-16.2	-16.6	-17.1	-17.6	-18.0	-18.3	Diurnal Average	
	3.7	4.0	4.1	3.2	3.2	3.5	6.1	6.0	4.6	3.7	2.7	2.7	2.7	3.2	4.9	4.1	3.1	2.4	2.8	4.9	4.7	2.4	2.4	2.7	Diurnal Maximum	

Hourly Averages for External Temperature at Valleyview
December 2008



Maximum Value: 94.9 % on Dec 6 05:00

Maximum Daily Average: 88.5 % on Dec 6

Minimum Value: 42 % on Dec 1 10:00

Minimum Daily Average: 64.3 % on Dec 11

Maximum Diurnal Average: 78.1 % at hour 19

Minimum Diurnal Average: 70.5 % at hour 15

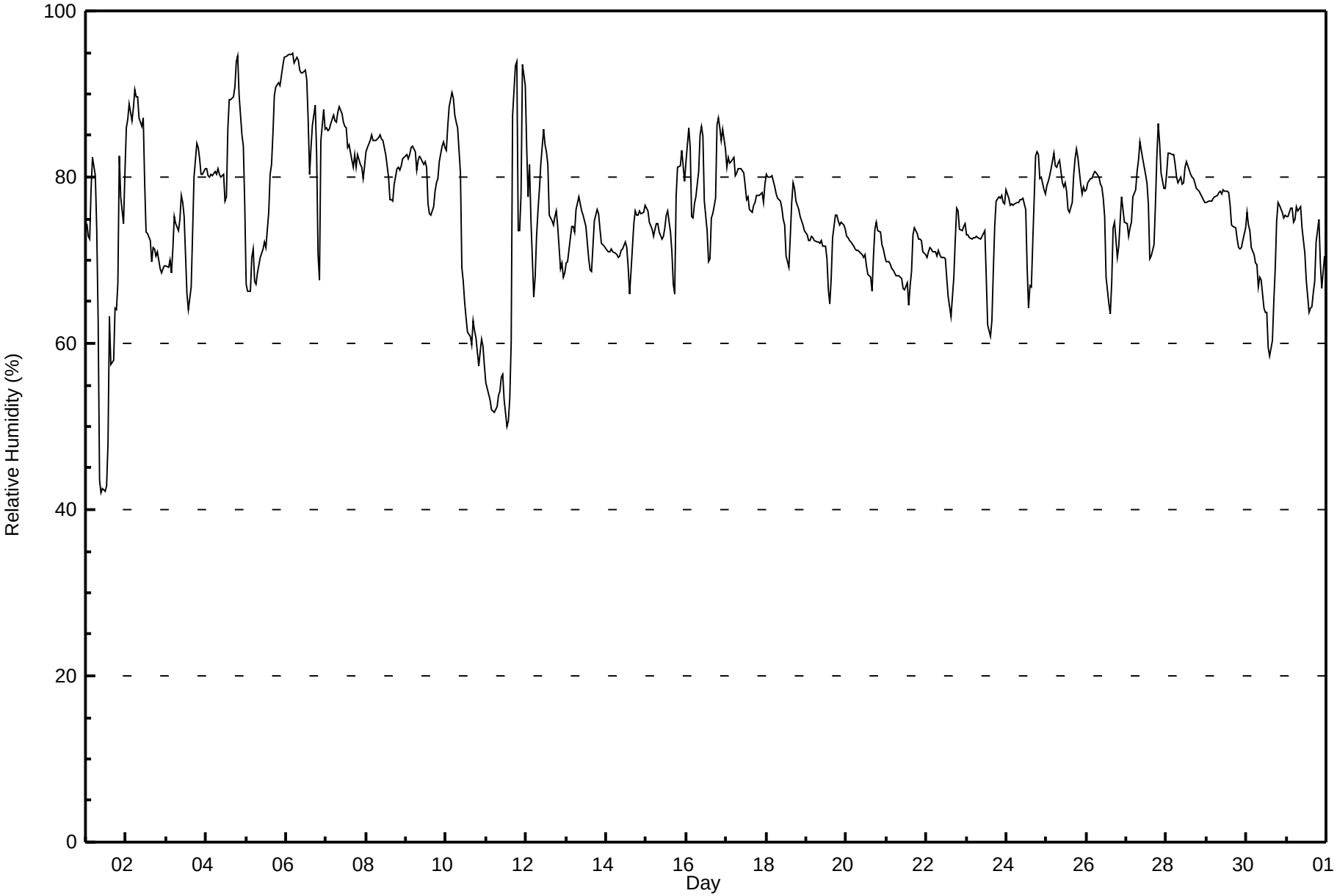
Monthly Average: 75.66 %

Percentiles: P_1 = 50.5 P_{10} = 66.7 Q_1 = 71.2 Median = 75.9 Q_3 = 81.0 P_{90} = 85.7 P_{99} = 94.3

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	74	73	73	79	82	80	74	63	44	42	42	42	43	48	63	57	58	64	64	67	83	78	74	80	64.5	82.6
2-Dec	86	87	89	87	88	91	90	90	87	86	87	79	73	73	72	70	71	71	71	71	69	69	69	69	79.0	90.5
3-Dec	69	69	70	69	71	75	74	74	75	78	77	75	66	64	65	67	73	80	84	84	82	80	80	81	74.3	84.0
4-Dec	81	80	80	80	80	81	80	81	80	80	80	77	78	86	89	89	90	91	94	95	90	85	84	77	83.7	94.6
5-Dec	67	66	66	70	71	67	67	68	70	71	71	72	72	76	80	82	85	90	91	91	91	92	93	94	77.8	94.3
6-Dec	95	95	95	95	95	94	94	94	93	93	92	93	92	87	80	84	86	89	83	71	68	84	88	86	88.5	94.9
7-Dec	86	86	86	86	88	87	87	88	88	88	87	86	86	84	84	82	81	83	81	83	82	81	80	81	84.5	88.4
8-Dec	83	84	84	85	84	84	84	85	85	85	84	83	83	80	77	77	77	79	81	81	81	81	82	83	82.3	85.2
9-Dec	83	82	83	84	84	83	81	82	83	82	81	82	81	77	76	75	77	78	79	80	82	84	84	84	81.1	84.2
10-Dec	83	86	89	90	89	88	87	86	80	69	68	65	63	61	61	60	63	62	61	57	59	61	60	57	71.0	90.1
11-Dec	55	54	53	52	52	52	52	54	54	56	56	53	50	51	53	60	87	93	94	74	74	78	94	91	64.3	93.9
12-Dec	84	78	81	75	66	68	73	76	79	82	86	84	83	82	75	75	74	75	76	74	69	70	68	68	75.8	85.8
13-Dec	70	70	73	74	74	73	76	78	77	76	75	75	74	70	69	69	72	75	76	76	74	72	72	72	73.3	77.6
14-Dec	71	71	71	71	71	71	71	70	71	71	71	72	72	69	66	69	74	76	76	75	76	76	76	77	72.2	76.7
15-Dec	76	76	75	74	73	74	74	74	73	72	73	74	75	76	73	71	67	66	78	81	81	83	81	79	75.1	83.1
16-Dec	82	86	83	75	75	77	78	81	85	86	85	77	74	70	70	75	76	77	86	87	86	84	86	83	80.2	87.1
17-Dec	81	82	82	82	82	80	80	81	81	81	81	79	77	78	76	76	77	77	78	78	78	78	77	79	79.2	82.4
18-Dec	80	80	80	80	80	79	78	77	77	76	75	74	71	69	73	77	79	79	77	76	75	75	74	74	76.5	80.4
19-Dec	73	72	72	73	73	72	72	72	72	72	72	72	70	66	65	68	73	75	75	75	74	75	74	74	72.2	75.5
20-Dec	73	73	72	72	72	71	71	71	71	71	70	71	69	68	68	66	70	74	75	74	73	72	71	71	71.2	74.6
21-Dec	70	70	70	69	69	68	68	68	68	68	67	67	67	65	67	69	73	74	73	73	73	72	71	71	69.5	73.9
22-Dec	70	71	72	71	71	71	70	71	71	70	70	70	68	66	64	63	68	72	76	76	74	73	74	74	70.8	76.2
23-Dec	73	73	73	72	73	73	73	73	73	73	73	74	68	62	61	63	69	74	77	78	77	78	77	77	72.3	77.8
24-Dec	78	78	77	77	77	77	77	77	77	77	77	76	69	64	67	67	72	83	83	83	80	80	79	78	76.2	83.0
25-Dec	79	80	80	81	83	81	81	82	82	79	79	79	78	76	76	77	80	82	83	82	79	78	79	78	79.9	83.4
26-Dec	78	79	80	80	80	81	80	80	79	79	77	75	68	65	64	67	74	75	70	72	75	78	76	75	75.3	80.7
27-Dec	74	73	74	75	78	79	81	82	84	83	82	80	79	77	70	70	72	77	82	86	84	81	79	79	78.4	86.4
28-Dec	80	83	83	83	83	82	80	79	80	79	79	81	82	81	80	80	80	79	79	78	78	78	77	77	80.1	82.9
29-Dec	77	77	77	77	77	78	78	78	78	78	78	78	78	78	77	74	74	74	73	71	71	72	72	74	75.9	78.4
30-Dec	76	74	74	72	71	70	69	67	68	68	64	64	64	59	58	60	65	69	75	77	77	76	75	75	69.4	77.0
31-Dec	75	75	76	76	75	75	77	76	76	74	72	71	68	64	64	64	66	67	72	75	70	67	69	71	71.4	76.5
	76.9	76.8	77.1	77.0	77.0	76.8	76.7	76.7	76.2	75.6	75.4	74.2	72.3	70.7	70.5	71.1	74.3	76.8	78.1	77.4	76.8	77.0	77.3	77.0	Diurnal Average	
	94.6	94.7	94.7	94.7	94.9	93.8	94.5	94.1	93.0	92.6	92.5	92.8	91.7	86.8	89.4	89.2	89.6	93.4	93.9	94.6	91.0	92.2	93.6	94.3	Diurnal Maximum	

Hourly Averages for Relative Humidity at Valleyview
December 2008



Peace Airshed Zone Association
Summary of Hourly Averages

Valleyview
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	9	6	7	6	1	5	15	24	26	25	23	23	27	25	25	21	20	17	17	15	12	12	12	10	14.1	26.6
Dir	192	198	201	215	289	356	322	306	311	311	303	308	312	320	313	308	314	322	327	330	331	326	327	308	311.4	312.3
2 Spd	11	9	7	9	7	6	7	7	11	11	10	18	17	14	13	12	10	7	7	8	11	12	6	6	9.7	17.5
Dir	310	320	310	299	296	298	313	319	336	329	322	333	335	329	317	320	318	338	318	311	321	324	326	319	321.1	333.3
3 Spd	6	9	11	11	4	1	1	1	1	2	2	1	8	10	4	2	1	0	0	2	1	2	2	1	2.5	11.1
Dir	330	337	341	341	348	296	100	10	326	320	319	284	340	346	1	66	183	203	90	191	185	200	192	208	337.1	340.8
4 Spd	2	2	0	2	3	2	3	5	4	4	5	6	7	8	9	5	3	4	5	8	11	9	10	12	4.5	12.4
Dir	205	186	205	197	214	221	194	198	199	197	202	204	198	193	191	200	222	221	211	255	270	276	267	280	227.4	279.6
5 Spd	23	17	9	4	4	6	3	8	8	8	8	3	1	6	7	6	4	5	4	5	4	3	2	1	4.8	23.2
Dir	289	282	275	245	265	279	343	314	316	314	318	338	310	21	13	356	24	8	28	10	19	355	320	338	316.6	288.5
6 Spd	1	0	1	1	3	7	5	8	9	8	6	6	5	5	3	3	4	4	8	15	12	5	12	11	2.0	14.5
Dir	51	152	320	212	185	186	191	186	191	191	187	189	187	186	179	172	204	193	269	288	307	48	31	20	216.8	288.1
7 Spd	10	9	8	9	8	7	8	8	8	9	8	9	12	16	14	14	11	12	12	9	8	8	7	5	9.5	16.1
Dir	28	29	21	18	21	23	27	360	1	16	25	17	15	14	12	15	13	5	6	12	14	24	27	24	16.1	13.6
8 Spd	2	2	2	4	3	4	6	5	8	11	11	11	14	15	14	13	10	9	7	6	6	4	3	4	7.2	14.6
Dir	41	25	37	54	43	26	31	35	20	25	25	18	14	10	9	11	16	12	20	17	9	10	16	21	18.9	10.1
9 Spd	3	2	2	2	3	4	10	9	9	12	18	19	18	18	16	15	13	10	7	5	2	13	7	5	6.3	18.7
Dir	49	77	61	30	104	112	139	155	168	177	185	185	186	184	189	188	192	195	197	204	206	24	41	31	172.9	185.3
10 Spd	4	2	1	3	4	2	2	2	12	16	12	11	11	20	20	20	17	20	20	21	18	17	15	15	10.8	21.0
Dir	51	117	194	191	203	228	35	199	275	274	279	274	276	285	288	297	296	294	292	291	291	290	284	282	285.5	291.1
11 Spd	17	19	17	22	18	18	16	15	14	9	5	5	5	5	11	17	14	8	5	8	12	12	13	12	11.1	21.6
Dir	286	288	285	292	292	291	290	288	289	270	205	204	186	178	266	279	278	268	250	311	307	318	311	319	285.6	291.6
12 Spd	5	3	6	5	9	11	8	6	8	9	9	14	16	19	23	25	14	9	17	18	17	13	15	12	11.9	24.7
Dir	32	1	316	6	18	23	15	21	0	14	28	34	25	24	18	19	33	39	20	24	26	18	14	10	20.1	18.5
13 Spd	13	8	5	4	7	8	3	1	1	1	1	3	7	11	9	6	5	4	2	4	3	2	4	4	3.2	13.1
Dir	9	13	356	331	353	15	9	336	259	226	357	14	2	11	9	21	37	5	349	214	204	187	202	201	2.7	8.7
14 Spd	3	4	4	3	5	4	4	3	5	6	5	3	4	3	2	2	2	1	6	8	4	5	2	1	2.8	7.8
Dir	219	213	219	220	212	213	217	217	201	201	196	207	191	175	188	252	303	310	294	295	291	299	198	179	229.4	295.1
15 Spd	3	3	4	5	5	5	6	4	3	2	2	1	5	5	5	4	2	2	3	5	14	17	14	15	3.2	17.4
Dir	151	178	160	168	171	184	182	209	226	228	227	204	201	189	185	202	182	217	169	264	294	296	299	301	240.6	296.5
16 Spd	14	15	12	10	6	5	4	4	2	3	3	4	3	2	2	3	3	6	6	7	10	14	15	22	5.5	21.8
Dir	304	310	331	329	322	324	295	258	222	178	186	203	204	230	217	256	305	299	276	283	322	332	345	355	313.5	355.3
17 Spd	19	17	18	15	17	20	19	16	15	14	15	17	17	18	18	16	16	13	13	11	11	11	8	6	15.0	20.3
Dir	358	6	6	11	7	9	9	7	12	9	10	15	18	12	16	15	9	11	10	9	13	16	10	351	9.8	9.2
18 Spd	6	6	2	1	1	1	0	1	3	2	2	2	2	1	2	0	0	0	1	1	1	2	3	2	0.3	5.8
Dir	360	19	9	320	320	209	6	197	197	187	191	199	202	153	2	174	315	79	175	187	250	185	192	195	222.4	359.7
19 Spd	3	2	3	3	4	3	3	3	3	4	4	4	3	2	2	2	2	2	3	3	3	3	4	4	2.9	4.3
Dir	202	201	221	223	213	218	207	196	209	209	206	197	199	198	188	187	192	200	203	209	205	224	221	219	207.4	219.0
20 Spd	2	4	4	4	4	3	3	3	3	3	2	2	2	3	3	1	1	1	0	1	2	2	1	1	1.7	4.2
Dir	226	211	217	219	209	200	230	244	224	225	222	262	259	278	339	332	216	158	145	69	226	178	230	197	227.0	218.6
21 Spd	2	1	0	1	0	0	0	0	0	1	1	1	1	1	3	4	7	2	6	5	2	2	2	3	0.8	7.4
Dir	198	169	52	197	300	267	13	345	298	259	188	21	356	347	359	346	18	307	280	291	270	200	180	208	299.3	17.6
22 Spd	2	4	3	2	0	1	1	2	1	4	1	1	2	3	1	1	1	0	1	3	1	3	2	5	1.3	4.5
Dir	218	213	224	194	28	198	225	224	173	213	233	195	3	337	295	272	42	327	8	211	233	216	228	209	224.6	208.7

Peace Airshed Zone Association
Summary of Hourly Averages

Valleyview
December 1, 2008 to January 1, 2009
WS (km/h), WD (deg)

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
23 Spd	2	3	2	1	2	4	2	3	3	2	4	3	3	3	3	2	1	1	1	2	2	2	1	4	2.2	4.3
Dir	239	219	237	225	249	188	251	215	215	240	214	211	205	211	210	261	222	178	201	219	241	230	196	203	218.2	188.3
24 Spd	4	3	4	3	3	3	3	3	2	2	2	3	1	1	2	2	1	2	1	1	1	2	2	1	1.4	3.6
Dir	213	228	214	223	218	227	224	221	240	222	253	212	244	138	8	42	3	10	225	233	112	266	189	190	225.2	213.3
25 Spd	3	4	4	4	3	2	5	4	1	1	4	3	1	3	2	4	6	1	1	1	1	1	1	2	0.4	6.0
Dir	192	202	212	198	226	41	359	344	228	161	183	190	115	9	10	336	4	1	203	20	206	216	192	208	258.1	4.0
26 Spd	2	1	3	1	2	2	3	3	1	1	2	2	6	7	5	2	3	7	12	12	10	8	10	8	4.4	12.2
Dir	195	318	147	272	177	223	217	223	237	230	225	202	194	194	186	201	213	199	195	190	187	196	197	205	197.4	189.7
27 Spd	8	8	9	6	5	6	6	3	0	2	4	6	6	4	9	7	9	7	2	6	12	10	9	4	1.9	11.6
Dir	198	199	199	203	212	212	210	234	333	235	208	208	207	208	271	275	266	25	85	18	21	17	16	15	246.3	20.7
28 Spd	6	6	6	4	6	4	1	0	2	0	1	2	6	5	6	6	5	3	4	2	2	3	1	1	3.2	6.4
Dir	21	3	17	1	347	352	5	311	30	149	177	40	27	25	7	2	345	4	349	359	25	357	6	342	6.9	1.5
29 Spd	1	1	3	3	4	4	3	2	1	2	1	6	8	7	7	8	7	7	8	7	7	5	4	4	3.4	8.3
Dir	35	14	41	28	44	53	31	53	71	195	316	0	7	14	339	320	308	300	305	298	299	314	289	298	335.0	319.7
30 Spd	7	11	10	12	12	10	10	9	5	4	4	6	5	3	1	1	3	2	3	4	7	5	5	3	4.7	12.3
Dir	300	300	300	307	309	307	304	301	285	275	267	291	276	250	264	160	82	43	9	24	10	17	16	14	312.0	307.2
31 Spd	0	1	3	5	7	7	9	11	7	10	9	10	8	10	9	8	6	4	2	1	2	3	2	2	4.1	10.8
Dir	18	72	44	35	24	43	11	349	340	288	280	286	277	297	297	297	303	289	338	64	307	296	248	252	316.7	349.2
Spd	2.7	2.7	2.4	2.4	2.1	1.8	2.1	2.5	2.7	2.6	2.0	2.1	2.5	3.2	3.9	4.2	3.5	2.9	2.9	3.5	4.2	4.1	3.2	3.2	Diurnal Average	
Dir	312.3	306.5	308.6	309.7	317.7	324.6	327.5	303.0	301.2	288.6	278.4	302.8	319.2	332.8	326.1	325.1	326.6	325.6	315.3	310.6	320.6	327.8	325.3	316.5		
Spd	23.2	19.4	17.8	21.6	18.1	20.3	18.8	23.6	25.7	24.7	23.4	23.1	26.6	25.4	24.5	24.7	19.9	19.6	20.1	21.0	18.5	17.4	14.8	21.8	Diurnal Maximum	
Dir	288.5	287.6	5.9	291.6	291.6	9.2	8.6	306.3	311.4	310.9	303.1	307.8	312.3	320.2	313.1	18.5	313.9	293.5	291.9	291.1	290.8	296.5	283.9	355.3		

Maximum Speed Value: 27 km/h on Dec 1 13:00
Maximum Daily Speed Average: 15.0 km/h on Dec 1
Maximum Diurnal Speed Average: 4.2 km/h at hour 21

Minimum Speed Value: 0 km/h on Dec 21 09:00
Minimum Daily Speed Average: 0.3 km/h on Dec 18
Minimum Diurnal Speed Average: 1.8 km/h at hour 6

Monthly Average Velocity: 2.82 km/h 316.20 deg

Speed Percentiles: $P_1 = 0.2$ $P_{10} = 1.2$ $Q_1 = 2.2$ Median = 4.3 $Q_3 = 8.8$ $P_{90} = 14.6$ $P_{99} = 22.8$

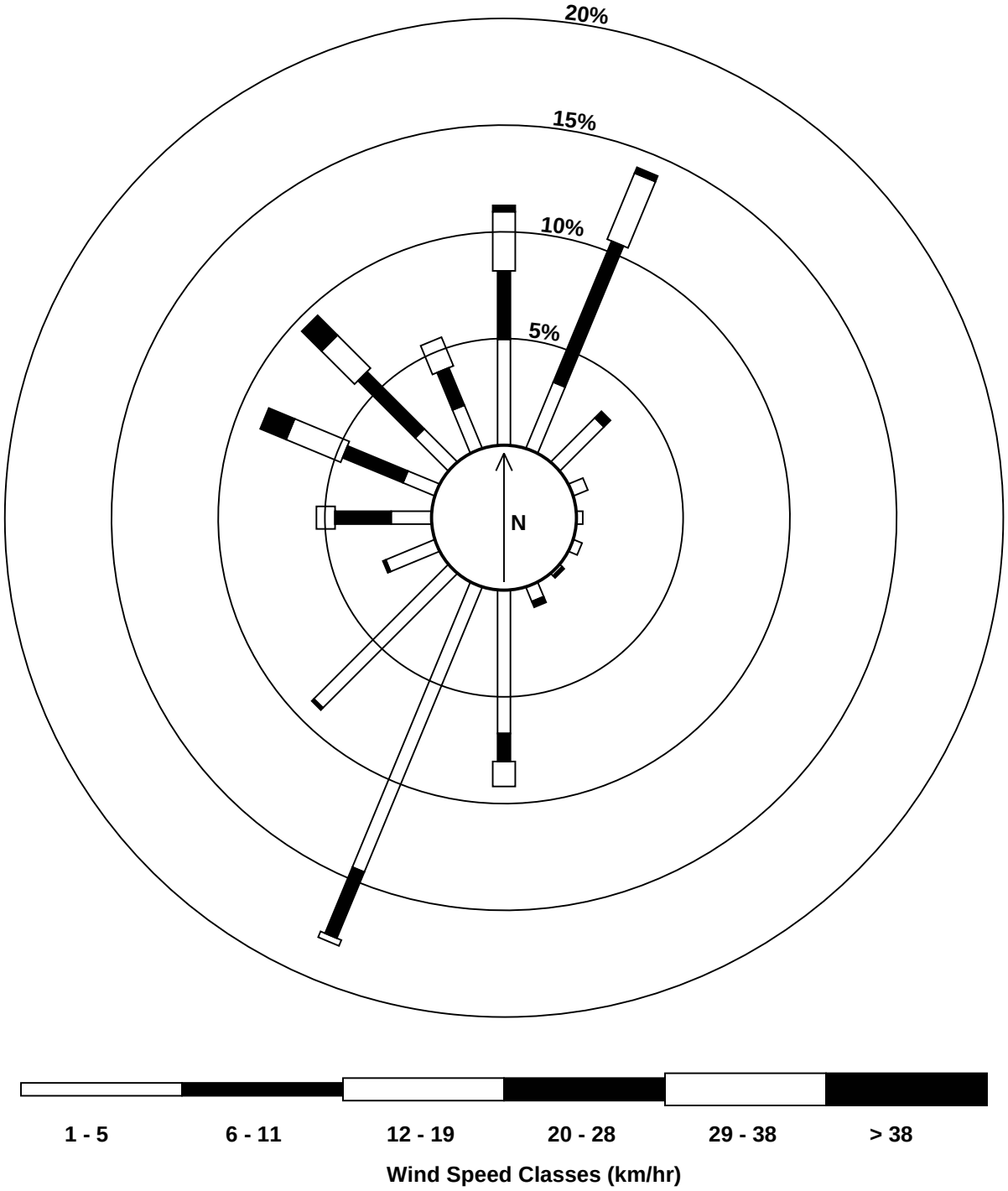
All monthly, daily, and diurnal averages have been calculated using vector methods

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Percent Operational Time:	100.0

Percentage Frequency Distribution

Direction	Speed Range (km/h) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	7.53	8.60	5.38	0.54	0.00	0.00	22.04
NorthEast	4.84	3.09	1.21	0.00	0.00	0.00	9.14
East	1.61	0.00	0.00	0.00	0.00	0.00	1.61
SouthEast	1.21	0.27	0.00	0.00	0.00	0.00	1.48
South	13.17	4.44	1.34	0.00	0.00	0.00	18.95
SouthWest	17.34	1.48	0.00	0.00	0.00	0.00	18.82
West	4.30	3.36	2.69	0.94	0.00	0.00	11.29
NorthWest	4.70	6.32	4.03	1.61	0.00	0.00	16.67
Total	54.70	27.55	14.65	3.09	0.00	0.00	100.00

Wind Rose for WS at Valleyview
December 2008



Maximum Speed: 27 km/h on Dec 1 13:00

Maximum Daily Speed Average: 16.3 km/h on Dec 1

Minimum Speed: 1 km/h on Dec 18 18:00

Minimum Daily Speed Average: 2.1 km/h on Dec 18

Maximum Diurnal Speed Average: 8.3 km/h at hour 14

Minimum Diurnal Speed Average: 5.5 km/h at hour 5

Monthly Average Speed: 6.52 km/h

Percentiles: $P_1 = 1.0$ $P_{10} = 1.7$ $Q_1 = 2.5$ Median = 4.6 $Q_3 = 9.1$ $P_{90} = 14.7$ $P_{99} = 23.2$

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Dec	9	6	7	6	5	7	15	24	26	25	24	23	27	26	25	22	20	17	17	15	12	12	12	10	16.3	26.8
2-Dec	11	9	7	9	7	6	7	8	11	11	10	18	18	14	13	12	10	8	7	8	11	12	6	6	10.0	17.7
3-Dec	6	9	11	11	4	2	1	2	2	2	2	2	8	10	4	2	2	1	2	2	2	2	2	2	3.8	11.2
4-Dec	2	2	1	3	3	2	3	5	5	4	5	6	8	8	9	5	3	4	5	9	11	10	10	13	5.7	12.6
5-Dec	23	17	9	5	5	6	4	8	8	8	8	4	2	6	7	6	4	5	5	5	4	3	2	1	6.4	23.3
6-Dec	1	1	1	1	4	7	5	8	9	8	6	6	5	5	3	3	4	4	10	15	13	5	12	11	6.1	14.6
7-Dec	10	10	9	9	8	7	8	8	8	9	9	9	13	16	14	14	11	12	12	9	8	8	7	6	9.7	16.2
8-Dec	2	2	2	4	4	4	6	6	8	11	11	11	14	15	14	13	10	9	7	6	6	4	3	4	7.4	14.7
9-Dec	3	2	2	3	3	5	10	9	9	13	18	19	18	18	16	15	13	11	7	5	9	14	7	6	9.7	18.9
10-Dec	5	2	2	3	4	2	2	3	12	16	12	11	11	20	20	20	17	20	20	21	19	17	15	15	12.1	21.1
11-Dec	17	19	17	22	18	18	16	15	14	9	5	5	5	5	11	18	14	8	6	8	12	13	13	12	12.5	21.7
12-Dec	6	4	6	6	9	11	9	6	8	9	9	14	16	19	23	25	16	9	17	18	17	13	15	12	12.4	24.9
13-Dec	13	8	5	4	7	8	3	2	2	1	2	4	7	11	9	6	5	4	2	4	3	2	5	4	5.1	13.2
14-Dec	3	4	4	3	5	4	4	3	5	6	5	3	4	3	2	2	3	2	6	8	5	5	3	2	3.9	7.9
15-Dec	3	4	4	5	5	5	6	4	3	2	2	1	5	5	5	4	3	3	3	5	14	18	14	15	5.8	17.5
16-Dec	14	15	12	10	6	5	4	4	2	3	3	4	3	3	2	3	3	6	6	7	10	14	15	22	7.3	21.9
17-Dec	19	17	18	15	17	20	19	16	15	14	15	18	17	18	18	16	17	13	13	11	12	11	8	6	15.1	20.4
18-Dec	6	6	3	2	1	2	1	2	3	2	2	2	2	2	2	1	1	1	2	2	1	2	3	2	2.1	5.8
19-Dec	4	3	3	3	4	3	3	3	3	4	4	4	3	2	2	2	2	2	3	3	3	3	4	4	3.0	4.3
20-Dec	2	4	4	4	4	3	3	3	3	3	2	2	2	3	3	2	2	1	1	2	2	3	1	1	2.5	4.2
21-Dec	2	2	1	2	1	1	1	1	1	1	1	2	2	1	3	4	8	3	6	5	2	3	2	3	2.5	7.6
22-Dec	2	4	3	3	3	2	1	2	2	4	2	2	2	3	2	1	1	1	1	3	2	3	2	5	2.4	4.6
23-Dec	2	3	2	1	2	4	2	3	3	2	4	3	3	4	3	3	1	1	2	2	2	2	2	4	2.5	4.5
24-Dec	4	3	4	3	3	3	3	3	2	2	2	3	2	1	2	2	2	3	2	1	2	3	3	2	2.5	3.8
25-Dec	3	4	4	4	3	3	6	4	2	1	4	3	2	3	3	4	6	2	1	2	2	1	2	3	3.0	6.0
26-Dec	3	2	3	2	2	2	3	3	1	1	2	2	6	7	5	2	3	7	12	12	10	8	10	8	4.9	12.2
27-Dec	8	8	9	6	5	6	6	4	2	2	4	6	6	5	9	8	9	8	3	6	12	10	9	4	6.4	11.7
28-Dec	6	6	6	5	6	4	2	1	4	2	2	3	6	6	6	6	5	4	4	2	3	3	2	1	3.9	6.4
29-Dec	2	2	3	3	4	4	3	2	2	2	2	7	8	7	8	9	7	7	8	7	7	5	4	5	4.9	8.6
30-Dec	7	11	11	12	12	11	10	9	5	4	4	6	6	3	2	2	3	2	3	5	7	5	5	3	6.1	12.5
31-Dec	1	2	3	5	7	7	9	11	8	10	10	10	8	11	9	8	6	4	3	1	3	4	3	2	6.0	10.8
	6.5	6.2	5.7	5.5	5.5	5.6	5.7	5.9	6.1	6.3	6.1	6.9	7.7	8.3	8.2	7.7	6.9	5.8	6.2	6.8	7.2	7.0	6.4	6.2	Diurnal Average	
	23.3	19.5	17.9	21.7	18.2	20.4	18.8	24.0	25.9	24.9	23.6	23.4	26.8	25.6	25.1	24.9	20.2	19.7	20.3	21.1	18.6	17.5	14.9	21.9	Diurnal Maximum	

All monthly, daily, and diurnal averages have been calculated using scalar methods

Maximum Value: 94.9 deg on Dec 28 10:00

Minimum Value: 3.7 deg on Dec 20 03:00

Percentiles: P_1 = 5.0 P_{10} = 6.6 Q_1 = 8.4 Median = 12.6 Q_3 = 29.5 P_{90} = 62.3 P_{99} = 88.3

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	6	16	9	7	82	44	6	10	7	7	7	9	7	7	12	7	8	9	6	7	8	11	9	10	82.0
2-Dec	10	9	10	6	10	10	9	12	6	8	8	8	7	7	11	12	7	12	12	12	6	6	9	8	12.1
3-Dec	9	9	7	7	16	78	55	77	30	33	55	84	16	10	15	36	49	73	67	27	33	19	27	34	84.0
4-Dec	18	20	81	21	26	23	34	10	10	24	18	10	12	13	13	18	21	26	7	20	9	10	7	11	80.6
5-Dec	5	7	9	16	26	19	28	12	11	9	10	58	39	13	8	8	14	7	14	13	13	7	37	33	58.1
6-Dec	66	88	38	66	30	8	10	12	10	6	11	11	13	7	17	11	14	23	45	7	29	19	7	7	87.8
7-Dec	10	9	13	10	11	10	9	13	8	10	10	10	6	5	10	7	7	7	5	7	9	12	11	26	26.2
8-Dec	44	19	15	18	25	33	16	27	15	7	8	7	6	7	7	6	8	8	12	13	8	14	16	14	44.4
9-Dec	19	44	22	19	18	30	8	12	13	9	8	7	6	8	8	7	7	7	32	11	78	9	14	16	77.6
10-Dec	26	61	50	36	14	33	61	57	49	5	6	10	9	7	9	7	7	6	7	6	6	6	7	7	61.1
11-Dec	7	5	6	5	5	5	5	5	6	14	7	8	12	18	17	9	7	9	21	21	11	19	8	9	21.0
12-Dec	18	35	12	32	7	9	10	10	12	8	10	9	8	7	9	8	26	19	8	8	8	7	5	7	34.9
13-Dec	8	9	11	15	9	8	23	64	64	39	71	53	6	7	8	10	8	9	42	12	36	76	10	9	76.1
14-Dec	9	10	11	7	6	10	6	23	13	9	10	10	10	22	40	27	53	64	9	8	20	13	35	52	63.5
15-Dec	26	20	11	9	5	6	9	17	10	16	27	44	11	6	11	10	44	36	33	36	10	7	11	7	43.9
16-Dec	7	8	9	11	9	13	27	18	19	20	17	14	11	49	32	22	31	20	13	15	12	9	6	7	49.1
17-Dec	7	6	6	20	5	5	5	5	5	6	6	7	7	8	7	6	7	7	5	6	7	6	5	7	19.8
18-Dec	8	5	19	36	31	58	81	63	13	11	10	12	11	78	49	92	58	86	40	60	29	19	7	12	92.0
19-Dec	17	10	9	12	12	12	14	12	17	8	7	12	14	15	14	10	20	15	13	9	17	6	6	4	20.2
20-Dec	14	8	4	4	9	12	23	10	12	22	21	36	53	16	25	36	63	75	89	76	26	31	64	71	88.6
21-Dec	66	70	80	50	73	91	86	84	94	75	31	63	56	57	45	27	12	39	10	13	21	39	42	20	94.5
22-Dec	26	11	8	71	79	79	69	12	62	8	60	83	64	37	49	64	74	91	77	10	54	10	18	8	90.7
23-Dec	15	12	39	43	17	17	20	13	21	13	10	15	18	30	16	23	17	59	50	29	19	39	69	19	69.2
24-Dec	17	24	16	9	10	12	11	9	17	23	18	17	79	66	26	25	45	61	68	75	63	50	69	77	79.1
25-Dec	28	10	9	16	49	45	9	8	53	34	14	19	64	13	41	19	6	50	81	79	39	44	52	28	80.7
26-Dec	35	81	58	81	48	29	6	13	66	52	17	17	7	8	9	18	12	13	7	7	9	9	8	5	81.3
27-Dec	6	7	7	9	19	6	10	54	85	21	9	7	6	22	7	9	7	31	48	8	6	5	5	6	84.8
28-Dec	10	12	12	16	6	10	72	70	71	95	65	77	13	17	8	6	8	17	10	11	44	24	54	39	94.9
29-Dec	62	69	25	29	22	17	33	28	47	38	72	54	10	9	29	14	21	16	15	16	12	15	13	14	72.4
30-Dec	11	9	9	8	9	9	9	7	17	20	26	24	16	40	55	68	14	40	11	22	8	7	11	46	67.6
31-Dec	89	54	25	14	16	12	15	6	32	12	10	14	16	11	10	8	10	17	54	62	31	23	20	57	88.9
	88.9	87.8	80.6	80.9	82.0	91.5	86.2	84.1	94.5	94.9	72.4	84.0	79.1	77.7	55.0	92.0	74.1	90.7	88.6	79.1	77.6	76.1	69.4	76.8	

PASZA

Monthly Passive Data Summary

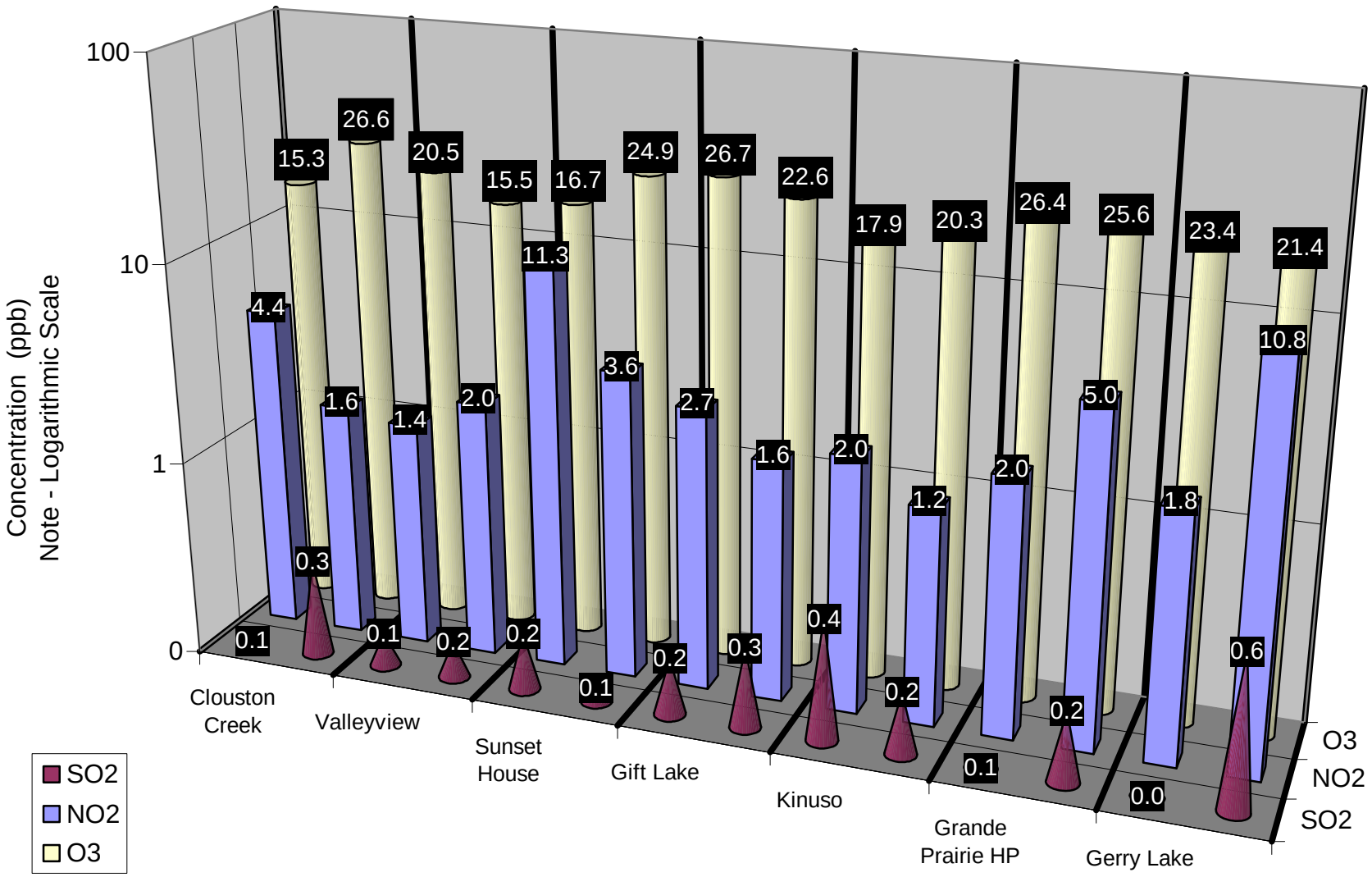
PASZA Passive Results for December 2008

Peace Airshed Zone Association - PASZA Passive Stations for December 2008

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	Site Legal
Duplicates					
39a	Clouston Creek	**0.1**	**15.3**	**4.4**	
39b	Clouston Creek	**0.3**	**26.6**	**1.6**	
41a	Valleyview	**0.1**	**20.5**	**1.4**	
41b	Valleyview	**0.2**	**15.5**	**2.0**	
42a	Sunset House	**0.2**	**16.7**	**11.3**	
42b	Sunset House	**0.1**	**24.9**	**3.6**	
45a	Gift Lake	**0.2**	**26.7**	**2.7**	
45b	Gift Lake	**0.3**	**22.6**	**1.6**	
47a	Kinuso	**0.4**	**17.9**	**2.0**	
47b	Kinuso	**0.2**	**20.3**	**1.2**	
49a	Grande Prairie HP	**0.1**	**26.4**	**2.0**	
49b	Grande Prairie HP	**0.2**	**25.6**	**5.0**	
60a	Gerry Lake	**0.0**	**23.4**	**1.8**	
60b	Gerry Lake	**0.6**	**21.4**	**10.8**	
1	Silver Valley	**0.1**	**26.1**	**1.7**	08-27-081-11 W6M
2	Bay Tree	**0.2**	**28.6**	**2.5**	13-16-078-13 W6M
3	Forth Creek	**0.4**	**26.9**	**3.9**	04-13-082-07 W6M
4	Gordondale	**0.3**	**23.5**	**3.4**	04-34-078-10 W6M
5	Boone Creek	**0.2**	**22.9**	**1.1**	01-23-076-11 W6M
7	Steeprock Creek	**0.0**	**25.4**	**1.7**	09-35-072-13 W6M
9	Spirit River	**0.0**	**22.8**	**2.0**	08-12-079-07 W6M
10	Woking	**0.2**	**25.7**	**3.0**	01-13-076-07 W6M
11	Webber Creek	**0.2**	**24.7**	**1.8**	09-36-074-09 W6M
12	Hythe	**0.2**	**25.4**	**2.8**	14-36-072-11 W6M
14	Sylvester	**0.3**	**24.1**	**2.8**	08-06-069-12 W6M
16	Beaverlodge	**0.1**	**20.9**	**1.0**	15-36-071-10 W6M
17	Poplar	**0.1**	**25.6**	**6.8**	13-06-073-08 W6M
18	Saddle Hills	**0.2**	**22.5**	**1.6**	04-25-074-07 W6M
19	Wanham	**0.2**	**16.6**	**1.5**	16-22-077-03 W6M
20	Shaftesbury	**0.3**	**28.0**	**4.0**	04-03-082-23 W5M
21	Eaglesham	**0.0**	**23.7**	**2.1**	16-21-079-25 W5M
23	Bear Lake	**0.1**	**18.8**	**2.9**	15-31-072-06 W6M

PASZA Passive Results for December 2008 (Continued)

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	Site Legal
24	Wembley	**0.2**	**20.2**	**4.2**	12-31-070-08 W6M
25	Pinto Creek	**0.0**	**21.6**	**2.1**	04-24-069-11 W6M
26	Flyingshot	**0.2**	**21.2**	**4.7**	15-36-070-07 W6M
27	Grande Prairie I	**0.2**	**25.4**	**1.8**	08-15-071-06 W6M
28	Clairmont Lake	**0.2**	**28.4**	**4.1**	09-06-073-04 W6M
29	Smoky Heights	**0.1**	**21.8**	**1.9**	04-06-075-02 W6M
30	Fitzsimmons	**0.2**	**17.3**	**3.8**	15-36-072-03 W6M
32	Gold Creek	**0.2**	**19.9**	**1.6**	06-33-067-05 W6M
33	Wapiti	**0.1**	**28.6**	**2.0**	02-25-071-03 W6M
34	Puskwaskau	**0.1**	**18.6**	**3.1**	15-35-074-25 W5M
35	Jean Cote	**0.0**	**25.5**	**2.0**	12-35-079-21 W5M
36	Guy	**0.3**	**25.1**	**3.5**	03-04-076-22 W5M
37	Crooked Creek	**0.1**	**20.4**	**2.5**	16-01-071-26 W5M
39	Clouston Creek	**0.2**	**20.9**	**3.0**	12-01-073-22 W5M
40	McLennan	**0.3**	**27.1**	**2.3**	03-29-077-19 W5M
41	Valleyview	**0.2**	**18.0**	**1.7**	09-30-069-22 W5M
42	Sunset House	**0.2**	**20.8**	**7.4**	05-32-070-19 W5M
43	High Prairie	**0.2**	**26.7**	**2.6**	16-13-074-17 W5M
44	Peavine	**0.0**	**22.7**	**10.8**	03-05-079-15 W5M
45	Gift Lake	**0.2**	**24.6**	**2.2**	10-07-079-12 W5M
46	Little Smoky	**0.2**	**19.7**	**1.5**	12-01-065-21 W5M
47	Kinuso	**0.3**	**19.1**	**1.6**	12-10-073-10 W5M
48	Deer Mountain	**0.2**	**26.6**	**4.3**	15-22-068-09 W5M
49	Grande Prairie HP	**0.1**	**26.0**	**3.5**	17-26-071-06 W6M
50	Clear River	**0.2**	**26.9**	**1.8**	SE-03-084-12 W6M
51	Bear Canyon	**0.0**	**24.7**	**2.5**	SE-28-085-12 W6M
52	Worsley	**0.1**	**22.5**	**3.6**	NE-34-085-07 W6M
53	Hines Creek	**0.1**	**25.2**	**3.6**	SW-09-084-04 W6M
54	Ronan	**0.2**	**28.3**	**4.0**	SE-03-082-04 W6M
55	Cadotte Lake School	**0.0**	**26.8**	**2.4**	NE-23-086-16 W5M
56	Simon Lake Store	**0.3**	**22.5**	**3.1**	SE-32-086-17 W5M
57	Dixonville	**0.0**	**24.3**	**1.1**	SE-14-087-24 W5M
58	Queen Elizabeth Park	**0.6**	**24.2**	**3.1**	NW-19-083-23 W5M
59	Blue Sky	**0.3**	**23.4**	**1.9**	SW-35-081-02 W6M
60	Gerry Lake	**0.3**	**22.4**	**6.3**	SW-22-084-02 W6M
61	Musreau Lake	**0.1**	**33.5**	**2.0**	NE-22-064-05 W6M



Duplicate Summary Chart

Passive Summary for December 2008

Stats	Sulphur Dioxide SO_2	Ozone O_3	Nitrogen Dioxide NO_2
	ppb	ppb	ppb
	Passive Summary for December 2008 (PASZA Zone)		
Mean	**0.2**	**23.8**	**3.0**
Standard Deviation	**0.1**	**3.4**	**1.7**
Minimum	**0.0**	**16.6**	**1.0**
Minimum At	**Spirit River (#9)**	**Wanham (#19)**	**Beaverlodge (#16)**
Maximum	**0.6**	**33.5**	**10.8**
Maximum At	**Queen Elizabeth Park**	**Musreau Lake (#61)**	**Peavine (#44)**

Comparison between Continuous and Passive monitoring at Beaverlodge (passive #16 Beaverlodge)

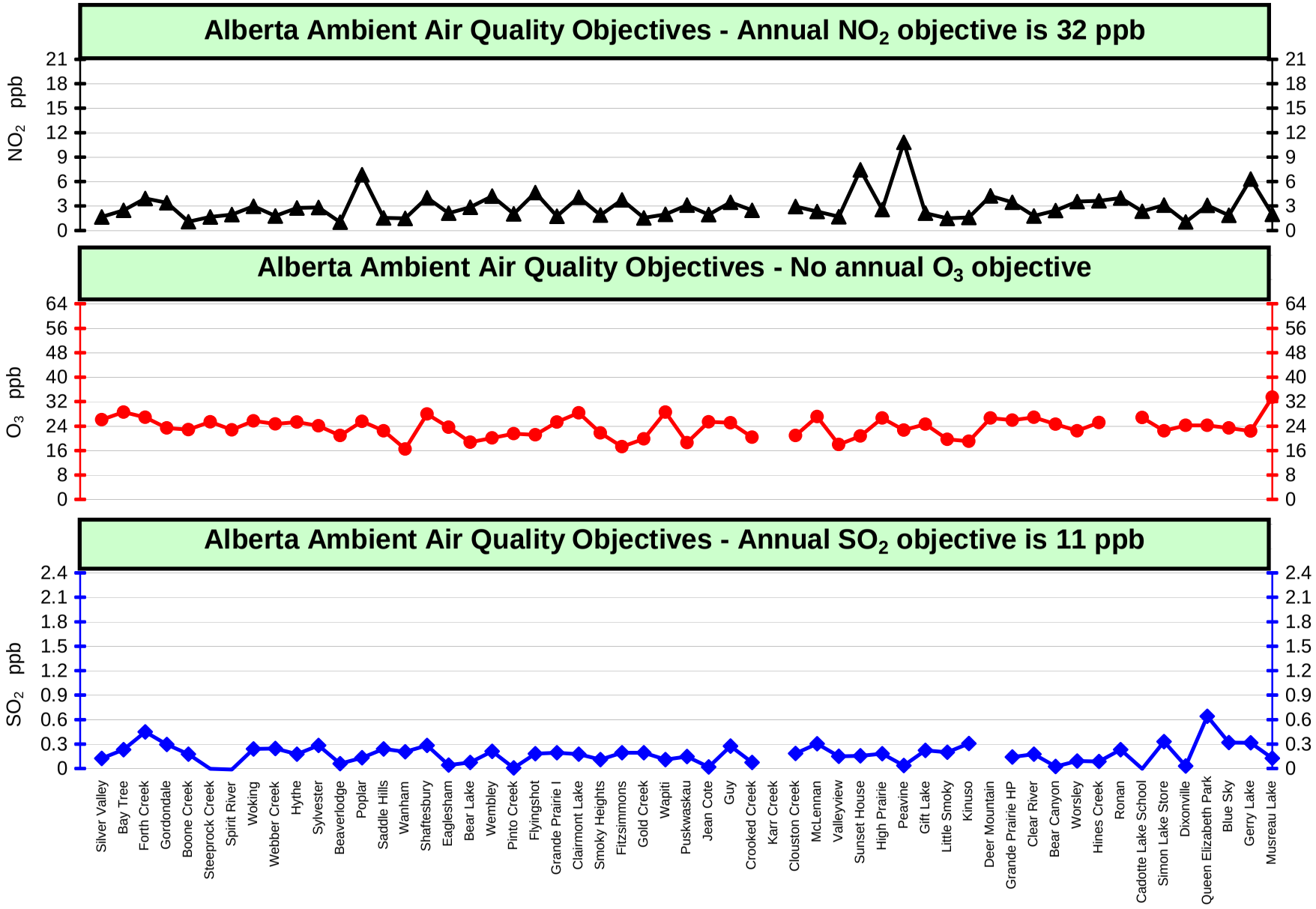
	SO_2	O_3	NO_2
PASZA Beaverlodge station	**0.6**	**24.0**	**7.1**
PASZA Beaverlodge passive	**0.1**	**20.9**	**1.0**

Comparison between Continuous and Passive monitoring at Henry Pirker (passive #49 Grande Prairie HP)

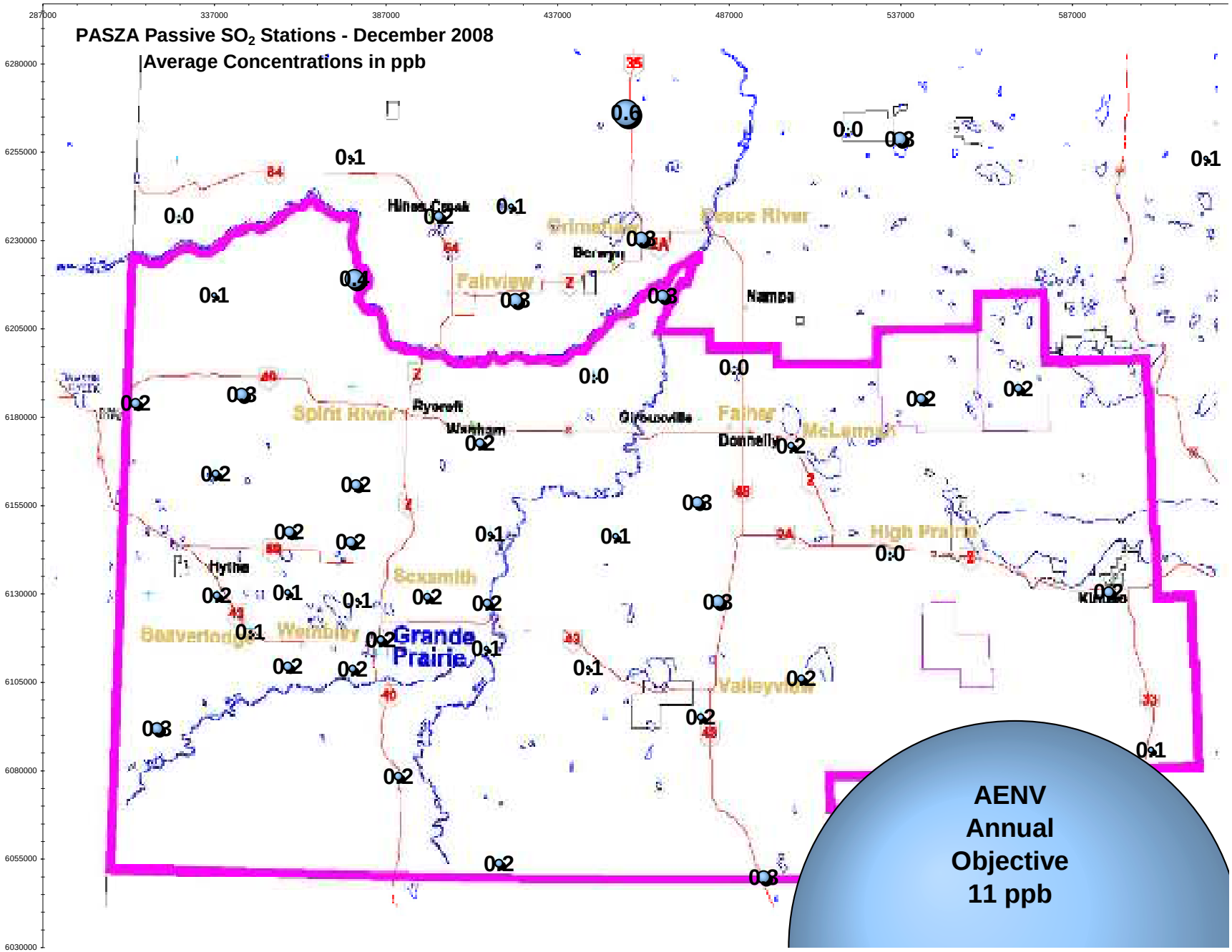
	SO_2	O_3	NO_2
PASZA Henry Pirker station	**0.3**	**16.5**	**15.8**
PASZA Grande Prairie passive	**0.1**	**26.0**	**3.5**

Comparison between Continuous and Passive monitoring at Spirit River (passive #9 Spirit River)

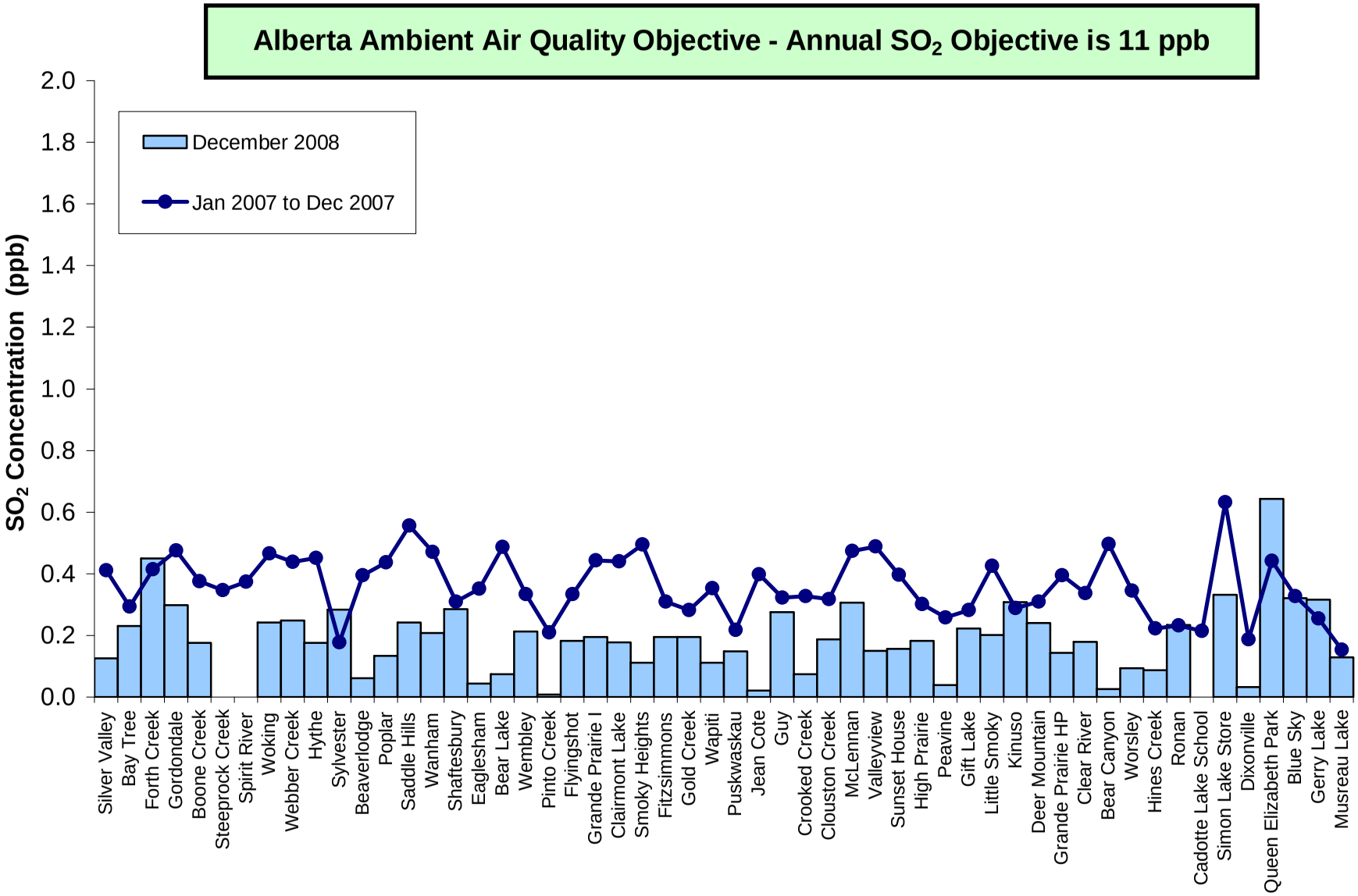
	SO_2	O_3	NO_2
PASZA Portable Spirit River station	**0.8**	**25.1**	**5.2**
PASZA Spirit River passive	**0.0**	**22.8**	**2.0**



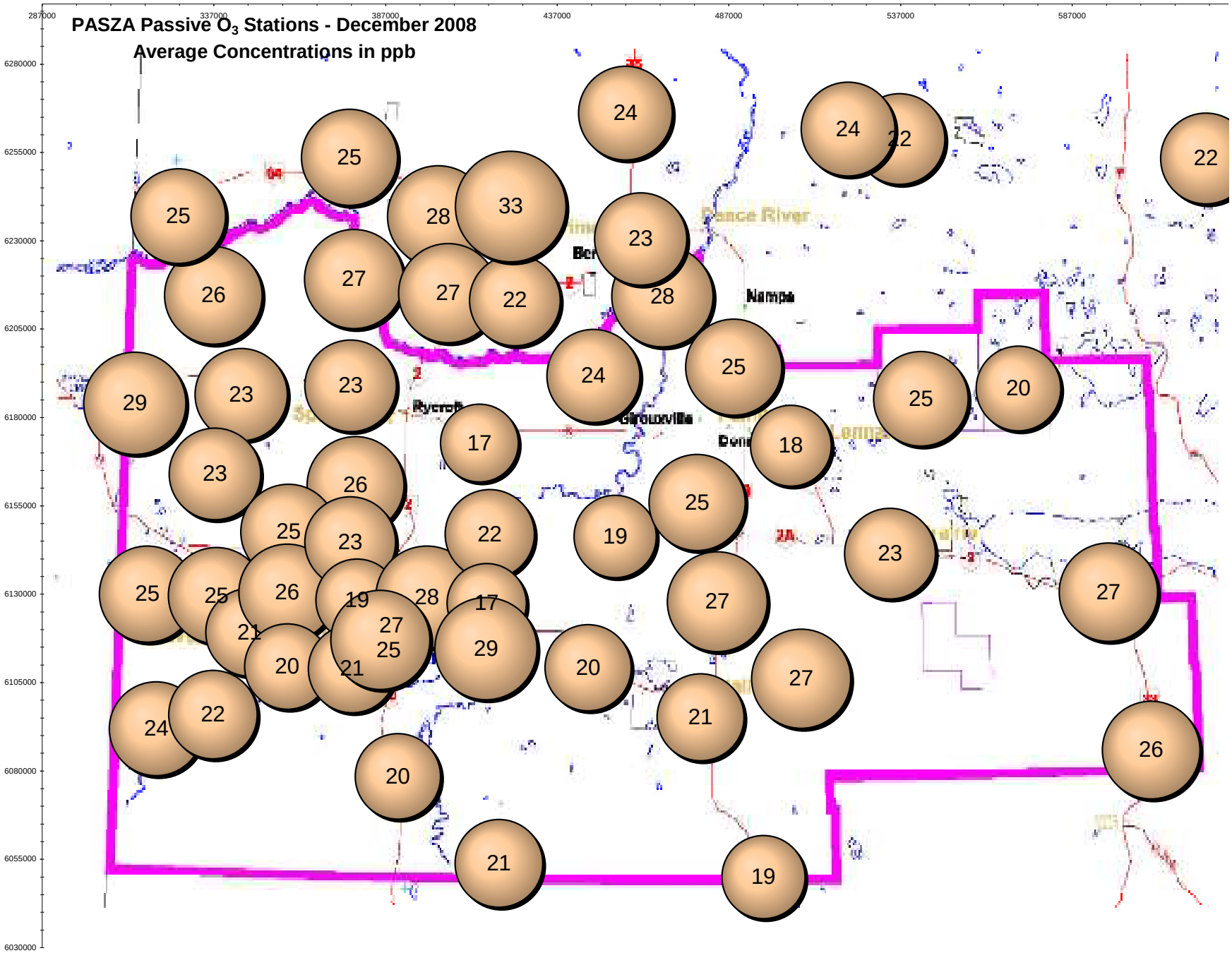
PASZA Passives - Annual Alberta Ambient Air Quality Objectives



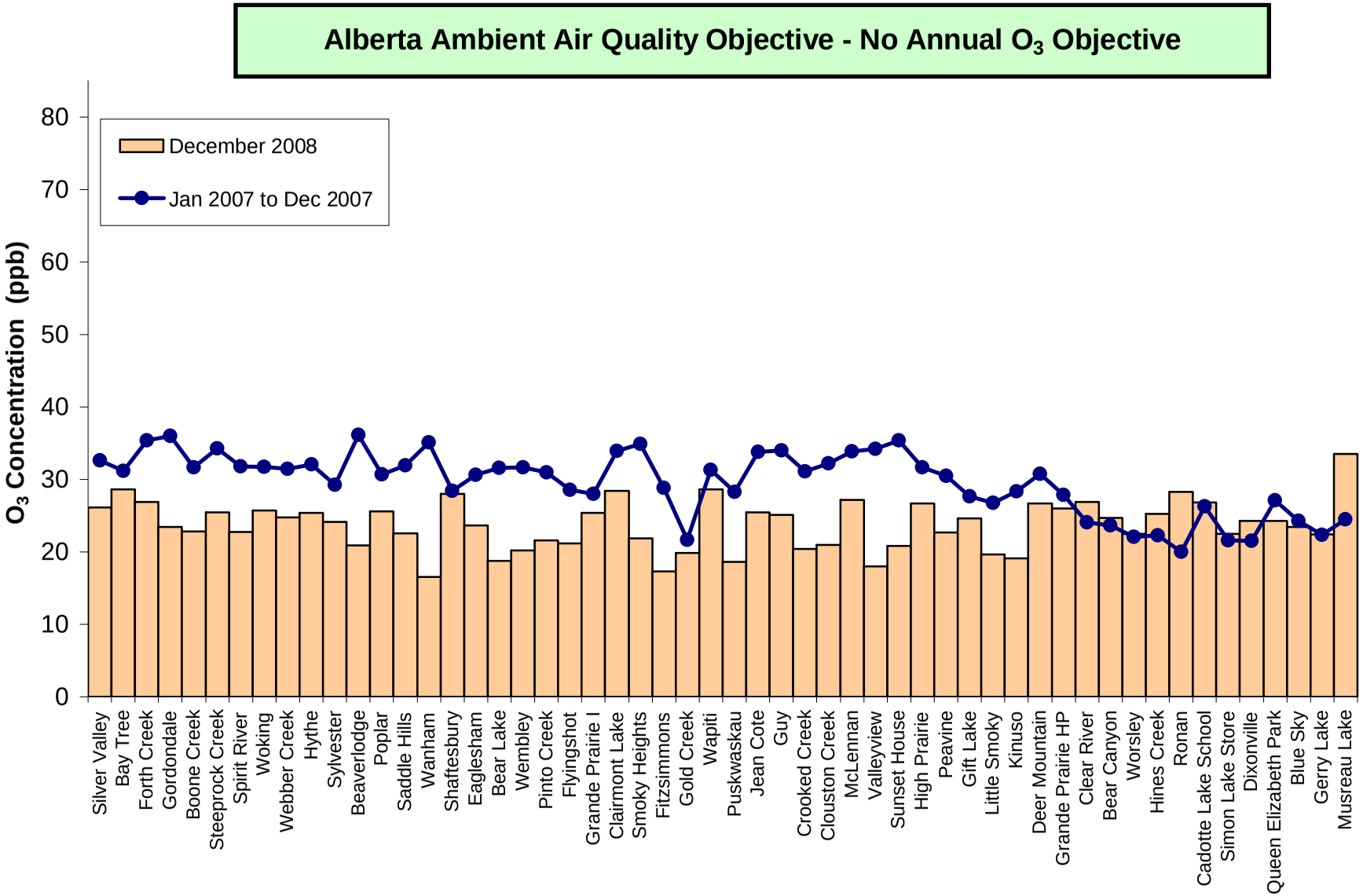
SO_2 Bubble Chart



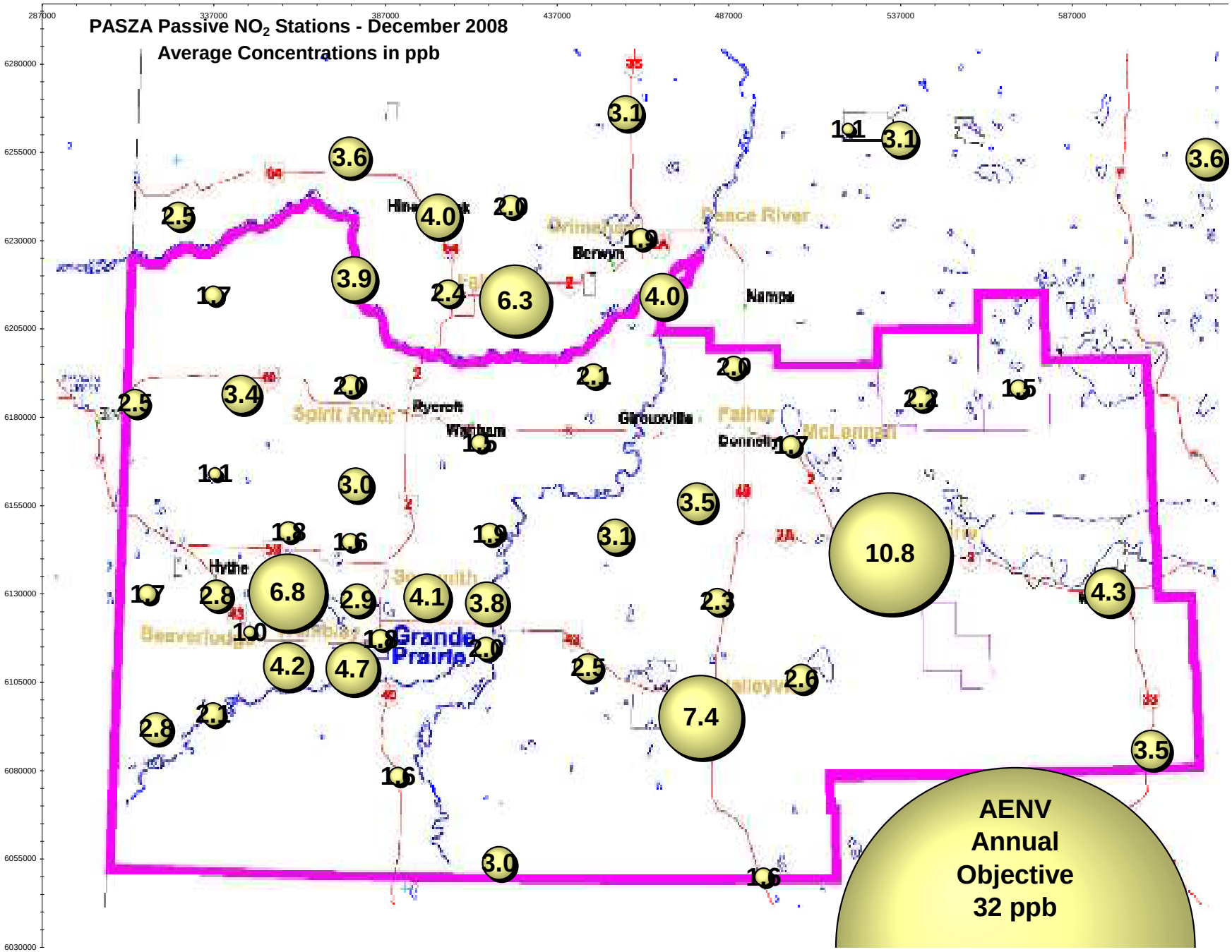
SO_2 Summary Chart



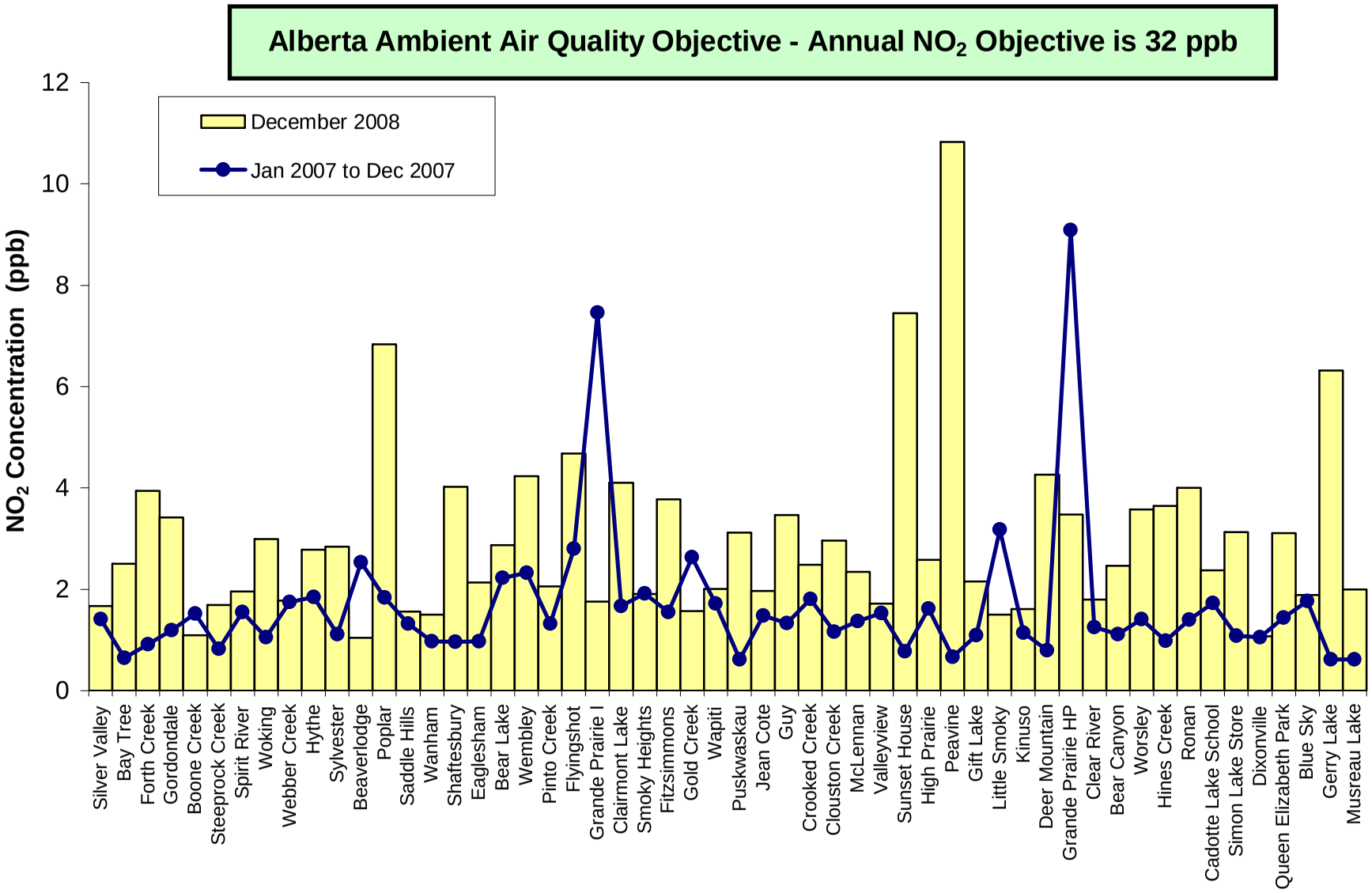
O_3 Bubble Chart



O_3 Summary Chart



NO_2 Bubble Chart



NO_2 Summary Chart

December 2008 Calibration Reports

PASZA - Henry Pirker Station with the following calibrations:
SO_2, NO, NO_2, NO_x, O_3, CO, THC, TRS & TEOM

PASZA – Evergreen Park Station with the following calibrations:
SO_2, TRS & TEOM

PASZA – Smoky Heights Station with the following calibrations:
SO_2, TRS & TEOM

PASZA – Beaverlodge Station with the following calibrations:
SO_2, NO, NO_2, NO_x, O_3 & TEOM

PASZA – Spirit River (Portable) Station with the following calibrations:
SO_2, TRS, NO, NO_2, NO_x & O_3,

PASZA – Valleyview Station with the following calibrations:
SO_2 & H_2S

Calibration Report

Parameter	SO_2
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 12, 2008	Previous Calibration	November 20, 2008
Station Number	1	Station Location	Henry Pirker
Reason: Routine	Install	Removal	Other:
Start Time (MST)	11:00	End Time (MST)	12:45
Barometric Pressure	0.909 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Conc	49.6 ppb	Cal Gas Cert Date	6/8/2008
		Cal Gas Cylinder #	AAL 15377
DACS make	Focus AP1000	DACS serial No.	1
DACS voltage range	0 - 1 volt	DACS channel #	10
	Before		After
Calculated slope	1.003609	Calculated slope	1.000636
Calculated intercept	-2.152197	Calculated intercept	-1.855342
Analyzer make	TEI 43C	Analyzer serial #	610816292

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	8.5		7.8	
Coefficient	.800		.804	
Pressure	651.6	mm Hg	654.7	mm Hg
Flow	0.528	lpm	0.545	lpm
Lamp Voltage	44054	Hz	44114	Hz

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.0	0.6	N/A
4992	39.87	393.0	394.1	0.9972
4991	19.93	197.3	199.1	0.9906
4988	9.95	98.7	102.1	0.9667
4988	0.00	0.0	-0.2	As Found Zero
4991	39.84	392.8	389.2	As Found Span
			Average Correction Factor	0.9848

Calculated value of As Found Response: 388.7 ppb Percent Change of As Found: 1.1%

	before calibration		after calibration	
Auto zero	-1.1	ppb	-0.8	ppb
Auto span	350.0	ppb	322.4	ppb

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	SO_2
Air Monitoring Network	PASZA

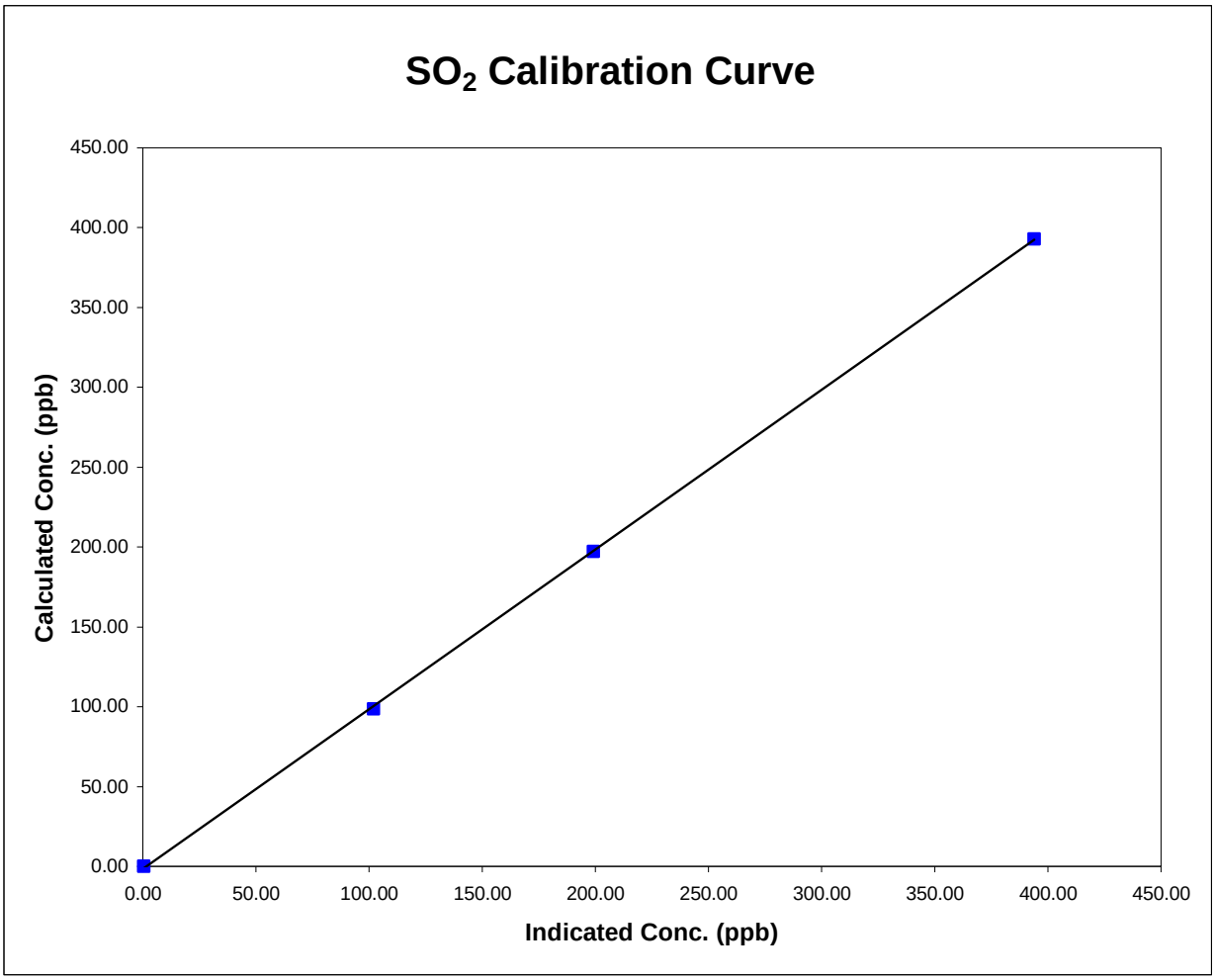
FOCUS AIR QUALITY MONITORING

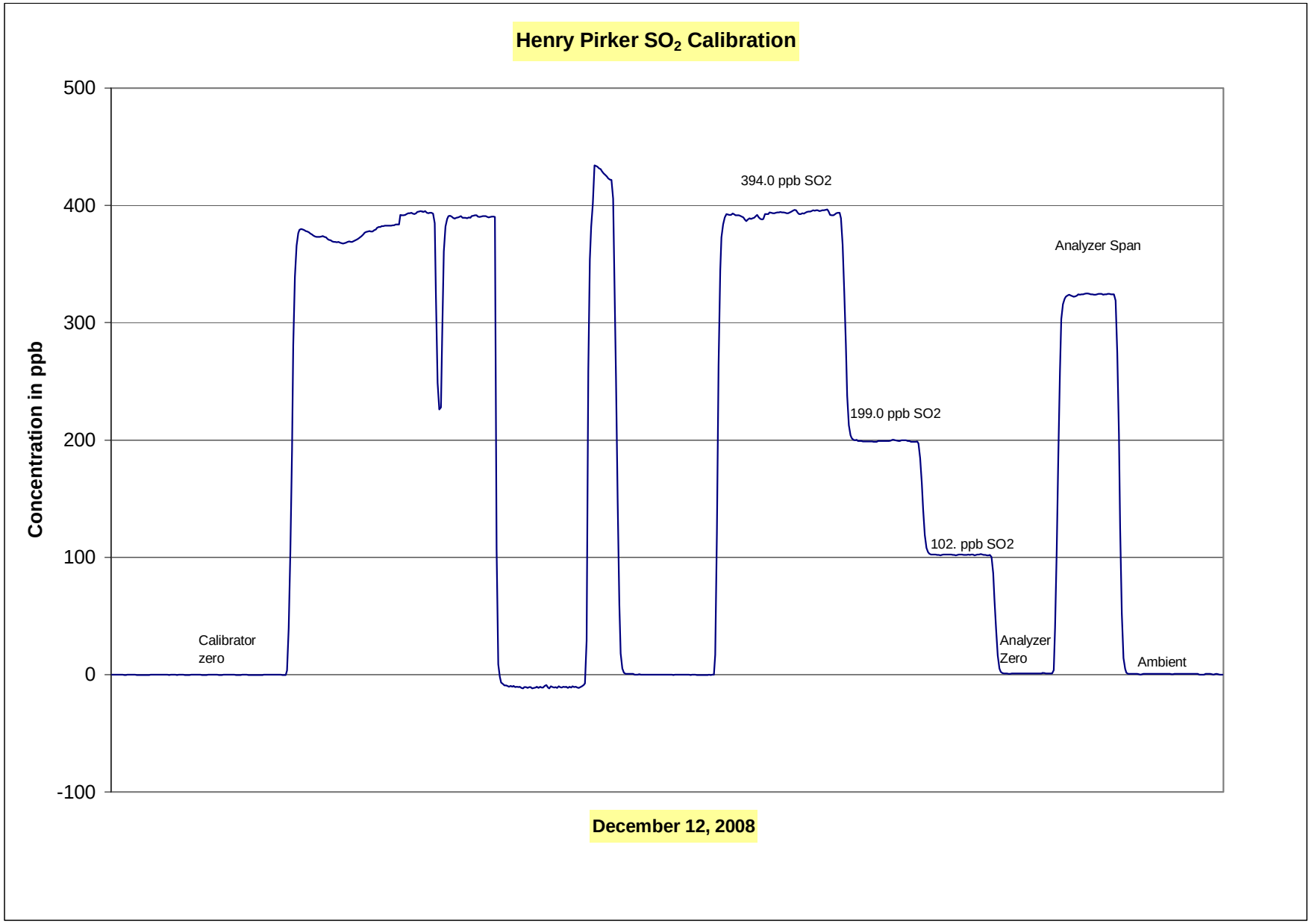
Station Information

Calibration Date	December 12, 2008	Previous Calibration	November 20, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	11:00	End Time (MST)	12:45
Analyzer make/model	TEI 43C	Analyzer serial #	610816292

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.6	N/A		
393.0	394.1	0.9972	Correlation Coefficient	0.999947
197.3	199.1	0.9906		
98.7	102.1	0.9667	Slope	1.000636
			Intercept	-1.855342




Henry Pirker SO_2 Calibration
500
400
300
200
100
0
-100
Concentration in ppb
394.0 ppb SO2
Analyzer Span
199.0 ppb SO2
102. ppb SO2
Calibrator zero
Analyzer Zero
Ambient
December 12, 2008

Calibration Report

Parameter	**NOx-NO-NO_2**
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 12, 2008	Previous Calibration	November 20, 2008
Station Number	1	Station Location	Henry Pirker

Reason: Routine Installation Removal Other: _____

Start Time (MST)	11:00		End Time (MST)	18:39	
Barometric Pressure	0.922	Atm	Station Temperature	21.0	Deg C
Calibrator	Environics 6100		Serial Number	3474	
NO Cal Gas Conc	49.6	ppm	Cal Gas Cert Date	6/8/2008	
NOx Cal Gas Conc	49.6	ppm	Cal Gas Cylinder #	AAL 15377	

DACS Information

DACS make	FOCUS AP1000	DACS serial No.	45269

Parameter		NO2	NOx	NO
Before	Data Slope	1.000251	1.002705	1.006528
	Data Offset	-0.622120	-4.108996	-3.922548
After	Data Slope	1.003980	1.003856	1.003543
	Data Offset	-0.119446	-2.838420	-2.856101
Channel #		8	6	7
Voltage Range		0 - 10 VDC	0 - 10 VDC	0 - 10 VDC

Analyzer Information

Analyzer make/model	Teco 42C	Analyzer serial #	508011073

Test Point	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
NO background	9.0	ppb	9.9	mV
NOx background	10.7	ppb	10.2	mV
NO coefficient	0.783		0.791	
NOx coefficient	1.003		0.998	
Chamber Temp	49.6	Deg C	49.5	Deg C
Cooler Temp	-2.5	Deg C	-2.5	Deg C
Converter Temp	318.0	Deg C	319.0	Deg C
Vacuum	188.7	mm Hg	189.5	mm Hg

Notes: _____

Calibration Report

Parameter **NOx-NO-NO_2**

Air Monitoring Network **PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date: December 12, 2008 Station Location: Henry Pirker

Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor
zero	4990	0.00	0.0	0.0	0.0	0.8	0.5	0.1	N/A	N/A
1	4992	39.87	393.0	393.0	0.0	393.3	393.2	0.0	0.9993	0.9995
2	4991	19.93	197.3	197.3	0.0	200.2	200.6	-0.4	0.9853	0.9833
3	4991	9.92	98.4	98.4	0.0	103.1	103.3	-0.3	0.9547	0.9522
AFZ	4990	0.00	0.0	0.0	0.0	-0.4	0.6	-1.4	0.0000	0.0000
AFS	4990	39.85	393.0	393.0	0.0	390.9	390.6	0.3	1.0054	1.0059
							Average Correction Factor		0.9797	0.9783

As Found Concentrations: NO_X= 387.2 NO= 386.1 As Found Percent Change NO_X= -1.5% NO= -1.7%

GPT Calibration Data

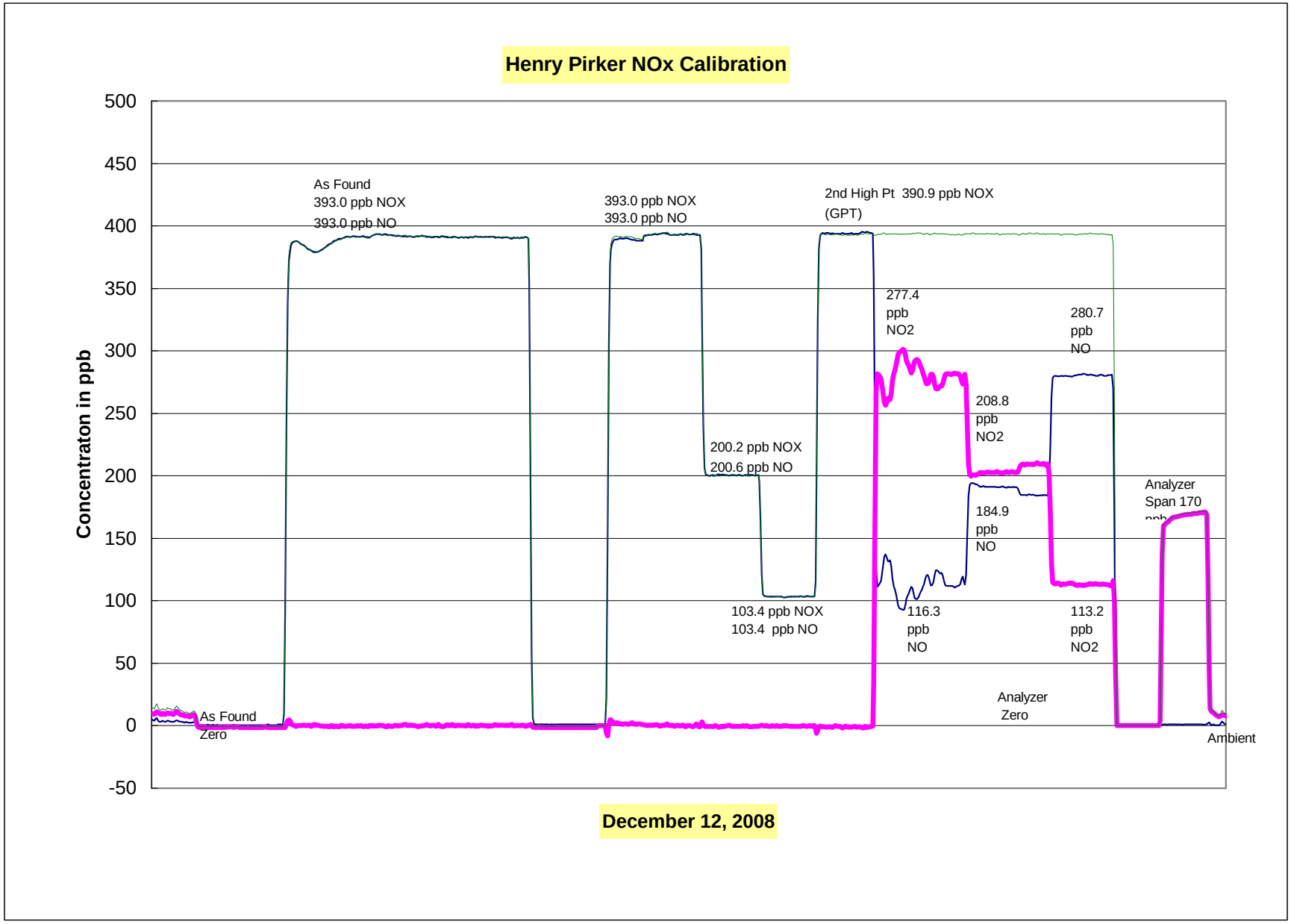
Dilution Flow 4990 ccm Source Gas Flow 39.88 ccm

O3 Setpoint (ppb)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor	NO2 Correction factor	Converter Efficiency
0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A	N/A	N/A
NO point	392.3	392.7	-0.4	393.0	394.1	-1.0	0.9980	0.9963	N/A	N/A
300	392.3	113.8	278.5	393.5	116.3	277.4	0.9969	0.9790	1.0037	99.6%
200	392.3	182.8	209.5	393.7	185.0	208.8	0.9964	0.9881	1.0032	99.7%
100	392.3	278.8	113.4	393.6	280.7	113.1	0.9967	0.9934	1.0030	99.7%
					Average Correction Factor		0.9966	0.9868	1.0033	99.7%

AIC Data

	Previous calibration				Current calibration			
Parameter	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	-1.4	1.0	-0.8	ppb	0.8	1.0	1.1	ppb
Auto span	159.5	160.7	-2.0	ppb	168.1	169.8	-1.9	ppb

Calibration Performed By: Grover Christiansen


Henry Pirker NOx Calibration
Concentraton in ppb
500
450
400
350
300
250
200
150
100
50
0
-50
As Found
393.0 ppb NOX
393.0 ppb NO
393.0 ppb NOX
393.0 ppb NO
2nd High Pt 390.9 ppb NOX
(GPT)
277.4
ppb
NO2
280.7
ppb
NO
208.8
ppb
NO2
200.2 ppb NOX
200.6 ppb NO
Analyzer
Span 170
184.9
ppb
NO
103.4 ppb NOX
103.4 ppb NO
116.3
ppb
NO
113.2
ppb
NO2
Analyzer
Zero
As Found
Zero
Ambient
December 12, 2008

Calibration Summary

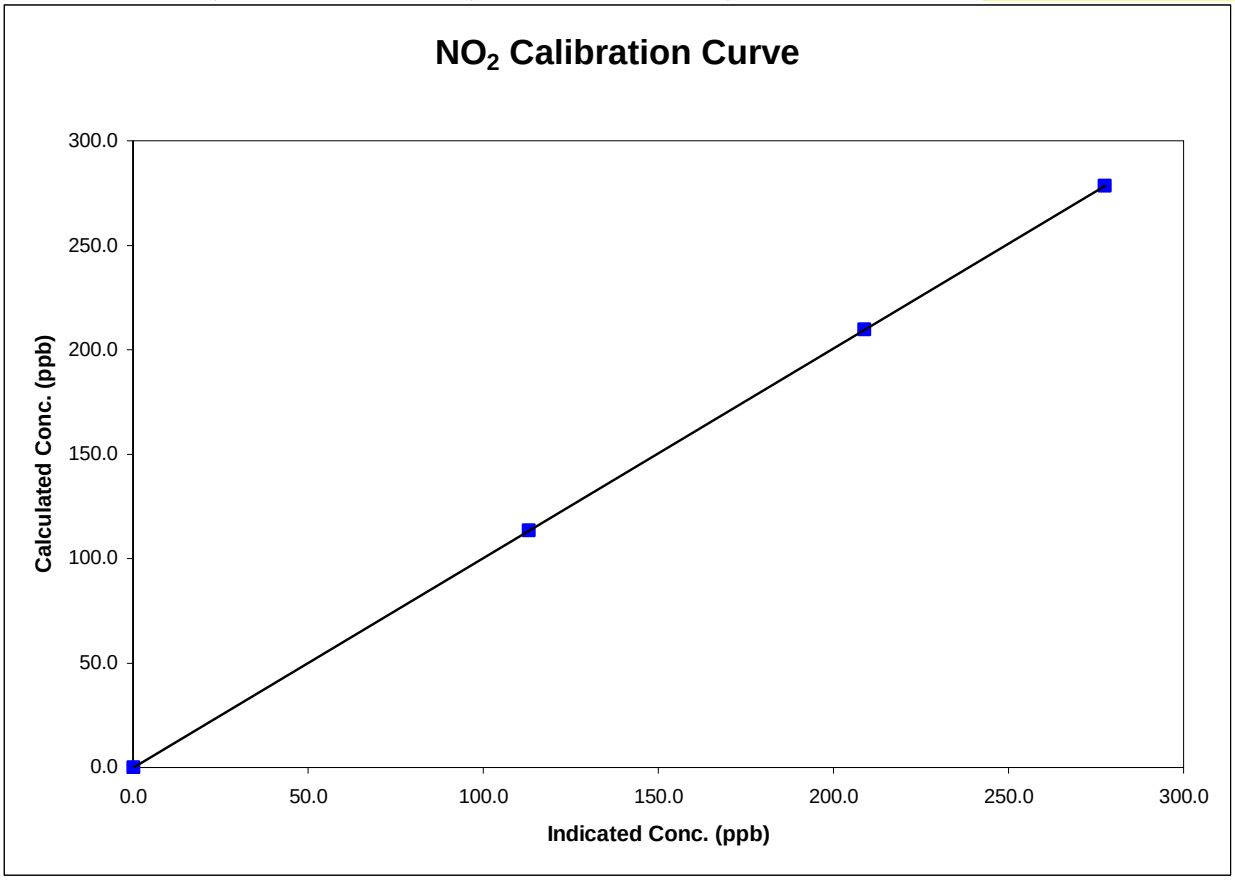
Parameter	NO_2
Air Monitoring Network	PASZA

Station Information

Calibration Date	December 12, 2008	Previous Calibration	November 20, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	11:00	End Time (MST)	18:39
Analyzer make	Teco 42C	Analyzer serial #	508011073

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	0.0000		
278.5	277.4	1.0037	Correlation Coefficient	1.000000
209.5	208.8	1.0032		
113.4	113.1	1.0030	Slope	1.003980
			Intercept	-0.119446



Calibration Summary

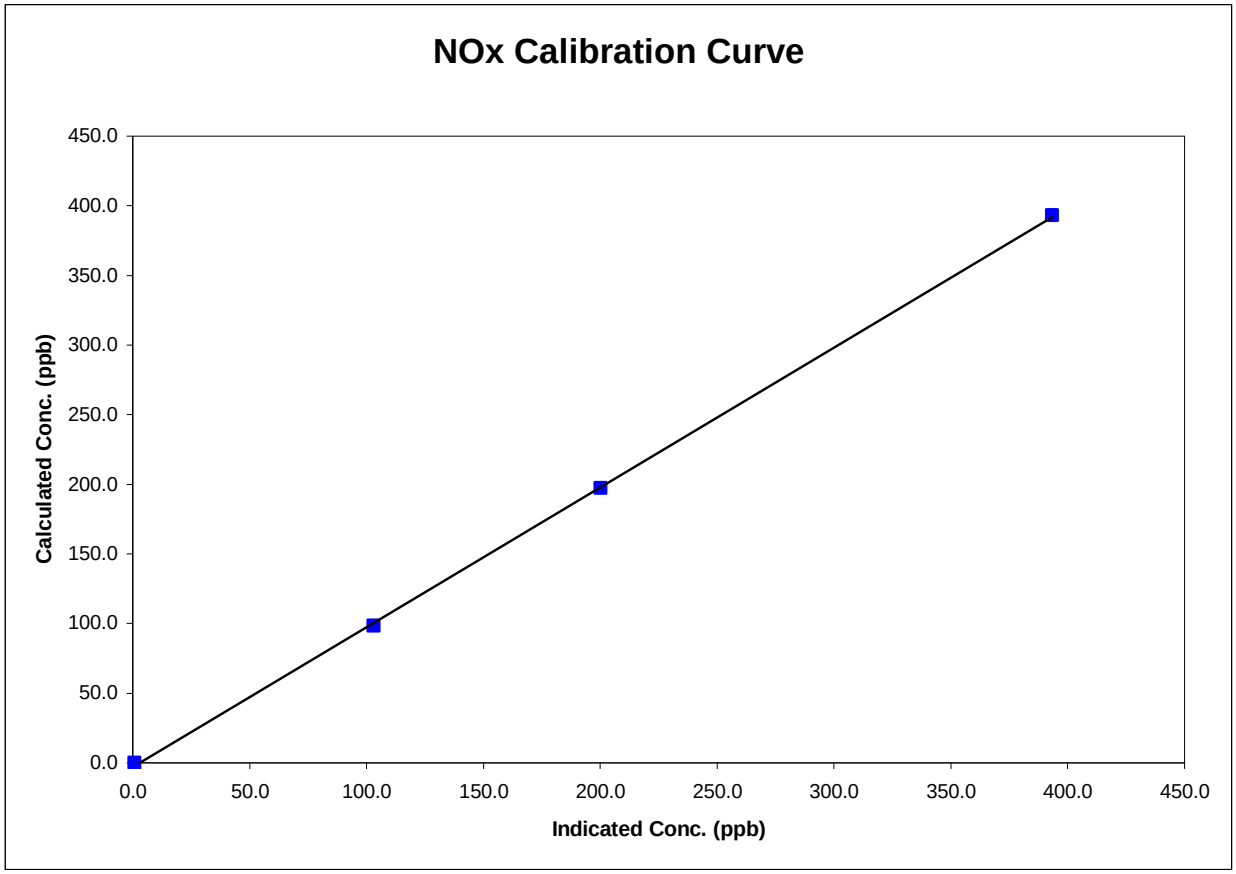
Parameter	NO_x
Air Monitoring Network	PASZA

Station Information

Calibration Date	December 12, 2008	Previous Calibration	November 20, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	11:00	End Time (MST)	18:39
Analyzer make	Teco 42C	Analyzer serial #	508011073

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.8	0.0000		
393.0	393.3	0.9993	Correlation Coefficient	0.999868
197.3	200.2	0.9853		
98.4	103.1	0.9547	Slope	1.003856
			Intercept	-2.838420



Calibration Summary

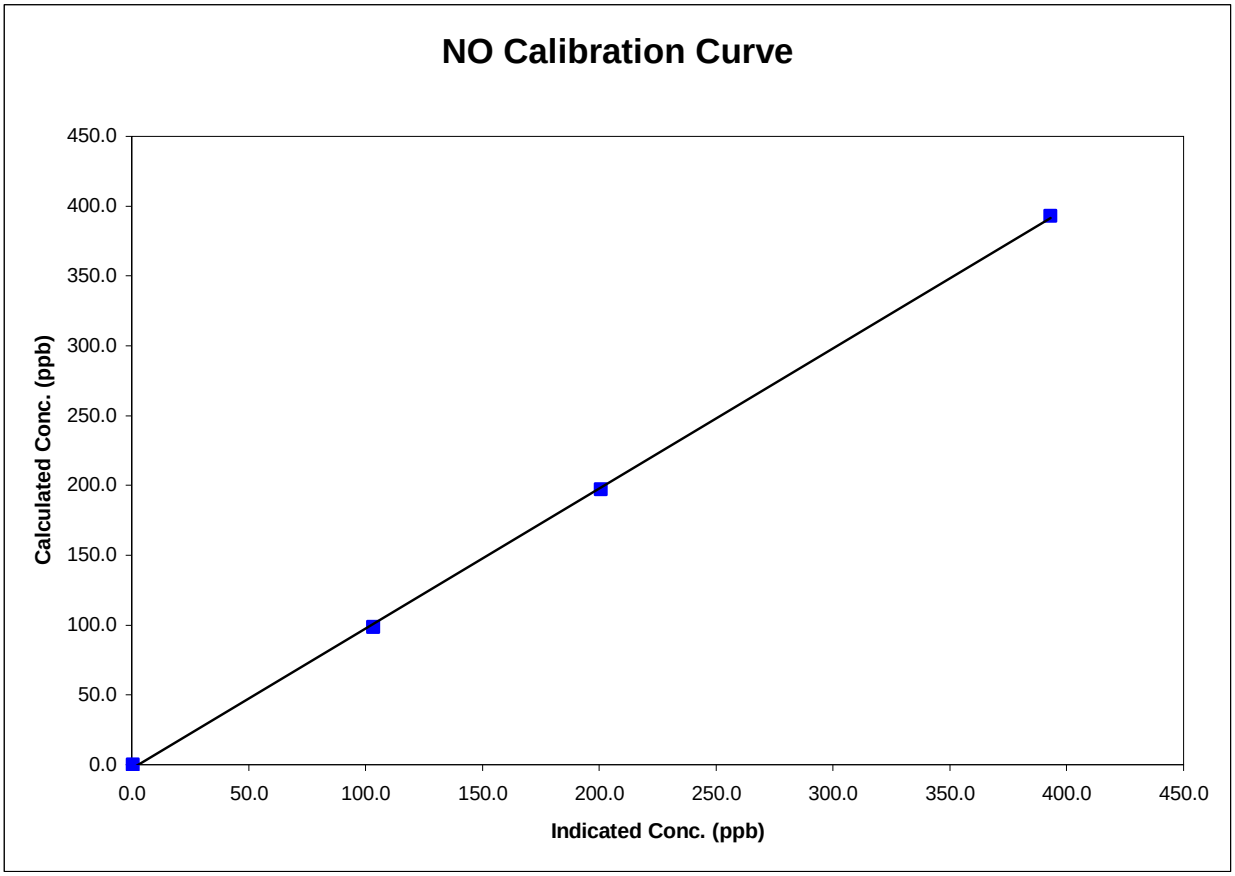
Parameter	**NO**
Air Monitoring Network	**PASZA**

Station Information

Calibration Date	December 12, 2008	Previous Calibration	November 20, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	11:00	End Time (MST)	18:39
Analyzer make	Teco 42C	Analyzer serial #	508011073

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.5	N/A		
393.0	393.2	0.9995	Correlation Coefficient	0.999826
197.3	200.6	0.9833		
98.4	103.3	0.9522	Slope	1.003543
			Intercept	-2.856101



Calibration Report

Parameter	O_3
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 15, 2008	Previous Calibration	November 10, 2008
Station Number	1	Station Location	Henry Pirker
Reason: Routine	Install	Removal	Other:
Start Time (MST)	14:30	End Time (MST)	17:17
Barometric Pressure	0.932 atm	Station Temperature	20.0 Deg C
Calibrator	Environics 6103	Serial Number	2844
Cal Gas Concentration	NA	Cal Gas Expiry Date	NA
DACS make	Focus AP1000	DACS serial No.	45269
DACS voltage range	0 - 1 volt	DACS channel #	5
	Before		After
Calculated slope	0.972873	Calculated slope	1.013732
Calculated intercept	1.208328	Calculated intercept	5.520317
Analyzer make	TECO 49C	Analyzer serial #	607415761

	before		after	
Concentration range	500	ppb	500	ppb
offset	-0.6	ppb	-0.6	ppb
slope	1.023		1.023	
O3 Lamp temp	71	Deg C	71	Deg C
Intensities	126586/103190	mV	100819/81123	mV
Pressure	708.9	inches Hg	708.9	inches Hg
Flow A	718	ccm	683	ccm
Flow B	744	Deg C	695	Deg C

Calibration Data

Referenced concentration (ppb)	Dilution air flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0	4988	0.0	0.1	N/A
300	4988	278.5	278.2	1.0011
200	4988	209.5	189.8	1.1036
100	4988	113.2	103.1	1.0974
0	4988	0.0	-0.4	As found zero
300	4988	248.7	293.6	As found span
			Average Correction Factor	1.0674

Calculated value of As Found Response: 287.2 ppm Percent Change of As Found: 15.5%

	before calibration		after calibration	
Auto zero	-0.2	ppb	5.4	ppb
Auto span	155.3	ppb	166.1	ppb

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	O_3
Air Monitoring Network	**PASZA**

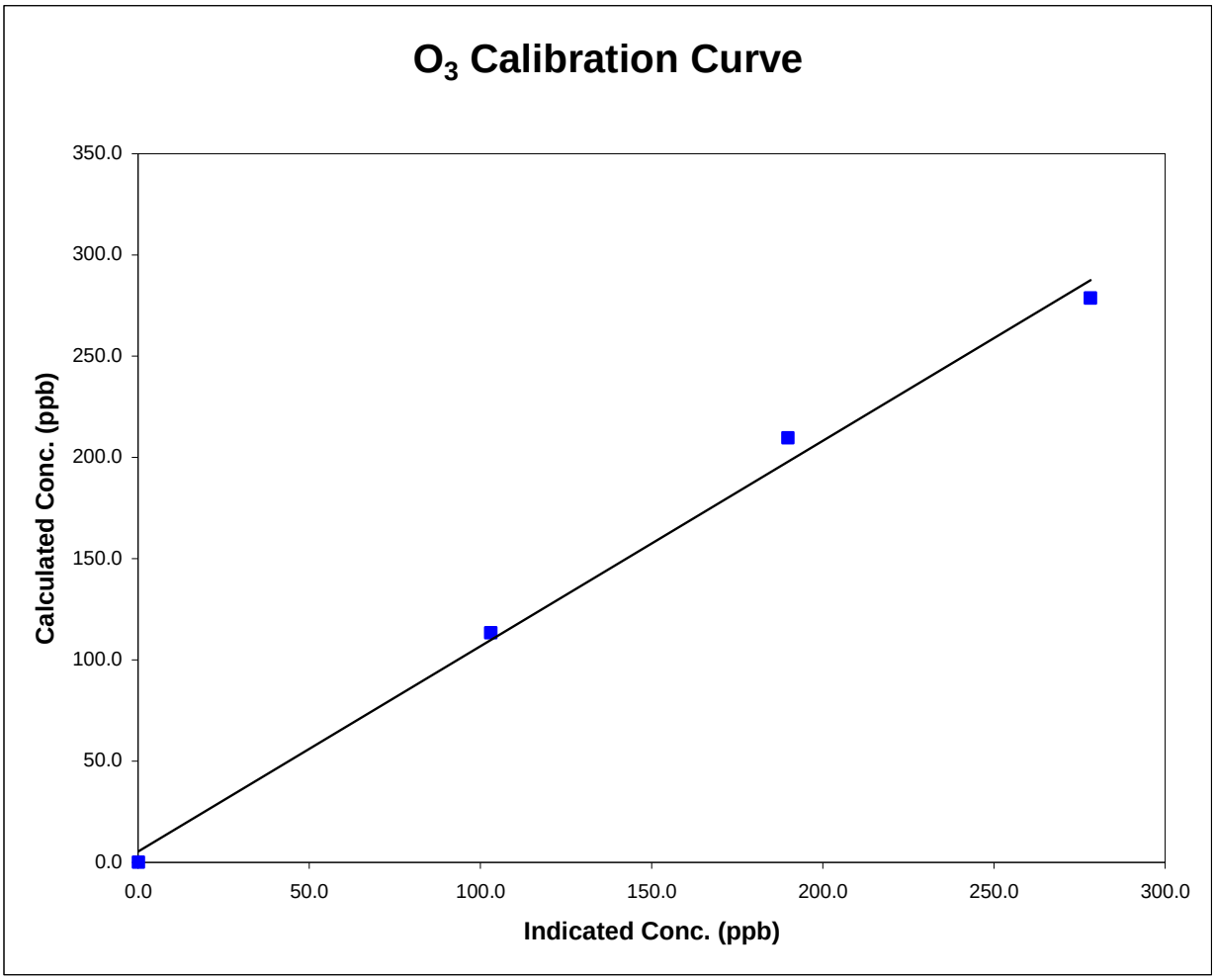
FOCUS AIR QUALITY MONITORING

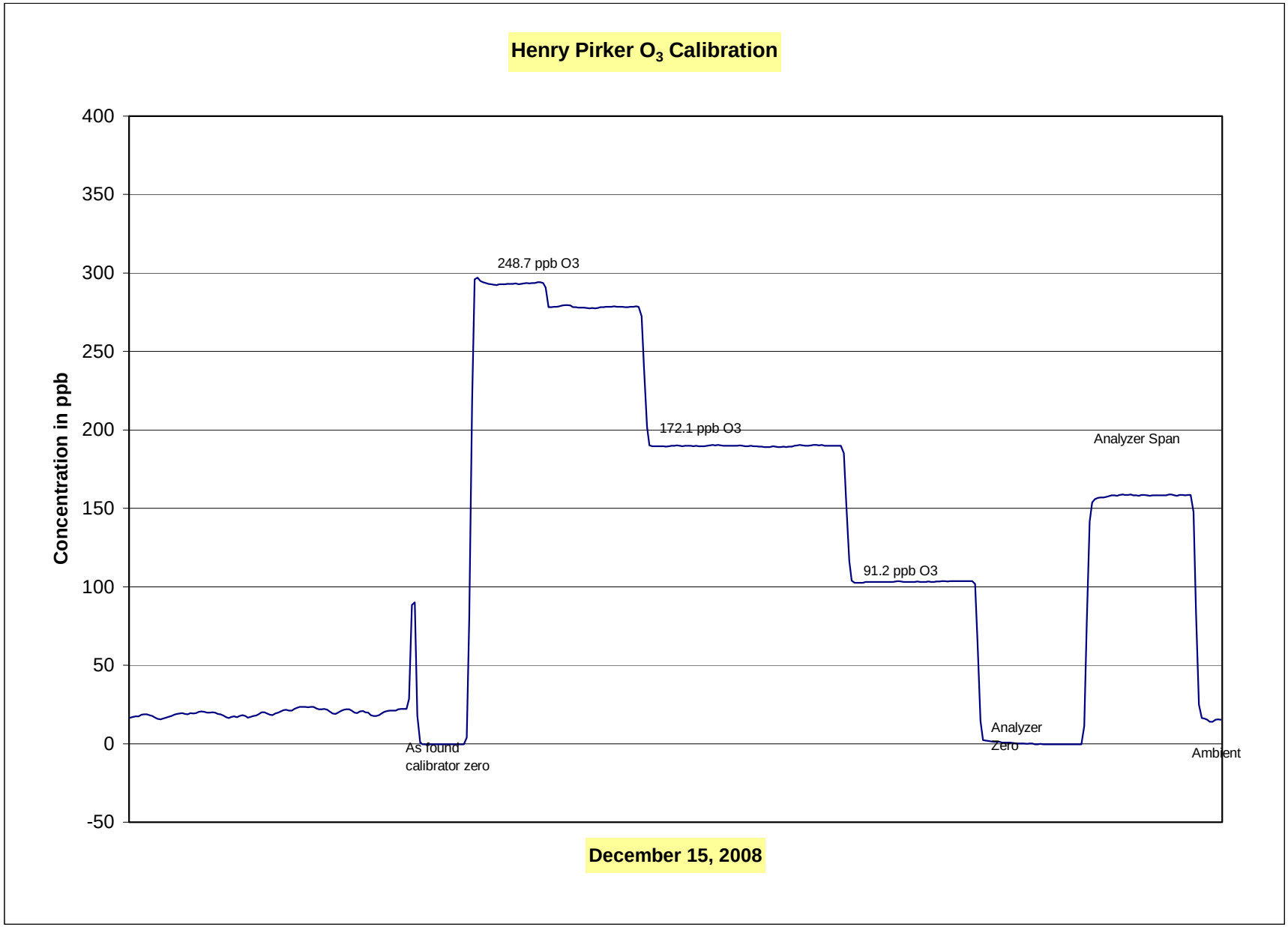
Station Information

Calibration Date	December 15, 2008	Previous Calibration	November 10, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	14:30	End Time (MST)	17:17
Analyzer make/model	TECO 49C	Analyzer serial #	607415761

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	NA		
278.5	278.2	1.0011	Correlation Coefficient	0.994177
209.5	189.8	1.1036		
113.2	103.1	1.0974	Slope	1.013732
			Intercept	5.520317




Henry Pirker O_3 Calibration
Concentration in ppb
400
350
300
250
200
150
100
50
0
-50
248.7 ppb O3
172.1 ppb O3
91.2 ppb O3
Analyzer Span
As found calibrator zero
Analyzer Zero
Ambient
December 15, 2008

Calibration Report

Parameter	CO
Air Monitoring Network	PASZA

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 16, 2008	Previous Calibration	November 10, 2008
Station Number	1	Station Location	Henry Pirker
Reason: Routine	Install	Removal	Other:

Start Time (MST)	9:00	End Time (MST)	12:15
Barometric Pressure	0.920 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Conc	3000 ppm	Cal Gas Expiry Date	AUG 28/05
		Cal Gas Cylinder #	AAL20565
DACS make	Focus AP1000	DACS serial No.	1
DACS voltage range	0 - 1 volt	DACS channel #	9
	Before		After
Calculated slope	1.018675	Calculated slope	1.008675
Calculated intercept	-0.145860	Calculated intercept	-0.128063

Analyzer make	TEI Model 48C	Analyzer serial #	508011062

	before		after	
Concentration range	0 - 50	ppm	0 - 50	ppm
CO span setting	1.017		1.017	
CO zero setting	3.631		.808	
Sample pressure	683.6	mm Hg	679.1	mm Hg
Sample Flow	1.15	LPM	1.12	LPM

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.00	0.04	N/A
4988	39.82	23.76	23.64	1.0051
4988	19.88	11.91	11.97	0.9950
4989	9.94	5.96	6.13	0.9721
4990	0.00	0.00	0.55	As Found Zero
4990	39.86	23.77	24.24	As Found Span
			Average Correction Factor	0.9907

Calculated value of As Found Response: 23.988 ppm Percent Change of As Found: -0.9%

	before calibration		after calibration	
Auto zero	0.15	ppm	-0.01	ppm
Auto span	15.95	ppm	19.41	ppm

Notes: Span failure due to dry CO bottle, spare has been ordered a few weeks ago

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	CO
Air Monitoring Network	PASZA

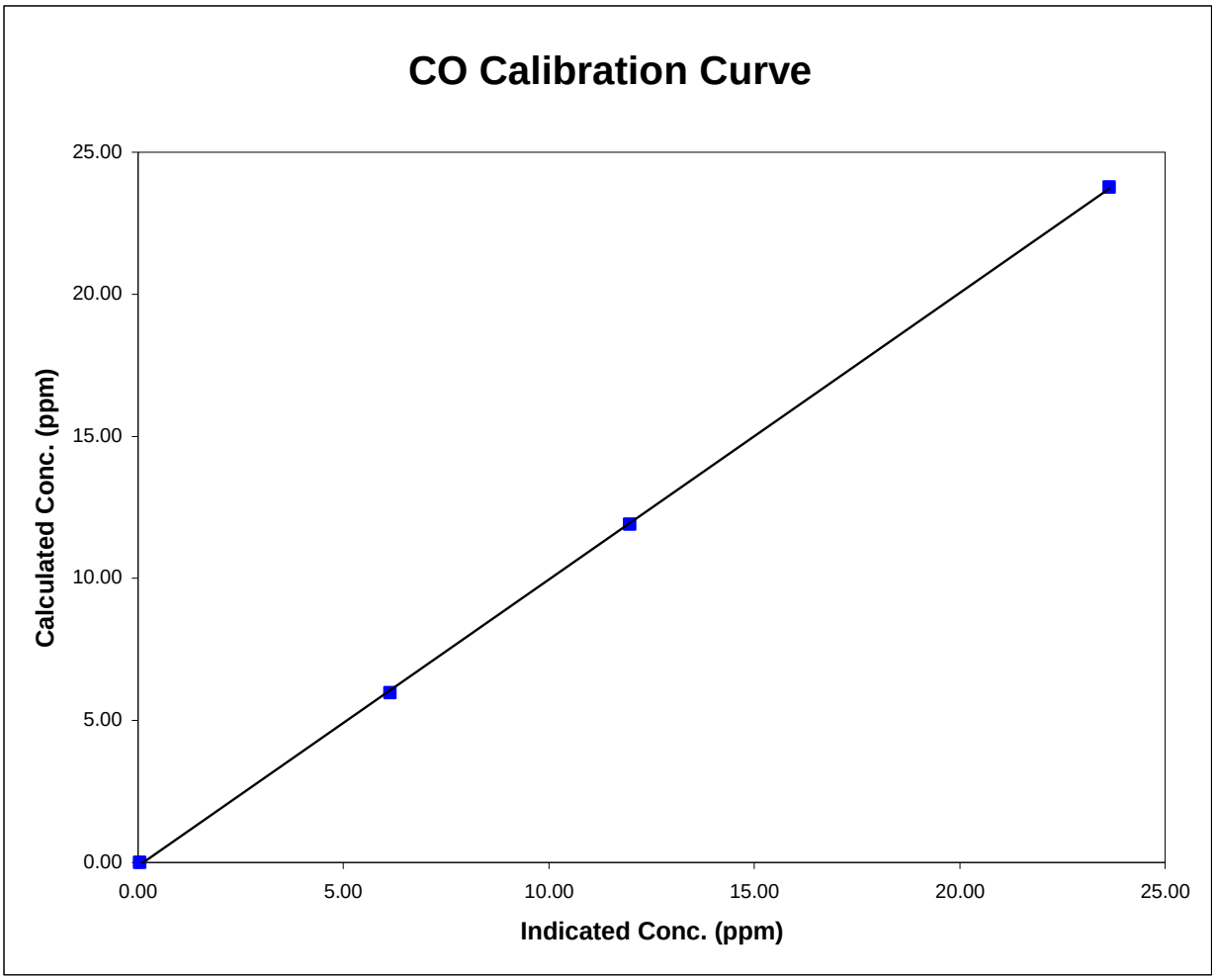
FOCUS AIR QUALITY MONITORING

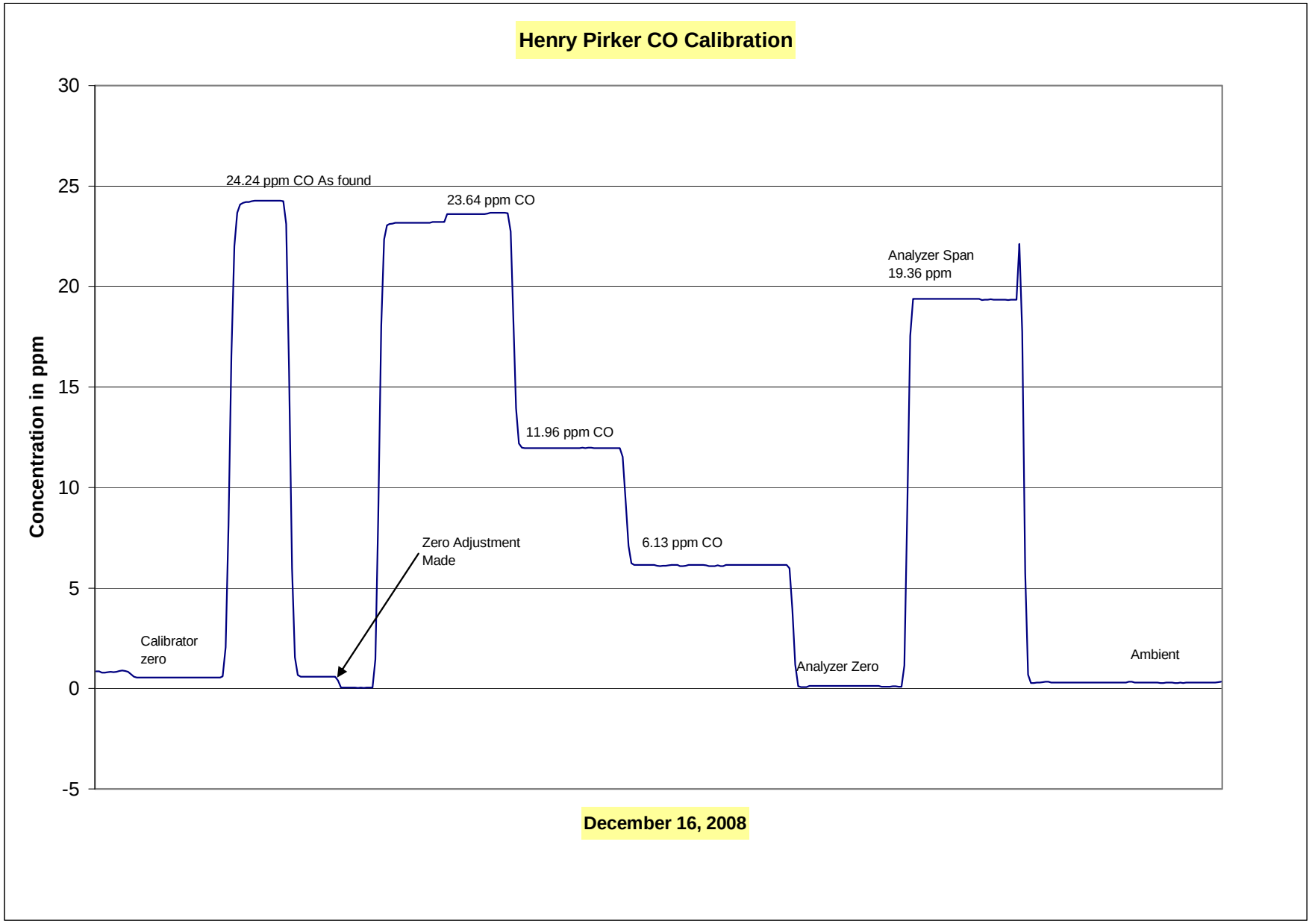
Station Information

Calibration Date	December 16, 2008	Previous Calibration	November 10, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:00	End Time (MST)	12:15
Analyzer make/model	TEI Model 48C	Analyzer serial #	508011062

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.039	N/A		
23.758	23.638	1.0051	Correlation Coefficient	0.999934
11.909	11.969	0.9950		
5.962	6.134	0.9721	Slope	1.008675
			Intercept	-0.128063




Henry Pirker CO Calibration
Concentration in ppm
30
25
20
15
10
5
0
-5
24.24 ppm CO As found
23.64 ppm CO
11.96 ppm CO
6.13 ppm CO
Analyzer Span
19.36 ppm
Zero Adjustment
Made
Calibrator
zero
Analyzer Zero
Ambient
December 16, 2008

Calibration Report

Parameter	THC
Air Monitoring Network	PASZA

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 16, 2008	Previous Calibration	October 6, 2008
Station Number	1	Station Location	Henry Pirker
Reason:	Routine / Install	Removal	Other:

Start Time (MST)	11:00	End Time (MST)	14:35
Barometric Pressure	0.919 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentration	701 ppm CH4/ 299 ppm C3H8	Cal Gas Expiry Date	2/4/2010
Cal Gas CH4 equiv	1523.25 ppm	Cal Gas Cylinder #	ALM 005412
DACS make	Focus AP1000	DACS serial No.	1
DACS voltage range	0 - 1 volt	DACS channel #	9
	Before		After
Calculated slope	0.999398	Calculated slope	0.998116
Calculated intercept	-0.117854	Calculated intercept	-0.044167

Analyzer make	TEI Model 51C-LT	Analyzer serial #	51CLT-79009-390

	before		after	
Concentration range	0 - 25	ppm	0 - 25	ppm
THC sample pressure	6.10	psi	6.50	psi
THC span counts	7170	capture	7205	capture
THC zero counts	1121	capture	1166	capture

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.00	0.07	N/A
4988	69.75	21.01	21.14	0.9936
4989	29.88	9.07	8.99	1.0091
4988	9.92	3.02	3.14	0.9641
4988	0.00	0.00	-0.19	As Found Zero
4988	69.82	21.03	21.01	As Found Span
			Average Correction Factor	0.9889

Calculated value of As Found Response: 21.067 ppm Percent Change of As Found: -0.2%

	before calibration		after calibration	
Auto zero	-0.07	ppm	-0.01	ppm
Auto span	20.95	ppm	23.67	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

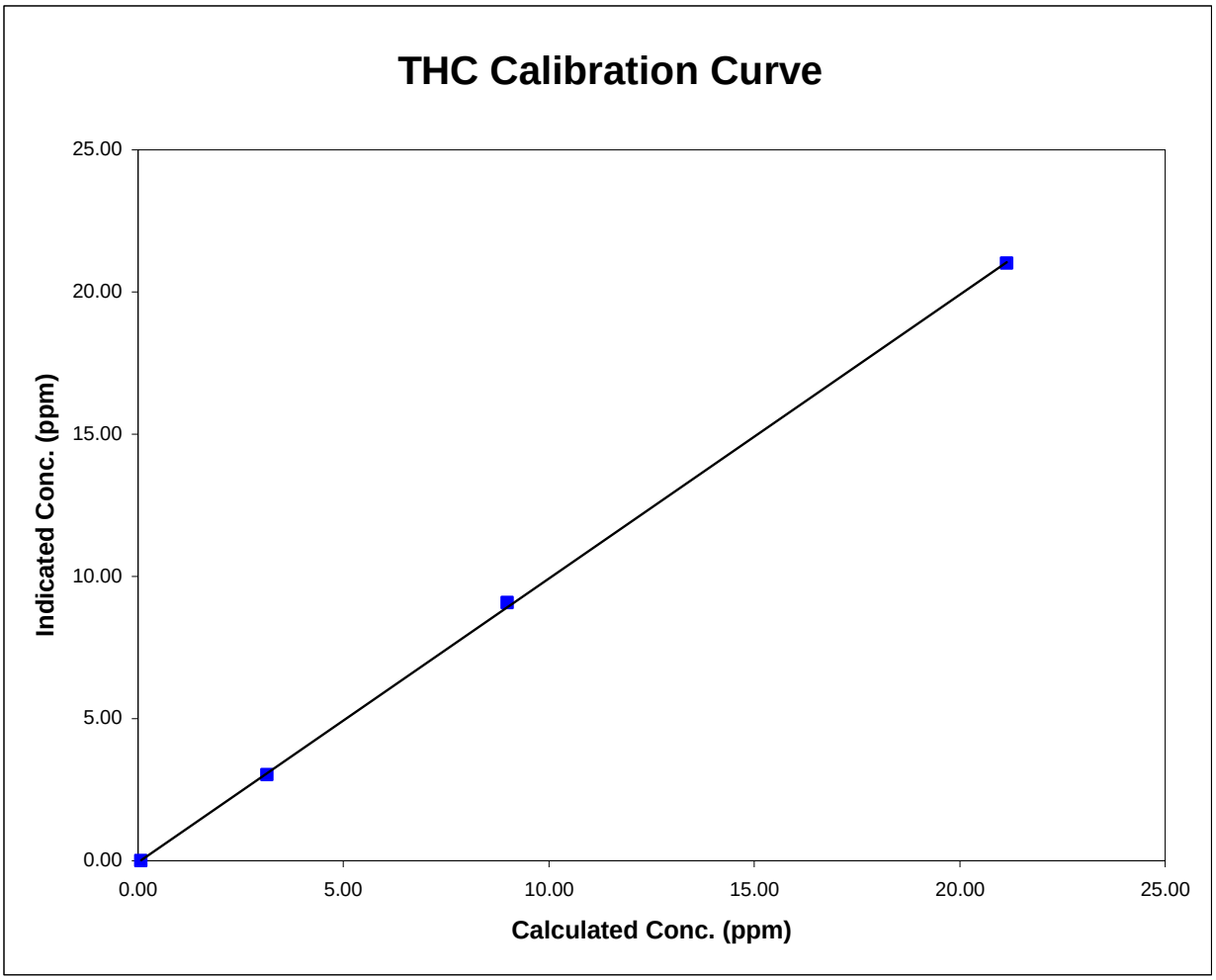
Parameter	THC
Air Monitoring Network	PASZA

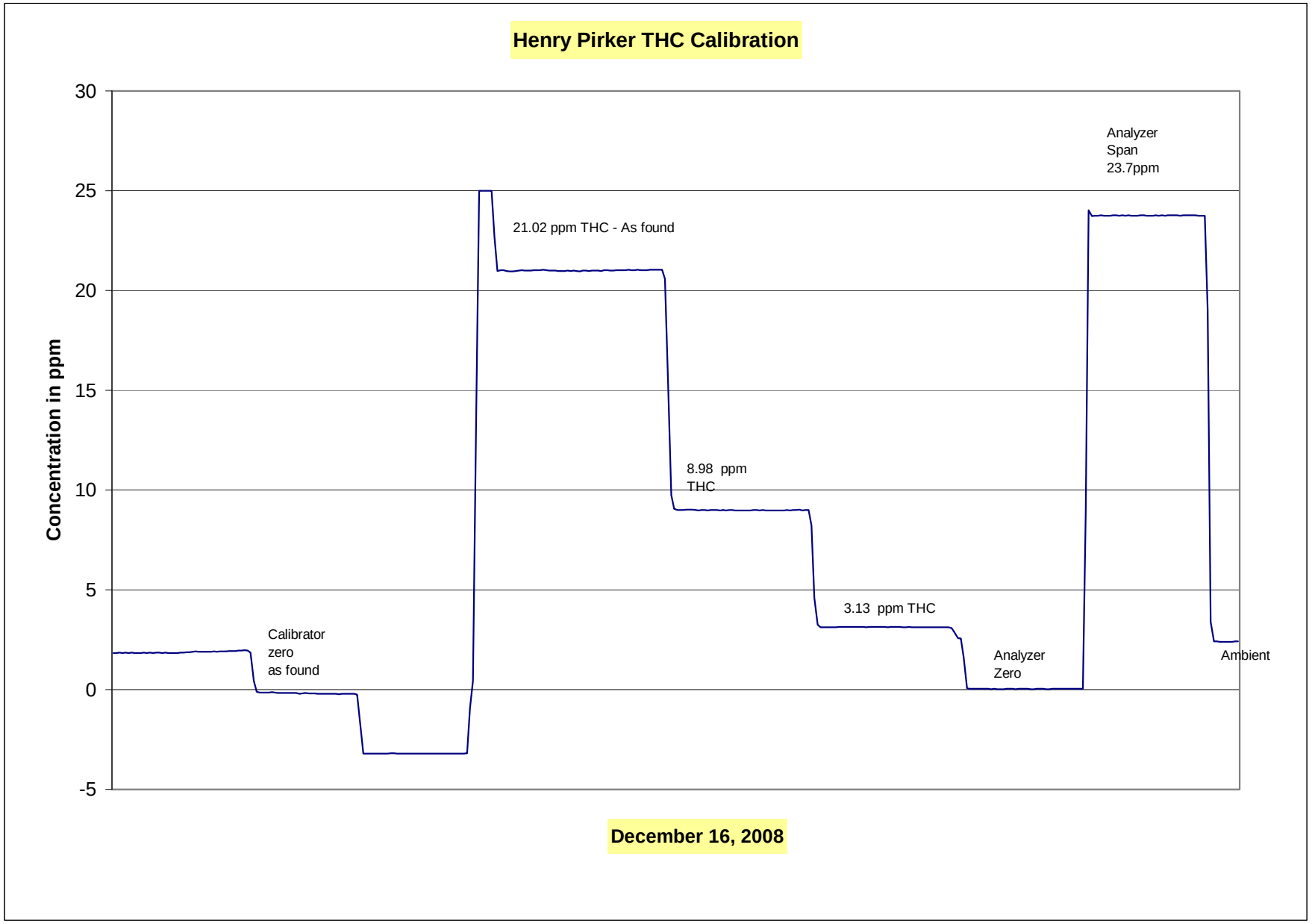
Station Information

Calibration Date	December 16, 2008	Previous Calibration	October 6, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	11:00	End Time (MST)	14:35
Analyzer make/model	TEI Model 51C-LT	Analyzer serial #	51CLT-79009-390

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.073	N/A		
21.007	21.142	0.9936	Correlation Coefficient	0.999893
9.069	8.987	1.0091		
3.023	3.136	0.9641	Slope	0.998116
			Intercept	-0.044167




Henry Pirker THC Calibration
30
25
20
15
10
5
0
-5
Concentration in ppm
Calibrator
zero
as found
21.02 ppm THC - As found
8.98 ppm
THC
3.13 ppm THC
Analyzer
Zero
Analyzer
Span
23.7ppm
Ambient
December 16, 2008

Calibration Report

Parameter	TRS
Air Monitoring Network	PASZA

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 15, 2008	Previous Calibration	September 12, 2008
Station Number	1	Station Location	Henry Pirker
Reason: Routine	Install	Removal	Other:
Start Time (MST)	11:00	End Time (MST)	12:20
Barometric Pressure	0.920 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Conc	5.1 ppb	Cal Gas Expiry Date	7/31/2008
		Cal Gas Cylinder #	ALM013295
DACS make	Focus AP1000	DACS serial No.	1
DACS voltage range	0 - 1 volt	DACS channel #	9
	Before		After
Calculated slope	1.005115	Calculated slope	1.003183
Calculated intercept	-0.145655	Calculated intercept	0.007759
Analyzer make	TEI 45C	Analyzer serial #	630718528

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Coefficient	0.850		0.871	
Background	16.2		18.0	
Pressure	671.8	mm Hg	653	mm Hg
Flow	471	ccm	462	ccm
Lamp Voltage	849	V	848	V

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.00	-0.03	N/A
4988	79.83	80.34	80.02	1.0039
4988	39.81	40.38	40.35	1.0007
4988	9.92	10.12	10.04	1.0078
4988	0.00	0.00	0.71	As Found Zero
4988	79.77	80.28	76.32	As Found Span
			Average Correction Factor	1.0041

Calculated value of As Found Response: 75.9 ppb Percent Change of As Found: 5.5%

	before calibration		after calibration	
Auto zero	-0.18	ppb	-0.18	ppb
Auto span	35.29	ppb	33.87	ppb

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	TRS
Air Monitoring Network	PASZA

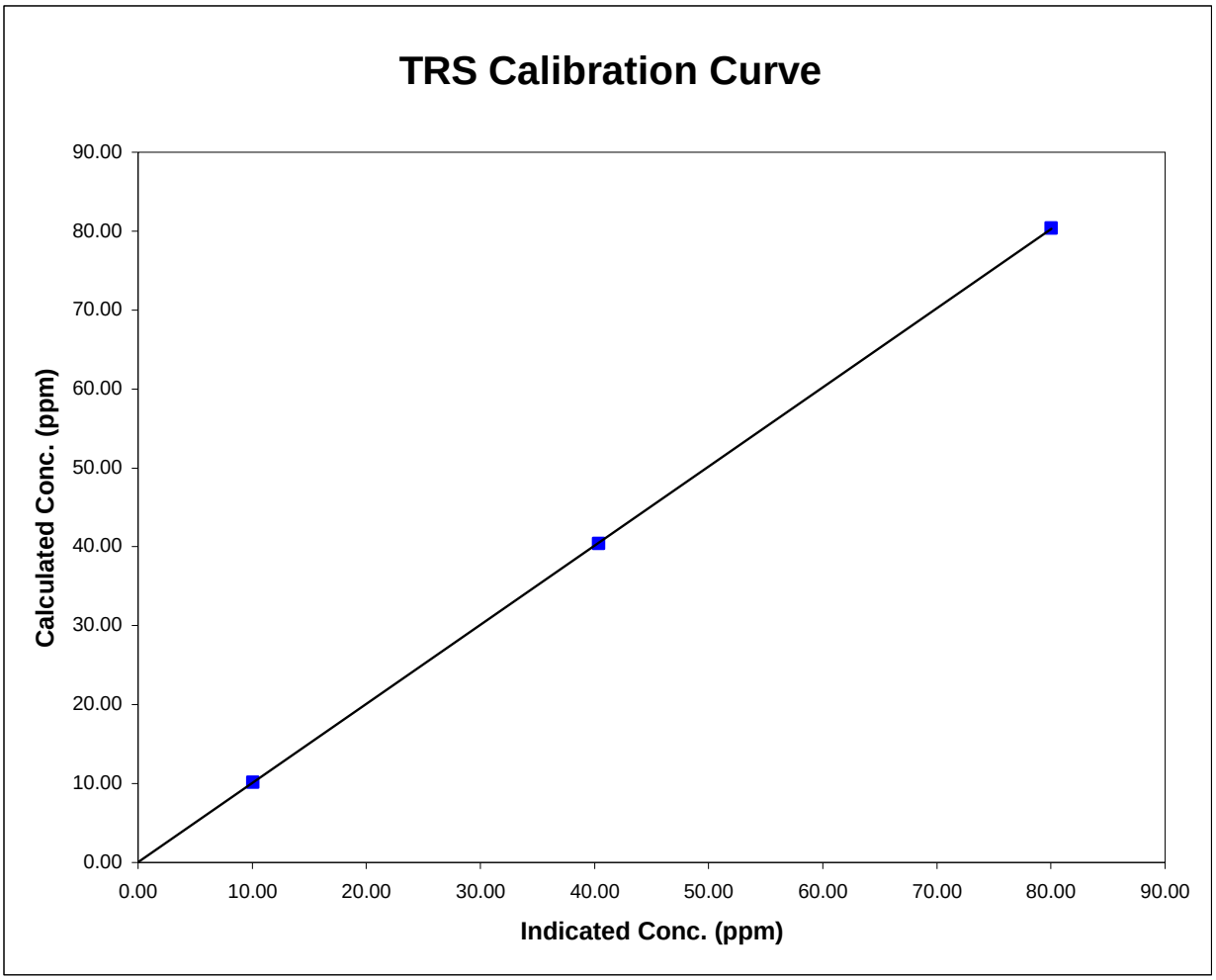
FOCUS AIR QUALITY MONITORING

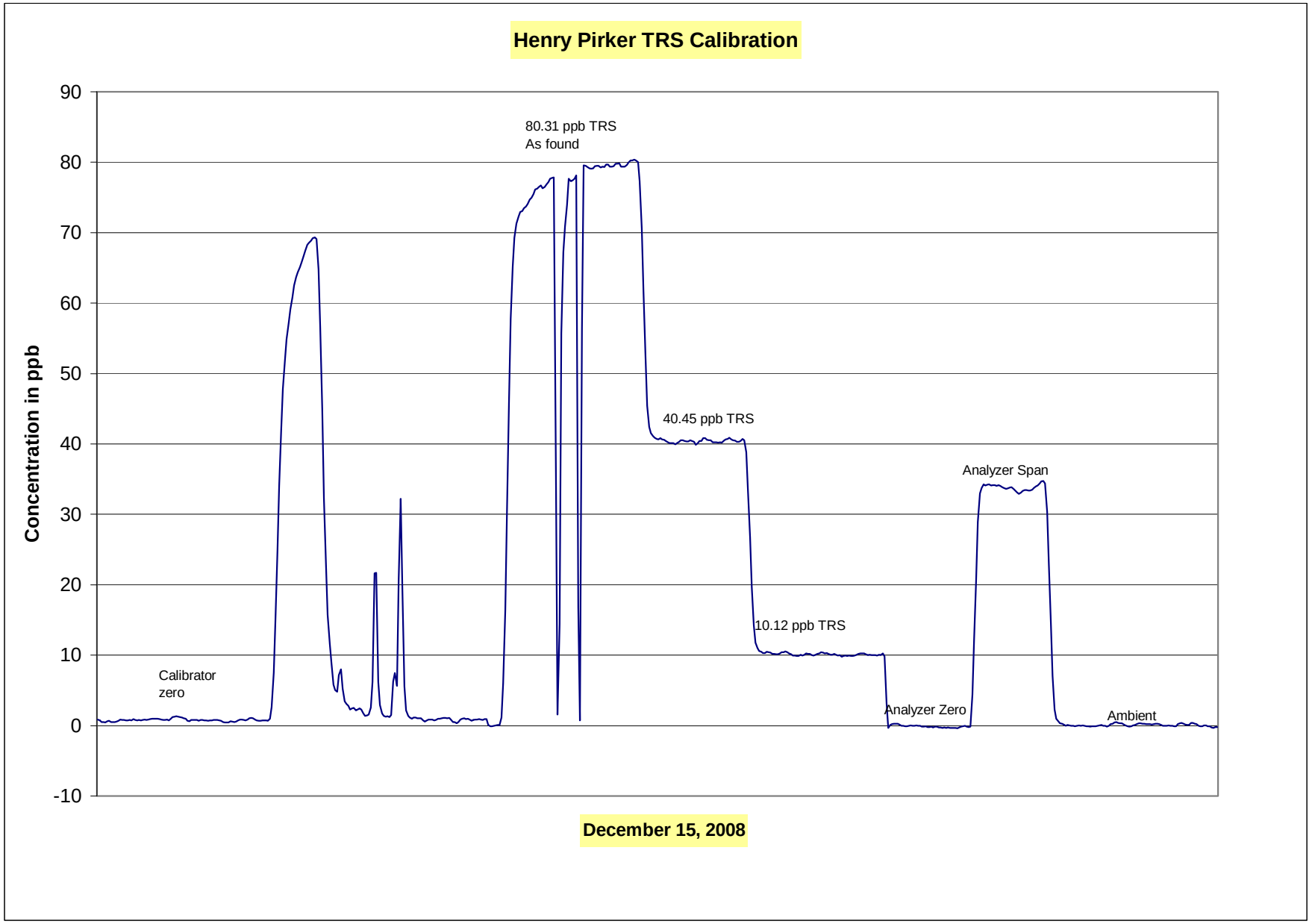
Station Information

Calibration Date	December 15, 2008	Previous Calibration	September 12, 2008
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	11:00	End Time (MST)	12:20
Analyzer make/model	TEI 45C	Analyzer serial #	630718528

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	-0.027	N/A		
80.337	80.025	1.0039	Correlation Coefficient	0.999996
40.382	40.354	1.0007		
10.123	10.044	1.0078	Slope	1.003183
			Intercept	0.007759




Henry Pirker TRS Calibration
Concentration in ppb
90
80
70
60
50
40
30
20
10
0
-10
80.31 ppb TRS
As found
40.45 ppb TRS
Analyzer Span
10.12 ppb TRS
Calibrator
zero
Analyzer Zero
Ambient
December 15, 2008

Calibration Report

Parameter	SO_2
Air Monitoring Network	PASZA

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 17, 2008	Previous Calibration	November 11, 2008
Station Number	2	Station Location	Evergreen Park
Reason: Routine	Install	Removal	Other:

Start Time (MST)	11:35	End Time (MST)	14:30:00 PM
Barometric Pressure	0.937 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentration	50.3 ppm	Cal Gas Expiry Date	1/2/2009
Correction factor	0.031851	Cal Gas Cylinder #	LL16161
DACS make	Focus AP1000	DACS serial No.	52620
DACS voltage range	0 - 10 volt	DACS channel #	6
	Before		After
Calculated slope	1.002556	Calculated slope	0.996237
Calculated intercept	-3.040258	Calculated intercept	-2.283662

Analyzer make	Teco 43i	Analyzer serial #	701120008

	before		after	
Concentration range	0 - 1000	ppb	0 - 1000	ppb
Background	9.5		9.3	
coefficient	0.99		0.945	
Lamp Voltage	840	volts	827	volts
Chamber Temp	45	Deg C	45.3	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	675.6	mm Hg	661	mm Hg
Sample Flow	454	ccm	440	ccm
Lamp Intensity	90	%	89	%

Calibration Data

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4990	0.0	0.00	1.0	N/A
4988	39.83	398.47	401.6	0.9921
4989	19.88	199.64	203.3	0.9821
4989	9.93	99.92	103.9	0.9618
4990	0.0	0.00	1.2	As Found Zero
4988	39.82	398.37	388.1	As Found Span
			Average Correction Factor	0.9787

Calculated value of As Found Response: 384.834 ppm Percent Change of As Found: 3.4%

	before calibration		after calibration	
Auto zero	-2.0	ppm	-1.4	ppm
Auto span	272.9	ppm	268.0	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	SO_2
Air Monitoring Network	PASZA

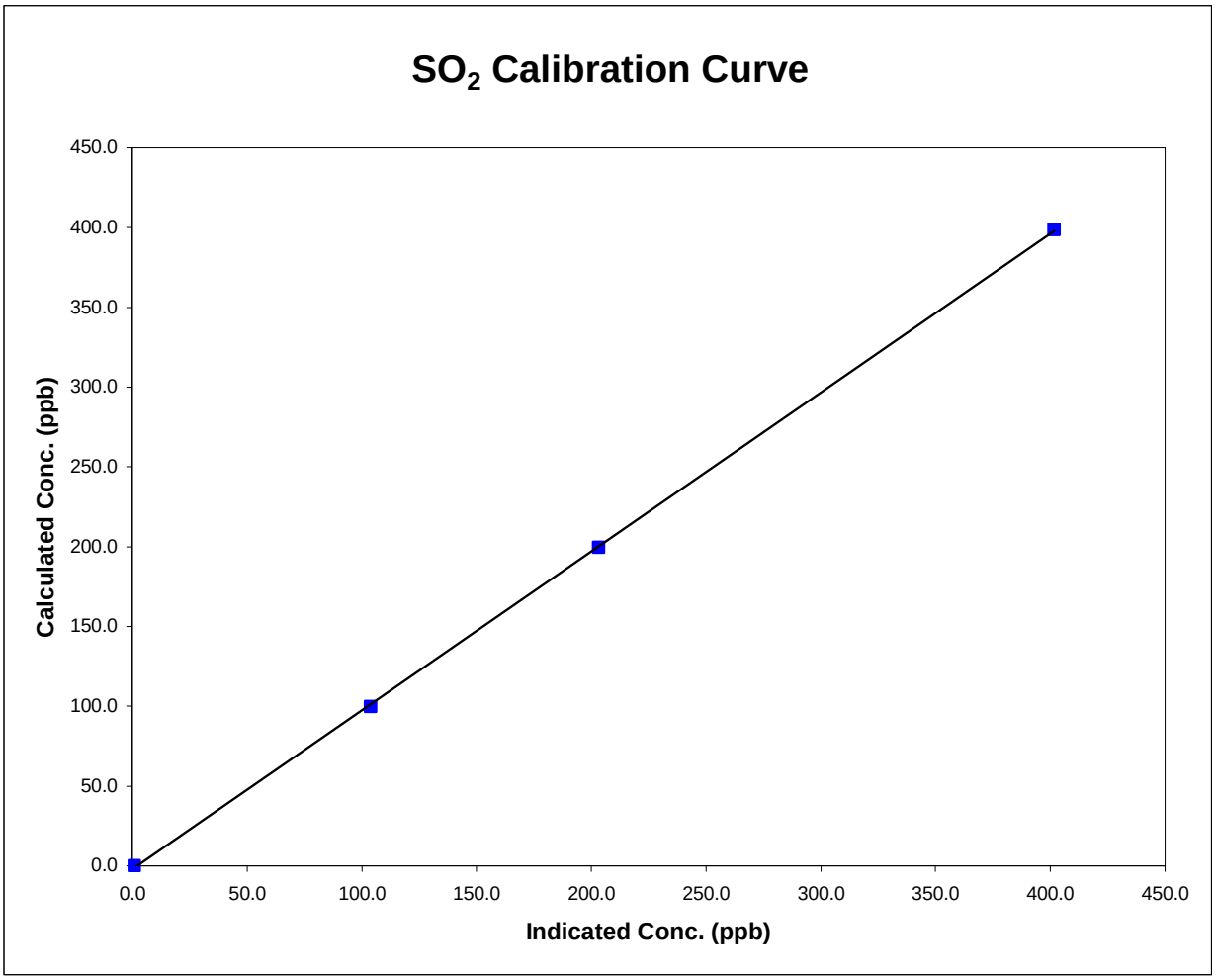
FOCUS AIR QUALITY MONITORING

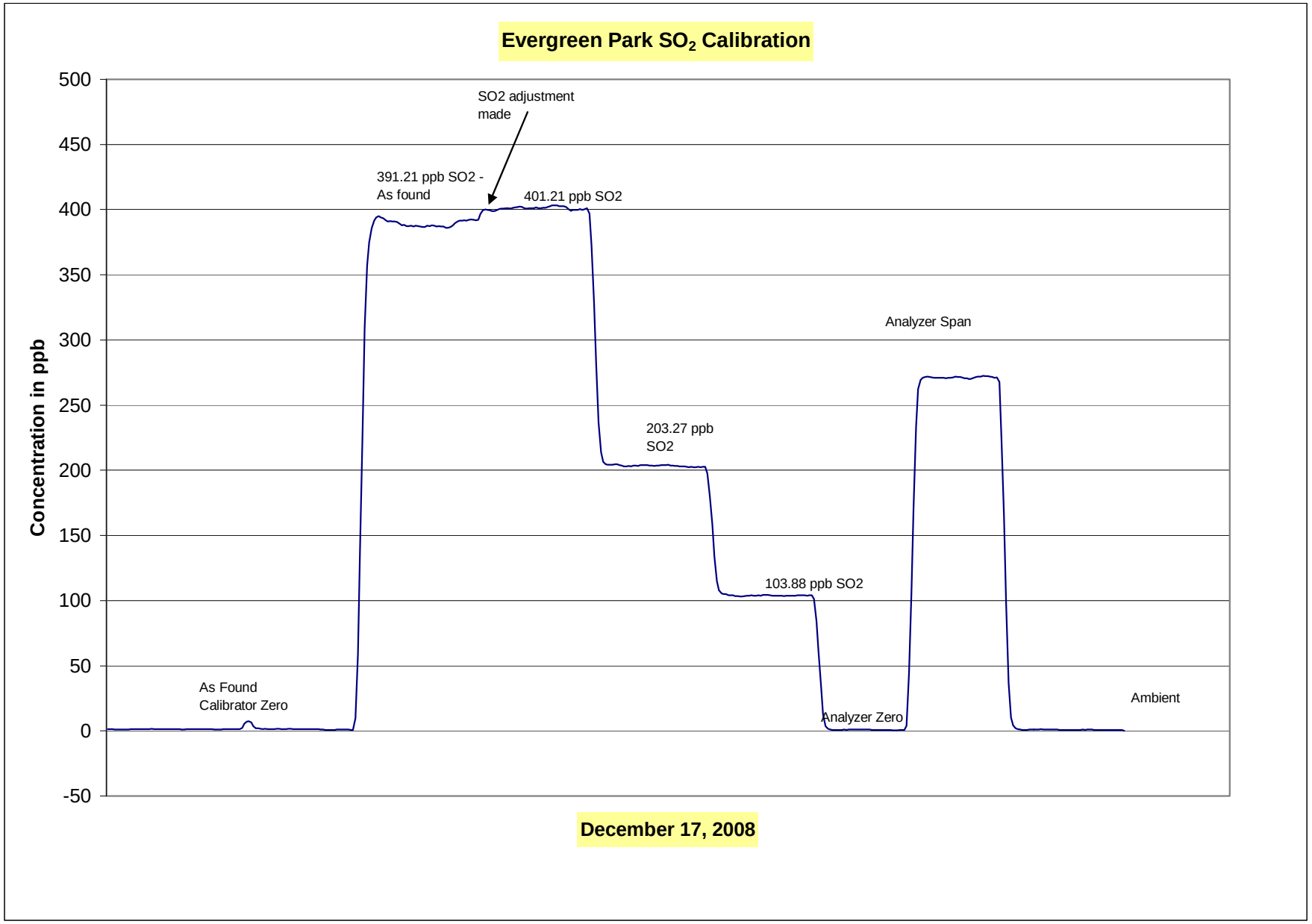
Station Information

Calibration Date	December 17, 2008	Previous Calibration	November 11, 2008
Station Number	2	Station Location	Evergreen Park
Start Time (MST)	11:35	End Time (MST)	14:30:00 PM
Analyzer make/model	Teco 43i	Analyzer serial #	701120008

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	1.0	N/A		
398.5	401.6	0.9921	Correlation Coefficient	0.999954
199.6	203.3	0.9821		
99.9	103.9	0.9618	Slope	0.996237
			Intercept	-2.283662




Evergreen Park SO2 Calibration
Concentration in ppb
500
450
400
350
300
250
200
150
100
50
0
-50
SO2 adjustment made
391.21 ppb SO2 - As found
401.21 ppb SO2
Analyzer Span
203.27 ppb SO2
103.88 ppb SO2
As Found Calibrator Zero
Analyzer Zero
Ambient
December 17, 2008

Calibration Report

Parameter	**TRS**
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 17, 2008	Previous Calibration	November 11, 2008
Station Number	2	Station Location	Evergreen Park
Reason: Routine	Install	Removal	Other:

Start Time (MST)	13:00:00 PM	End Time (MST)	14:20
Barometric Pressure	0.928 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Conc	5.1 ppm	Cal Gas Expiry Date	4/2/2009
Correction factor	0.031545	Cal Gas Cylinder #	ALM 013295
DACS make	Focus AP1000	DACS serial No.	52620
DACS voltage range	0 - 10 volt	DACS channel #	5
	Before		After
Calculated slope	1.048503	Calculated slope	0.995993
Calculated intercept	-0.163761	Calculated intercept	0.102177

Analyzer make	TEI Model 43C	Analyzer serial #	0436610005

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	14.3	ppb	15.8	ppb
coefficient	0.586		0.645	
Lamp Voltage	819	volts	821	volts
Chamber Temp	44.3	Deg C	44.1	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	640.5	mm Hg	631.5	mm Hg
Sample Flow	0.466	ccm	0.463	ccm
Lamp Intensity	45,498	mv	41,003	mv

Calibration Data

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4990	0.00	0.00	0.2	N/A
4987	79.91	80.43	80.9	0.9940
4989	39.84	40.40	39.9	1.0123
4990	9.89	10.09	10.1	1.0033
4990	0.00	0.00	0.4	As Found Zero
4987	79.91	80.43	79.6	As Found Span
			Average Correction Factor	1.0032

Calculated value of As Found Response: 82.79 ppm Percent Change of As Found: -2.9%

	before calibration		after calibration	
Auto zero	-0.3	ppm	0.0	ppm
Auto span	67.3	ppm	66.2	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	TRS
Air Monitoring Network	PASZA

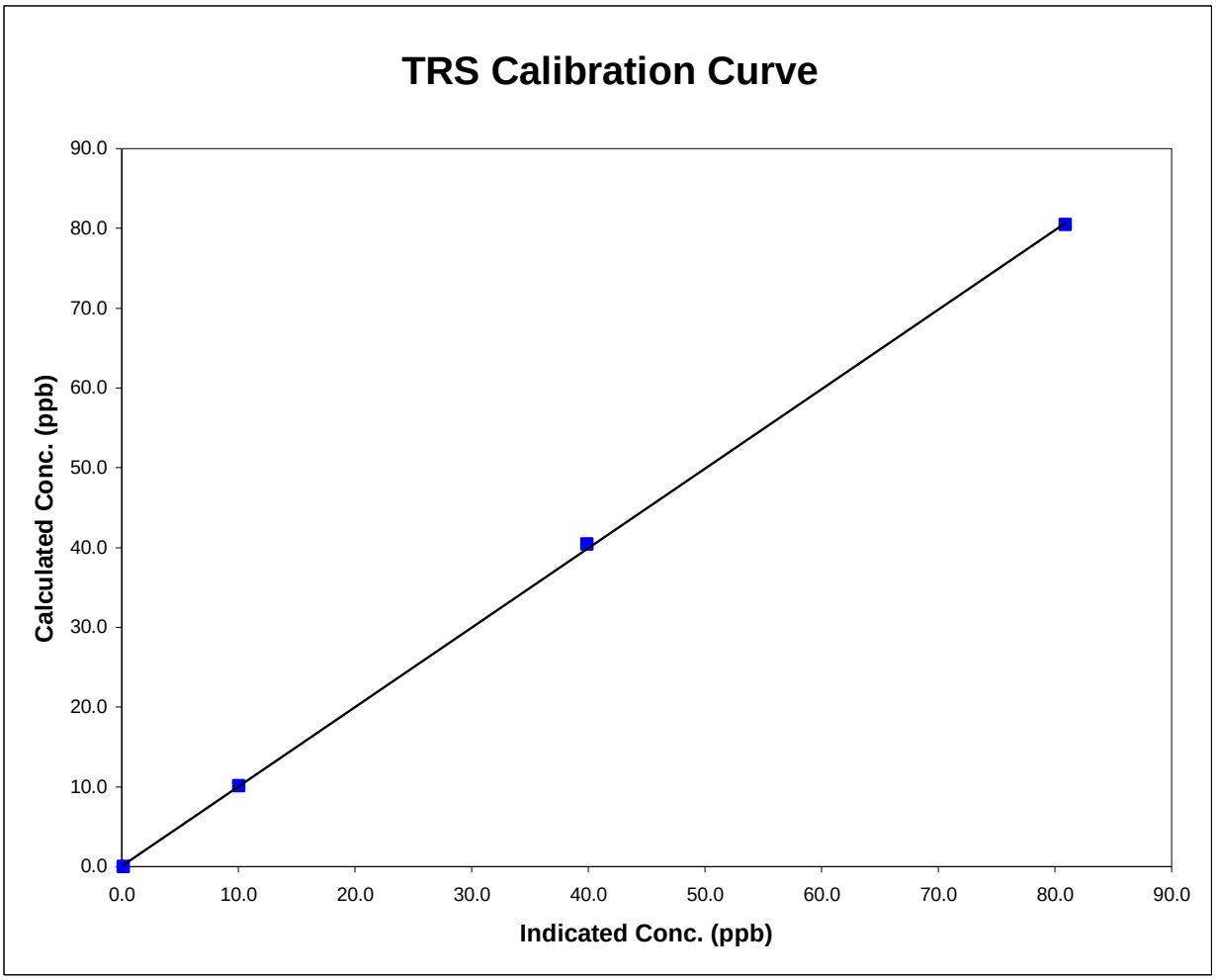
FOCUS AIR QUALITY MONITORING

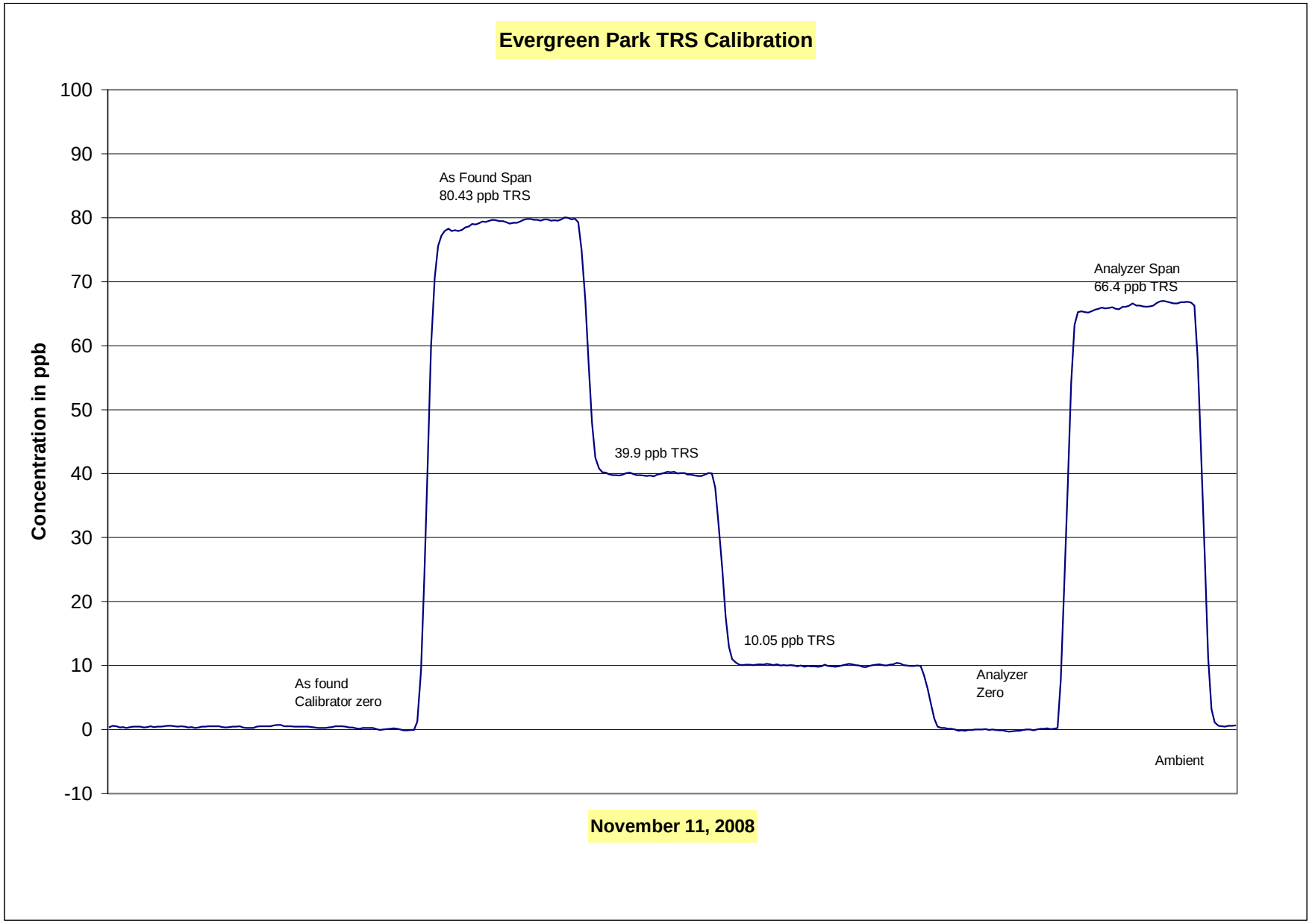
Station Information

Calibration Date	December 17, 2008	Previous Calibration	November 11, 2008
Station Number	2	Station Location	Evergreen Park
Start Time (MST)	13:00:00 PM	End Time (MST)	14:20
Analyzer make/model	TEI Model 43C	Analyzer serial #	0436610005

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.2	N/A		
80.4	80.9	0.9940	Correlation Coefficient	0.999889
40.4	39.9	1.0123		
10.1	10.1	1.0033	Slope	0.995993
			Intercept	0.102177




Evergreen Park TRS Calibration
Concentration in ppb
100
90
80
70
60
50
40
30
20
10
0
-10
As Found Span
80.43 ppb TRS
39.9 ppb TRS
10.05 ppb TRS
Analyzer Span
66.4 ppb TRS
As found
Calibrator zero
Analyzer
Zero
Ambient
November 11, 2008

Calibration Report

Parameter	SO_2
Air Monitoring Network	PASZA

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 19, 2008	Previous Calibration	November 13, 2008
Station Number	3	Station Location	Smokey Heights
Reason:	Routine / Install	Removal	Other:

Start Time (MST)	11:00	End Time (MST)	14:42
Barometric Pressure	0.938 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentration	50.6 ppm	Cal Gas Cert Date	6/8/2008
Correction factor	0.031885	Cal Gas Cylinder #	AAL 15377
DACS make	Focus AP1000	DACS serial No.	45272
DACS voltage range	0 - 10 volt	DACS channel #	6
	Before		After
Calculated slope	1.005278	Calculated slope	1.006200
Calculated intercept	-1.502802	Calculated intercept	-2.248445

Analyzer make	Teco 43i	Analyzer serial #	701120009

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	6.2		7.4	
coefficient	0.712		0.724	
Lamp Voltage	927	volts	929	volts
Chamber Temp	45	Deg C	45.2	Deg C
Perm Gas Temp	45.02	Deg C	44.99	Deg C
Pressure	681.3	mm Hg	674.4	mm Hg
Sample Flow	450	ccm	446	ccm
Lamp Intensity	88	%	88	%

Calibration Data

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.0	0.00	0.9	N/A
4991	39.85	400.81	399.8	1.0025
4989	19.92	201.23	203.2	0.9905
4989	9.94	100.61	103.4	0.9735
4988	0.0	0.00	1.3	As Found Zero
4988	39.81	400.65	389.3	As Found Span
			Average Correction Factor	0.9888

Calculated value of As Found Response: 388.510 ppm Percent Change of As Found: 3.0%

	before calibration		after calibration	
Auto zero	-0.6	ppm	-1.9	ppm
Auto span	309.9	ppm	305.2	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	SO_2
Air Monitoring Network	PASZA

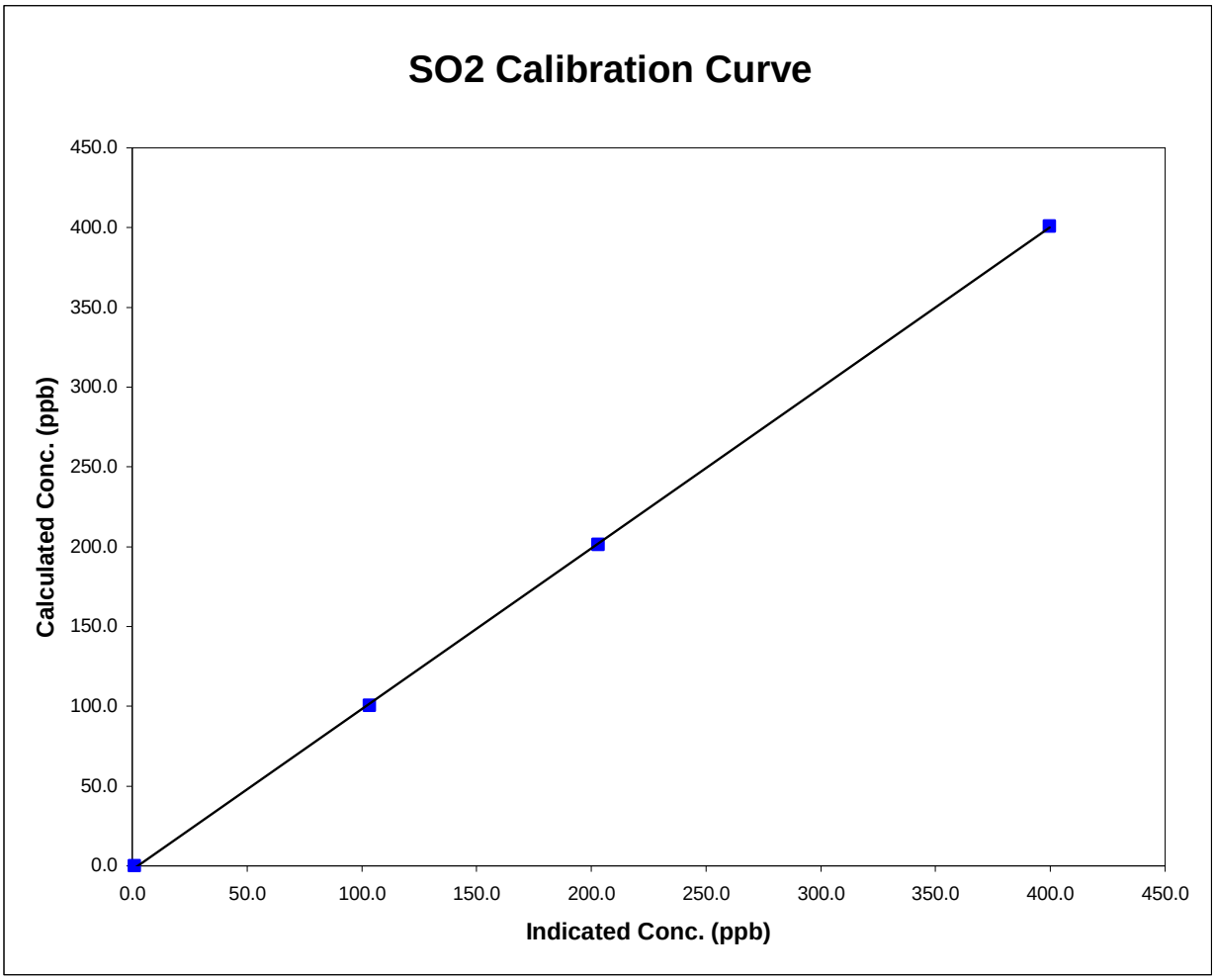
FOCUS AIR QUALITY MONITORING

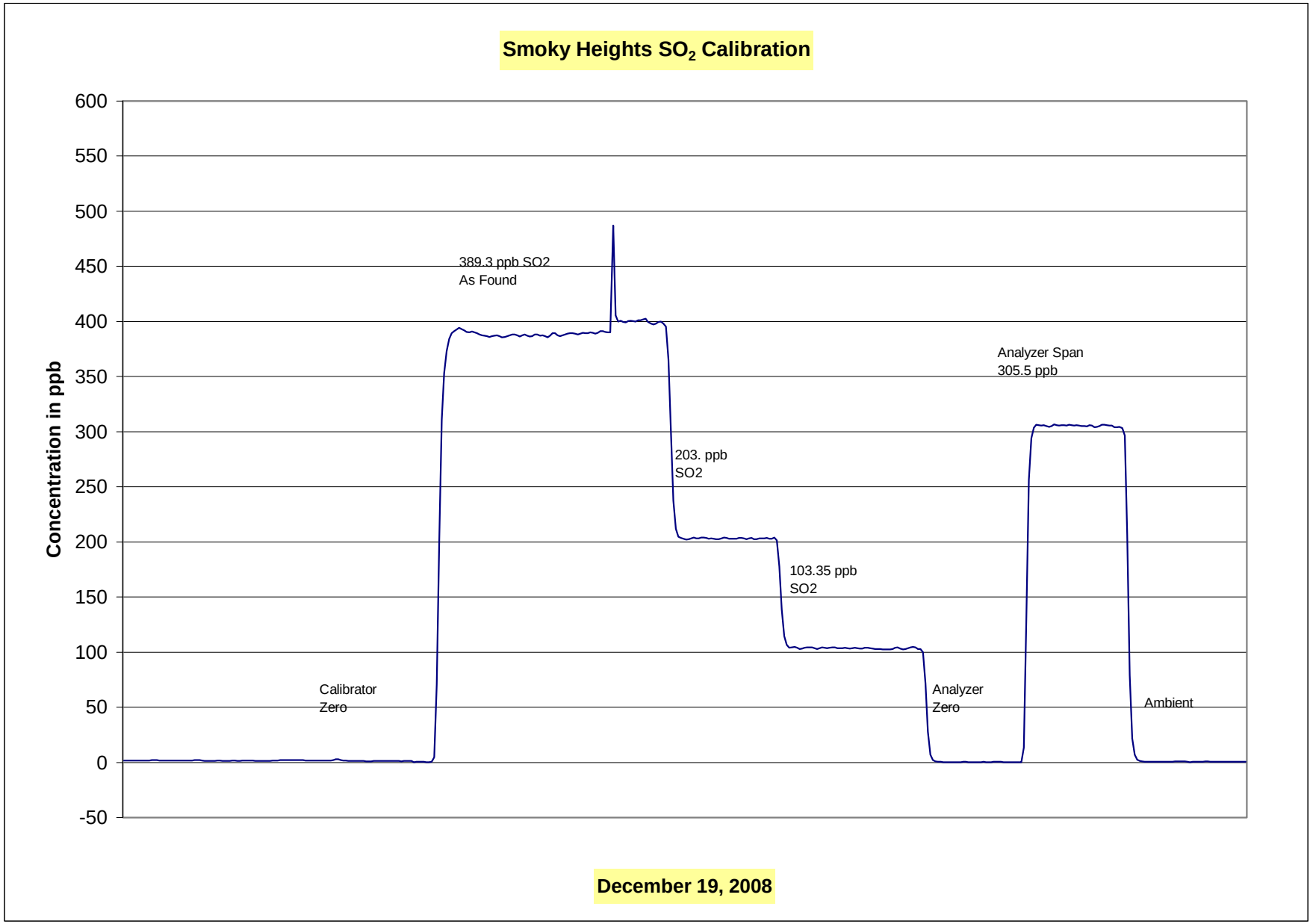
Station Information

Calibration Date	December 19, 2008	Previous Calibration	November 13, 2008
Station Number	3	Station Location	Smokey Heights
Start Time (MST)	11:00	End Time (MST)	14:42
Analyzer make/model	Teco 43i	Analyzer serial #	701120009

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.9	N/A		
400.8	399.8	1.0025	Correlation Coefficient	0.999949
201.2	203.2	0.9905		
100.6	103.4	0.9735	Slope	1.006200
			Intercept	-2.248445




Smoky Heights SO_2 Calibration
Concentration in ppb
600
550
500
450
400
350
300
250
200
150
100
50
0
-50
389.3 ppb SO2
As Found
203. ppb
SO2
103.35 ppb
SO2
Analyzer Span
305.5 ppb
Calibrator
Zero
Analyzer
Zero
Ambient
December 19, 2008

Calibration Report

Parameter	**TRS**
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 19, 2008	Previous Calibration	November 13, 2008
Station Number	3	Station Location	Smokey Heights
Reason: Routine	Install	Removal	Other:

Start Time (MST)	13:40	End Time (MST)	16:11
Barometric Pressure	0.938 ATM	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Conc	5.1 ppm	Cal Gas Expiry Date	4/2/2009
Correction factor	0.031885	Cal Gas Cylinder #	ALM013295
DACS make	Focus AP1000	DACS serial No.	52620
DACS voltage range	0 - 10 volt	DACS channel #	5
	Before		After
Calculated slope	1.011169	Calculated slope	1.010631
Calculated intercept	-0.313565	Calculated intercept	-0.430222

Analyzer make	TEI Model 43C	Analyzer serial #	0436610005

	before		after	
Concentration range	100	ppb	100	ppb
Background	12.5	ppb	12.6	ppb
coefficient	1.004		1.004	
Lamp Voltage	771	volts	772	volts
Chamber Temp	43.8	Deg C	43.7	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	496.4	mm Hg	495.9	mm Hg
Sample Flow	756	ccm	754	ccm
Lamp Intensity	32,250	mv	32,341	mv

Calibration Data

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4990	0.0	0.00	0.3	N/A
4989	79.76	80.25	79.7	1.0068
4989	39.85	40.41	40.7	0.9941
4989	9.93	10.13	10.5	0.9683
4990	0.0	0.00	36.6	As Found Zero
4990	79.71	80.19	79.5	As Found Span
			Average Correction Factor	0.9897

Calculated value of As Found Response: 43.11 ppm Percent Change of As Found: 46.2%

	before calibration		after calibration	
Auto zero	-0.2	ppm	-0.5	ppm
Auto span	42.1	ppm	40.1	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	TRS
Air Monitoring Network	PASZA

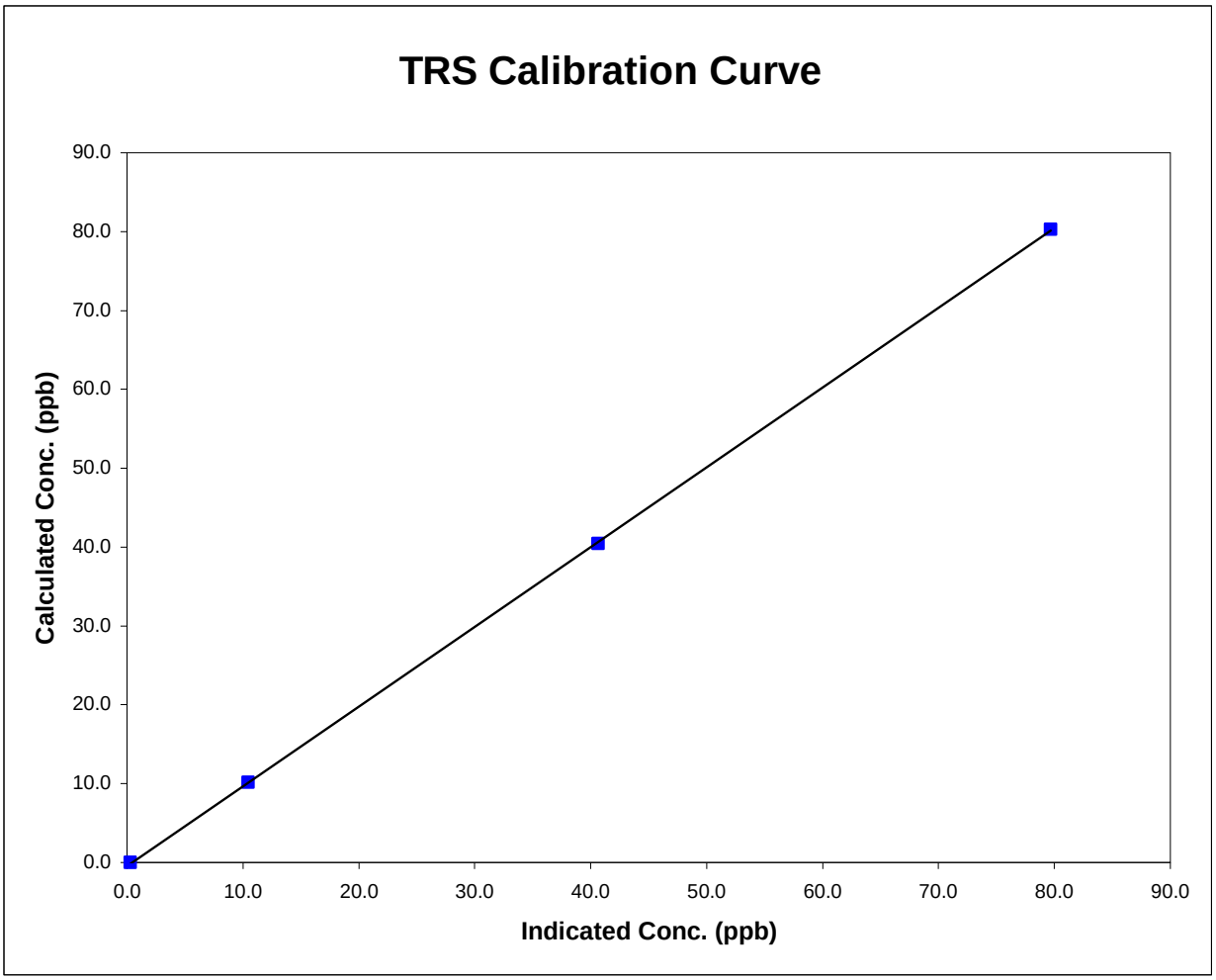
FOCUS AIR QUALITY MONITORING

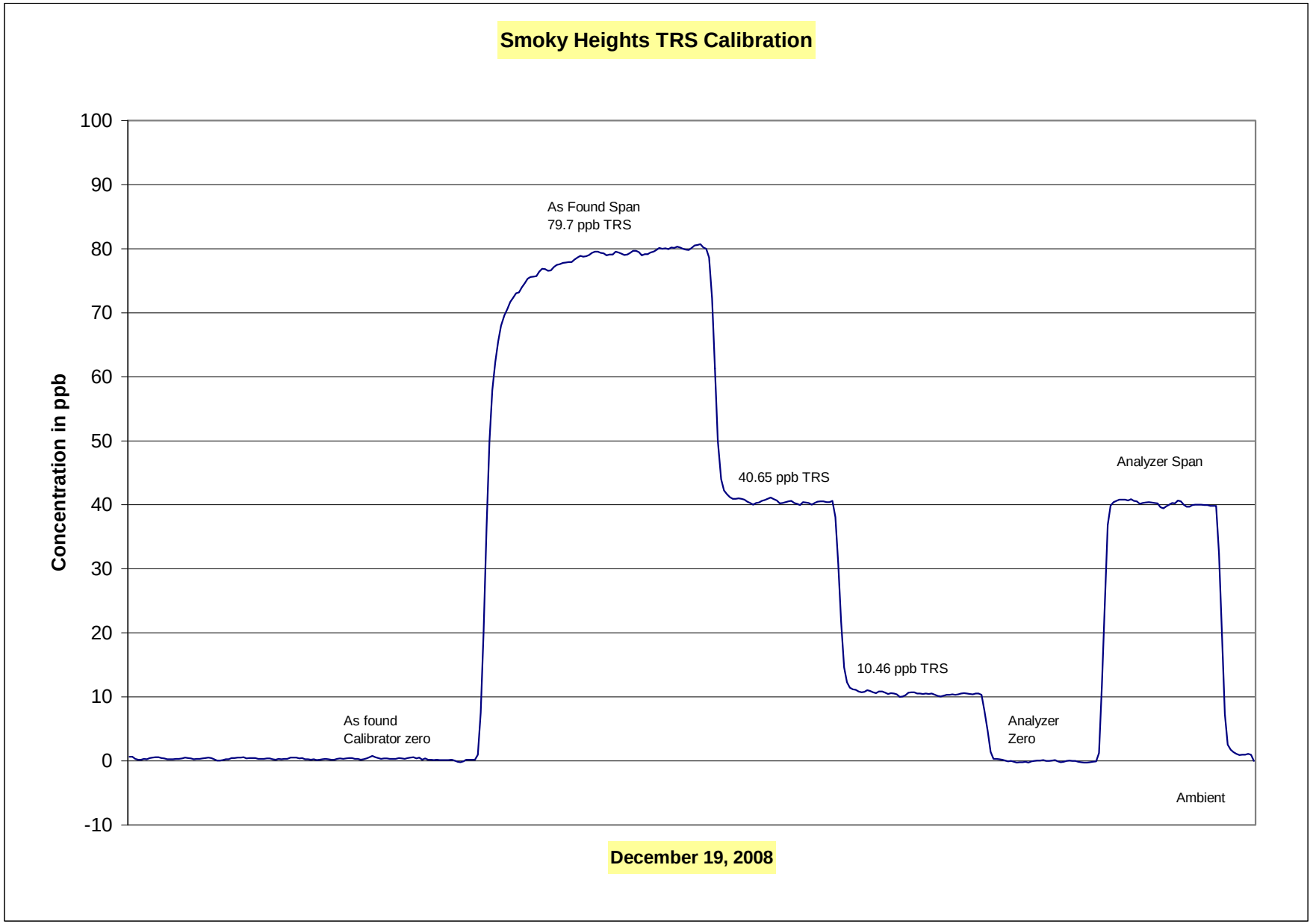
Station Information

Calibration Date	December 19, 2008	Previous Calibration	November 13, 2008
Station Number	3	Station Location	Smokey Heights
Start Time (MST)	13:40	End Time (MST)	16:11
Analyzer make/model	TEI Model 43C	Analyzer serial #	0436610005

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.3	N/A		
80.3	79.7	1.0068	Correlation Coefficient	0.999976
40.4	40.7	0.9941		
10.1	10.5	0.9683	Slope	1.010631
			Intercept	-0.430222




Smoky Heights TRS Calibration
Concentration in ppb
100
90
80
70
60
50
40
30
20
10
0
-10
As Found Span
79.7 ppb TRS
40.65 ppb TRS
10.46 ppb TRS
Analyzer Span
As found
Calibrator zero
Analyzer
Zero
Ambient
December 19, 2008

Calibration Report

Parameter	SO_2
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 20, 2008
Station Number	4	Station Location	Beaverlodge
Reason: Routine	Install	Removal	Other:

Start Time (MST)	8:40	End Time (MST)	11:30
Barometric Pressure	0.915 atm	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentratior	10.06 ppm	Cal Gas Expiry Date	7/27/2009
Gas Cert Reference	CC 114395		
DACS make	Focus AP1000	DACS serial No.	45269
DACS voltage range	0 - 10 volt	DACS channel #	4
	Before		After
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.003651	Calculated slope	0.999103
Calculated intercept	-0.404933	Calculated intercept	-0.561815

Analyzer make	TEI Model 43CTL	Analyzer serial #	43CTL-74200-376

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	2.49		2.5	
Coefficient	0.913		0.913	
PMT	-813	V	-813	V
UV Lamp Voltage	1064	V	1055	V
Chamber Temp	45.2	Deg C	44.7	Deg C
Pressure	662.2	mm Hg	669.4	mm Hg
Sample Flow	0.475	LPM	0.471	LPM
Lamp Intesity	83%	%	84%	%

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.0	0.0	N/A
4988	39.90	79.8	80.1	0.9966
4988	19.87	39.9	41.0	0.9747
4988	9.91	19.9	21.1	0.9474
4988	0.00	0.0	0.1	As found zero
4988	39.90	79.8	80.1	As found span
			Average Correction Factor	0.9729

Calculated value of As Found Response: 79.940 ppm Percent Change of As Found: -0.1%

	before calibration		after calibration	
Auto zero	-0.5	ppm	-0.5	ppm
Auto span	54.3	ppm	55.5	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	SO_2
Air Monitoring Network	PASZA

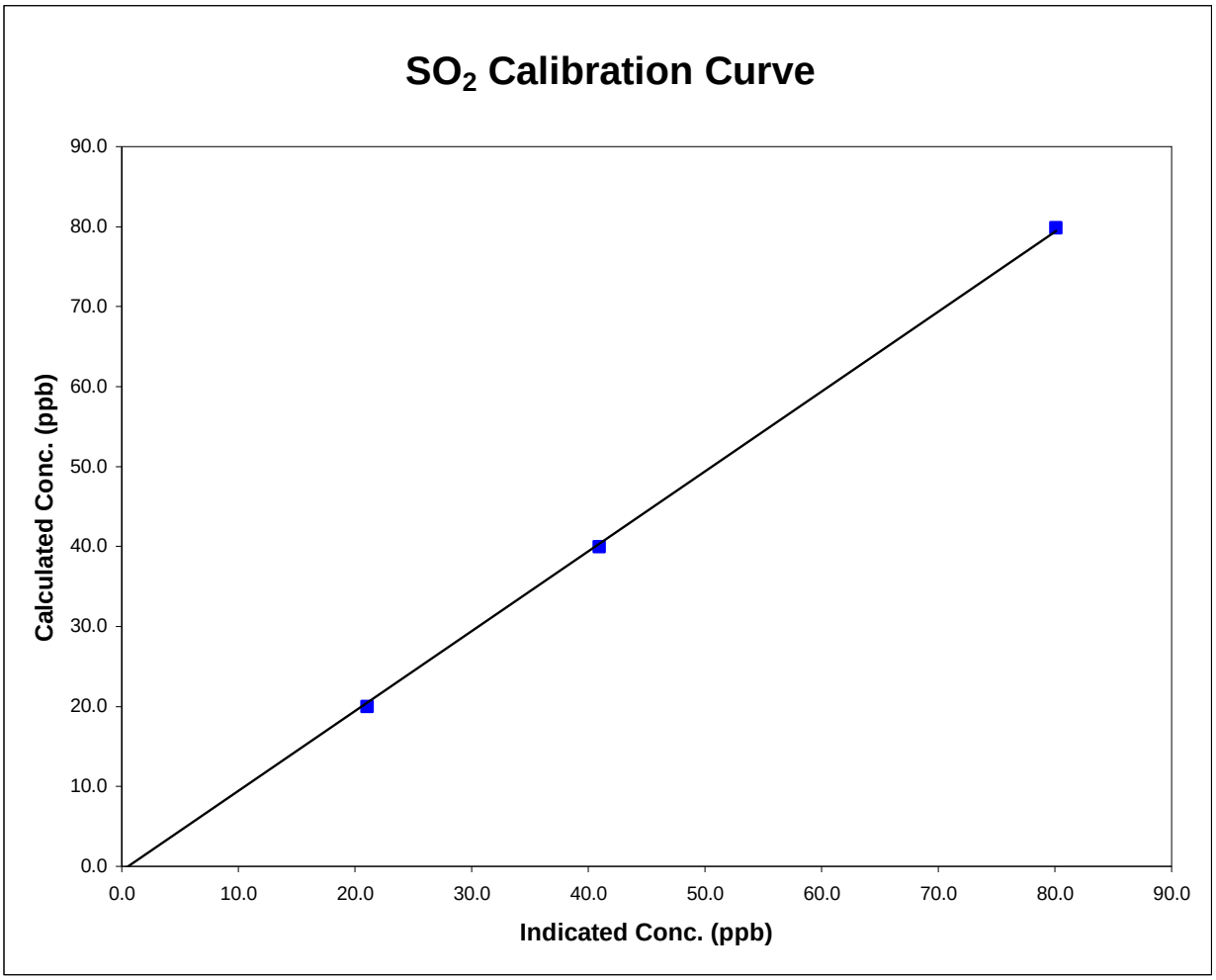
FOCUS AIR QUALITY MONITORING

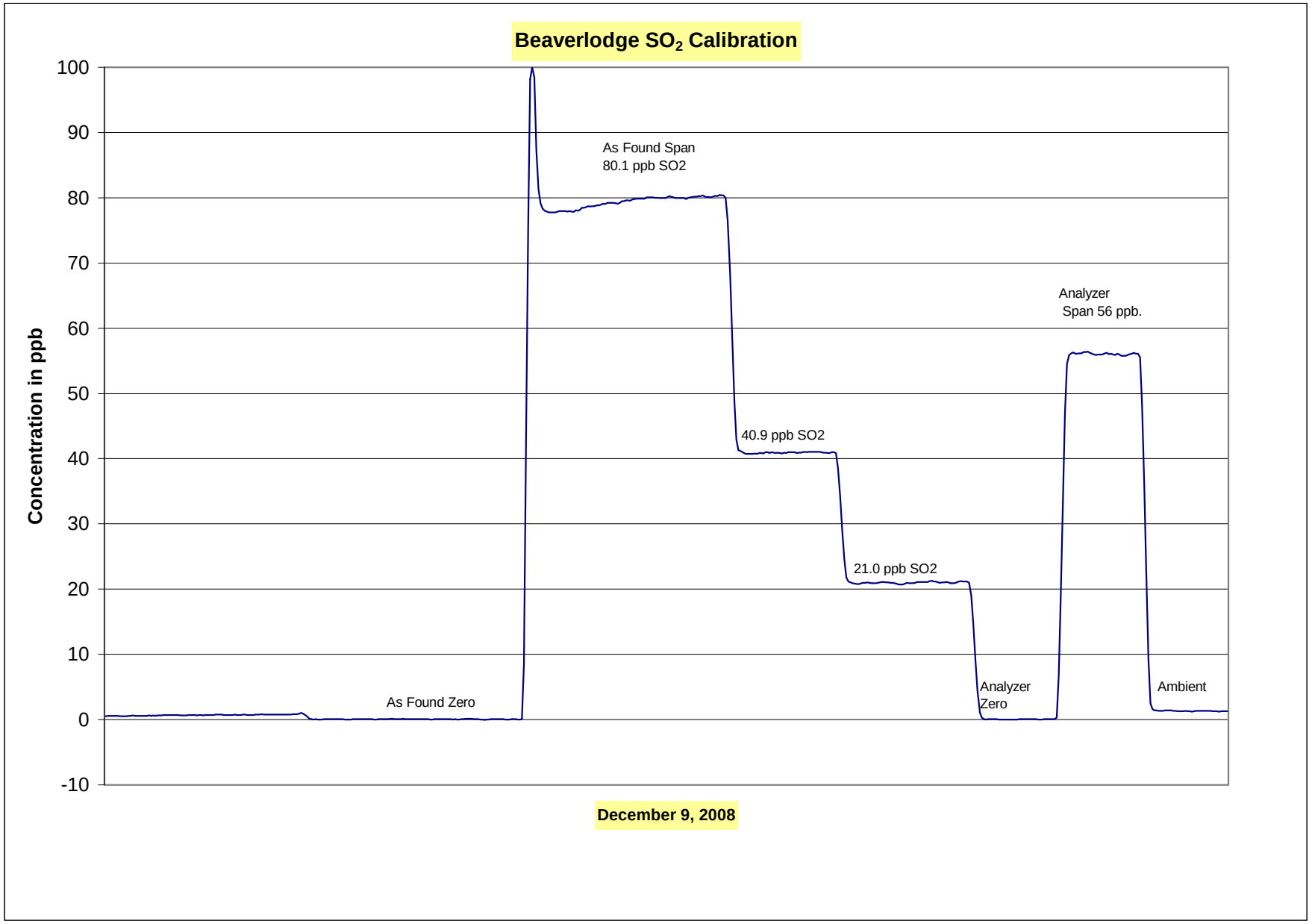
Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 20, 2008
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	8:40	End Time (MST)	11:30
Analyzer make/model	TEI Model 43CTL	Analyzer serial #	43CTL-74200-376

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A		
79.8	80.1	0.9966	Correlation Coefficient	0.999724
39.9	41.0	0.9747		
19.9	21.1	0.9474	Slope	0.999103
			Intercept	-0.561815




Beaverlodge SO2 Calibration
Concentration in ppb
100
90
80
70
60
50
40
30
20
10
0
-10
As Found Span
80.1 ppb SO2
40.9 ppb SO2
21.0 ppb SO2
Analyzer
Span 56 ppb.
As Found Zero
Analyzer
Zero
Ambient
December 9, 2008

Calibration Report

Parameter	**NOx-NO-NO_2**
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 20, 2008
Station Number	4	Station Location	Beaverlodge

Reason: Routine Installation Removal Other:

Start Time (MST)	8:00:00		End Time (MST)	13:20:00	
Barometric Pressure	0.906	Atm	Station Temperature	24.0	Deg C
Calibrator	Environics 6100		Serial Number	3474	
NO Cal Gas Conc	50.1	ppm	Cal Gas Cert. Date	2-Jan-07	
NOx Cal Gas Conc	50.2	ppm	Cal Gas Serial #	CC 114395	

DACS Information

DACS make	FOCUS AP1000	DACS serial No.	45269

Parameter		NO2	NOx	NO
Before	Data Slope	1.034518	1.017172	1.007699
	Data Offset	-0.159586	-2.367820	-2.301968
After	Data Slope	1.004679	1.001392	1.003633
	Data Offset	-0.333389	-2.528292	-2.491940
Channel #		8	6	7
Voltage Range		0 - 10 VDC	0 - 10 VDC	0 - 10 VDC

Analyzer Information

Analyzer make/model	TEI Model 42	Analyzer serial #	42-28486-231

Test Point	before		after	
Concentration range	0 - 1000	ppb	0 - 1000	ppb
NO background	1.5	ppb	1.4	mV
NOx background	1.5	ppb	1.4	mV
NO coefficient	1.213		1.116	
NOx coefficient	1.006		0.999	
PMT Voltage	-636	V	-635	V
Chamber Temp	49.4	Deg C	49.3	Deg C
Cooler Temp	-2.1	Deg C	-2.0	Deg C
Converter Temp	324.0	Deg C	322.0	Deg C
Sample Flow	0.733	LPM	0.733	LPM
Ozonator Flow	0.082	LPM	0.083	LPM
Pressure	195.4	mm Hg	191.9	mm Hg

Notes:

Calibration Report

Parameter **NOx-NO-NO_2**

Air Monitoring Network **PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date: December 9, 2008 Station Location: Beaverlodge

Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor
zero	4991	0.00	0.0	0.0	0.0	-0.2	-0.3	-0.3	N/A	N/A
1	4991	39.90	398.1	397.3	0.8	398.7	396.9	1.3	0.9985	1.0011
2	4991	19.87	199.1	198.7	0.4	202.5	201.9	0.5	0.9830	0.9842
3	4991	9.91	99.5	99.3	0.2	104.8	104.3	-0.1	0.9492	0.9521
AFZ	4991	0.00	0.0	0.0	0.0	0.1	-0.2	-0.2	0.0000	0.0000
AFS	4991	39.90	398.1	397.3	0.8	398.0	396.9	0.9	1.0003	1.0012
							Average Correction Factor		0.9769	0.9792

As Found Concentrations: NO_X= 395.6 NO= 394.8 As Found Percent Change NO_X= -0.6% NO= -0.6%

GPT Calibration Data

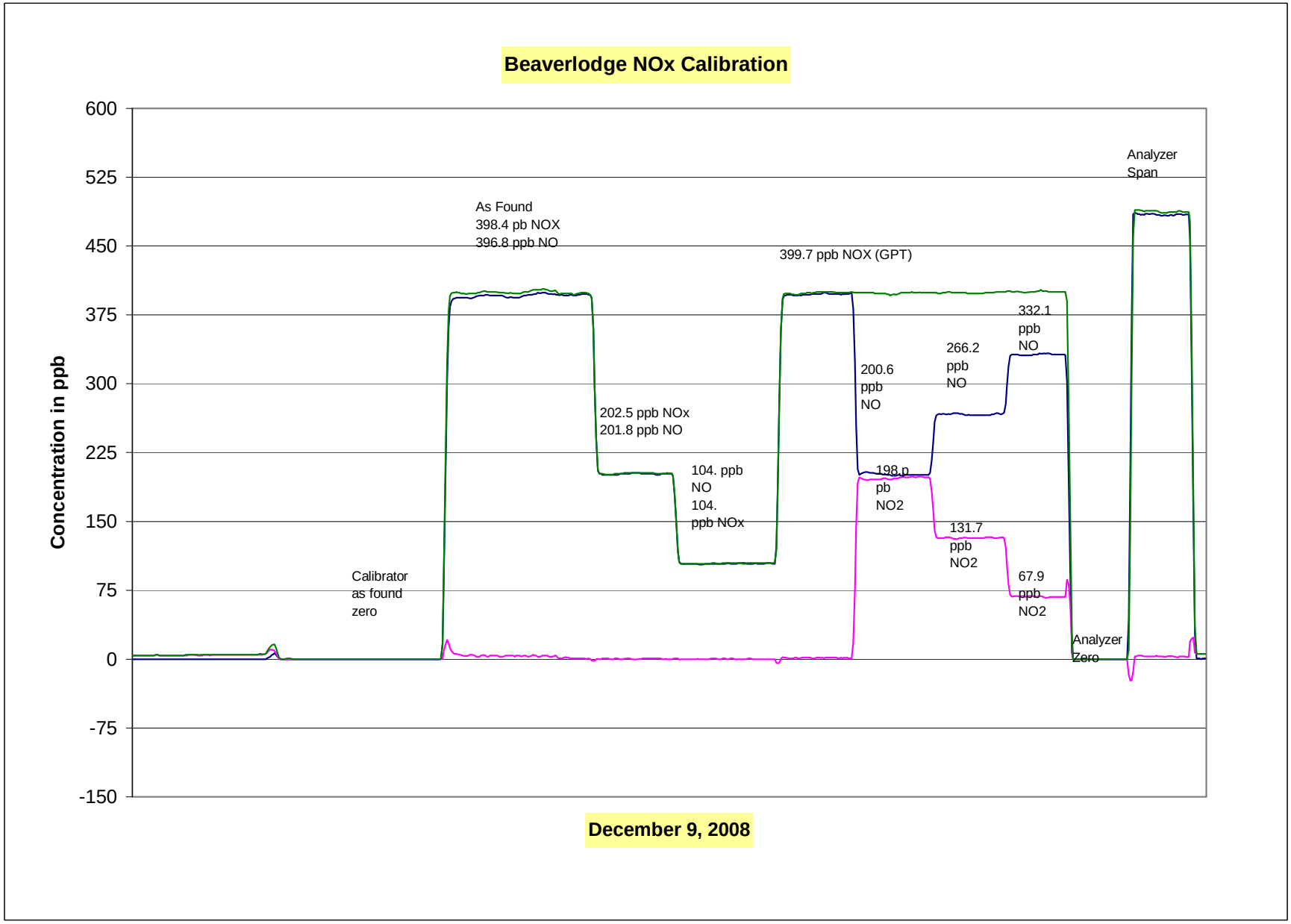
Dilution Flow 4990 ccm Source Gas Flow 39.82 ccm

O3 Setpoint (ppb)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor	NO2 Correction factor	Converter Efficiency
0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A	N/A	N/A
NO point	397.5	397.1	0.4	399.8	398.1	1.5	0.9943	0.9974	N/A	N/A
300	397.5	198.9	198.6	399.0	200.6	198.0	0.9963	0.9912	1.0032	99.7%
200	397.5	264.8	132.7	398.9	266.4	131.8	0.9965	0.9943	1.0069	99.3%
100	397.5	330.8	66.7	400.5	332.1	68.0	0.9925	0.9961	0.9804	102.0%
					Average Correction Factor		0.9951	0.9939	0.9968	100.3%

AIC Data

	Previous calibration				Current calibration			
Parameter	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	-2.6	-0.4	-2.6	ppb	-2.6	-0.5	-2.7	ppb
Auto span	479.4	-2.1	476.3	ppb	485.4	2.5	483.3	ppb

Calibration Performed By: Grover Christiansen


Beaverlodge NOx Calibration
Concentration in ppb
600
525
450
375
300
225
150
75
0
-75
-150
Calibrator as found zero
As Found 398.4 pb NOX 396.8 ppb NO
202.5 ppb NOx 201.8 ppb NO
104. ppb NO 104. ppb NOx
399.7 ppb NOX (GPT)
200.6 ppb NO
198.p pb NO2
266.2 ppb NO
131.7 ppb NO2
332.1 ppb NO
67.9 ppb NO2
Analyzer Zero
Analyzer Span
December 9, 2008

Calibration Summary

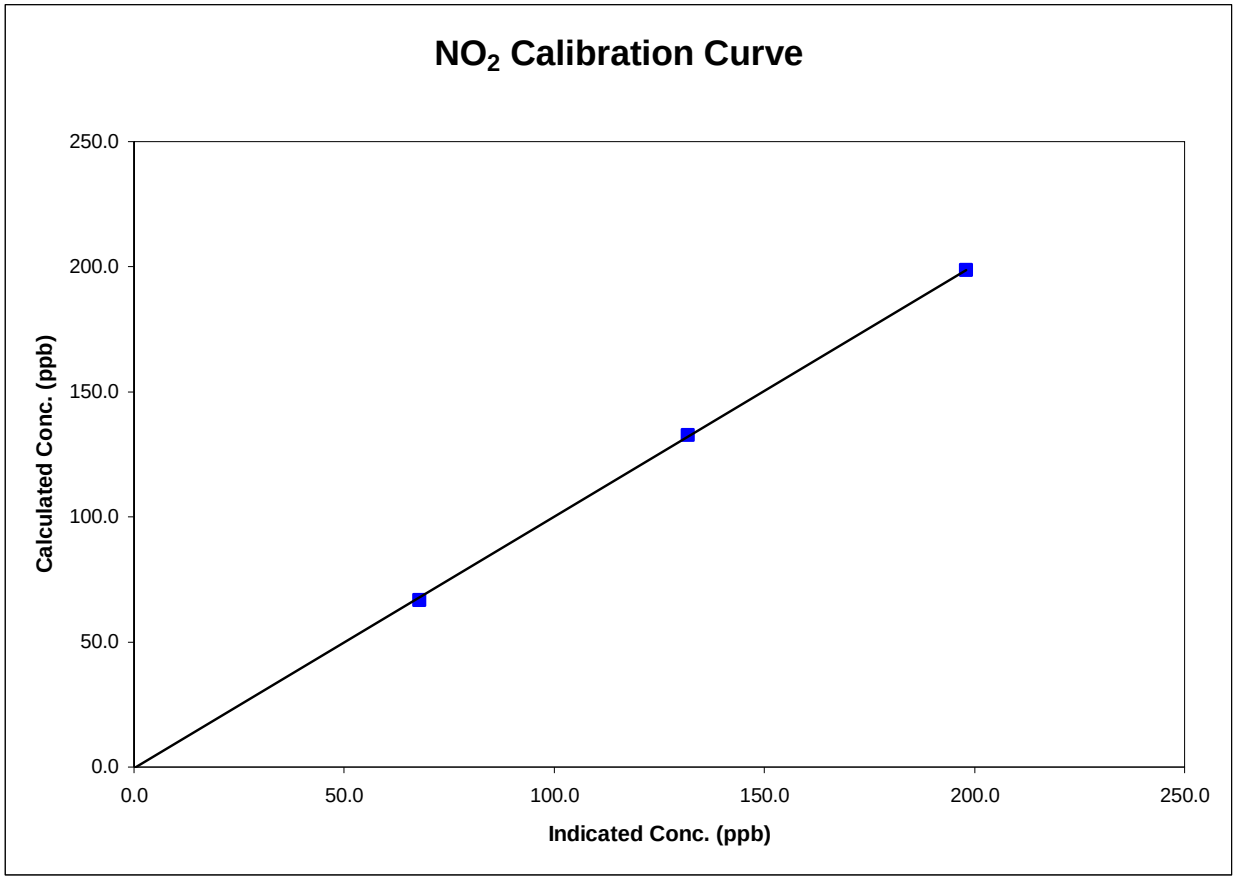
Parameter	NO_2
Air Monitoring Network	PASZA

Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 20, 2008
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	8:00	End Time (MST)	13:20
Analyzer make	TEI Model 42	Analyzer serial #	42-28486-231

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.3	0.0000		
198.6	198.0	1.0032	Correlation Coefficient	0.999883
132.7	131.8	1.0069		
66.7	68.0	0.9804	Slope	1.004679
			Intercept	-0.333389



Calibration Summary

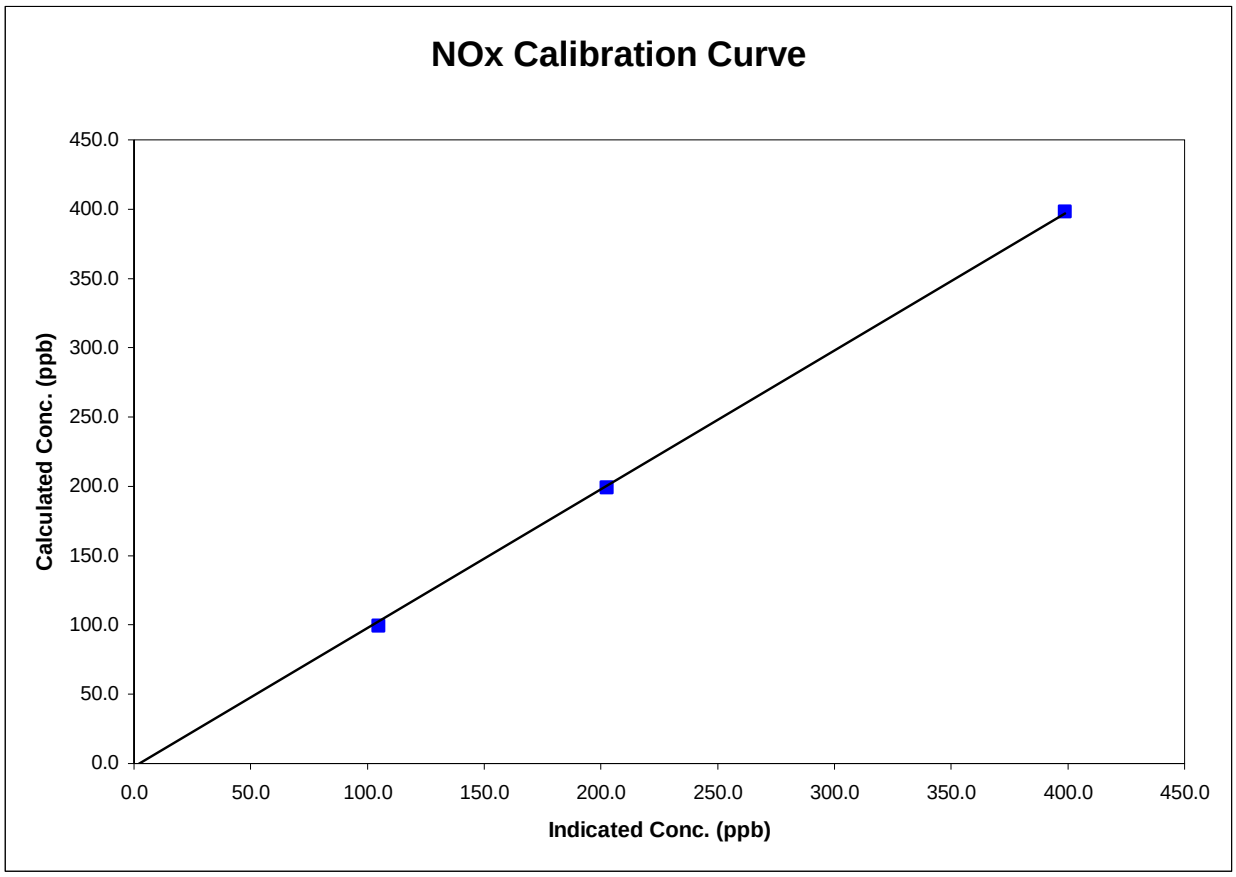
Parameter	NO_x
Air Monitoring Network	PASZA

Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 20, 2008
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	8:00	End Time (MST)	13:20
Analyzer make	TEI Model 42	Analyzer serial #	42-28486-231

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.2	0.0000		
398.1	398.7	0.9985	Correlation Coefficient	0.999773
199.1	202.5	0.9830		
99.5	104.8	0.9492	Slope	1.001392
			Intercept	-2.528292



Calibration Summary

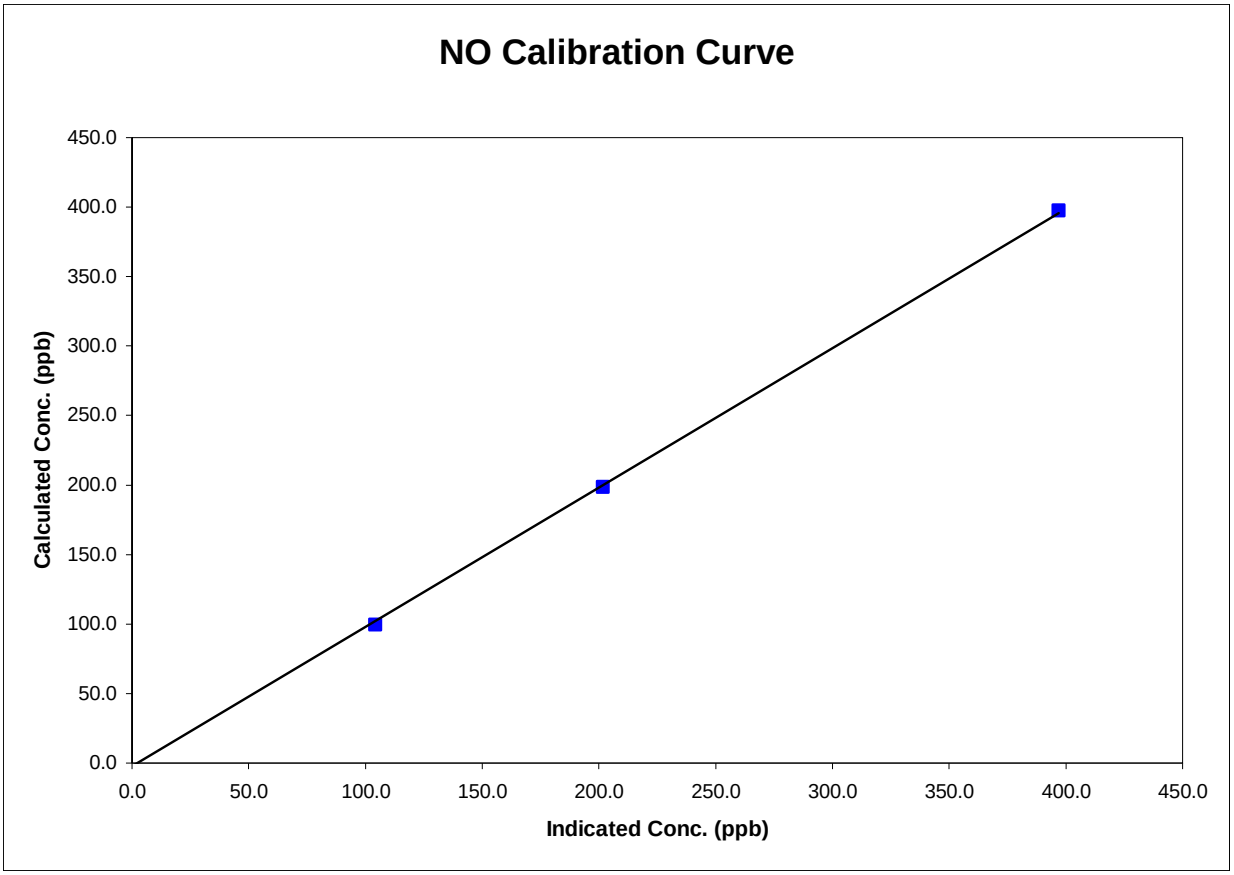
Parameter	**NO**
Air Monitoring Network	**PASZA**

Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 20, 2008
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	8:00	End Time (MST)	13:20
Analyzer make	TEI Model 42	Analyzer serial #	42-28486-231

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.3	N/A		
397.3	396.9	1.0011	Correlation Coefficient	0.999763
198.7	201.9	0.9842		
99.3	104.3	0.9521	Slope	1.003633
			Intercept	-2.491940



Calibration Report

Parameter	O_3
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 21, 2008
Station Number	4	Station Location	Beaverlodge
Reason: Routine	Install	Removal	Other:

Start Time (MST)	12:45	End Time (MST)	15:30
Barometric Pressure	0.918 atm	Station Temperature	20.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentration	NA	Cal Gas Expiry Date	NA

DACS make	Focus AP1000	DACS serial No.	45269
DACS voltage range	0 - 1 volt	DACS channel #	5
	Before		After
Calculated slope	1.039658	Calculated slope	1.003214
Calculated intercept	1.840215	Calculated intercept	0.082044

Analyzer make	Teco 49C	Analyzer serial #	49C-76443-383

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
offset	-0.20	ppb	-0.20	ppb
slope	0.956		0.956	
Lamp temp	56.2	mV	56.2	mV
Lamp Intensity A/B	71972/71244	mV	72098/71158	mV
Pressure	682.9	mm Hg	668	mm Hg
Flow A	741	ccm	728	ccm
Flow B	694	ccm	682	ccm

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4990	0.00	0.0	-0.4	N/A
4990	0.00	198.6	198.3	1.0015
4990	0.00	132.7	131.0	1.0132
4990	0.00	66.7	67.5	0.9876
4990	0.00	0.0	-0.4	As found zero
4990	0.00	246.4	185.7	As found span
			Average Correction Factor	1.0008

Calculated value of As Found Response: 195.3 ppm Percent Change of As Found: -20.7%

	before calibration		after calibration	
Auto zero	1.7	ppb	-0.2	ppb
Auto span	111.1	ppb	113.7	ppb

Notes: O3 Adjustment Made

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	O_3
Air Monitoring Network	**PASZA**

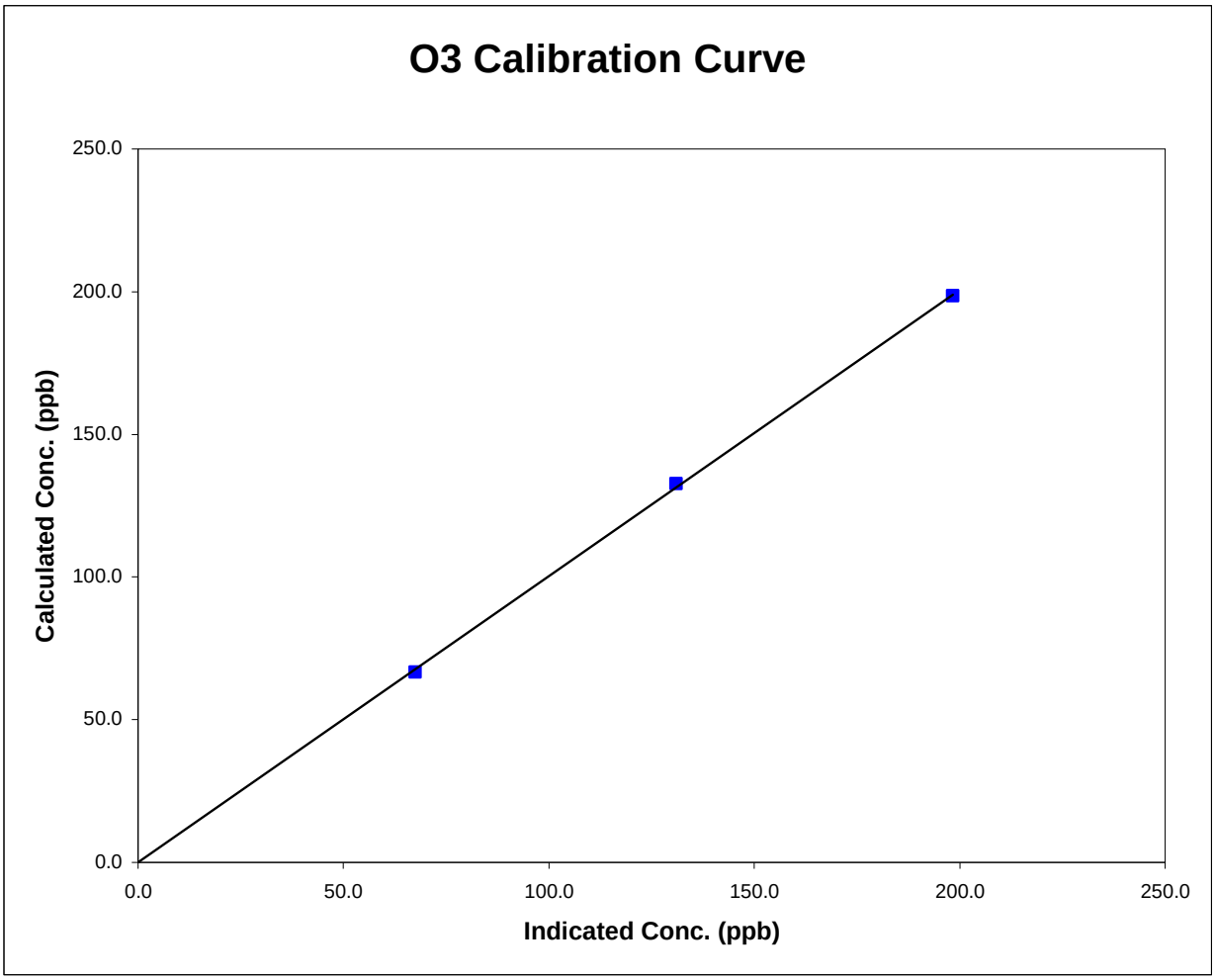
FOCUS AIR QUALITY MONITORING

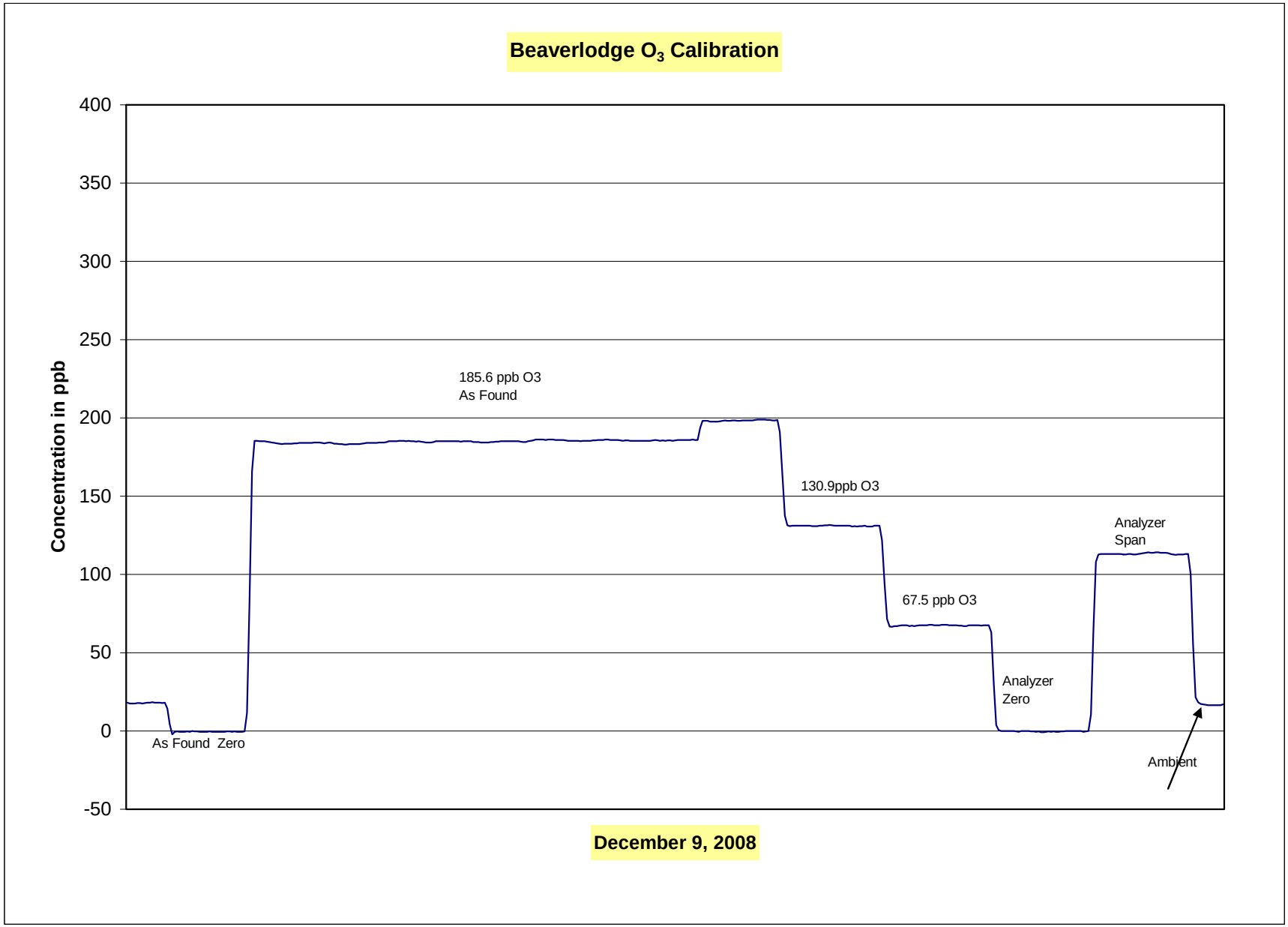
Station Information

Calibration Date	December 9, 2008	Previous Calibration	November 21, 2008
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	12:45	End Time (MST)	15:30
Analyzer make/model	Teco 49C	Analyzer serial #	49C-76443-383

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.4	NA		
198.6	198.3	1.0015	Correlation Coefficient	0.999859
132.7	131.0	1.0132		
66.7	67.5	0.9876	Slope	1.003214
			Intercept	0.082044




Beaverlodge O_3 Calibration
Concentration in ppb
400
350
300
250
200
150
100
50
0
-50
185.6 ppb O3
As Found
130.9ppb O3
67.5 ppb O3
Analyzer
Span
Analyzer
Zero
As Found Zero
Ambient
December 9, 2008

Calibration Report

Parameter	SO_2
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 4, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River
Reason:	Routine / Install	Removal	Other:

Start Time (MST)	9:00	End Time (MST)	16:25
Barometric Pressure	27.66 inches Hg	Station Temperature	22.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentratior	50.6 ppm	Cal Gas Expiry Date	7/27/2009
Gas Cert Reference	LL 16161		
DACS make	Focus AP1000	DACS serial No.	52662
DACS voltage range	0 - 10 volt	DACS channel #	9
	Before		After
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.001535	Calculated slope	1.001972
Calculated intercept	-2.572478	Calculated intercept	-2.723536

Analyzer make	TEI 43C		Analyzer serial #	609716238

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Background	8.1		8.2	
Coefficient	1.181		1.181	
UV Lamp Voltage	727	V	725	V
Chamber Temp	44.5	C	44.2	C
Perm Gas Temp	45	C	45	C
Pressure	687.6	mm Hg	676.3	mm Hg
Sample Flow	0.479	LPM	488	LPM
Lamp Intesity	34390	Hz	34337	Hz

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.0	0.4	N/A
4987	39.81	400.7	401.3	0.9987
4990	19.88	200.8	204.8	0.9806
4990	9.92	100.4	105.0	0.9561
4988	0.00	0.0	0.2	As found zero
4990	39.89	401.3	401.1	As found span
			Average Correction Factor	0.9784

Calculated value of As Found Response: 398.942 ppm Percent Change of As Found: 0.6%

	before calibration		after calibration	
Auto zero	-2.5	ppm	-2.6	ppm
Auto span	295.5	ppm	262.8	ppm

Notes: Internal Pump Replaced

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	SO_2
Air Monitoring Network	PASZA

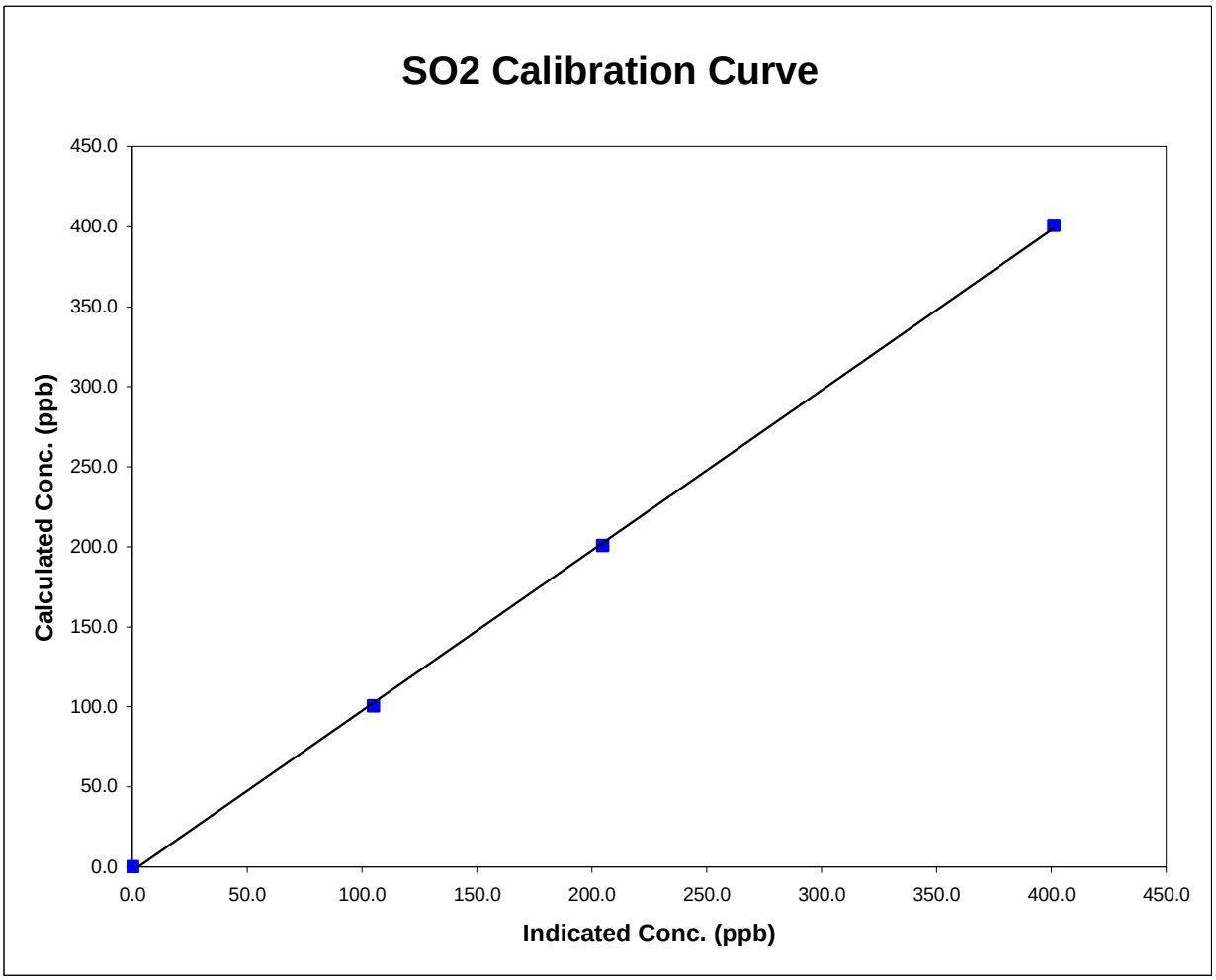
FOCUS AIR QUALITY MONITORING

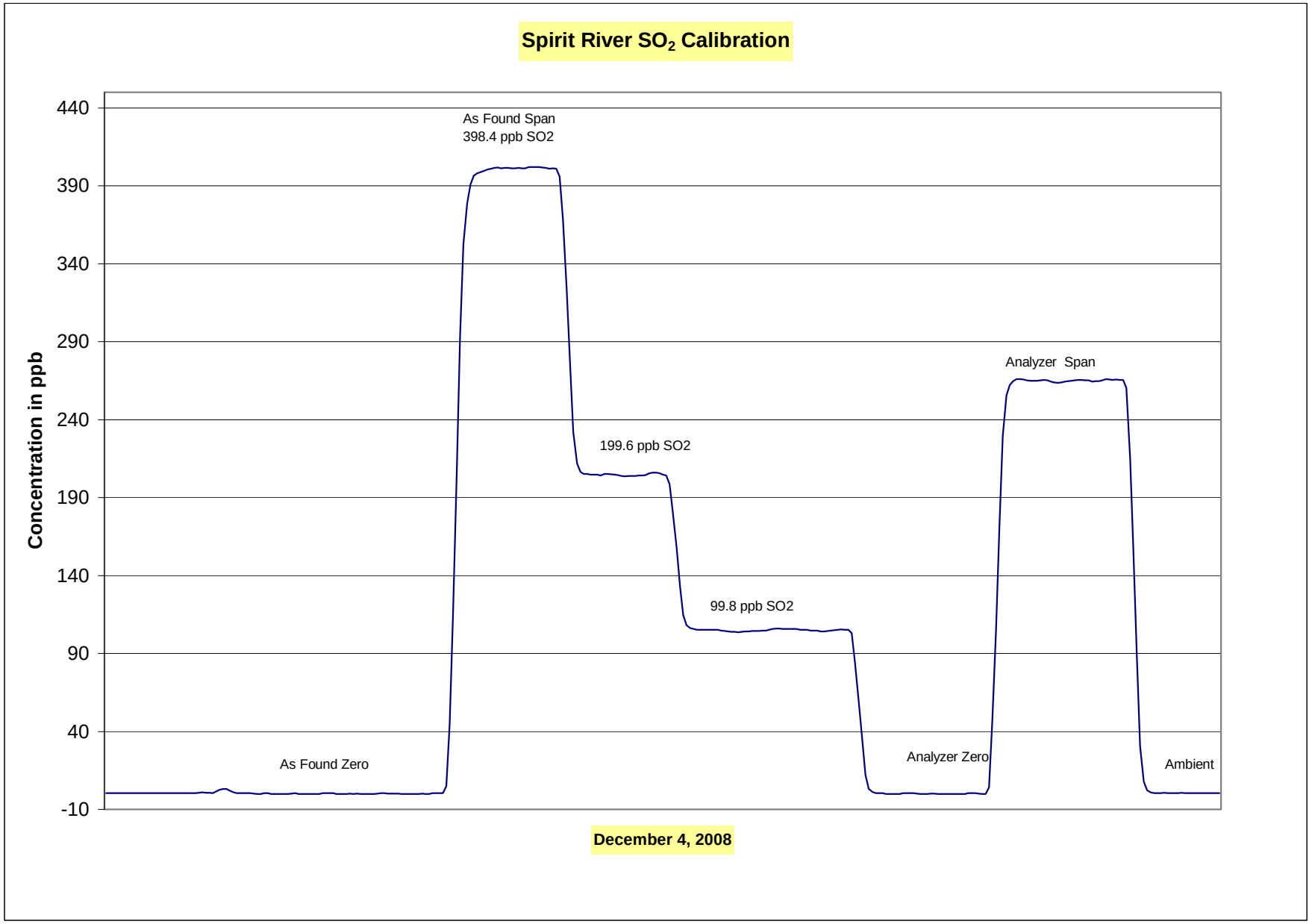
Station Information

Calibration Date	December 4, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River
Start Time (MST)	9:00	End Time (MST)	16:25
Analyzer make/model	TEI 43C	Analyzer serial #	609716238

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.4	N/A		
400.7	401.3	0.9987	Correlation Coefficient	0.999833
200.8	204.8	0.9806		
100.4	105.0	0.9561	Slope	1.001972
			Intercept	-2.723536




Spirit River SO_2 Calibration
Concentration in ppb
440
390
340
290
240
190
140
90
40
-10
As Found Span
398.4 ppb SO2
199.6 ppb SO2
99.8 ppb SO2
Analyzer Span
As Found Zero
Analyzer Zero
Ambient
December 4, 2008

Calibration Report

Parameter	TRS
Air Monitoring Network	PASZA

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 4, 2008	Previous Calibration	November 27, 2008
Station Number	6	Station Location	Rover - Spirit River
Reason:	Routine / Install	Removal	Other:
Start Time (MST)	10:00	End Time (MST)	14:19
Barometric Pressure	27.5 inches Hg	Station Temperature	21.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentration	5.1 ppm	Cal Gas Expiry Date	11/15/2005
Gas Cert Reference	ALM013295		
DACS make	Focus AP1000	DACS serial No.	52662
DACS voltage range	0 - 5 volt	DACS channel #	8
	Before		After
DACS Scale High	100	DACS slope	100
DACS Scale Low	0	DACS intercept	0
Calculated slope	0.999146	Calculated slope	0.992210
Calculated intercept	-0.319851	Calculated intercept	0.386388
Analyzer make	TEI 43C	Analyzer serial #	609716238

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	10.6	ppb	10.7	ppb
Coefficient	1.454		1.454	
Lamp Voltage	799	V	798	V
Chamber Temp	43.8	C	44.0	C
Perm gas Temp	44.99	C	45	C
Pressure	671	mmHg	671	mmHg
Sample Flow	437	ccm	436	ccm
Lamp Intensity	38527.0	Hz	38687.0	Hz

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.0	0.0	0.3	N/A
4988	79.88	80.4	80.8	0.9953
4988	39.85	40.4	40.2	1.0050
4988	9.92	10.1	9.1	1.1103
4988	0.00	0.0	-1.2	As found zero
4988	79.88	80.4	81.2	As found span
			Average Correction Factor	1.0369

Calculated value of As Found Response: 81.96 ppm Percent Change of As Found: -2.0%

	before calibration		after calibration	
Auto zero	-0.1	ppm	-0.8	ppm
Auto span	72.3	ppm	69.3	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	TRS
Air Monitoring Network	PASZA

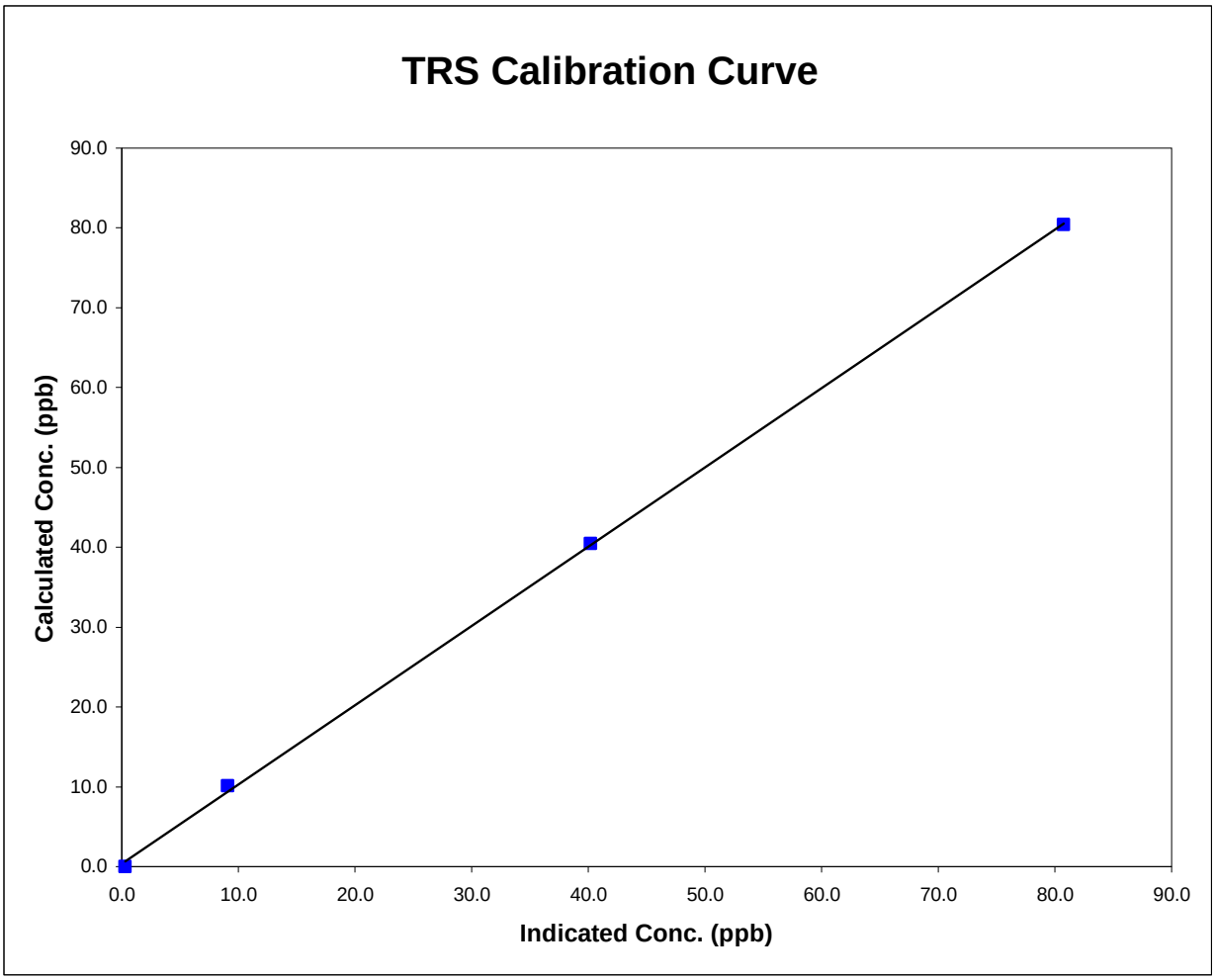
FOCUS AIR QUALITY MONITORING

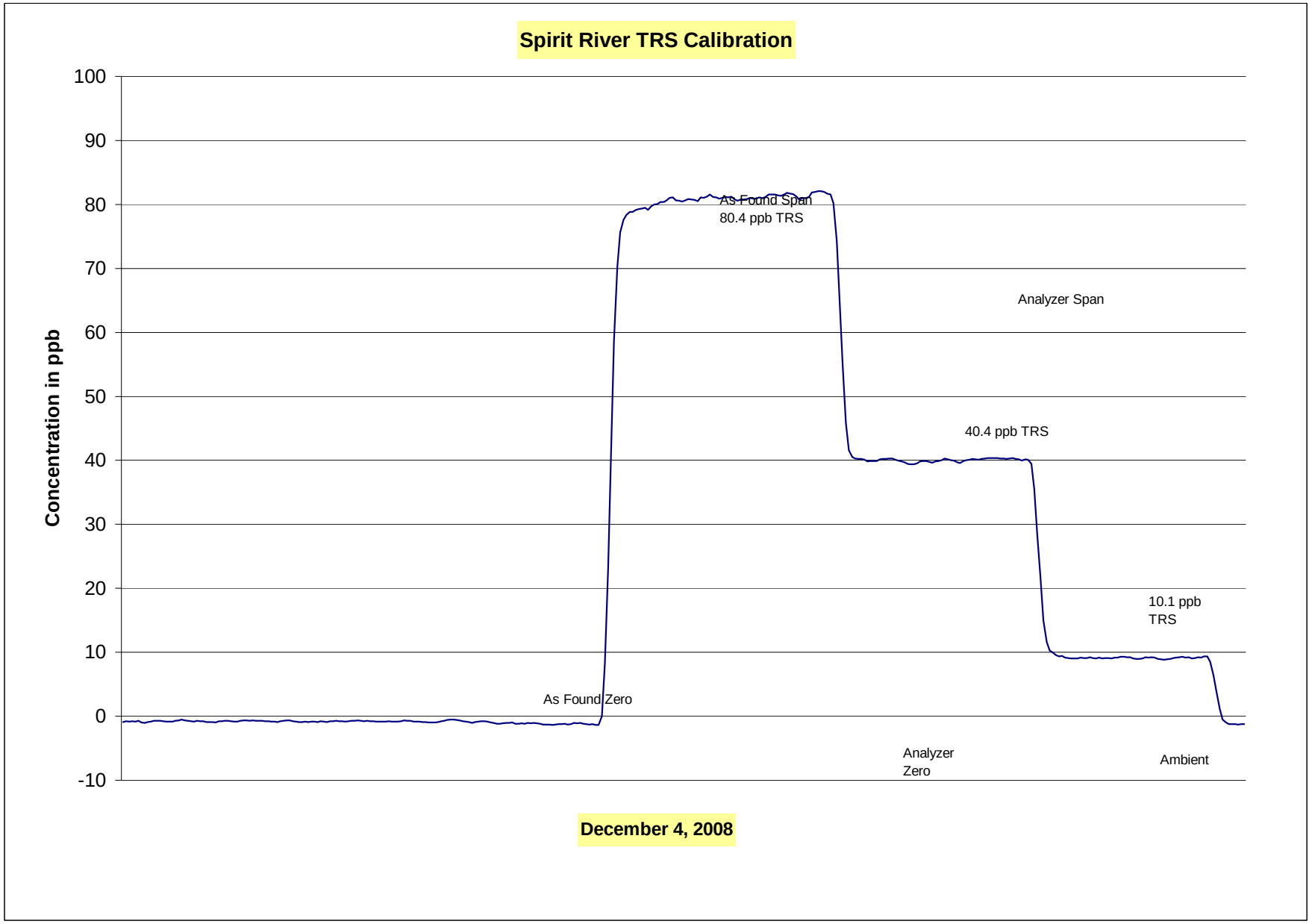
Station Information

Calibration Date	December 4, 2008	Previous Calibration	November 27, 2008
Station Number	6	Station Location	Rover - Spirit River
Start Time (MST)	10:00	End Time (MST)	14:19
Analyzer make/model	TEI 43C	Analyzer serial #	609716238

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.3	N/A		
80.4	80.8	0.9953	Correlation Coefficient	0.999751
40.4	40.2	1.0050		
10.1	9.1	1.1103	Slope	0.992210
			Intercept	0.386388




Spirit River TRS Calibration
Concentration in ppb
100
90
80
70
60
50
40
30
20
10
0
-10
As Found Span
80.4 ppb TRS
Analyzer Span
40.4 ppb TRS
10.1 ppb
TRS
As Found Zero
Analyzer
Zero
Ambient
December 4, 2008

Calibration Report

Parameter	O_3
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 4, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River
Reason: Routine	Install	Removal	Other:
Start Time (MST)	12:00	End Time (MST)	16:48
Barometric Pressure	0.917 atm	Station Temperature	21.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
DACS make	Focus AP1000	DACS serial No.	52662
DACS voltage range	0-5	DACS channel #	7
	Before		After
Calculated slope	0.998915	Calculated slope	1.036158
Calculated intercept	0.788872	Calculated intercept	-1.704612
Analyzer make	TEI Model 49C	Analyzer serial #	609-716240

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Offset	0	ppb	0	ppb
Span	1.39		1.48	
Cell A	69794	Hz	70555	Hz
Cell B	67914	Hz	68712	Hz
Pressure	705	in Hg	697	in Hg
CellA Flow	677	ccm	670	ccm
Cell B Flow	677	cmm	671	cmm

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4990	0.00	0.0	0.0	N/A
4990	0.00	262.3	253.6	1.0342
4990	0.00	174.1	170.2	1.0232
4990	0.00	91.1	91.9	0.9917
4990	0.00	0.0	0.0	As found zero
4990	0.00	282.3	245.5	As found span
			Average Correction Factor	1.0164

Calculated value of As Found Response: 246.0 ppm Percent Change of As Found: -12.9%

	before calibration		after calibration	
Auto zero	-2.7	ppb	-1.1	ppb
Auto span	196.2	ppb	216.3	ppb

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

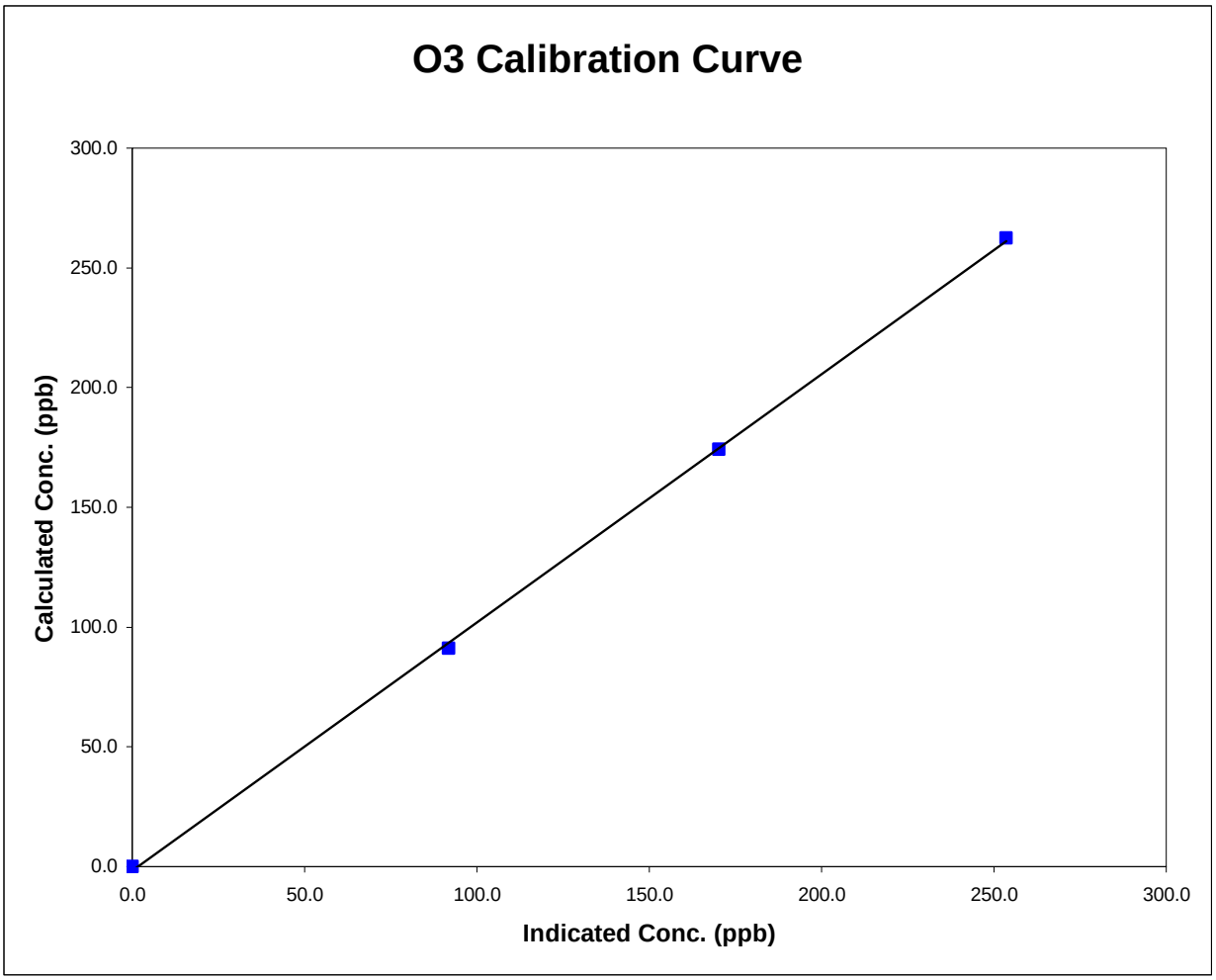
Parameter	O3
Air Monitoring Network	PASZA

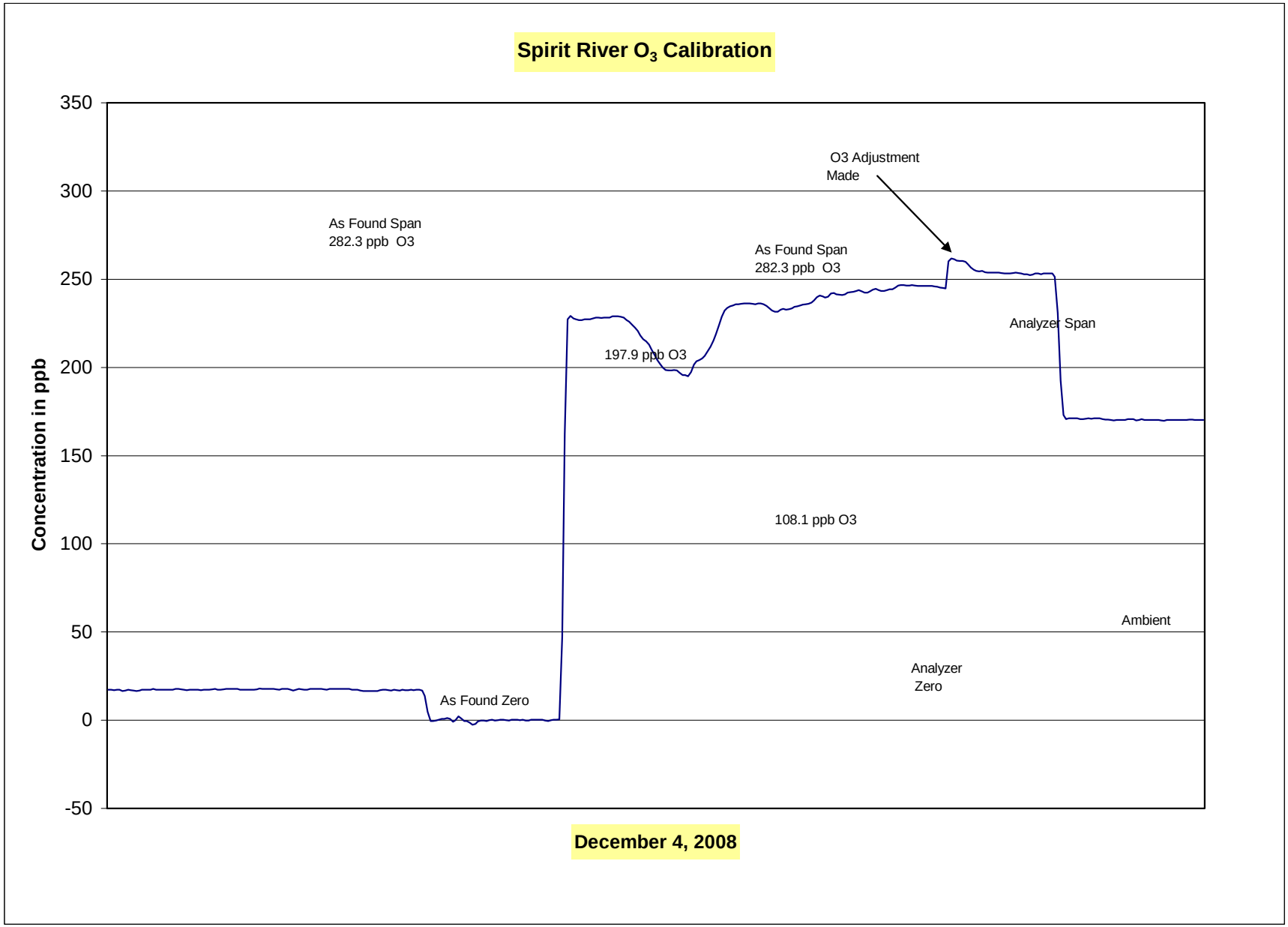
Station Information

Calibration Date	December 4, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River
Start Time (MST)	12:00	End Time (MST)	16:48
Analyzer make/model	TEI Model 49C	Analyzer serial #	609-716240

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	NA		
262.3	253.6	1.0342	Correlation Coefficient	0.999731
174.1	170.2	1.0232		
91.1	91.9	0.9917	Slope	1.036158
			Intercept	-1.704612




Spirit River O_3 Calibration
350
300
250
200
150
100
50
0
-50
Concentration in ppb
O3 Adjustment Made
As Found Span 282.3 ppb O3
As Found Span 282.3 ppb O3
Analyzer Span
197.9 ppb O3
108.1 ppb O3
Ambient
Analyzer Zero
As Found Zero
December 4, 2008

Calibration Report

Parameter	**NOx-NO-NO_2**
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 3, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River

Reason: Routine Installation Removal Other:

Start Time (MST)	11:00		End Time (MST)	18:48	
Barometric Pressure	27.66	Inches Hg	Station Temperature	22.0	Deg C
Calibrator	Environics 6100		Serial Number	3474	
NO Cal Gas Conc	49.6	ppm	Cal Gas Expiry Date	2-Jan-09	
NOx Cal Gas Conc	49.6	ppm	Cal Gas Serial #	LL-16161	

DACS Information

DACS make	FOCUS AP1000	DACS serial No.	52662

Parameter		NO2	NOx	NO
Before	Data Slope	1.011014	1.013550	1.000512
	Data Offset	1.770688	-4.453803	-4.462700
After	Data Slope	1.006119	0.997784	1.001441
	Data Offset	0.055380	-2.730082	-3.010724
Channel #		8	6	7
Voltage Range		0 - 10 VDC	0 - 10 VDC	0 - 10 VDC

Analyzer Information

Analyzer make/model	TECO 42i	Analyzer serial #	701120011

Test Point	before		after	
Concentration range	0-500	ppb	0-500	ppb
NO background	6.2	ppb		mV
NOx background	6.5	ppb		mV
NO coefficient	1.052			
NOx coefficient	0.999			
Chamber Temp	49.8	Deg C		Deg C
Cooler Temp	-3.0	Deg C		Deg C
NO2 Converter Temp	323.2	Deg C		Deg C
Sample Flow	0.5	ccm		ccm
Ozonator Flow	OK	LPM		LPM
Preasure	179.0	mm Hg		mm Hg

Notes:

Calibration Performed By: Conor Whiteley

Calibration Report

Parameter **NOx-NO-NO_2**

Air Monitoring Network **PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date: December 3, 2008 Station Location: Rover - Spirit River

Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor
zero	4988	0.00	0.0	0.0	0.0	0.1	-0.1	0.4	N/A	N/A
1	4990	39.84	392.9	392.9	0.0	395.1	393.7	-1.3	0.9942	0.9979
2	4990	19.89	196.9	196.9	0.0	201.3	201.1	-1.4	0.9783	0.9793
3	4990	9.90	98.2	98.2	0.0	103.9	104.4	-1.0	0.9451	0.9406
AFZ	4988	0.00	0.0	0.0	0.0	-0.1	0.5	-1.0	0.0000	0.0000
AFS	4990	39.84	392.9	392.9	0.0	473.8	470.9	-0.7	0.8292	0.8343
							Average Correction Factor		0.9726	0.9726

As Found Concentrations: NO_X= 469.5 NO= 465.9 As Found Percent Change NO_X= 19.5% NO= 18.6%

GPT Calibration Data

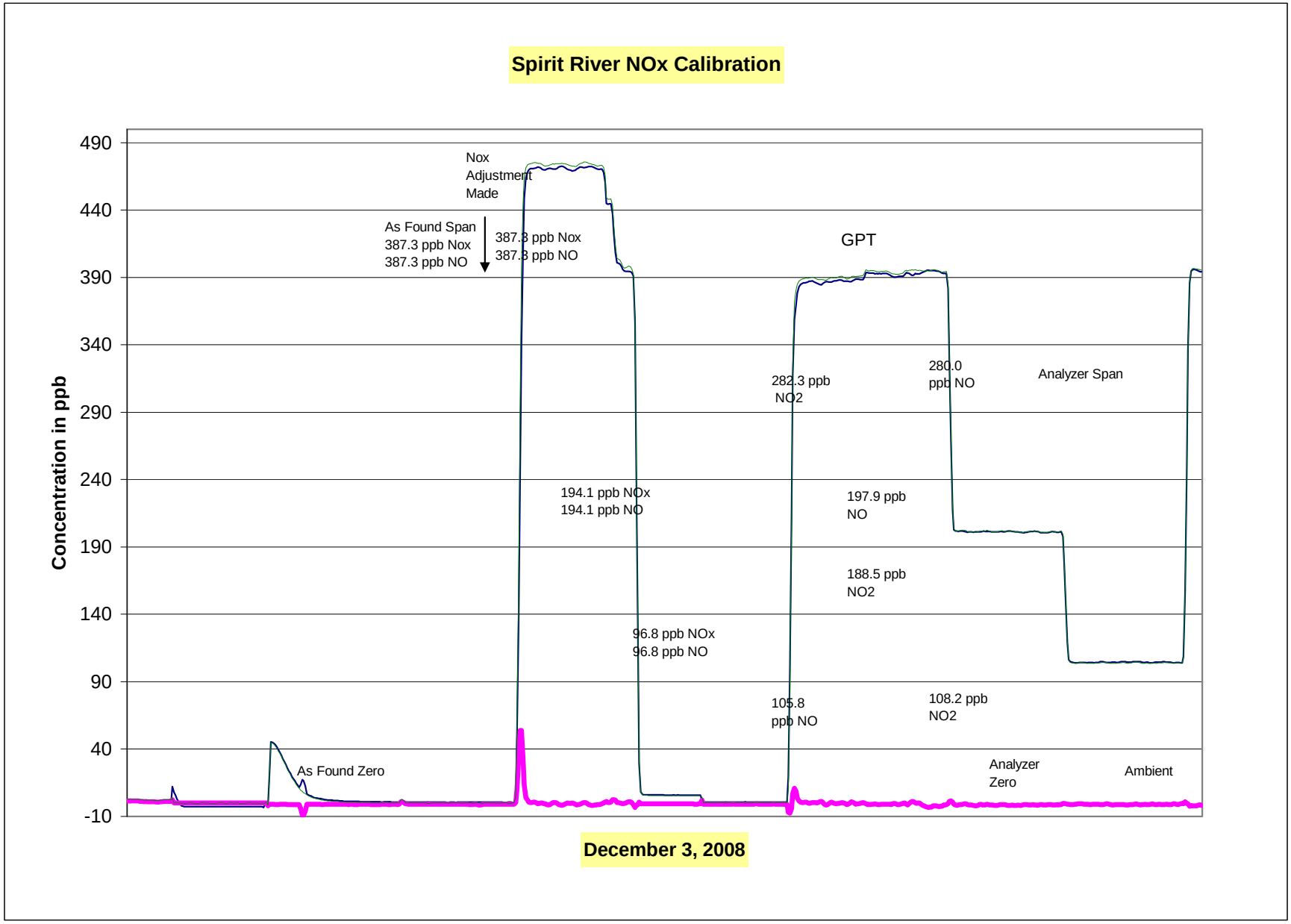
Dilution Flow 4988 ccm Source Gas Flow 39.82 ccm

O3 Setpoint (ppb)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor	NO2 Correction factor	Converter Efficiency
0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A	N/A	N/A
NO point	392.6	392.3	0.3	395.7	394.8	-1.8	0.9921	0.9938	N/A	N/A
300	392.6	129.0	263.6	396.3	131.8	262.8	0.9906	0.9786	1.0033	99.7%
200	392.6	217.4	175.2	395.3	220.1	172.9	0.9931	0.9878	1.0135	98.7%
100	392.6	300.4	92.2	397.0	303.0	91.6	0.9890	0.9915	1.0065	99.4%
					Average Correction Factor		0.9909	0.9860	1.0078	99.2%

AIC Data

	Previous calibration				Current calibration			
Parameter	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	-0.1	1.6	0.8	ppb	-895.5	357.6	7.7	ppb
Auto span	298.1	300.2	-1.3	ppb	138.4	142.4	-3.9	ppb

Calibration Performed By: Grover Christiansen


Spirit River NOx Calibration
Concentration in ppb
490
440
390
340
290
240
190
140
90
40
-10
Nox
Adjustment
Made
As Found Span
387.3 ppb Nox
387.3 ppb NO
387.3 ppb Nox
387.3 ppb NO
GPT
282.3 ppb
NO2
280.0
ppb NO
Analyzer Span
194.1 ppb NOx
194.1 ppb NO
197.9 ppb
NO
188.5 ppb
NO2
96.8 ppb NOx
96.8 ppb NO
105.8
ppb NO
108.2 ppb
NO2
As Found Zero
Analyzer
Zero
Ambient
December 3, 2008

Calibration Summary

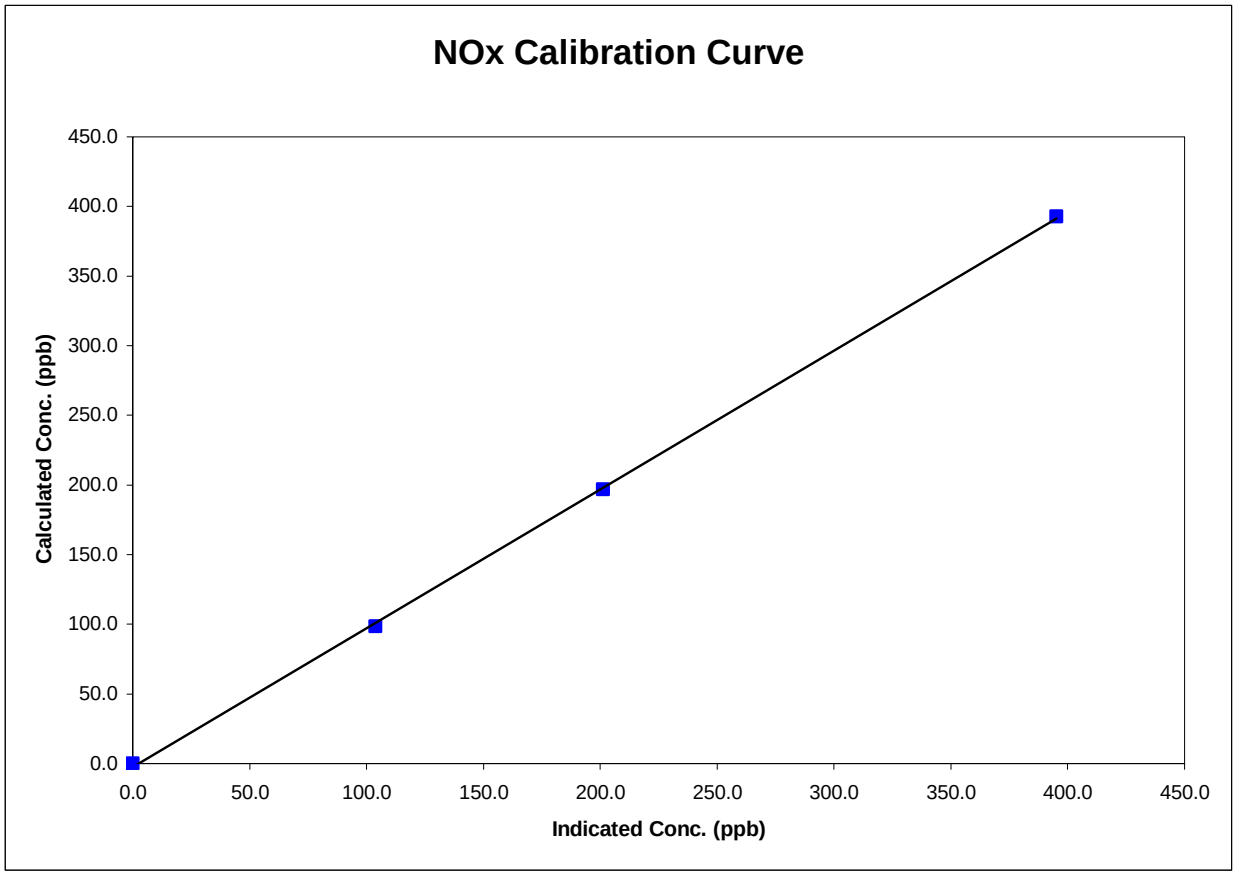
Parameter	NO_x
Air Monitoring Network	PASZA

Station Information

Calibration Date	December 3, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River
Start Time (MST)	11:00	End Time (MST)	18:48
Analyzer make	TECO 42i	Analyzer serial #	701120011

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	0.0000		
392.9	395.1	0.9942	Correlation Coefficient	0.999793
196.9	201.3	0.9783		
98.2	103.9	0.9451	Slope	0.997784
			Intercept	-2.730082



Calibration Summary

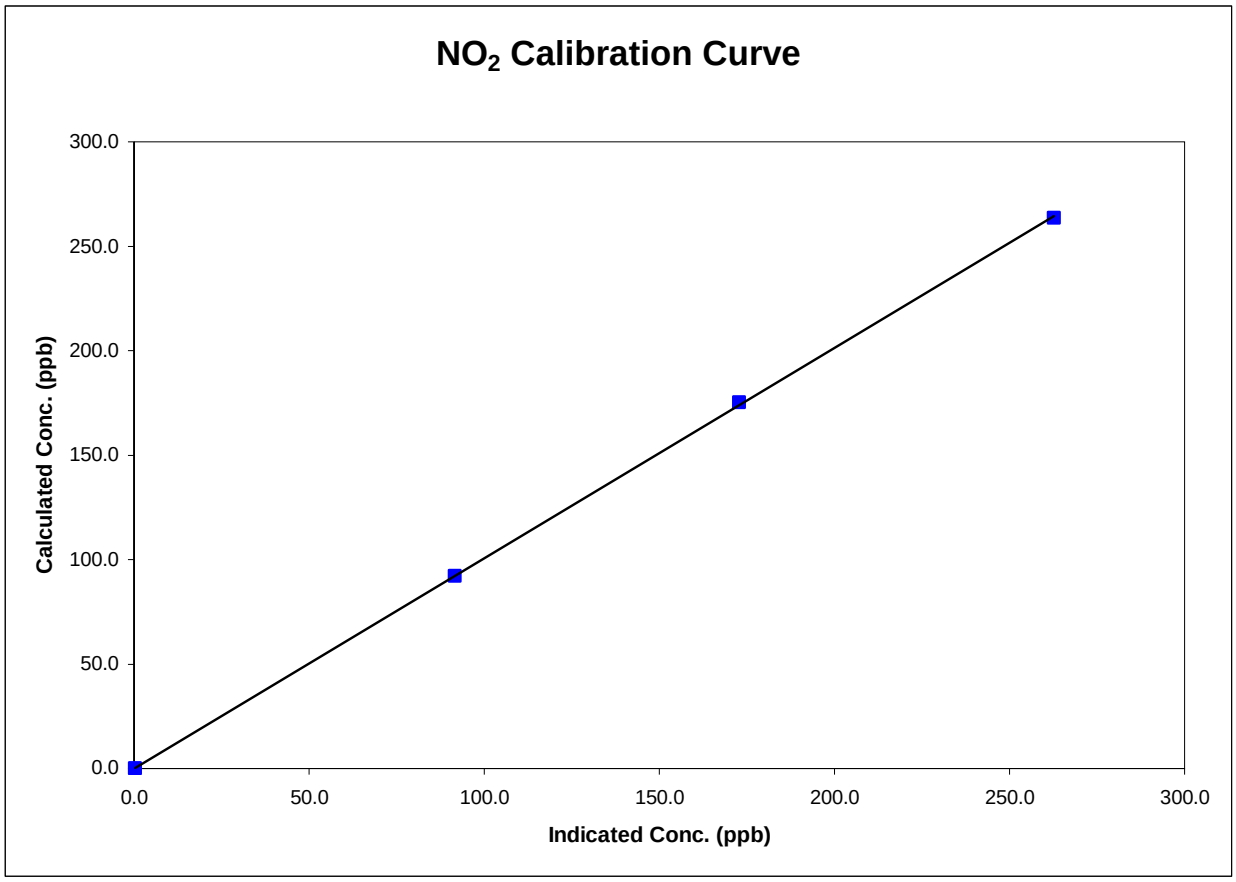
Parameter	NO_2
Air Monitoring Network	PASZA

Station Information

Calibration Date	December 3, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River
Start Time (MST)	11:00	End Time (MST)	18:48
Analyzer make	TECO 42i	Analyzer serial #	701120011

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.4	0.0000		
263.6	262.8	1.0033	Correlation Coefficient	0.999939
175.2	172.9	1.0135		
92.2	91.6	1.0065	Slope	1.006119
			Intercept	0.055380



Calibration Summary

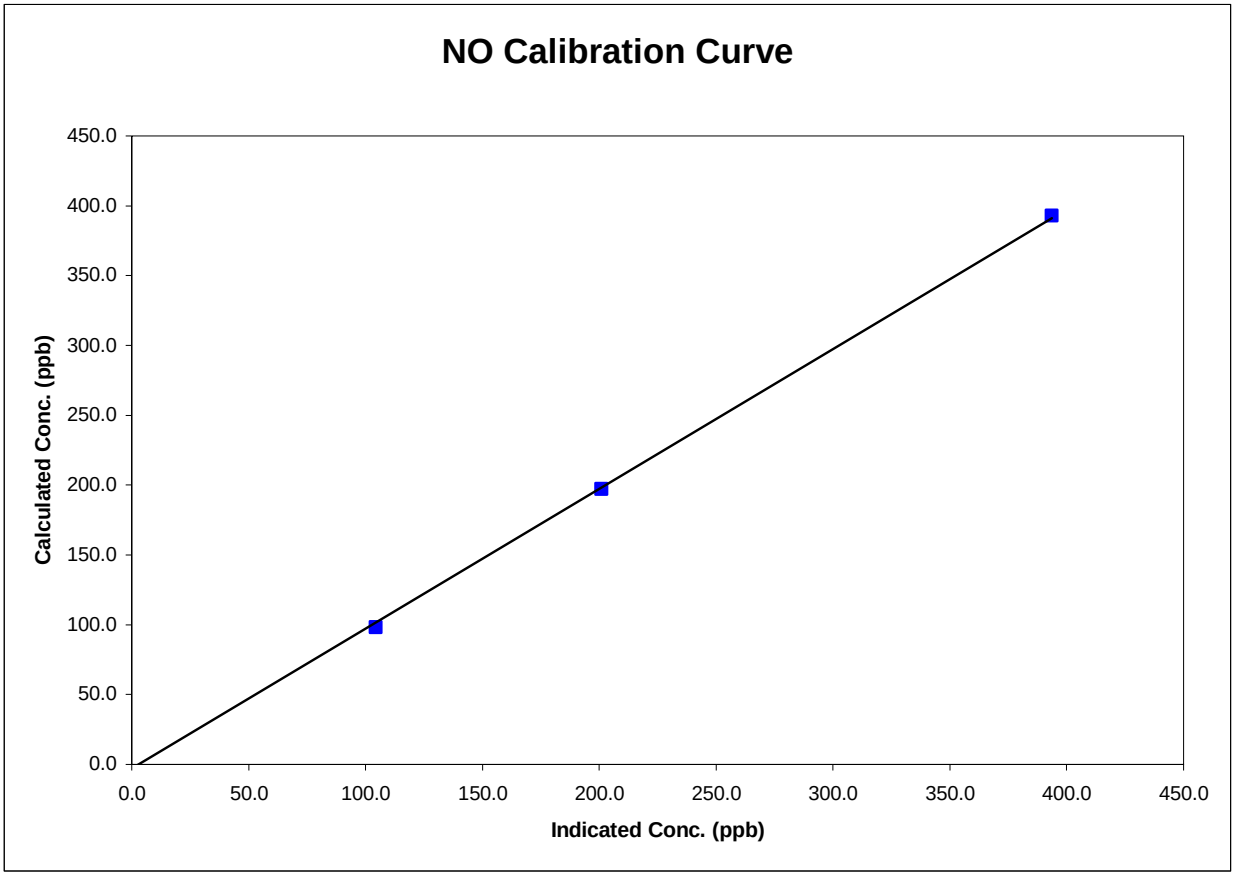
Parameter	**NO**
Air Monitoring Network	**PASZA**

Station Information

Calibration Date	December 3, 2008	Previous Calibration	November 27, 2008
Station Number	8	Station Location	Rover - Spirit River
Start Time (MST)	11:00	End Time (MST)	18:48
Analyzer make	TECO 42i	Analyzer serial #	701120011

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.1	N/A		
392.9	393.7	0.9979	Correlation Coefficient	0.999694
196.9	201.1	0.9793		
98.2	104.4	0.9406	Slope	1.001441
			Intercept	-3.010724



Calibration Report

Parameter	SO_2
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 22, 2008	Previous Calibration	November 17, 2008
Station Number	6	Station Location	Valleyview
Reason: Routine	Install	Removal	Other:

Start Time (MST)	11:00	End Time (MST)	14:59
Barometric Pressure	27.16 inches Hg	Station Temperature	-32.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentratior	50.6 ppm	Cal Gas Cert Date	8/6/2008
Gas Cert Reference	AAL 56996		
DACS make	Focus AP1000	DACS serial No.	45274
DACS voltage range	0 - 10 volt	DACS channel #	4
	Before		After
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	0.988650	Calculated slope	0.999927
Calculated intercept	-1.416289	Calculated intercept	-1.222394

Analyzer make	TEI 45C		Analyzer serial #	43C-57531-313

	before		after	
Concentration range	0 - 1000	ppb	0 - 1000	ppb
Background	27.2		30.7	
Coefficient	0.726		0.726	
UV Lamp Voltage	705	LPM	704	LPM
Chamber Temp	44.1	V	44.1	V
Perm Gas Temp	35.1	C	35.1	C
Pressure	634.5	in Hg	627	in Hg
Sample Flow	0.474	LPM	0.471	LPM
Lamp Intesity	44781	Hz	44376	Hz

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.0	0.2	N/A
4989	39.84	400.9	401.6	0.9982
4988	19.92	201.3	203.0	0.9915
4988	9.90	100.2	102.6	0.9772
4988	0.00	0.0	2.0	As found zero
4988	39.88	401.3	378.9	As found span
			Average Correction Factor	0.9890

Calculated value of As Found Response: 371.215 ppm Percent Change of As Found: 7.5%

	before calibration		after calibration	
Auto zero	-1.4	ppm	-1.6	ppm
Auto span	167.8	ppm	168.0	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	SO_2
Air Monitoring Network	PASZA

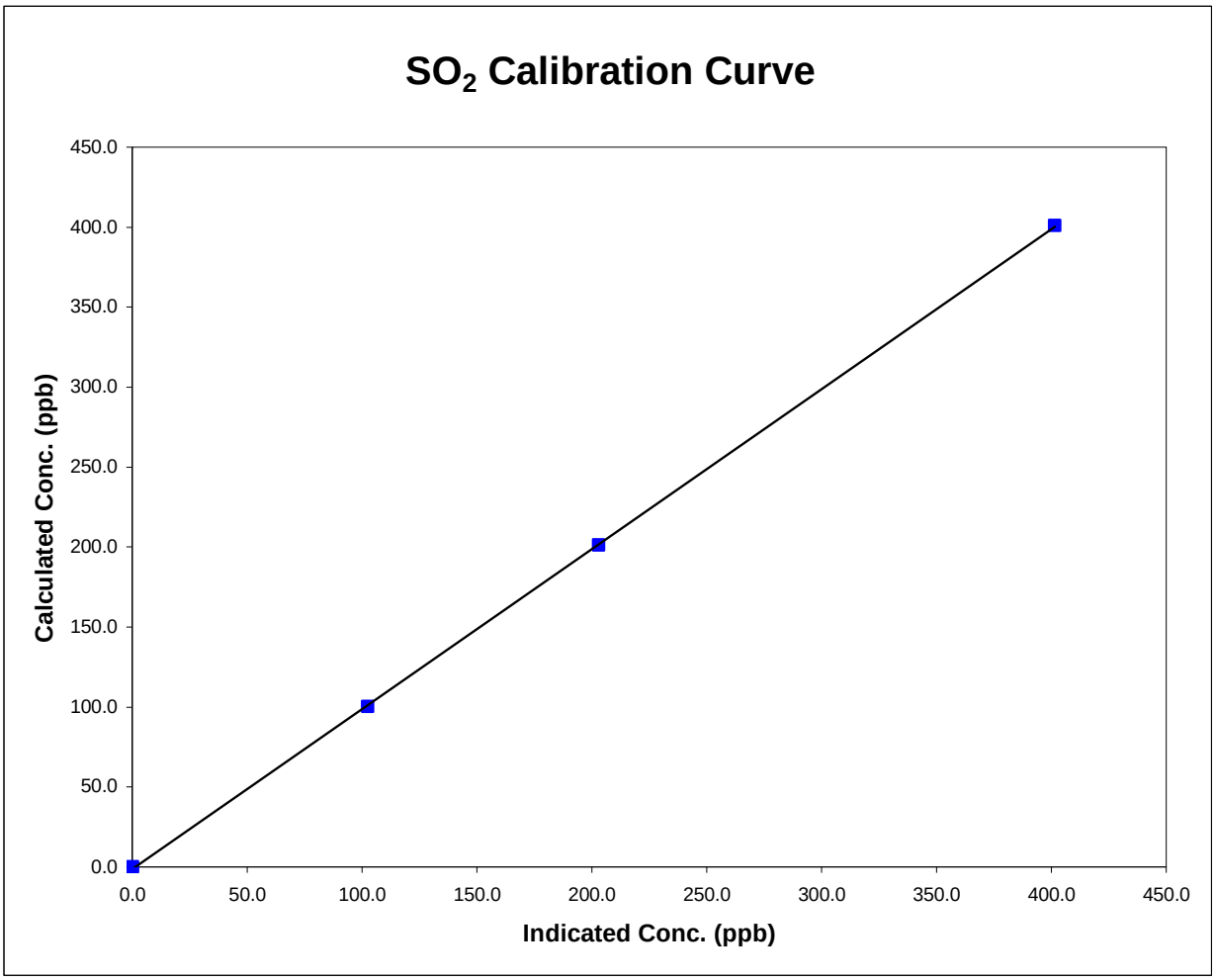
FOCUS AIR QUALITY MONITORING

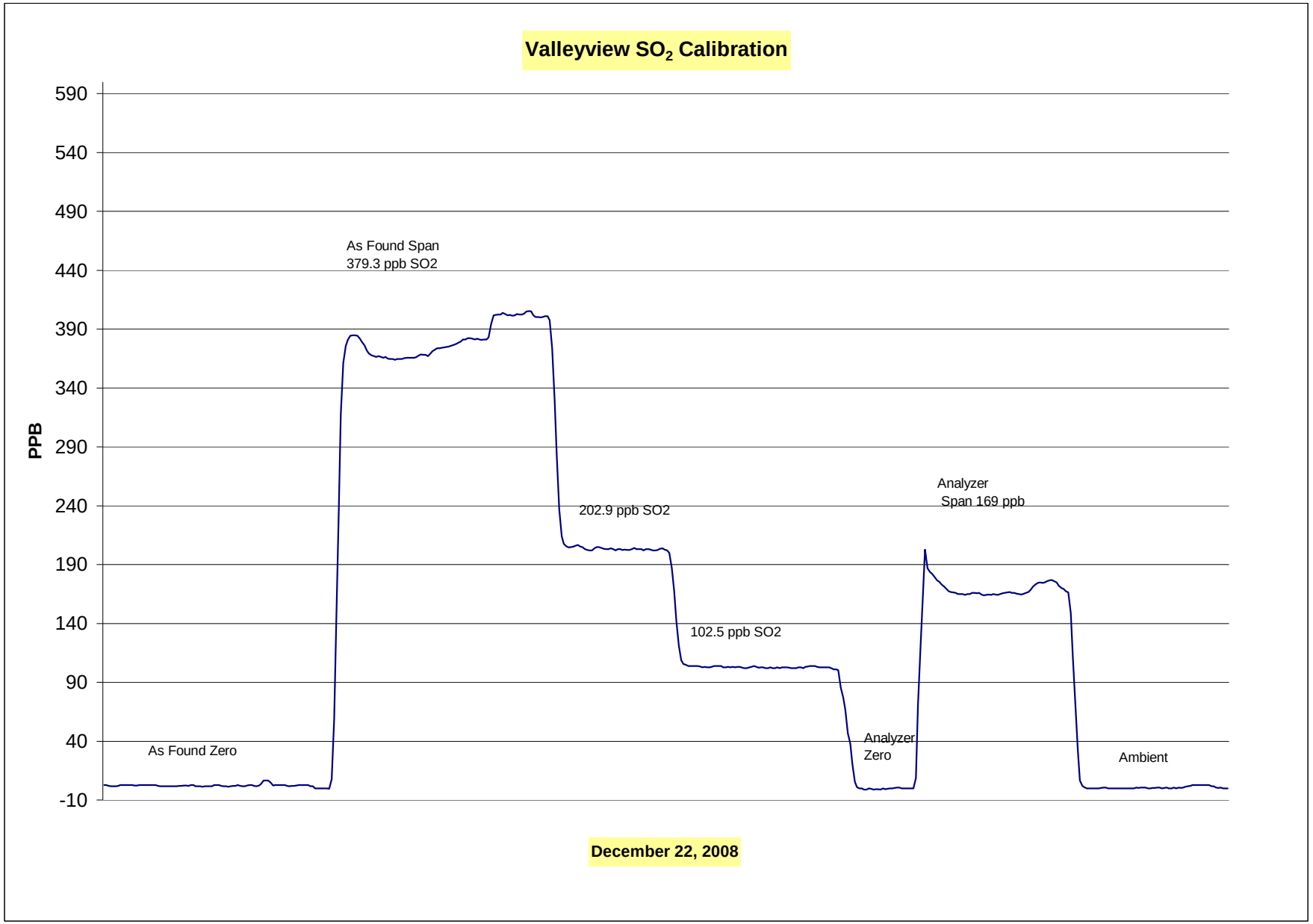
Station Information

Calibration Date	December 22, 2008	Previous Calibration	November 17, 2008
Station Number	6	Station Location	Valleyview
Start Time (MST)	11:00	End Time (MST)	14:59
Analyzer make/model	TEI 45C	Analyzer serial #	43C-57531-313

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.2	N/A		
400.9	401.6	0.9982	Correlation Coefficient	0.999967
201.3	203.0	0.9915		
100.2	102.6	0.9772	Slope	0.999927
			Intercept	-1.222394




Valleyview SO_2 Calibration
590
540
490
440
390
340
290
240
190
140
90
40
-10
PPB
As Found Span
379.3 ppb SO2
202.9 ppb SO2
102.5 ppb SO2
Analyzer
Span 169 ppb
As Found Zero
Analyzer
Zero
Ambient
December 22, 2008

Calibration Report

Parameter	H_2S
Air Monitoring Network	**PASZA**

FOCUS AIR QUALITY MONITORING

Station Information

Calibration Date	December 22, 2008	Previous Calibration	November 17, 2008
Station Number	5	Station Location	Valleyview
Reason:	Routine / Install	Removal	Other:
Start Time (MST)	10:50	End Time (MST)	16:00
Barometric Pressure	27.16 inches Hg	Station Temperature	23.0 Deg C
Calibrator	Environics 6100	Serial Number	3474
Cal Gas Concentration	5.1 ppm	Cal Gas Expiry Date	4/4/2009
Gas Cert Reference	ALM013295		
DACS make	Focus AP1000	DACS serial No.	1
DACS voltage range	0 - 10 volt	DACS channel #	9
	Before		After
DACS Scale High	100	DACS slope	100
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.024084	Calculated slope	0.999518
Calculated intercept	-0.148265	Calculated intercept	-0.183146
Analyzer make	TEI Model 43A	Analyzer serial #	43A-25575-221

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Back Ground	4.6	ppb	4.9	ppb
Coefficient	1.026		1.070	
Lamp Voltage	797	V	798	V
Chamber Temp	45	c	45	c
Perm Oven Temp	45.01	c	45	c
Pressure	646	mm Hg	641	mm Hg
Sample Flow	.448	ccm	.446	ccm
Lamp Intensity	91.0	%	90.0	%

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4988	0.00	0.0	0.2	N/A
4989	79.74	80.2	80.6	0.9956
4988	39.88	40.5	40.3	1.0026
4988	9.93	10.1	10.5	0.9687
4988	0.00	0.0	0.9	As found zero
4988	79.81	80.3	76.0	As found span
			Average Correction Factor	0.9890

Calculated value of As Found Response: 76.86 ppm Percent Change of As Found: 4.3%

	before calibration		after calibration	
Auto zero	-0.1	ppm	0.1	ppm
Auto span	65.0	ppm	61.8	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter	H_2S
Air Monitoring Network	PASZA

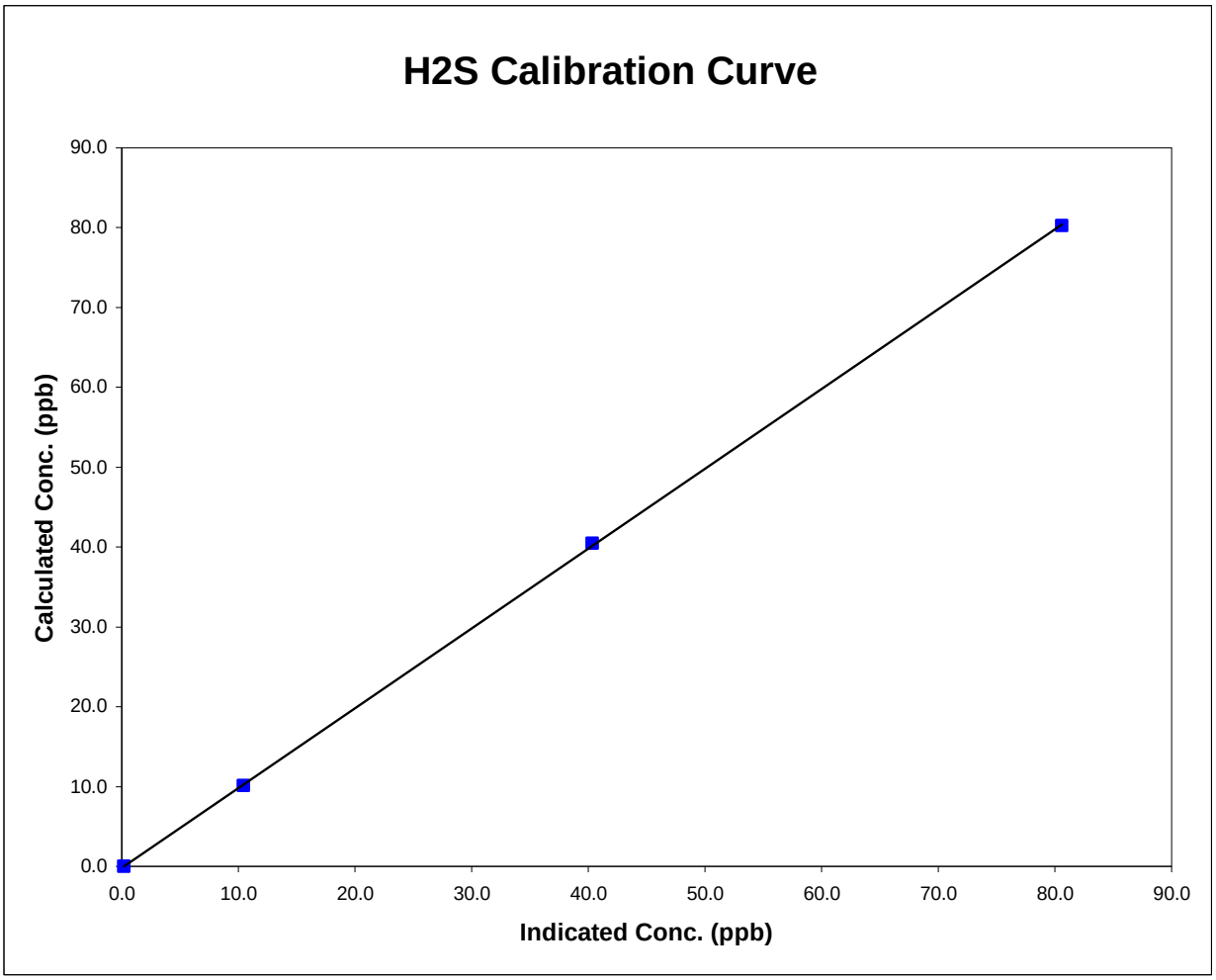
FOCUS AIR QUALITY MONITORING

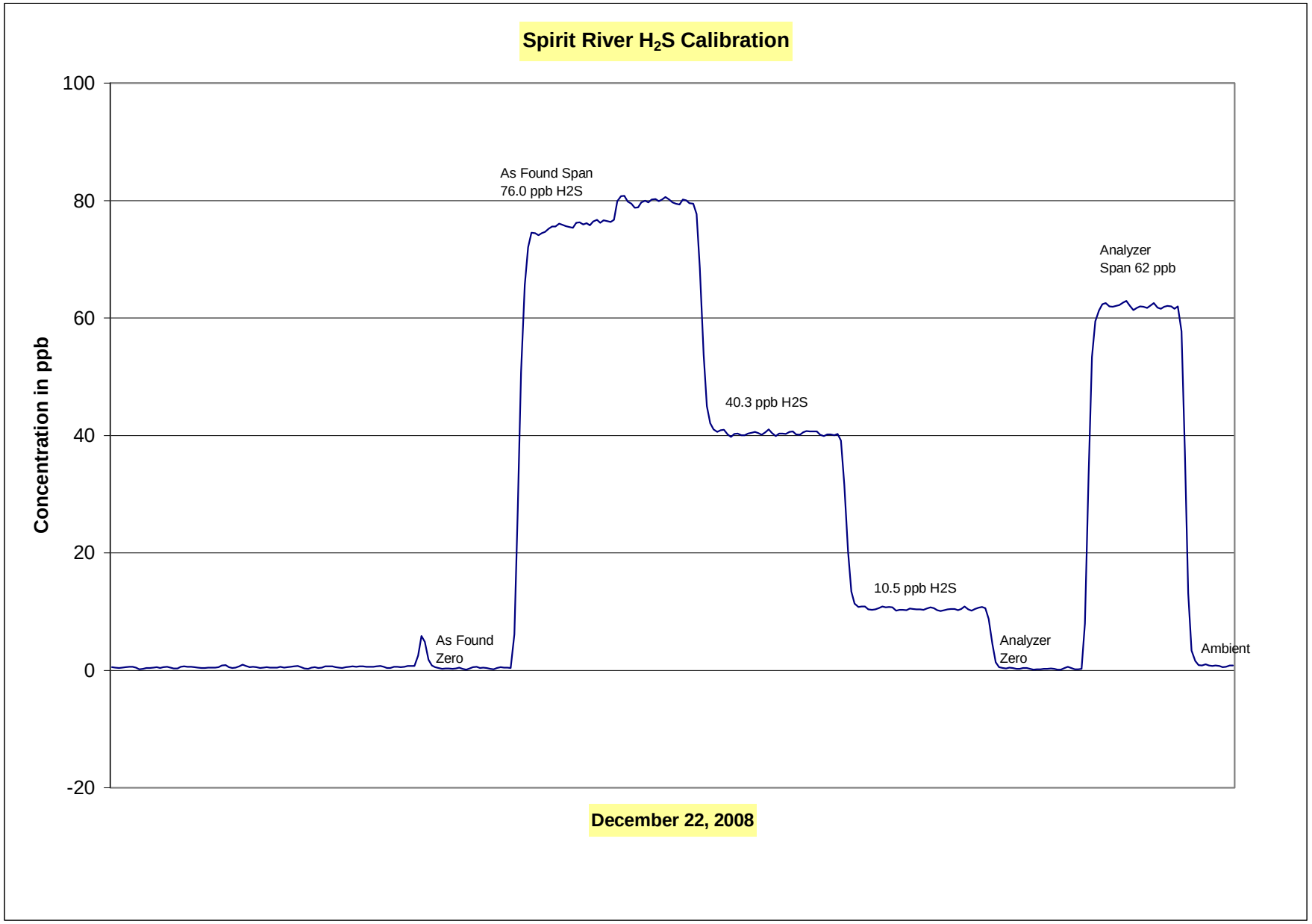
Station Information

Calibration Date	December 22, 2008	Previous Calibration	November 17, 2008
Station Number	5	Station Location	Valleyview
Start Time (MST)	10:50	End Time (MST)	16:00
Analyzer make/model	TEI Model 43A	Analyzer serial #	43A-25575-221

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.2	N/A		
80.2	80.6	0.9956	Correlation Coefficient	0.999966
40.5	40.3	1.0026		
10.1	10.5	0.9687	Slope	0.999518
			Intercept	-0.183146




Spirit River H_2S Calibration
100
80
60
40
20
0
-20
Concentration in ppb
As Found Span
76.0 ppb H2S
40.3 ppb H2S
10.5 ppb H2S
Analyzer
Span 62 ppb
As Found
Zero
Analyzer
Zero
Ambient
December 22, 2008